

Windows Protocols Errata

This topic lists the Errata found in the Windows Protocols Technical Specifications, Overview Documents, and Reference documents since they were last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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Errata are content issues in published versions of protocols documents that could impact an **implementation**. Examples of errata are errors or missing information in the normative sections of the Technical Specifications or in the use cases (examples) in the Technical Specifications and Overview Documents.

Content issues that don't impact an implementation, for example, editorial updates due to typos, formatting updates, and rewrites for readability and clarity, are **not** included in Errata.

The sections below list the Windows Protocols documents that contain active Errata (i.e., Errata not yet released with the documents on MSDN) and provide links to archived Errata (i.e., Errata already released with the documents on MSDN).

Protocols Documents with Active Errata

[\[MS-ADTS\]: Active Directory Technical Specification](#)

[\[MS-CIFS\]: Common Internet File System \(CIFS\) Protocol](#)

[\[MS-DRSR\]: Directory Replication Service \(DRS\) Remote Protocol](#)

[\[MS-DSCPM\]: Desired State Configuration Pull Model Protocol](#)

[\[MS-DTCO\]: MSDTC Connection Manager: OleTx Transaction Protocol](#)

[\[MS-DTYP\]: Windows Data Types](#)

[\[MS-FSA\]: File System Algorithms](#)

[\[MS-FSCC\]: File System Control Codes](#)

[\[MS-LCID\]: Windows Language Code Identifier \(LCID\) Reference](#)

[\[MS-MDE2\]: Mobile Device Enrollment Protocol Version 2](#)

[\[MS-MDM\]: Mobile Device Management Protocol](#)

[\[MS-MSSOD\]: Media Streaming Server Protocols Overview](#)

[\[MS-NKPU\]: Network Key Protector Unlock Protocol](#)

[\[MS-NMFMB\]: .NET Message Framing MSMQ Binding Protocol](#)

[\[MS-OIDCE\]: OpenID Connect 1.0 Protocol Extensions](#)

[\[MS-OLEDS\]: Object Linking and Embedding \(OLE\) Data Structures](#)

[\[MS-RDPBCGR\]: Remote Desktop Protocol: Basic Connectivity and Graphics Remoting](#)

[\[MS-RDPEDYC\]: Remote Desktop Protocol: Dynamic Channel Virtual Channel Extension](#)

[\[MS-RDPEFS\]: Remote Desktop Protocol: File System Virtual Channel Extension](#)

[\[MS-RPRN\]: Print System Remote Protocol](#)

[\[MS-RSVD\]: Remote Shared Virtual Disk Protocol](#)

[\[MS-SMB\]: Server Message Block \(SMB\) Protocol](#)

[\[MS-SMB2\]: Server Message Block \(SMB\) Protocol Versions 2 and 3](#)

[\[MS-TDS\]: Tabular Data Stream Protocol](#)

[\[MS-TSGU\]: Terminal Services Gateway Server Protocol](#)

[\[MS-WSMV\]: Web Services Management Protocol Extensions for Windows Vista](#)

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Last date updated: November 27, 2017

[MC-DTCXA]: MSDTC Connection Manager OleTx XA Protocol

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[MC-PRCR]: Peer Channel Custom Resolver Protocol

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[MS-ABTP]: Automatic Bluetooth Pairing Protocol

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[MS-ADA2]: Active Directory Schema Attributes M

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[MS-ADA3]: Active Directory Schema Attributes N-Z

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[MS-ADDM]: Active Directory Web Services: Data Model and Common Elements

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[MS-ADFSOAL]: Active Directory Federation Services OAuth Authorization Code Lookup Protocol

This topic lists the Errata found in [MS-ADFSOAL] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-ADFSPiP]: Active Directory Federation Services and Proxy Integration Protocol

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[MS-ADFSWAP]: Active Directory Federation Service (AD FS) Web Agent Protocol

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[MS-ADLS]: Active Directory Lightweight Directory Services Schema

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[MS-ADSC]: Active Directory Schema Classes

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[MS-ADTS]: Active Directory Technical Specification

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Errata below are for Protocol Document Version [V46.0 - 2017/09/15](#).

Errata Published*	Description
2017/10/30	<p>Sections in this document were updated to include a normative description of the functional levels requirements.</p> <p>In Section 6.1, Special Objects and Forest Requirements, modified the content to show that the section is not all inclusive.</p> <p>Changed from:</p> <p>This section specifies the objects that are necessary for the proper functioning of the DCs in a forest and the requirements that govern the state of these objects.</p> <p>...</p> <p>Changed to:</p> <p>This section specifies some of the objects that are necessary for the proper functioning of the DCs in a forest and the requirements that govern the state of these objects. Newer implementations of applicable Windows Server releases might depend on additional objects that are added to the forest via an implementation-specific upgrade process.</p> <p>...</p> <p>Added a new section, 6.1.1.2.4.2, Claims Configuration:</p> <p>6.1.1.2.4.2 Claims Configuration name: Claims Configuration parent: Services objectClass: container Section 3.1.1.11 specifies additional information on how this container is used.</p>

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[MS-AIPS]: Authenticated Internet Protocol

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[MS-APDS]: Authentication Protocol Domain Support

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[MS-AZOD]: Authorization Protocols Overview

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[MS-BKRP]: BackupKey Remote Protocol

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[MS-CAPR]: Central Access Policy Identifier (ID) Retrieval Protocol

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[MS-CDP]: Connected Devices Platform Protocol Version 3

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[MS-CHAP]: Extensible Authentication Protocol Method for Microsoft Challenge Handshake Authentication Protocol (CHAP)

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[MS-CFB]: Compound File Binary File Format

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[MS-CIFS]: Common Internet File System (CIFS) Protocol

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Errata below are for Protocol Document Version [V27.0 - 2017/09/15](#).

Errata Published*	Description
2017/11/27	<p>In Section 2.2.4.53.2, Response, changed from:</p> <p>...</p> <p>PrimaryDomain (variable): A string representing the primary domain or workgroup name of the server. If SMB_FLAGS2_UNICODE is set in the Flags2 field of the SMB header of the response, the string MUST be a null-terminated array of 16-bit Unicode characters. Otherwise, the string MUST be a null-terminated array of OEM characters. If the string consists of Unicode characters, this field MUST be aligned to start on a 2-byte boundary from the start of the SMB header.<104></p> <p><104> Section 2.2.4.53.2: Windows clients ignore the PrimaryDomain field in the server response.</p> <p>Changed to:</p> <p>...</p> <p>PrimaryDomain (variable): A string representing the primary domain or workgroup name of the server. If SMB_FLAGS2_UNICODE is set in the Flags2 field of the SMB header of the response, the string MUST be a null-terminated array of 16-bit Unicode characters. Otherwise, the string MUST be a null-terminated array of OEM characters. If the string consists of Unicode characters, this field MUST be aligned to start on a 2-byte boundary from the start of the SMB header.<104><105></p> <p><104> Section 2.2.4.53.2: Windows clients ignore the PrimaryDomain field in the server response.</p> <p><105> Section 2.2.4.53.2: Windows - based servers terminate the PrimaryDomain string with a single null byte if the Pad field in the response is not empty.</p>

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[MS-CMRP]: Failover Cluster: Management API (ClusAPI) Protocol

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[MS-COMA]: Component Object Model Plus (COMplus) Remote Administration Protocol

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[MS-CSRA]: Certificate Services Remote Administration Protocol

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[MS-CSSP]: Credential Security Support Provider (CredSSP) Protocol

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[MS-CSVP]: Failover Cluster: Setup and Validation Protocol (ClusPrep)

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[MS-DCOM]: Distributed Component Object Model (DCOM) Remote Protocol

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[MS-DFSC]: Distributed File System (DFS) Referral Protocol

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[MS-DHCPM]: Microsoft Dynamic Host Configuration Protocol (DHCP) Server Management Protocol

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[MS-DNSP]: Domain Name Service (DNS) Server Management Protocol

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[MS-DPWSSN]: Devices Profile for Web Services (DPWS) Size Negotiation Extension

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[MS-DRSR]: Directory Replication Service (DRS) Remote Protocol

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Errata below are for Protocol Document Version [V37.0 - 2017/09/15](#).

Errata Published*	Description
2017/11/13	<p>In Section 5.39, DRS_EXTENSIONS_INT, the description of the PB3 field was changed:</p> <p>Changed from:</p> <p>PB3 (DRS_EXT_POST_BETA3, 0x00080000): Unused. SHOULD be 1 and MUST be ignored.</p> <p>Changed to:</p> <p>PB3 (DRS_EXT_POST_BETA3, 0x00080000): Reserved. MUST be set to 1 and ignored.</p>
2017/10/02	<p>In Section 5.1, AbstractPTFromConcretePT, updated the pseudocode by removing the unused schemaSignature definition.</p> <p>Changed from:</p> <pre>prefixTable: PrefixTable schemaSignature: sequence of BYTE i: DWORD for i := 0 to (concretePrefixTable.PrefixCount - 1) prefixTable[i].prefixString := concretePrefixTable.pPrefixTableEntry[i].prefix prefixTable[i].prefixIndex := concretePrefixTable.pPrefixTableEntry[i].ndx endfor</pre> <p>Changed to:</p>

Errata Published*	Description
	<pre> prefixTable: PrefixTable i: DWORD for i := 0 to (concretePrefixTable.PrefixCount - 1) prefixTable[i].prefixString := concretePrefixTable.pPrefixTableEntry[i].prefix prefixTable[i].prefixIndex := concretePrefixTable.pPrefixTableEntry[i].ndx endfor </pre> <p>In Section 5.28, ConcretePTFromAbstractPT, updated the pseudocode by removing the unused schemaSignature definition.</p> <p>Changed from:</p> <pre> prefixCount: ULONG concretePrefixTable: SCHEMA_PREFIX_TABLE schemaSignature: sequence of BYTE prefixCount := prefixTable.length concretePrefixTable.PrefixCount := prefixCount for i := 0 to (prefixTable.length - 1) concretePrefixTable.pPrefixTableEntry[i].prefix := prefixTable[i].prefixString concretePrefixTable.pPrefixTableEntry[i].ndx := prefixTable[i].prefixIndex endfor </pre> <p>Changed to:</p> <pre> prefixCount: ULONG concretePrefixTable: SCHEMA PREFIX TABLE prefixCount := prefixTable.length concretePrefixTable.PrefixCount := prefixCount for i := 0 to (prefixTable.length - 1) concretePrefixTable.pPrefixTableEntry[i].prefix := prefixTable[i].prefixString concretePrefixTable.pPrefixTableEntry[i].ndx := prefixTable[i].prefixIndex endfor </pre>

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[MS-DTCO]: MSDTC Connection Manager: OleTx Transaction Protocol

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Errata Published*	Description																																																																																																																																										
2017/11/13	<p>Added content to previously empty Section 2.2.7.2, DTCADVCONFIG.</p> <p>Changed from:</p> <p>2.2.7.2 DTCADVCONFIG <Empty></p> <p>Changed to:</p> <p>2.2.7.2 DTCADVCONFIG These flags indicate the remote communications that are enabled for a transaction manager protocol.</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> <td>1</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> <td>2</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> <td>3</td><td>0</td><td>1</td> </tr> <tr> <td colspan="30">DTCADVCONFIG</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> <td>1</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> <td>2</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> <td>3</td><td>0</td><td>1</td> </tr> <tr> <td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td><td>J</td><td>X</td> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td> <td>X</td><td>X</td> </tr> </table> <p>Marker Bits</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>DTCADVCONFIG_NETWORKDTCACCESS_ENABLE This bit corresponds to the Allow Network Access flag maintained by the Core Transaction Manager Facet (section 1.3.3.3.1), as defined in Core Transaction</td> </tr> </tbody> </table>	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	DTCADVCONFIG																														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	A	B	C	D	E	F	G	H	J	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Value	Description	A	DTCADVCONFIG_NETWORKDTCACCESS_ENABLE This bit corresponds to the Allow Network Access flag maintained by the Core Transaction Manager Facet (section 1.3.3.3.1), as defined in Core Transaction
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Errata Published*	Description	
		Manager Facet Details (section 3.2).
B		DTCADVCONFIG_NETWORKDTCACCESS_ADMIN This bit corresponds to the Allow Remote Administration flag maintained by the Core Transaction Manager Facet (section 1.3.3.3.1), as defined in Core Transaction Manager Facet Details (section 3.2).
C		DTCADVCONFIG_NETWORKDTCACCESS_TX This bit corresponds to the Allow Network Transactions flag maintained by the Core Transaction Manager Facet (section 1.3.3.3.1), as defined in Core Transaction Manager Facet Details (section 3.2).
D		DTCADVCONFIG_NETWORKDTCACCESS_CLIENTS This bit corresponds to the Allow Remote Clients flag maintained by the Core Transaction Manager Facet (section 1.3.3.3.1), as defined in Core Transaction Manager Facet Details (section 3.2).
E		DTCADVCONFIG_NETWORKDTCACCESS_TIP This bit corresponds to the Allow TIP flag maintained by the Core Transaction Manager Facet (section 1.3.3.3.1) as defined in Core Transaction Manager Facet Details (section 3.2).
F		DTCADVCONFIG_OUTBOUNDNETWORK_TX This bit corresponds to the Allow Outbound Transactions flag maintained by the Core Transaction Manager Facet (section 1.3.3.3.1) as defined in Core Transaction Manager Facet Details (section 3.2).
G		DTCADVCONFIG_INBOUNDNETWORK_TX This bit corresponds to the Allow Inbound Transactions flag maintained by the Core Transaction Manager Facet (section 1.3.3.3.1) as defined in Core Transaction Manager Facet Details (section 3.2).
H		DTCADVCONFIG_SECURITYLEVEL_NOSECURITY This bit MUST be ignored if either DTCADVCONFIG_SECURITYLEVEL_AUTHENTICATEDONLY or DTCADVCONFIG_SECURITYLEVEL_MUTUALAUTH is set. Otherwise setting this bit corresponds to the No Security value of the Security Level enumeration maintained by the Core Transaction Manager Facet (section 1.3.3.3.1) as defined in Core Transaction Manager Facet Details (section 3.2).
I		DTCADVCONFIG_SECURITYLEVEL_AUTHENTICATEDONLY This bit MUST be ignored if DTCADVCONFIG_SECURITYLEVEL_MUTUALAUTH is set. Otherwise setting this bit corresponds to the Incoming Authentication value of the Security Level enumeration maintained by the Core Transaction Manager Facet (section 1.3.3.3.1) as defined in Core Transaction Manager Facet Details (section 3.2).
J		DTCADVCONFIG_SECURITYLEVEL_MUTUALAUTH This bit corresponds to the Mutual Authentication value of the Security Level enumeration maintained by the Core Transaction Manager Facet (section 1.3.3.3.1) as defined in Core Transaction Manager Facet Details

Errata Published*	Description	
		(section 3.2).
	X	SHOULD be set to zero and MUST be ignored when read.
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*Date format: YYYY/MM/DD

[MS-DSCPM]: Desired State Configuration Pull Model Protocol

This topic lists the Errata found in the MS-DSCPM document since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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Errata Published*	Description
2017/11/27	<p>In Section 2.2.2.2, Checksum, the value that is passed if a Checksum is not available was changed from a Null Character to an empty string "" and the example to show a BASE16 character string was updated.</p> <p>Changed from:</p> <p>The Checksum header field is defined only for use in a response message sent to a client as part of a GET request for the module and configuration. Checksum = "Checksum" : DQUOTE Check-sumvalue DQUOTE CRLF Check-sumvalue = BASE16 ; specified in [RFC4648] / 0x00 (Null Character)</p> <p>Example: "Checksum":"8eDMbsSDig15Xx+B3msvRrDa5N1njaf5smVujQjhOeI="</p> <p>"Checksum": ""</p> <p>Changed to:</p> <p>The Checksum header field is defined only for use in a response message sent to a client as part of a GET request for the module and configuration. Checksum = "Checksum" : Check-SumValue CRLF Check-SumValue = DQUOTE check-basevalue DQUOTE/ DQUOTE DQUOTE Check-basevalue = BASE16 ; specified in [RFC4648] / "" (Empty String)</p> <p>Example: "Checksum":"ef52442708671f7af8dc5a1fc444a601fa25d8290d6b91cda945427b26e07a15"</p> <p>"Checksum": ""</p>

*Date format: YYYY/MM/DD

[MS-DTYP]: Windows Data Types

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2017/10/16	<p>In Section 2.4.6, Security Descriptor, the order of the SS and DT control bit flags have been reversed, to match the actual observed behavior.</p> <p>Changed from:</p> <table border="1"> <thead> <tr> <th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>1</th><th></th><th></th><th></th><th></th><th></th> </tr> <tr> <th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th> </tr> </thead> <tbody> <tr> <td>S</td><td>R</td><td>P</td><td>P</td><td>S</td><td>D</td><td>S</td><td>D</td><td>D</td><td>S</td><td>S</td><td>S</td><td>D</td><td>D</td><td>G</td><td>O</td> </tr> <tr> <td>R</td><td>M</td><td>S</td><td>D</td><td>I</td><td>I</td><td>C</td><td>C</td><td>T</td><td>S</td><td>D</td><td>P</td><td>D</td><td>P</td><td>D</td><td>D</td> </tr> </tbody> </table> <p>Changed to:</p> <table border="1"> <thead> <tr> <th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>1</th><th></th><th></th><th></th><th></th><th></th> </tr> <tr> <th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th> </tr> </thead> <tbody> <tr> <td>S</td><td>R</td><td>P</td><td>P</td><td>S</td><td>D</td><td>S</td><td>D</td><td>S</td><td>D</td><td>S</td><td>S</td><td>D</td><td>D</td><td>G</td><td>O</td> </tr> <tr> <td>R</td><td>M</td><td>S</td><td>D</td><td>I</td><td>I</td><td>C</td><td>C</td><td>S</td><td>T</td><td>D</td><td>P</td><td>D</td><td>P</td><td>D</td><td>D</td> </tr> </tbody> </table>											1						0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	S	R	P	P	S	D	S	D	D	S	S	S	D	D	G	O	R	M	S	D	I	I	C	C	T	S	D	P	D	P	D	D											1						0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	S	R	P	P	S	D	S	D	S	D	S	S	D	D	G	O	R	M	S	D	I	I	C	C	S	T	D	P	D	P	D	D
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[MS-DVRD]: Device Registration Discovery Protocol

This topic lists the Errata found in [MS-DVRD] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-DVRE]: Device Registration Enrollment Protocol

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[MS-DVRJ]: Device Registration Join Protocol

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[MS-ECS]: Enterprise Client Synchronization Protocol

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[MS-EFSR]: Encrypting File System Remote (EFSRPC) Protocol

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[MS-EMF]: Enhanced Metafile Format

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[MS-EMFPLUS]: Enhanced Metafile Format Plus Extensions

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[MS-ERREF]: Windows Error Codes

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[MS-EVEN]: EventLog Remoting Protocol

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[MS-FASP]: Firewall and Advanced Security Protocol

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[MS-FRS2]: Distributed File System Replication Protocol

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[MS-FSA]: File System Algorithms

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Errata below are for Protocol Document Version [V25.0 - 2017/09/15](#).

Errata Published*	Description
2017/11/27	<p>In Section 2.1.4.12, Algorithm to Check for an Oplock Break, the EndCase statement was removed from the Case (LEVEL_TWO_OPLOCK READ_CACHING) block.</p> <p>Changed from:</p> <pre>... If Oplock.State equals (READ_CACHING HANDLE_CACHING MIXED_R_AND_RH): // Do nothing; FALL THROUGH to next Case statement. Else Recompute Oplock.State according to the algorithm in section 2.1.4.13, passing Oplock as the ThisOplock parameter. EndCase EndIf EndCase Case (READ_CACHING HANDLE_CACHING):</pre> <p>Changed to:</p> <pre>... If Oplock.State equals (READ_CACHING HANDLE_CACHING MIXED_R_AND_RH): // Do nothing; FALL THROUGH to next Case statement. Else Recompute Oplock.State according to the algorithm in section 2.1.4.13, passing Oplock as the ThisOplock parameter. EndCase EndIf</pre>

Errata Published*	Description
	Case (READ_CACHING HANDLE_CACHING):
2017/11/27	<p>In Section 2.1.4.12, Algorithm to Check for an Oplock Break, the following was changed from:</p> <p>...</p> <p>(Oplock.RHBreakQueue is empty) and</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>(Oplock.RHBreakQueue is not empty) and</p> <p>...</p>
2017/10/30	<p>In Section 2.1.4.13, Algorithm to Recompute the State of a Shared Oplock, the following was changed from:</p> <p>// ThisOplock.RHBreakQueue MUST be non-empty by this point.</p> <p>Changed to:</p> <p>// ThisOplock.ROplocks is empty</p> <p>// ThisOplock.RHOplocks is empty</p> <p>// ThisOplock.RHBreakQueue MUST be non-empty</p>
2017/10/30	<p>In Section 2.1.5.17.2, Algorithm to Request a Shared Oplock, added a new bullet point.</p> <p>Changed from:</p> <p>...</p> <ul style="list-style-type: none"> • If there is an Open ThisOpen on Open.Stream.Oplock.RHOplocks whose TargetOplockKey is equal to Open.TargetOplockKey (there is supposed to be at most one present): <ul style="list-style-type: none"> • Notify the server of an oplock break according to the algorithm in section 2.1.5.17.3, setting the algorithm's parameters as follows: <p>...</p> <p>Changed to:</p> <p>...</p> <ul style="list-style-type: none"> • If there is an Open ThisOpen on Open.Stream.Oplock.RHOplocks whose TargetOplockKey is equal to Open.TargetOplockKey (there is supposed to be at most one present): <ul style="list-style-type: none"> • Remove ThisOpen from Open.Stream.Oplocks.RHOplocks. • Notify the server of an oplock break according to the algorithm in section 2.1.5.17.3, setting the algorithm's parameters as follows: <p>...</p>
2017/10/30	<p>In Section 2.1.4.12, Algorithm to Check for an Oplock Break, all instances of BreakCacheLevel have been changed to BreakCacheState.</p>

Errata Published*	Description
2017/10/30	<p>In Section 2.1.5.1, Server Requests an Open of a File, the following has been changed from:</p> <ul style="list-style-type: none"> • If StreamTypeNameToOpen is non-empty and has a value other than "\$DATA" or "\$INDEX_ALLOCATION", the operation MUST be failed with STATUS_ACCESS_DENIED. <p>Changed to:</p> <ul style="list-style-type: none"> • If StreamTypeNameToOpen is non-empty and has a value other than "\$DATA" or "\$INDEX_ALLOCATION", the operation MUST be failed with STATUS_OBJECT_NAME_INVALID.
2017/10/30	<p>In Section 2.1.5.1, Server Requests an Open of a File, the following has been changed from:</p> <ul style="list-style-type: none"> • If StreamTypeNameToOpen is "\$INDEX_ALLOCATION" and StreamNameToOpen has a value other than an empty stream or "\$I30", the operation MUST be failed with STATUS_INVALID_PARAMETER. <p>Changed to:</p> <ul style="list-style-type: none"> • If StreamTypeNameToOpen is "\$INDEX_ALLOCATION" and StreamNameToOpen has a value other than an empty stream or "\$I30", the operation SHOULD<44> be failed with STATUS_INVALID_PARAMETER. <p><44> Section 2.1.5.1: Only the NTFS and ReFS file systems support complex name suffixes and StreamTypeNames. File systems that do not support this return STATUS_OBJECT_NAME_INVALID.</p>

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[MS-FSCC]: File System Control Codes

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Errata below are for Protocol Document Version [V42.0 - 2017/09/15](#).

Errata Published*	Description
2017/11/27	<p>In Section 2.2, Status Codes, changed from:</p> <p>The reply message for each FSCTL lists the error codes that are directly generated by the function that implements the specified FSCTL. Error codes can also be generated by code below the file system (such as RAID drivers or disk drivers) or above the file system (such as virus scanners).</p> <p>A server SHOULD return a status of STATUS_INVALID_DEVICE_REQUEST when an FSCTL is not supported remotely or is not supported on the file system on which the file or directory handle specified by the FSCTL exists.<10><11></p> <p>Changed to:</p> <p>The reply message lists the common error codes that are directly generated by the function. Error codes can also be generated by code below the file system (such as RAID drivers or disk drivers) or above the file system (such as virus scanners).</p> <p>A server SHOULD return a status of STATUS_INVALID_DEVICE_REQUEST when a message is not supported remotely or is not supported on the file system on which the file or directory handle specified exists.<10><11></p> <p>In Section 2.3.76, FSCTL_FILE_LEVEL_TRIM Reply, the following paragraph on return codes was changed from:</p> <p>This message returns a status code as specified in [MS-ERREF] section 2.3. The status code returned directly by the function that processes this FSCTL MUST be STATUS_SUCCESS or one of the following.</p> <p>Changed to:</p>

Errata Published*	Description
	This message returns a status code as specified in [MS-ERREF] section 2.3. The status code returned directly by the function that processes this FSCTL MUST be STATUS_SUCCESS or one of the following.

*Date format: YYYY/MM/DD

[MS-FSRVP]: File Server Remote VSS Protocol

This topic lists the Errata found in the MS-FSRVP document since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-FSVCA]: File Set Version Comparison Algorithms

This topic lists the Errata found in the MS-FSVCA document since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-GPPREF]: Group Policy: Preferences Extension Data Structure

This topic lists the Errata found in [MS-GPPREF] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-GPSB]: Group Policy: Security Protocol Extension

This topic lists the Errata found in [MS-GPSB] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-GPOL]: Group Policy: Core Protocol

This topic lists the Errata found in [MS-GPOL] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-GSSA]: Generic Security Service Algorithm for Secret Key Transaction Authentication for DNS (GSS-TSIG) Protocol Extension

This topic lists the Errata found in the MS-GSSA document since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-HGSA]: Host Guardian Service: Attestation Protocol

This topic lists the Errata found in the MS-GSSA document since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-HTTPE]: Hypertext Transfer Protocol (HTTP) Extensions

This topic lists the Errata found in [MS-HTTPE] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-HVRS]: Hyper-V Remote Storage Profile

This topic lists the Errata found in [MS-HVRS] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-ICPR]: ICertPassage Remote Protocol

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[MS-IKEE]: Internet Key Exchange Protocol Extensions

This topic lists the Errata found in the MS-IKEE document since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-IPAMM2]: IP Address Management (IPAM) Management Protocol Version 2

This topic lists the Errata found in [MS-IPAMM2] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-IRP]: Internet Information Services (IIS) Inetinfo Remote Protocol

This topic lists the Errata found in [MS-IRP] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-KILE]: Kerberos Protocol Extensions

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[MS-KPP]: Key Provisioning Protocol

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[MS-KPS]: Key Protection Service Protocol

This topic lists the Errata found in the MS-KPP document since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-LCID]: Windows Language Code Identifier (LCID) Reference

This topic lists the Errata found in [MS-LCID] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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Errata below are for Protocol Document Version [V10.0 – 2017/09/15](#).

Errata Published*	Description																
2017/10/16	<p>In Section 2.2, LCID Structure, two entries were added to the table of alternate sorting methods.</p> <p>Changed from:</p> <table border="1"><thead><tr><th>LCID</th><th>Language tag (string name)</th></tr></thead><tbody><tr><td>...</td><td>...</td></tr><tr><td>0x00041404<11></td><td>zh-MO_radstr</td></tr></tbody></table> <p>Changed to:</p> <table border="1"><thead><tr><th>LCID</th><th>Language tag (string name)</th></tr></thead><tbody><tr><td>...</td><td>...</td></tr><tr><td>0x00041404<11></td><td>zh-MO_radstr</td></tr><tr><td>0x00050804<12></td><td>zh-CN_phoneb</td></tr><tr><td>0x00051004<13></td><td>zh-SG_phoneb</td></tr></tbody></table> <p><13> Section 2.2: Not supported in Windows NT, Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Windows 7, Windows Server 2008 R2, Windows 8, Windows Server 2012, Windows 8.1, or Windows Server 2012 R2.</p> <p><13> Section 2.2: Not supported in Windows NT, Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Windows 7, Windows Server 2008 R2, Windows 8, Windows Server 2012, Windows 8.1, or Windows Server 2012 R2.</p>	LCID	Language tag (string name)	0x00041404<11>	zh-MO_radstr	LCID	Language tag (string name)	0x00041404<11>	zh-MO_radstr	0x00050804<12>	zh-CN_phoneb	0x00051004<13>	zh-SG_phoneb
LCID	Language tag (string name)																
...	...																
0x00041404<11>	zh-MO_radstr																
LCID	Language tag (string name)																
...	...																
0x00041404<11>	zh-MO_radstr																
0x00050804<12>	zh-CN_phoneb																
0x00051004<13>	zh-SG_phoneb																

*Date format: YYYY/MM/DD

[MS-LSAD]: Local Security Authority (Domain Policy) Remote Protocol

This topic lists the Errata found in [MS-LSAT] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-LSAT]: Local Security Authority (Translation Methods) Remote Protocol

This topic lists the Errata found in [MS-LSAT] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-MDE]: Mobile Device Enrollment Protocol

This topic lists the Errata found in [MS-MDE] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-MDE2]: Mobile Device Enrollment Protocol Version 2

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Errata below are for Protocol Document Version [V2.0 – 2017/09/15](#).

Errata Published*	Description
2017/09/25	<p>In three sections the text has been changed to add normative definitions of these named attributes and their values.</p> <p>In Section 3.4.4.1.1.1.1, RequestSecurityToken using Federated Authentication, changed from:</p> <p>The following eight elements are supported in an implementation-specific manner.<14></p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "Locale".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that specifies the locale of the device.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "HWDevID".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a 64-hex character length UTF-8 string that specifies the hardware device ID.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "BulkAADJ". This attribute will be present only if the enrollment is taking place as part of Bulk Azure Active Directory Join.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and MUST be the literal string "true" indicating that the enrollment is taking place as part of Bulk Azure Active Directory Join.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ZeroTouchProvisioning". This attribute will be present only if the</p>

Errata Published*	Description
	<p>enrollment is taking place on a device registered with Zero Touch Provisioning.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that represents a GUID used by Zero Touch Provisioning.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "UXInitiated".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and MUST be boolean value that indicates whether the enrollment is user initiated from the Settings page.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ExternalMgmtAgentHint".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string the agent uses to give hints the enrollment server may need.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "DomainName".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string specifying the fully qualified domain name, if the device is domain-joined.</p> <p><14> Not supported in Windows 10 v1607 and earlier releases of the Windows 10 operating system. In addition, the values UxInitiated, ExternalMgmtAgentHint, and DomainName are not supported in Windows 10 v1703 operating system and earlier releases of the Windows 10 operating system.</p> <p>Changed to:</p> <p>The following sixteen elements are supported in an implementation-specific manner.<14></p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "Locale".</p> <p>ac:Value: The <ac:Value> element MUST be a child of< ac:AdditionalContext> and the value is a UTF-8 string that specifies the locale of the device.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "HWDevID".</p> <p>ac:Value: The <ac:Value> element MUST be a child of< ac:AdditionalContext> and the value is a 64-hex character length UTF-8 string that specifies the hardware device ID.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "BulkAADJ". This attribute will be present only if the enrollment is taking place as part of Bulk Azure Active Directory Join.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of</p>

Errata Published*	Description
	<p><ac:AdditionalContext> and MUST be the literal string "true" indicating that the enrollment is taking place as part of Bulk Azure Active Directory Join.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ZeroTouchProvisioning". This attribute will be present only if the enrollment is taking place on a device registered with Zero Touch Provisioning.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that represents a GUID used by Zero Touch Provisioning.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "UXInitiated".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and MUST be boolean value that indicates whether the enrollment is user initiated from the Settings page.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ExternalMgmtAgentHint".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string the agent uses to give hints the enrollment server may need.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "DomainName".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string specifying the fully qualified domain name, if the device is domain-joined.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "BootstrapDomainJoin".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and MUST be a boolean value that indicates whether a hint will be sent when attempting to Domain Join during OOBE. The MDM can use this hint to send down any Domain Join information and connectivity profiles to the domain that it needs.</p> <p><14> Not supported in Windows 10 v1607 and earlier releases of the Windows 10 operating system. In addition, the values UxInitiated, ExternalMgmtAgentHint, DomainName, and BootstrapDomainJoin are not supported in Windows 10 v1703 operating system and earlier releases of the Windows 10 operating system.</p> <p>In Section 3.4.4.1.1.1.2, RequestSecurityToken using Certificate Authentication, changed from:</p> <p>The following six elements are supported in an implementation-specific manner.<15></p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "Locale".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that specifies the locale of the device.</p>

Errata Published*	Description
	<p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "HWDevID".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a 64-hex character length UTF-8 string that specifies the hardware device ID.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ZeroTouchProvisioning". This attribute will be present only if the enrollment is taking place on a device registered with Zero Touch Provisioning.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that represents a GUID used by Zero Touch Provisioning.</p> <p><15> Not supported in Windows 10 v1607 and earlier releases of the Windows 10 operating system.</p> <p>Changed to:</p> <p>The following twelve elements are supported in an implementation-specific manner.<15></p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "Locale".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that specifies the locale of the device.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "HWDevID".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a 64-hex character length UTF-8 string that specifies the hardware device ID.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ZeroTouchProvisioning". This attribute will be present only if the enrollment is taking place on a device registered with Zero Touch Provisioning.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that represents a GUID used by Zero Touch Provisioning.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "UXInitiated".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and MUST be boolean value that indicates whether the enrollment is user initiated from the Settings page.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ExternalMgmtAgentHint".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string the agent uses to give hints the enrollment server may need.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "DomainName".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string specifying the fully qualified domain name, if the device is domain-joined.</p> <p><15> Not supported in Windows 10 v1607 and earlier releases of the Windows 10 operating system. In addition, the values UxInitiated, ExternalMgmtAgentHint, and DomainName are not supported in Windows 10 v1703 operating system and earlier releases of the Windows 10 operating system.</p>

Errata Published*	Description
	<p>In Section 3.4.4.1.1.1.3, RequestSecurityToken using On-Premise Authentication, changed from:</p> <p>The following eight elements are supported in an implementation-specific manner.<16></p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "Locale".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that specifies the locale of the device.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "HWDevID".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a 64 hex character length UTF-8 string that specifies the hardware device ID.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "BulkAADJ". This attribute will be present only if the enrollment is taking place as part of Bulk Azure Active Directory Join.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and MUST be the literal string "true" indicating that the enrollment is taking place as part of Bulk Azure Active Directory Join.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ZeroTouchProvisioning". This attribute will be present only if the enrollment is taking place on a device registered with Zero Touch Provisioning.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that represents a GUID used by Zero Touch Provisioning.</p> <p><16> Not supported in Windows 10 v1607 and earlier releases of the Windows 10 operating system.</p> <p>Changed to:</p> <p>The following twelve elements are supported in an implementation-specific manner.<16></p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "Locale".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that specifies the locale of the device.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "HWDevID".</p> <p>ac:Value: The <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a 64 hex character length UTF-8 string that specifies the hardware device ID.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ZeroTouchProvisioning". This attribute will be present only if the enrollment is taking place on a device registered with Zero Touch Provisioning.</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string that represents a GUID used by Zero Touch Provisioning.</p>

Errata Published*	Description
	<p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "UXInitiated".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and MUST be boolean value that indicates whether the enrollment is user initiated from the Settings page.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "ExternalMgmtAgentHint".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string the agent uses to give hints the enrollment server may need.</p> <p>ac:ContextItem/attributes/Name: The <ac:ContextItem> Name attribute MUST be the literal string "DomainName".</p> <p>ac:Value: If included, this <ac:Value> element MUST be a child of <ac:AdditionalContext> and the value is a UTF-8 string specifying the fully qualified domain name, if the device is domain-joined.</p> <p><16> Not supported in Windows 10 v1607 and earlier releases of the Windows 10 operating system. In addition, the values UxInitiated, ExternalMgmtAgentHint, and DomainName are not supported in Windows 10 v1703 operating system and earlier releases of the Windows 10 operating system.</p>

*Date format: YYYY/MM/D

[MS-MDM]: Mobile Device Management Protocol

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Errata below are for Protocol Document Version [V7.0 - 2017/09/15](#).

Errata Published*	Description
2017/11/27	<p>In Section 2.2.3.6, MsgID, a spelling error in the syntax end tag was corrected.</p> <p>Changed from:</p> <pre><MsgID>(#PCDATA)/MsdID></pre> <p>Changed to:</p> <pre><MsgID>(#PCDATA)/MsgID></pre>

*Date format: YYYY/MM/DD

[MS-MSSOD]: Media Streaming Server Protocols Overview

This topic lists the Errata found in [MS-MSSOD] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



Errata are subject to the same terms as the Open Specifications documentation referenced.

Errata below are for Protocol Document Version [V41.0 - 2017/06/01](#).

Errata Published*	Description						
2017/07/12	<p>In Section 2.6, Versioning, Capability Negotiation, and Extensibility, the client availability table for operating system versions was updated to change instances of Windows 2000 Server to Windows 2000 Professional and to use a different format (“... and later.”) for denoting a sequence of operating system versions.</p> <p>In Section 4, Microsoft Implementations, the product applicability list was updated.</p> <p>Changed from:</p> <p>The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:</p> <ul style="list-style-type: none"> Windows 2000 operating system Windows 2000 Server operating system Windows 2000 Advanced Server operating system Windows XP operating system Windows Server 2003 operating system Windows Server 2003 R2 operating system Windows Vista operating system Windows Server 2008 operating system Windows 7 operating system Windows Server 2008 R2 operating system Windows 8 operating system Windows Server 2012 operating system Windows 8.1 operating system Windows Server 2012 R2 operating system Windows 10 operating system Windows Server 2016 operating system <p>Changed to:</p> <p>The following table describes the availability of the client role of the specified protocols on a given client operating system version.</p> <table border="1" data-bbox="506 1577 1430 1814"> <thead> <tr> <th data-bbox="506 1577 971 1627">Protocols implemented</th> <th data-bbox="971 1577 1430 1627">Operating system versions</th> </tr> </thead> <tbody> <tr> <td data-bbox="506 1627 971 1738">Microsoft Media Server (MMS) Protocol [MS-MMSP]</td> <td data-bbox="971 1627 1430 1738">Windows 2000 Professional operating system Windows XP operating system</td> </tr> <tr> <td data-bbox="506 1738 971 1814">Real-Time Streaming Protocol (RTSP) Windows Media Extensions [MS-RTSP]</td> <td data-bbox="971 1738 1430 1814">Windows XP and later</td> </tr> </tbody> </table>	Protocols implemented	Operating system versions	Microsoft Media Server (MMS) Protocol [MS-MMSP]	Windows 2000 Professional operating system Windows XP operating system	Real-Time Streaming Protocol (RTSP) Windows Media Extensions [MS-RTSP]	Windows XP and later
Protocols implemented	Operating system versions						
Microsoft Media Server (MMS) Protocol [MS-MMSP]	Windows 2000 Professional operating system Windows XP operating system						
Real-Time Streaming Protocol (RTSP) Windows Media Extensions [MS-RTSP]	Windows XP and later						

Errata Published*	Description	
	Windows Media HTTP Streaming Protocol [MS-WMSP]	Windows 2000 Professional and later
	Media Stream Broadcast (MSB) Protocol [MS-MSB]	Windows 2000 Professional and later
	Media Stream Broadcast Distribution (MSBD) Protocol [MS-MSBD]	Windows 2000 Professional Windows XP

*Date format: YYYY/MM/DD

[MS-MWBE]: Microsoft Web Browser Federated Sign-On Protocol Extensions

This topic lists the Errata found in [MS-MWBE] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-MWBF]: Microsoft Web Browser Federated Sign-On Protocol

This topic lists the Errata found in [MS-MWBF] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-NCT]: Network Cost Transfer Protocol

This topic lists the Errata found in the MS-NCT document since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-NFPB]: Near Field Proximity Bidirectional Services Protocol

This topic lists the Errata found in [MS-NFPB] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-NFPS]: Near Field Proximity Sharing Protocol

This topic lists the Errata found in [MS-NFPS] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-NKPU]: Network Key Protector Unlock Protocol

This topic lists the Errata found in [MS-NKPU] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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Errata below are for Protocol Document Version [V7.0 – 2017/09/15](#).

Errata Published*	Description
2017/10/02	<p>In Section 2.2.1.2, DHCPv6 Vendor Specific Information Option Structure, updated the Option-Len and Option-Data field definitions.</p> <p>Changed from:</p> <p>...</p> <p>Encrypted Buffer Suboption: Opt-Code (2 bytes): This field MUST be set to 2 (0x0002).</p> <p>Option-Len (2 bytes): In the client request, this field MUST be set to 256 (0x0100), which is the length of the KP ADM element data. In the server response, this field MUST be set to 32 (0x20), which is the length of the CK ADM element data encrypted with the SK ADM element content.</p> <p>Option-Data: In a client request, this field contains the KP ADM element data. In a server response, this field contains the CK ADM element data that is encrypted with the SK ADM element content by using the AES-CCM [FIPS197] [RFC3610] mode of encryption without authentication data and 16 bytes of MAC that precedes 32 bytes of encrypted result. The nonce used is 12 bytes, all zeros, and is not transmitted.</p> <p>Changed to:</p> <p>...</p> <p>Encrypted Buffer Suboption: Opt-Code (2 bytes): This field MUST be set to 2 (0x0002).</p> <p>Option-Len (2 bytes): In the client request, this field MUST be set to 256 (0x0100), which is the length of the KP ADM element data as specified in section 3.1.1. In the server response, this field MUST be set to the length of the KPR ADM element as specified in section 3.2.1.</p> <p>Option-Data: In a client request, this field contains the KP ADM element data. In a server response, this field contains the KPR ADM element.</p> <p>In Section 2.2.1.4, DHCPv4 Vendor Specific Information Option Structure, updated the Suboption Length and Suboption Data field definitions.</p> <p>Changed from:</p> <p>...</p> <p>Encrypted Buffer Suboption:</p> <p>Suboption Code (1 byte): This field MUST be set to 2 (0x02).</p> <p>Suboption Length (1 byte): In the client request, this field MUST be set to 128 (0x80), which is half the length of the KP ADM element data. In the server response, this field</p>

Errata Published*	Description
	<p>MUST be set to 32 (0x20), which is the length of the CK ADM element data encrypted with the SK ADM element content.</p> <p>Suboption Data: In a client request, this field contains the first 128 bytes of the KP ADM element data. In a server response, this field contains the CK ADM element data that is encrypted with the SK ADM element data by using the AES-CCM [FIPS197] [RFC3610] mode of encryption without authentication data and 16 bytes of MAC that precedes 32 bytes of encrypted result. The nonce used is 12 bytes, all zeros, and is not transmitted.</p> <p>Changed to:</p> <p>...</p> <p>Encrypted Buffer Suboption:</p> <p>Suboption Code (1 byte): This field MUST be set to 2 (0x02).</p> <p>Suboption Length (1 byte): In the client request, this field MUST be set to 128 (0x80), which is half the length of the KP ADM element data as specified in section 3.1.1. In the server response, this field MUST be set to the length of the KPR ADM element as specified in section 3.2.1.</p> <p>Suboption Data: In a client request, this field contains the first 128 bytes of the KP ADM element data. In a server response, this field contains the KPR ADM element.</p> <p>In Section 3.1.1, Abstract Data Model, updated the definition of the Client Key (CK) ADM element.</p> <p>Changed from:</p> <p>...</p> <p>NKPU clients also maintain the following state:</p> <p>Client Key (CK): This is the key that the client expects the server to return in this protocol. It is RSA-encrypted [RFC3447] with the PK ADM element content in the KP ADM element data that is sent to the server in the NKPU client request, and is AES-CCM [FIPS197] [RFC3610] encrypted with the 256-bit SK ADM element content in the server response received by the client.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>NKPU clients also maintain the following state:</p> <p>Client Key (CK): The key data that the client sends to the server in the KP ADM element and expects the server to return in the KPR ADM element (section 3.2.1). It is RSA-encrypted [RFC3447] with the PK ADM element content in the KP ADM element data that is sent to the server in the NKPU client request, and is AES-CCM [FIPS197] [RFC3610] encrypted with the 256-bit SK ADM element content in the KPR server response received by the client.</p> <p>...</p> <p>In Section 3.2.1, Abstract Data Model, added the definition for the Key Protector Response (KPR) ADM element.</p> <p>Changed from:</p> <p>...</p> <p>NKPU servers also maintain the following state:</p> <p>Public Key (PK): As defined in section 3.1.1.</p> <p>...</p>

Errata Published*	Description
	<p>Changed to:</p> <p>...</p> <p>NKPU servers also maintain the following state:</p> <p>Key Protector Response (KPR): The key data that the server returns to the client, encrypted with the SK ADM element (section 3.1.1) content by using the AES-CCM [FIPS197], [RFC3610], mode of encryption. The server uses AES-CCM to encrypt the concatenation of an implementation-specific<2> header and the CK ADM element (section 3.1.1) and to produce the MAC. When calling AES-CCM, there is no authentication data and the nonce used is 12 bytes, all zeros, and is not transmitted. The KPR is the encrypted output prepended with the 16-byte MAC.</p> <p>Public Key (PK): As defined in section 3.1.1.</p> <p>...</p> <p>In the following sections, replaced the CK ADM element with the KPR ADM element in the server response.</p> <p>3.2.5.1 Sending a DHCPv4 BOOTREPLY for NKPU 3.2.5.2 Sending a DHCPv6 Reply for NKPU 3.2.5.3 Receiving a DHCPDISCOVER Message for NKPU 3.2.5.4 Receiving a DHCPv6 Information-Request Message for NKPU</p> <p>In the following sections, updated the examples for server response with the KPR ADM element.</p> <p>4.1 Client Requesting Unlock over DHCPv4 4.2 Client Requesting Unlock Over DHCPv6</p> <p>For details on these changes, see the Diff document: [MS-NKPU].PDF.</p>

*Date format: YYYY/MM/DD

[MS-NLMP]: NT LAN Manager (NTLM) Authentication Protocol

This topic lists the Errata found in [MS-NLMP] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-NMFMB]: .NET Message Framing MSMQ Binding Protocol

This topic lists the Errata found in [MS-NMFMB] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



Errata are subject to the same terms as the Open Specifications documentation referenced.

Errata below are for Protocol Document Version [V4.0 - 2017/06/01](#).

Errata Published*	Description				
2017/09/15	<p>In Section 1.2.2, Informative References, added the following reference:</p> <p>[MS-NETOD] Microsoft Corporation, "Microsoft .NET Framework Protocols Overview".</p> <p>In Section 3.2.5.1, Constructing an MSMQ Message, changed from:</p> <p>...</p> <p>If the Authenticated policy assertion described in section 2.2.3.5 is set:</p> <p>Set Message.PrivacyLevel to Enhanced. Set Message.EncryptionAlgorithm to RC4. Set Message.HashAlgorithm to SHA1.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>If the Authenticated policy assertion described in section 2.2.3.5 is set:</p> <p>Set Message.PrivacyLevel to Enhanced. Set Message.EncryptionAlgorithm to RC4. Set Message.HashAlgorithm to SHA256.<1></p> <p>...</p> <p><1> Section 3.2.5.1: In Windows releases that support Microsoft .NET Framework 3.5 and later, the MsmqSecureHashAlgorithm enumeration enables an implementation to use any of the hash algorithms that follow, where SHA256 is the default.</p> <pre>public enum MsmqSecureHashAlgorithm { MD5, SHA1, SHA 256, SHA 512 }</pre> <p>The underlying values of the MsmqSecureHashAlgorithm enum members are specified in the table that follows.</p> <table border="1"><thead><tr><th>Member Name</th><th>Value</th></tr></thead><tbody><tr><td>MD5</td><td>int32 (0x00000000)</td></tr></tbody></table>	Member Name	Value	MD5	int32 (0x00000000)
Member Name	Value				
MD5	int32 (0x00000000)				

Errata Published*	Description	
	SHA1	int32 (0x00000001)
	SHA256	int32 (0x00000002)
	SHA512	int32 (0x00000003)
	<p>For information about Windows releases that support the Microsoft .NET Framework versions, including the .NET Framework life-cycle support, see [MS-NETOD] section 4 Microsoft Implementations.</p>	

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[MS-NNS]: .NET NegotiateStream Protocol

This topic lists the Errata found in [MS-NNS] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-NRPC]: Netlogon Remote Protocol

This topic lists the Errata found in [MS-NRPC] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-NSPI]: Name Service Provider Interface (NSPI) Protocol

This topic lists the Errata found in [MS-NSPI] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-OAPX]: OAuth 2.0 Protocol Extensions

This topic lists the Errata found in [MS-OAPX] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-OAPXBC]: OAuth 2.0 Protocol Extensions for Broker Clients

This topic lists the Errata found in [MS-OAPXBC] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-OIDCE]: OpenID Connect 1.0 Protocol Extensions

This topic lists the Errata found in [MS-OIDCE] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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June 1, 2017 - [Download](#)

Errata below are for Protocol Document Version [V4.0 – 2017/09/15](#).

Errata Published*	Description
2017/09/18	<p>Several sections in this document were updated to show that, with KB 4038801, the OpenID Connect 1.0 Protocol Extensions on Windows Server 2016 implement OpenID Connect Front-Channel Logout instead of OpenID Connect Session Management.</p> <p>In Section 1.2.1, Normative References, the following references were added:</p> <p>[MSKB-4038801] Microsoft Corporation, "September 19, 2017 - KB4038801", https://support.microsoft.com/help/4038801</p> <p>[OIDCFrontChanLO] Jones, M., "OpenID Connect Front-Channel Logout 1.0 - draft 02", January 2017, http://openid.net/specs/openid-connect-frontchannel-1_0.html</p> <p>In Section 1.5, Prerequisites/Preconditions, the citation to [OIDCSession] was replaced with a citation to [OIDCFrontChanLO], and normative language and a behavior note were added to [OIDCSession] support.</p> <p>Changed from:</p> <p>The OpenID Connect 1.0 Protocol Extensions define extensions to [OIDCCore], [OIDCSession], and [OIDCDiscovery]. The following prerequisites are required for implementing the OpenID Connect 1.0 Protocol Extensions:</p> <ul style="list-style-type: none">- The REQUIRED parts of [OIDCCore] and [OIDCDiscovery] have been implemented on the AD FS server.- The REQUIRED parts for RP-Initiated Logout, as defined in [OIDCSession] section 5, have been implemented on the AD FS server. <p>Changed to:</p> <p>The OpenID Connect 1.0 Protocol Extensions define extensions to [OIDCCore], [OIDCFrontChanLO], and [OIDCDiscovery]. The following prerequisites are required for implementing the OpenID Connect 1.0 Protocol Extensions:</p> <ul style="list-style-type: none">- The REQUIRED parts of [OIDCCore] and [OIDCDiscovery] have been implemented on the AD FS server.- The REQUIRED parts for RP-Initiated Logout, as defined in [OIDCSession] section 5, SHOULD<1> have been implemented on the AD FS server. <p><1> Section 1.5: Only Windows Server 2016 with [MSKB-4019472] installed but</p>

Errata Published*	Description
	<p>without [MSKB-4038801] installed and Windows Server v1709 implement the REQUIRED parts for RP-Initiated Logout as defined in [OIDCSession] section 5.</p> <p>In Section 2.2.3.2, OpenID Provider Metadata, the citation to [OIDCSession] was replaced with a citation to [OIDCFrontChanLO]. The existing product behavior note was updated. A new note was added for additional metadata fields, along with a product behavior note describing their context.</p> <p>Changed from:</p> <p>OpenID Provider Metadata provides information about the OpenID connect provider, as described in [OIDCDiscovery] section 3.</p> <p>Note: The end_session_endpoint metadata field defined in the [OIDCSession] section 2.1 is required for the OpenID Connect 1.0 Protocol Extensions.<2></p> <p>...</p> <p><2> Section 2.2.3.2: Windows implementations of the AD FS server can be configured in an implementation-specific way to either return or not return the end_session_endpoint metadata.</p> <p>Changed to:</p> <p>OpenID Provider Metadata provides information about the OpenID connect provider, as described in [OIDCDiscovery] section 3.</p> <p>Note:</p> <ul style="list-style-type: none"> - The end_session_endpoint metadata field defined in [OIDCFrontChanLO] section 4 is required for the OpenID Connect 1.0 Protocol Extensions.<3> - The frontchannel_logout_supported and frontchannel_logout_session_supported metadata fields defined in the [OIDCFrontChanLO] section 3 are required for the OpenID Connect 1.0 Protocol Extensions.<4> <p>...</p> <p><3> Section 2.2.3.2: In Windows Server 2016 with [MSKB-4019472] installed but without [MSKB-4038801] installed and in Windows Server v1709, the AD FS server can be configured in an implementation-specific way to either return or not return the end_session_endpoint metadata.</p> <p><4> Section 2.2.3.2: Windows Server 2016 without [MSKB-4038801] installed and Windows Server v1709 do not support [OIDCFrontChanLO].</p> <p>In Section 3.1.5.4, Logout endpoint (/logout), the citation to [OIDCSession] was replaced with a citation to [OIDCFrontChanLO], and the existing product behavior note was updated.</p> <p>Changed from:</p> <p>As defined in the [OIDCSession] section 5, the Logout endpoint logs out the user from the AD FS server. The following HTTP methods are allowed to be performed on this endpoint.<5></p> <p>...</p> <p><5> Section 3.1.5.4: Windows Client operating systems (Windows 10 v1511 and later) do not implement the extensions to OpenID Connect Session Management.</p> <p>Changed to:</p>

Errata Published*	Description
	<p>As defined in the [OIDCFrontChanLO] section 4, the Logout endpoint logs out the user from the AD FS server. The following HTTP methods are allowed to be performed on this endpoint.<7></p> <p>...</p> <p><7> Section 3.1.5.4: Logout support in Windows Server 2016 without [MSKB-4038801] installed and in Windows Server v1709 is limited to OpenID Connect Session Management ([OIDCSession], specifically, section 5).</p> <p>Windows Client operating systems (Windows 10 v1511 and later) do not implement the extensions to OpenID Connect Session Management or OpenID Connect Front-Channel Logout.</p> <p>In Section 3.2.5.4 Logout endpoint (/logout), the citation to [OIDCSession] was replaced with a citation to [OIDCFrontChanLO], and the existing product behavior note was updated.</p> <p>Changed from:</p> <p>As defined in [OIDCSession] section 5, the Logout endpoint logs out the user from the AD FS server. The following HTTP methods are allowed to be performed on this endpoint.<9></p> <p>...</p> <p><9> Section 3.2.5.4: The Logout endpoint is not supported on Windows Server 2016 unless [MSKB-4019472] is installed.</p> <p>Changed to:</p> <p>As defined in [OIDCFrontChanLO] section 4, the Logout endpoint logs out the user from the AD FS server. The following HTTP methods are allowed to be performed on this endpoint.<11></p> <p>...</p> <p><11> Section 3.2.5.4: The following support information applies to the Logout endpoint:</p> <ul style="list-style-type: none"> - The Logout endpoint is not supported on Windows Server 2016 unless [MSKB-4019472] is installed. - The Logout endpoint is implemented as OpenID Connect Session Management ([OIDCSession], specifically, section 5) in Windows Server 2016 with [MSKB-4019472] installed but without [MSKB-4038801] installed. - The Logout endpoint is implemented as OpenID Connect Session Management ([OIDCSession], specifically, section 5) in Windows Server v1709. - The Logout endpoint is implemented as OpenID Connect Front-Channel Logout ([OIDCFrontChanLO]) in Windows Server 2016 with [MSKB-4038801] installed. <p>-----</p> <p>In several sections, the citation to [OIDCSession] was replaced with a citation to [OIDCFrontChanLO], as shown below.</p> <p>In the following sections, changed "[OIDCSession]" to "[OIDCFrontChanLO]":</p> <ul style="list-style-type: none"> - 3.1.5, Message Processing Events and Sequencing Rules - 3.2.5, Message Processing Events and Sequencing Rules <p>In the following sections, changed "[OIDCSession] section 5" to "[OIDCFrontChanLO]</p>

Errata Published*	Description
	<p>section 4":</p> <ul style="list-style-type: none"> - 3.1.5.4.1.1, Request Body - 3.1.5.4.1.2, Response Body - 3.1.5.4.1.3, Processing Details - 3.2.5.4.1.1, Request Body - 3.2.5.4.1.2, Response Body - 3.2.5.4.1.3, Processing Details <p>In Section 4.2, Example OpenID Provider Configuration Response, fields were added to the example.</p> <p>Changed from:</p> <pre> ... "access_token_issuer":"https://server.example.com", "microsoft_multi_refresh_token":true } </pre> <p>Changed to:</p> <pre> ... "access token issuer":"https://server.example.com", "microsoft_multi_refresh_token":true, "end session endpoint":"https://server.example.com/logout", "frontchannel_logout_supported":true, "frontchannel_logout_session_supported":true } </pre>

*Date format: YYYY/MM/DD

[MS-OLEDS]: Object Linking and Embedding (OLE) Data Structures

This topic lists the Errata found in [MS-OLEDS] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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Errata below are for Protocol Document Version [V8.0 - 2017/09/15](#).

Errata Published*	Description
2017/10/16	<p>In Section 2.1.7, DVTARGETDEVICE, the description of PortNameOffset has been changed from:</p> <p>PortNameOffSet (2 bytes): This MUST be set to the offset, in bytes, from the beginning of the structure to the PortName field. If this field is set to 0x0000, the PortName field MUST NOT be present.</p> <p>Changed to:</p> <p>PortNameOffSet (2 bytes): This MUST be set to the offset, in bytes, from the beginning of the structure to the PortName field. If this field is set to 0x0000, the PortName field MUST NOT be present.</p>
2017/10/16	<p>In Section 2.3.4, OLEPresentationStream, the descriptions of the TocCount and TocEntry fields have been changed from:</p> <p>TocCount: This MUST contain the number of elements in the TocEntry array. If 0, the TocEntry structure MUST NOT be present.</p> <p>TocEntry: This MUST contain an array of TOCENTRY structures (section 2.3.5). The number of structures MUST be specified in the TocCount field. The first octet of an array element MUST immediately follow the last octet of the previous element without any alignment gaps.</p> <p>Changed to:</p> <p>TocCount (4 bytes): This MUST contain the number of elements in the TocEntry array. If 0, the TocEntry structure MUST NOT be present.</p> <p>TocEntry (variable): This MUST contain an array of TOCENTRY structures (section 2.3.5). The number of structures MUST be specified in the TocCount field. The first octet of an array element MUST immediately follow the last octet of the previous element without any alignment gaps.</p>
2017/10/16	<p>In Section 2.3.8, CompObjStream, the product behavior note has been moved from the UnicodeUserType field to the UnicodeClipboardFormat field and updated.</p> <p>Changed from:</p> <p>UnicodeUserType (variable): This MUST be a LengthPrefixedUnicodeString structure (section 2.1.5) that contains a display name of the linked object or embedded object. <25></p> <p>UnicodeClipboardFormat (variable): This MUST be a ClipboardFormatOrUnicodeString</p>

Errata Published*	Description
	<p>structure (section 2.3.2) that contains a Clipboard Format of the linked object or embedded object. If the MarkerOrLength field of the ClipboardFormatOrUnicodeString structure contains a value other than 0x00000000, 0xffffffff, or 0xffffffe, the value MUST NOT be more than 0x00000190. Otherwise, the CompObjStream structure is invalid.</p> <p><25> Section 2.3.8: Windows will fail to process the structure with the error DV_E_CLIPFORMAT (as specified in [MS-ERREF]) if the MarkerOrLength field of the LengthPrefixedUnicodeString structure contains a value other than 0x00000000, 0xffffffff, or 0xffffffe and the value is greater than 0x00000190.</p> <p>Changed to:</p> <p>UnicodeUserType (variable): This MUST be a LengthPrefixedUnicodeString structure (section 2.1.5) that contains a display name of the linked object or embedded object.</p> <p>UnicodeClipboardFormat (variable): This MUST be a ClipboardFormatOrUnicodeString structure (section 2.3.2) that contains a Clipboard Format of the linked object or embedded object. If the MarkerOrLength field of the ClipboardFormatOrUnicodeString structure contains a value other than 0x00000000, 0xffffffff, or 0xffffffe, the value MUST NOT be more than 0x00000190. Otherwise, the CompObjStream structure is invalid. <25></p> <p><25> Section 2.3.8: Windows will fail to process the structure with the error DV_E_CLIPFORMAT (as specified in [MS-ERREF]) if the MarkerOrLength field of the ClipboardFormatOrUnicodeString structure contains a value other than 0x00000000, 0xffffffff, or 0xffffffe and the value is greater than 0x00000190.</p>

*Date format: YYYY/MM/DD

[MS-OTPCE]: One-Time Password Certificate Enrollment Protocol

This topic lists the Errata found in [MS-OTPCE] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-PAR]: Print System Asynchronous Remote Protocol

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[MS-PEAP]: Protected Extensible Authentication Protocol (PEAP)

This topic lists the Errata found in [MS-PEAP] since it was last published. Since this topic is updated frequently, we recommend that you subscribe to these RSS or Atom feeds to receive update notifications.



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[MS-PKAP]: Public Key Authentication Protocol

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[MS-PSRDP]: PowerShell Remote Debugging Protocol

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[MS-PSRP]: PowerShell Remoting Protocol

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[MS-RA]: Remote Assistance Protocol

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[MS-RAI]: Remote Assistance Initiation Protocol

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[MS-RDPBCGR]: Remote Desktop Protocol: Basic Connectivity and Graphics Remoting

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Errata below are for Protocol Document Version [V46.0 – 2017/09/15](#).

Errata Published*	Description														
2017/09/25	<p>In two sections, version values to identify RDP 10.4 clients and servers were added.</p> <p>In Section 2.2.1.3.2, Client Core Data (TS_UD_CS_CORE), changed from:</p> <p>version (4 bytes): A 32-bit, unsigned integer. Client version number for the RDP. The major version number is stored in the high 2 bytes, while the minor version number is stored in the low 2 bytes.</p> <table border="1"><thead><tr><th>Value</th><th>Meaning</th></tr></thead><tbody><tr><td>0x00080001</td><td>RDP 4.0 clients</td></tr><tr><td>0x00080004</td><td>RDP 5.0, 5.1, 5.2, 6.0, 6.1, 7.0, 7.1, 8.0, and 8.1 clients</td></tr><tr><td>0x00080005</td><td>RDP 10.0 clients</td></tr><tr><td>0x00080006</td><td>RDP 10.1 clients</td></tr><tr><td>0x00080007</td><td>RDP 10.2 clients</td></tr><tr><td>0x00080008</td><td>RDP 10.3 clients</td></tr></tbody></table> <p>Changed to:</p> <p>version (4 bytes): A 32-bit, unsigned integer. Client version number for the RDP. The major version number is stored in the high 2 bytes, while the minor version number is stored in the low 2 bytes.</p>	Value	Meaning	0x00080001	RDP 4.0 clients	0x00080004	RDP 5.0, 5.1, 5.2, 6.0, 6.1, 7.0, 7.1, 8.0, and 8.1 clients	0x00080005	RDP 10.0 clients	0x00080006	RDP 10.1 clients	0x00080007	RDP 10.2 clients	0x00080008	RDP 10.3 clients
Value	Meaning														
0x00080001	RDP 4.0 clients														
0x00080004	RDP 5.0, 5.1, 5.2, 6.0, 6.1, 7.0, 7.1, 8.0, and 8.1 clients														
0x00080005	RDP 10.0 clients														
0x00080006	RDP 10.1 clients														
0x00080007	RDP 10.2 clients														
0x00080008	RDP 10.3 clients														

Errata Published*	Description	
	Value	Meaning
	0x00080001	RDP 4.0 clients
	0x00080004	RDP 5.0, 5.1, 5.2, 6.0, 6.1, 7.0, 7.1, 8.0, and 8.1 clients
	0x00080005	RDP 10.0 clients
	0x00080006	RDP 10.1 clients
	0x00080007	RDP 10.2 clients
	0x00080008	RDP 10.3 clients
	0x00080009	RDP 10.4 clients
	<p>In Section 2.2.1.4.2, Server Core Data (TS_UD_SC_CORE), changed from:</p>	
	<p>version (4 bytes): A 32-bit, unsigned integer. The server version number for the RDP. The major version number is stored in the high two bytes, while the minor version number is stored in the low two bytes.</p>	
	Value	Meaning
	0x00080001	RDP 4.0 servers
	0x00080004	RDP 5.0, 5.1, 5.2, 6.0, 6.1, 7.0, 7.1, 8.0, and 8.1 servers
	0x00080005	RDP 10.0 servers
	0x00080006	RDP 10.1 servers
	0x00080007	RDP 10.2 servers
	0x00080008	RDP 10.3 servers
	<p>Changed to:</p>	
	<p>version (4 bytes): A 32-bit, unsigned integer. The server version number for the RDP. The major version number is stored in the high two bytes, while the minor version number is stored in the low two bytes.</p>	
	Value	Meaning
	0x00080001	RDP 4.0 servers
	0x00080004	RDP 5.0, 5.1, 5.2, 6.0, 6.1, 7.0, 7.1, 8.0, and 8.1 servers
	0x00080005	RDP 10.0 servers
	0x00080006	RDP 10.1 servers
	0x00080007	RDP 10.2 servers
	0x00080008	RDP 10.3 servers

Errata Published*	Description	
	0x00080009	RDP 10.4 servers

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[MS-RDPEA]: Remote Desktop Protocol: Audio Output Virtual Channel Extension

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[MS-RDPEAR]: Remote Desktop Protocol Authentication Redirection Virtual Channel

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[MS-RDPECLIP]: Remote Desktop Protocol: Clipboard Virtual Channel Extension

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[MS-RDPEDYC]: Remote Desktop Protocol: Dynamic Channel Virtual Channel Extension

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Errata below are for Protocol Document Version [V17.0 - 2017/09/15](#).

Errata Published*	Description
2017/10/02	<p>In Section 2.2.3.3, DVC Data First Compressed PDU (DYNVC_DATA_FIRST_COMPRESSED), specified that the Data field is a structure of type RDP_SEGMENTED_DATA.</p> <p>Changed from:</p> <p>...</p> <p>Data (variable): An RDP8_BULK_ENCODED_DATA ([MS-RDPEGFX] section 2.2.5.3) structure containing the first block of data in a fragmented message, where the data has been compressed with the RDP 8.0 Bulk Compression algorithm ([MS-RDPEGFX] section 3.1.9.1) with the following modifications:</p> <ul style="list-style-type: none">Maximum number of uncompressed bytes in a single segment: 8,192 instead of 65,535.Maximum match distance / minimum history size: 8,192 bytes instead of 2,500,000 bytes.The compression type code is PACKET_COMPR_TYPE_RDP8_LITE (0x06) instead of PACKET_COMPR_TYPE_RDP8 (0x04). <p>If the data block cannot be compressed, the length of the Data field will be exactly one byte larger than the length of the uncompressed data block, in order to contain the header field. Thus, the maximum length of the data block, before compression, is 1,599 bytes minus the space taken for the Cmd, Len, cbId, ChannelId, and Length fields.</p> <p>Changed to:</p> <p>...</p> <p>Data (variable): An RDP_SEGMENTED_DATA ([MS-RDPEGFX] section 2.2.5.1) structure containing a single RDP8_BULK_ENCODED_DATA ([MS-RDPEGFX] section 2.2.5.3) segment. The segment contains the first block of data in a fragmented message, where the data has been compressed with the RDP 8.0 Bulk Compression algorithm ([MS-RDPEGFX] section 3.1.9.1) with the following modifications:</p> <ul style="list-style-type: none">Maximum number of uncompressed bytes in a single segment: 8,192 instead of 65,535.Maximum match distance / minimum history size: 8,192 bytes instead of 2,500,000 bytes.

Errata Published*	Description
	<ul style="list-style-type: none"> ▪ The compression type code is PACKET_COMPR_TYPE_RDP8_LITE (0x06) instead of PACKET_COMPR_TYPE_RDP8 (0x04). <p>If the data block cannot be compressed, the length of the Data field will be exactly two bytes larger than the length of the uncompressed data block, in order to contain the RDP_SEGMENTED_DATA descriptor and RDP8_BULK_ENCODED_DATA header fields. Thus, the maximum length of the data block, before compression, is 1,598 bytes minus the space taken for the Cmd, Len, cbId, ChannelId, and Length fields.</p> <p>In Section 2.2.3.4, DVC Data Compressed PDU (DYNVC_DATA_COMPRESSED), specified that the Data field is a structure of type RDP_SEGMENTED_DATA.</p> <p>Changed from:</p> <p>...</p> <p>Data (variable): An RDP8_BULK_ENCODED_DATA ([MS-RDPEGFX] section 2.2.5.3) structure containing the first and only block of data in an unfragmented message, or a block of data following the first block in a fragmented message, where the data has been compressed with the RDP 8.0 Bulk Compression algorithm ([MS-RDPEGFX] section 3.1.9.1) with the following modifications:</p> <ul style="list-style-type: none"> ▪ Maximum number of uncompressed bytes in a single segment: 8,192 instead of 65,535. ▪ Maximum match distance / minimum history size: 8,192 bytes instead of 2,500,000 bytes. ▪ The compression type code is PACKET_COMPR_TYPE_RDP8_LITE (0x06) instead of PACKET_COMPR_TYPE_RDP8 (0x04). <p>If the data block cannot be compressed, the length of the Data field will be exactly one byte larger than the length of the uncompressed data block, in order to contain the header field. Thus, the maximum length of the data block, before compression, is 1,599 bytes minus the space taken for Cmd, Sp, cbId, and ChannelId fields.</p> <p>Changed to:</p> <p>...</p> <p>Data (variable): An RDP_SEGMENTED_DATA ([MS-RDPEGFX] section 2.2.5.1) structure containing a single RDP8_BULK_ENCODED_DATA ([MS-RDPEGFX] section 2.2.5.3) segment. The segment contains the first and only block of data in an unfragmented message, or a block of data following the first block in a fragmented message, where the data has been compressed with the RDP 8.0 Bulk Compression algorithm ([MS-RDPEGFX] section 3.1.9.1) with the following modifications:</p> <ul style="list-style-type: none"> ▪ Maximum number of uncompressed bytes in a single segment: 8,192 instead of 65,535. ▪ Maximum match distance / minimum history size: 8,192 bytes instead of 2,500,000 bytes. ▪ The compression type code is PACKET_COMPR_TYPE_RDP8_LITE (0x06) instead of PACKET_COMPR_TYPE_RDP8 (0x04). <p>If the data block cannot be compressed, the length of the Data field will be exactly two bytes larger than the length of the uncompressed data block, in order to contain the RDP_SEGMENTED_DATA descriptor and RDP8_BULK_ENCODED_DATA header fields. Thus, the maximum length of the data block, before compression, is 1,598 bytes minus the space taken for Cmd, Sp, cbId, and ChannelId fields.</p> <p>In Section 4.3.3, DVC Data First Compressed PDU, updated leading byte of data field in the DYNVC_DATA_FIRST_COMPRESSED PDU sample.</p> <p>Changed from:</p> <p>The following is an annotated sample of the DYNVC_DATA_FIRST_COMPRESSED PDU</p>

Errata Published*	Description
	<p>(section 2.2.3.3).</p> <pre> 00000000 64 03 7b 0c 26 38 c4 3f f4 74 01 d.{.ä&8Ä?öt. 64 -> Header bitmask fields 0 - --\ 1 - DYNVC_DATA_FIRST_COMPRESSED::Cmd = DataFirstCompressed (6) 1 - 0 - --/ 0 - --\ DYNVC_DATA_FIRST_COMPRESSED::Sp = 1 1 - --/ 0 - --\ DYNVC_DATA_FIRST_COMPRESSED::cbId = 0 0 - --/ 03 -> DYNVC_DATA_FIRST_COMPRESSED::ChannelId = 0x3 7b 0c -> DYNVC_DATA_FIRST_COMPRESSED::Length = 0x0c7b = 3195 bytes 26 01 -> DYNVC_DATA_COMPRESSED::Data = 7 bytes of compressed payload 26 = PACKET_COMPRESSED + type 6 38 = binary 0 0111000 c4 = binary 1 10001 00 3f = binary 001 11111 f4 = binary 11110 100 74 = binary 0111010 0 01 = one bit (least-significant) ignored from 0x74 byte. ... Changed to: The following is an annotated sample of the DYNVC_DATA_FIRST_COMPRESSED PDU (section 2.2.3.3). 00000000 64 03 7b 0c e0 26 38 c4 3f f4 74 01 d.{.ä&8Ä?öt. 64 -> Header bitmask fields 0 - --\ 1 - DYNVC_DATA_FIRST_COMPRESSED::Cmd = DataFirstCompressed (6) 1 - 0 - --/ 0 - --\ DYNVC_DATA_FIRST_COMPRESSED::Sp = 1 1 - --/ 0 - --\ DYNVC_DATA_FIRST_COMPRESSED::cbId = 0 0 - --/ 03 -> DYNVC_DATA_FIRST_COMPRESSED::ChannelId = 0x3 7b 0c -> DYNVC_DATA_FIRST_COMPRESSED::Length = 0x0c7b = 3195 bytes e0 01 -> DYNVC_DATA_COMPRESSED::Data = 8 bytes of compressed payload e0 = DEBLOCK_SINGLE 26 = PACKET_COMPRESSED + type 6 38 = binary 0 0111000 c4 = binary 1 10001 00 3f = binary 001 11111 </pre>

Errata Published*	Description
	<pre> f4 = binary 11110 100 74 = binary 0111010 0 01 = one bit (least-significant) ignored from 0x74 byte. ... In Section 4.3.4, DVC Data Compressed PDU, updated leading byte of data field in the DYNVC_DATA_FIRST_COMPRESSED PDU sample. Changed from: The following is an annotated sample of the DYNVC_DATA_COMPRESSED PDU (section 2.2.3.4). 00000000 70 03 26 88 7f e8 f0 02 p.&^èð. 70 -> Header bitmask fields 0 - --\ 1 - DYNVC_DATA_COMPRESSED::Cmd = DataCompressed (7) 1 - 1 - --/ 0 - --\ DYNVC DATA COMPRESSED::Sp = 0 0 - --/ 0 - --\ DYNVC_DATA_COMPRESSED::cbId = 0 0 - --/ 03 -> DYNVC_DATA_COMPRESSED::ChannelId = 0x3 26 07 -> DYNVC_DATA_COMPRESSED::Data = 6 bytes of compressed payload 26 = PACKET COMPRESSED + type 6 88 = binary 10001 000 7f = binary 01 111111 e8 = binary 1110 1000 f0 = binary 111100 00 02 = two bits (least-significant) ignored from 0x00 byte. Compressed payload binary stream: 10001 00001 = match distance = 1 (referring to "q" from the previous payload in section 4.3.3) 111111110 1000111100 = match length = 1024 + 572 = 1596 ... Changed to: The following is an annotated sample of the DYNVC_DATA_COMPRESSED PDU (section 2.2.3.4). 00000000 70 03 e0 26 88 7f e8 f4 02 p.à&^.èð. 70 -> Header bitmask fields 0 - --\ 1 - DYNVC_DATA_COMPRESSED::Cmd = DataCompressed (7) 1 - 1 - --/ 0 - --\ DYNVC DATA COMPRESSED::Sp = 0 0 - --/ 0 - --\ DYNVC DATA COMPRESSED::cbId = 0 0 - --/ </pre>

Errata Published*	Description
	<pre> 03 -> DYNVC_DATA_COMPRESSED::ChannelId = 0x3 e0 02 -> DYNVC_DATA_COMPRESSED::Data = 7 bytes of compressed payload e0 = DEBLOCK_SINGLE 26 = PACKET_COMPRESSED + type 6 88 = binary 10001 000 7f = binary 01 111111 e8 = binary 1110 1000 f4 = binary 111101 00 02 = two bits (least-significant) ignored from 0x00 byte. Compressed payload binary stream: 10001 00001 = match distance = 1 (referring to "q" from the previous payload in section 4.3.3) 111111110 1000111101 = match length = 1024 + 573 = 1597 ... </pre>

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[MS-RDPEFS]: Remote Desktop Protocol: File System Virtual Channel Extension

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Errata Published*	Description								
2017/10/30	<p>In Section 2.2.2.2, Server Announce Request (DR_CORE_SERVER_ANNOUNCE_REQ), added the value 0x000D to the mapping table found in the product behavior note for VersionMinor field, and revised the mapping for the value 0x000C.</p> <p>Changed from:</p> <table border="1"><thead><tr><th>Value</th><th>Meaning</th></tr></thead><tbody><tr><td>0x000C</td><td>The following versions of Windows send this value when acting as the RDP server: Windows Vista, Windows Vista operating system with Service Pack 1 (SP1), Windows Server 2008, Windows 7, Windows Server 2008 R2, Windows 8, Windows Server 2012, Windows 8.1, Windows Server 2012 R2, Windows 10, Windows Server 2016, and Windows Server operating system.</td></tr></tbody></table> <p>Changed to:</p> <table border="1"><thead><tr><th>Value</th><th>Meaning</th></tr></thead><tbody><tr><td>0x000D</td><td>The following versions of Windows send this value when acting as the RDP server: Windows Server 2016 and Windows 10 v1607 operating system, Windows 10 v1703 operating system, Windows 10 v1709 operating system, and Windows Server operating system.</td></tr></tbody></table>	Value	Meaning	0x000C	The following versions of Windows send this value when acting as the RDP server: Windows Vista, Windows Vista operating system with Service Pack 1 (SP1), Windows Server 2008, Windows 7, Windows Server 2008 R2, Windows 8, Windows Server 2012, Windows 8.1, Windows Server 2012 R2, Windows 10, Windows Server 2016, and Windows Server operating system.	Value	Meaning	0x000D	The following versions of Windows send this value when acting as the RDP server: Windows Server 2016 and Windows 10 v1607 operating system, Windows 10 v1703 operating system, Windows 10 v1709 operating system, and Windows Server operating system.
Value	Meaning								
0x000C	The following versions of Windows send this value when acting as the RDP server: Windows Vista, Windows Vista operating system with Service Pack 1 (SP1), Windows Server 2008, Windows 7, Windows Server 2008 R2, Windows 8, Windows Server 2012, Windows 8.1, Windows Server 2012 R2, Windows 10, Windows Server 2016, and Windows Server operating system.								
Value	Meaning								
0x000D	The following versions of Windows send this value when acting as the RDP server: Windows Server 2016 and Windows 10 v1607 operating system, Windows 10 v1703 operating system, Windows 10 v1709 operating system, and Windows Server operating system.								

Errata Published*	Description	
	0x000C	The following versions of Windows send this value when acting as the RDP server: Windows Vista, Windows Vista operating system with Service Pack 1 (SP1), Windows Server 2008, Windows 7, Windows Server 2008 R2, Windows 8, Windows Server 2012, Windows 8.1, Windows Server 2012 R2, Windows 10 v1507 operating system, and Windows 10 v1511 operating system.

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[MS-RDPEGDI]: Remote Desktop Protocol: Graphics Device Interface (GDI) Acceleration Extensions

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[MS-RDPEGFx]: Remote Desktop Protocol: Graphics Pipeline Extension

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[MS-RDPEGT]: Remote Desktop Protocol Geometry Tracking Virtual Channel Protocol Extension

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[MS-RDPEI]: Remote Desktop Protocol: Input Virtual Channel Extension

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[MS-RDPEMC]: Remote Desktop Protocol: Multiparty Virtual Channel Extension

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[MS-RDPEMT]: Remote Desktop Protocol: Multitransport Extension

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[MS-RDPEPC]: Remote Desktop Protocol: Print Virtual Channel Extension

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[MS-RDPEPNP]: Remote Desktop Protocol: Plug and Play Devices Virtual Channel Extension

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[MS-RDPERP]: Remote Desktop Protocol: Remote Programs Virtual Channel Extension

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[MS-RDPESC]: Remote Desktop Protocol: Smart Card Virtual Channel Extension

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[MS-RDPESP]: Remote Desktop Protocol: Serial and Parallel Port Virtual Channel Extension

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[MS-RDPEUDP]: Remote Desktop Protocol: UDP Transport Extension

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[MS-RDPEV]: Remote Desktop Protocol: Video Redirection Virtual Channel Extension

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[MS-RDPEVOR]: Remote Desktop Protocol: Video Optimized Remoting Virtual Channel Extension

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[MS-RDPEXPS]: Remote Desktop Protocol: XML Paper Specification (XPS) Print Virtual Channel Extension

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[MS-RDPRFX]: Remote Desktop Protocol: RemoteFX Codec Extension

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[MS-RMPR]: Rights Management Services (RMS): Client-to-Server Protocol

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[MS-RMSOD]: Rights Management Services Protocols Overview

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[MS-RPCE]: Remote Procedure Call Protocol Extensions

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[MS-RPCH]: Remote Procedure Call over HTTP Protocol

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[MS-RPRN]: Print System Remote Protocol

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Errata below are for Protocol Document Version [V30.0 – 2017/09/15](#).

Errata Published*	Description
2017/10/16	<p>A number of sections were updated to reflect that the GUID specified in Section 2.2.2.10.8, PRINTER_INFO_7, must contain curly braces.</p> <p>In Section 1.1, Glossary, added an entry for curly braced GUID string.</p> <p>Added:</p> <p>curly braced GUID string: The string representation of a 128-bit globally unique identifier (GUID) using the form {XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}, where X denotes a hexadecimal digit. The string representation between the enclosing braces is the standard representation of a GUID as described in [RFC4122] section 3. Unlike a GUIDString, a curly braced GUID string includes enclosing braces.</p> <p>In Section 2.2.1.10.8, PRINTER_INFO_7, changed from:</p> <p>pszObjectGUID: A pointer to a string that specifies the GUID used by the DS to identify this printer, if it is used in a response to RpcGetPrinter (section 3.1.4.2.6). The GUID string MUST conform to the UUID grammar ([RFC4122] section 3). The string representation of a 128-bit GUID is a GUIDString. This pointer SHOULD be NULL when sent and MUST be ignored on receipt if it is used by the print client in a call to RpcSetPrinter (section 3.1.4.2.5).</p> <p>Changed to:</p> <p>pszObjectGUID: A pointer to a curly braced GUID string that specifies the GUID used by the DS to identify this printer, if it is used in a response to RpcGetPrinter (section 3.1.4.2.6). The string MUST conform to the curly braced GUID string format ([MS-DTYP] section 2.3.4.3).</p> <p>This pointer SHOULD be NULL when sent and MUST be ignored on receipt if it is used by the print client in a call to RpcSetPrinter (section 3.1.4.2.5).</p>

Errata Published*	Description
	<p>In Section 3.1.4.4.9, RpcGetCorePrinterDrivers (Opnum 102), changed from:</p> <p>...</p> <p>pszzCoreDriverDependencies: A pointer to a multisz that contains a list of IDs of the core printer drivers to be retrieved.<332>.</p> <p>...</p> <p><332> Section 3.1.4.4.9: In Windows, the IDs are the GUIDString representations of 128-bit GUIDs.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>pszzCoreDriverDependencies: A pointer to a multisz that contains a list of IDs of the core printer drivers to be retrieved.<332>.</p> <p>...</p> <p><332> Section 3.1.4.4.9: In Windows, the IDs are curly braced GUID string representations of 128-bit GUIDs.</p> <p>...</p>

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[MS-RRASM]: Routing and Remote Access Server (RRAS) Management Protocol

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[MS-RSMC]: Remote Session Monitoring and Control Protocol

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[MS-RSVD]: Remote Shared Virtual Disk Protocol

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Errata below are for Protocol Document Version [V11.0 – 2017/09/15](#).

Errata Published*	Description
2017/11/13	<p>In Section 3.2.5.5.5, Receiving a SCSI Command Request, the following paragraph was changed from:</p> <p>If the virtual SCSI disk indicates an error, the server MUST return the SVHDX_TUNNEL_OPERATION_HEADER to the client initialized as below:</p> <p>...</p> <p>Changed to:</p> <p>If the virtual SCSI disk indicates a failure in processing the SCSI command, the server MUST return the SVHDX_TUNNEL_OPERATION_HEADER to the client initialized as below:</p> <p>...</p>

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[MS-SAMR]: Security Account Manager (SAM) Remote Protocol (Client-to-Server)

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[MS-SAMS]: Security Account Manager (SAM) Remote Protocol (Server-to-Server)

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[MS-SFMWA]: Server and File Management Web APIs

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[MS-SMB]: Server Message Block (SMB) Protocol

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Errata below are for Protocol Document Version [V46.0 - 2017/09/15](#).

Errata Published*	Description
2017/11/27	<p>In Section 2.2.4.6.2, Server Response Extensions, changed from:</p> <p>...</p> <p>NativeLanMan (variable): A string that represents the native LAN Manager type of the server. If SMB_FLAGS2_UNICODE is set in the Flags2 field of the SMB header of the response, then the string MUST be a NULL-terminated array of 16-bit Unicode characters. Otherwise, the string MUST be a NULL-terminated array of OEM characters. If the name string consists of Unicode characters, then this field MUST be aligned to start on a 2-byte boundary from the start of the SMB header.</p> <p>Changed to:</p> <p>...</p> <p>NativeLanMan (variable): A string that represents the native LAN Manager type of the server. If SMB_FLAGS2_UNICODE is set in the Flags2 field of the SMB header of the response, then the string MUST be a NULL-terminated array of 16-bit Unicode characters. Otherwise, the string MUST be a NULL-terminated array of OEM characters. If the name string consists of Unicode characters, then this field MUST be aligned to start on a 2-byte boundary from the start of the SMB header.<46>.</p> <p><46> Section 2.2.4.6.2: Windows-based servers terminate the NativeLanMan string with a single null byte if the Pad field in the response is not empty.</p>

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[MS-SMB2]: Server Message Block (SMB) Protocol Versions 2 and 3

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Errata below are for Protocol Document Version [V53.0 – 2017/09/15](#).

Errata Published*	Description
2017/11/27	<p>In Section 3.3.5.20.3, Handling SMB2_0_INFO_SECURITY, the following paragraph was changed from:</p> <p>If the OutputBufferLength given in the client request is either zero or is insufficient to hold the information requested, the server MUST fail the request with STATUS_BUFFER_TOO_SMALL. If Connection.Dialect is "3.1.1", the server MUST return error data containing the buffer size, in bytes, that would be required to return the requested information, as specified in section 2.2.2, with ByteCount set to 12, ErrorContextCount set to 1, and ErrorData set to SMB2 ERROR Context response with ErrorDataLength set to 4, ErrorId set to 0, and ErrorContextData is set to the buffer size, in bytes, indicating the minimum required buffer length; otherwise, the server MUST return error data with ByteCount set to 2 and ErrorData set to a 4-byte value indicating the minimum required buffer length. The server MUST NOT return STATUS_BUFFER_OVERFLOW with an incomplete security descriptor to the client as in the previous cases. If the underlying object store returns an error, the server MUST fail the request with the error code received.</p> <p>Changed to:</p> <p>If the OutputBufferLength given in the client request is either zero or is insufficient to hold the information requested, the server MUST fail the request with STATUS_BUFFER_TOO_SMALL. If Connection.Dialect is "3.1.1", the server MUST return error data containing the buffer size, in bytes, that would be required to return the requested information, as specified in section 2.2.2, with ByteCount set to 12, ErrorContextCount set to 1, and ErrorData set to SMB2 ERROR Context response with ErrorDataLength set to 4, ErrorId set to 0, and ErrorContextData is set to the buffer size, in bytes, indicating the minimum required buffer length; otherwise, the server MUST return error data with ByteCount set to 24 and ErrorData set to a 4-byte value indicating the minimum required buffer length. The server MUST NOT return</p>

Errata Published*	Description
	<p>STATUS_BUFFER_OVERFLOW with an incomplete security descriptor to the client as in the previous cases. If the underlying object store returns an error, the server MUST fail the request with the error code received.</p>
2017/11/27	<p>In Section 3.3.5.9, Receiving an SMB2 CREATE Request, changed from:</p> <p>...</p> <p>For open requests on a share of type STYPE_DISKTREE (as indicated by TreeConnect.Share.Type), the server MUST do the following:</p> <p>...</p> <p>If CreateOptions includes FILE_NO_INTERMEDIATE_BUFFERING and DesiredAccess includes FILE_APPEND_DATA, the server MUST set FILE_APPEND_DATA to zero in the DesiredAccess field in the request.</p> <p>Changed to:</p> <p>...</p> <p>For open requests on a share of type STYPE_DISKTREE (as indicated by TreeConnect.Share.Type), the server MUST do the following:</p> <p>...</p> <p>If CreateOptions includes FILE_NO_INTERMEDIATE_BUFFERING and DesiredAccess includes FILE_APPEND_DATA, the server MUST set FILE_APPEND_DATA to zero in the DesiredAccess field in the request.</p> <p>The server MUST set the following flags to zero in the CreateOptions field:</p> <ul style="list-style-type: none"> • FILE_COMPLETE_IF_OPLOCKED • FILE_SYNCHRONOUS_IO_ALERT • FILE_SYNCHRONOUS_IO_NONALERT • FILE_OPEN_FOR_FREE_SPACE_QUERY
2017/11/27	<p>In Section 3.3.4.7, Object Store Indicates a Lease Break, the following was changed from:</p> <p>If Open.Connection is NULL, the server MUST close the Open as specified in section 3.3.4.17 for the following cases:</p> <ul style="list-style-type: none"> • Open.IsResilient is FALSE, Open.IsDurable is FALSE, and Open.IsPersistent is FALSE. • Lease.BreakToLeaseState does not contain SMB2_LEASE_HANDLE_CACHING and Open.IsDurable is TRUE. <p>Changed to:</p> <p>If Open.Connection is NULL, Open.IsResilient is FALSE and Open.IsPersistent is FALSE, the server MUST close the Open as specified in section 3.3.4.17 for the following cases:</p> <ul style="list-style-type: none"> • Open.IsDurable is FALSE. • Lease.BreakToLeaseState does not contain SMB2_LEASE_HANDLE_CACHING and Open.IsDurable is TRUE.
2017/10/30	<p>In Section 3.3.5.2.9, Verifying the Session, the last paragraph has been changed from:</p> <p>If Connection.Dialect belongs to the SMB 3.x dialect family, Session.EncryptData is TRUE, and RejectUnencryptedAccess is TRUE, the server MUST locate the Request in Connection.RequestList for which Request.MessageId matches the MessageId value in the SMB2 header of the request. If Request.IsEncrypted is FALSE, the server MUST fail</p>

Errata Published*	Description
	<p>the request with STATUS_ACCESS_DENIED.</p> <p>Changed to:</p> <p>If Connection.Dialect belongs to the SMB 3.x dialect family, and Session.EncryptData is TRUE, the server MUST locate the Request in Connection.RequestList for which Request.MessageId matches the MessageId value in the SMB2 header of the request. If Request.IsEncrypted is FALSE, the server MUST fail the request with STATUS_ACCESS_DENIED.</p> <p>In Section 3.3.5.2.11, Verifying the Tree Connect, the following has been changed from:</p> <p>If the server implements the SMB 3.x dialect family, it MUST return STATUS_ACCESS_DENIED for the following cases:</p> <ul style="list-style-type: none"> • If TreeConnect.Share.EncryptData is TRUE, RejectUnencryptedAccess is TRUE, and Request.IsEncrypted is FALSE. • If EncryptData is TRUE, RejectUnencryptedAccess is TRUE, and Request.IsEncrypted is FALSE. <p>If the server implements the SMB 3.x dialect family, EncryptData or TreeConnect.Share.EncryptData or Request.IsEncrypted is TRUE, RejectUnencryptedAccess is TRUE, and Connection.ServerCapabilities does not include SMB2_GLOBAL_CAP_ENCRYPTION, the server MUST fail the request with STATUS_ACCESS_DENIED.</p> <p>Changed to:</p> <p>If Connection.Dialect belongs to the SMB 3.x dialect family, it MUST return STATUS_ACCESS_DENIED for the following cases:</p> <ul style="list-style-type: none"> • If TreeConnect.Share.EncryptData is TRUE, and Request.IsEncrypted is FALSE. • If EncryptData is TRUE, and Request.IsEncrypted is FALSE. <p>If Connection.Dialect belongs to the SMB 3.x dialect family, EncryptData or TreeConnect.Share.EncryptData or Request.IsEncrypted is TRUE, and Connection.ServerCapabilities does not include SMB2_GLOBAL_CAP_ENCRYPTION, the server MUST fail the request with STATUS_ACCESS_DENIED.</p>
2017/10/02	<p>In Section 3.3.5.17, Receiving an SMB2 ECHO Request, changed from:</p> <p>...</p> <p>If Connection.SessionTable is empty, the server SHOULD<343> disconnect the connection.</p> <p>The server MUST construct an SMB2 ECHO Response following the syntax specified in section 2.2.29 and MUST send it to the client.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>If Connection.SessionTable is empty, the server SHOULD<343> disconnect the connection.</p> <p>The server MUST verify the session, as specified in section 3.3.5.2.9, if any of the following conditions is TRUE:</p> <ul style="list-style-type: none"> ▪ SMB2_FLAGS_SIGNED bit is set in the Flags field of the SMB2 header of the request.

Errata Published*	Description
	<ul style="list-style-type: none"><li data-bbox="492 201 1398 254">▪ The request is not encrypted, and the SessionId field of the SMB2 header of the request is not zero. <p data-bbox="492 260 1398 312">The server MUST construct an SMB2 ECHO Response following the syntax specified in section 2.2.29 and MUST send it to the client.</p> <p data-bbox="492 327 509 348">...</p>

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[MS-SMBD]: SMB2 Remote Direct Memory Access (RDMA) Transport Protocol

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[MS-SPNG]: Simple and Protected GSS-API Negotiation Mechanism (SPNEGO) Extension

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[MS-SQOS]: Storage Quality of Service Protocol

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[MS-SSTP]: Secure Socket Tunneling Protocol (SSTP)

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[MS-SWN]: Service Witness Protocol

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[MS-TCC]: Tethering Control Channel Protocol

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[MS-TDS]: Tabular Data Stream Protocol

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Errata below are for Protocol Document Version [V22.0 – 2017/09/15](#).

Errata Published*	Description
2017/11/13	<p>In Section 2.2.3.1.5, PacketID, a new product behavior note was added. The second sentence was changed from:</p> <p>Each time packet data is sent, the value of PacketID is incremented by 1, modulo 256.</p> <p>Changed to:</p> <p>Each time packet data is sent, the value of PacketID is incremented by 1, modulo 256.<14></p> <p><14> Section 2.2.3.1.5: Depending on the message type and provider, such as Microsoft SQL Server Native Client or Microsoft .NET Framework Data Provider for SQL Server, PacketID values start with either 0 or 1, which is an implementation choice. .NET Framework Data Provider for SQL Server uses 1.</p>
2017/11/13	<p>In Section 2.2.5.1.2, Collation Rule Definition, the first paragraph after the definition was changed from:</p> <p>A SQL (SortId==1) collation is one of a predefined set of sort orders. It is identified by having SortId with values as described by [MSDN-SQLCollation].</p> <p>Changed to:</p> <p>A SQL collation is one of a predefined set of sort orders. The sort orders are identified with non-zero SortId values described by [MSDN-SQLCollation].</p>
2017/11/13	<p>In Section 2.2.5.3.3, Trace Activity Header, the stream-specific rules were changed from:</p> <p>Stream-Specific Rules:</p>

Errata Published*	Description
	<pre> ActivityId = 20BYTE ; client Activity ID ; for debugging purposes Changed to: Stream-Specific Rules: GUID_ActivityID = 16 bytes ; client application activity id ; used for debugging purposes ActivitySequence = ULONG ; client application activity sequence ; used for debugging purposes In Section 2.2.6.5, PRELOGIN, the stream-specific rules were changed in part from: Stream-Specific Rules: ... ACTIVITYID = 20BYTE ; client application activity id ; used for debugging purposes ... Changed to: Stream-Specific Rules: ... GUID_ActivityID = 16 bytes ; client application activity id ; used for debugging purposes ActivitySequence = ULONG ; client application activity sequence ; used for debugging purposes ... </pre>
2017/11/13	<p>In Section 2.2.5.5.3, XML Values, a new product behavior note was added. The last sentence was changed from:</p> <p>Note The actual data value format associated with a XML data type definition stream uses the Microsoft SQL Server Binary XML structure [MS-BINXML] format.</p> <p>Changed to:</p> <p>Note The actual data value format associated with a XML data type definition stream uses the Microsoft SQL Server Binary XML structure [MS-BINXML] format.<22></p>

Errata Published*	Description
	<p data-bbox="492 237 1419 310"><22> Section 2.2.5.5.3: When a .NET Framework Data Provider for SQL Server accesses an XML field, the returned data value is encoded in [MS-BINXML] format. For other providers, the value is sent in Unicode text format.</p> <p data-bbox="492 352 1393 426">In Section 2.2.6.4, LOGIN7, a new product behavior note was added regarding the fSendYukonBinaryXML bit. In the OptionFlags3 row of the Stream Parameter Details table, the third bullet was changed from:</p> <ul data-bbox="492 468 1406 499" style="list-style-type: none"> <li data-bbox="492 468 1406 499">• fSendYukonBinaryXML: 1 if XML data type instances are returned as binary XML. <p data-bbox="492 541 621 573">Changed to:</p> <ul data-bbox="492 615 1349 657" style="list-style-type: none"> <li data-bbox="492 615 1349 657">• fSendYukonBinaryXML: 1 if XML data type instances are returned as binary XML.<30> <p data-bbox="492 699 1377 772"><30> Section 2.2.6.4: SQL Server implementations do not inspect the fSendYukonBinaryXML bit. When using the .NET Framework Data Provider for SQL Server, the server sends binary XML if the TDS version is 7.2 or later.</p>
2017/11/13	<p data-bbox="492 804 1206 835">In Section 2.2.6.4, LOGIN7, the last paragraph was changed from:</p> <p data-bbox="492 867 1430 1024">Before submitting a password from the client to the server, for every byte in the password buffer starting with the position pointed to by IbPassword, the client SHOULD first swap the four high bits with the four low bits and then do a bit-XOR with 0xA5 (10100101). After reading a submitted password, for every byte in the password buffer starting with the position pointed to by IbPassword, the server SHOULD first do a bit-XOR with 0xA5 (10100101) and then swap the four high bits with the four low bits.</p> <p data-bbox="492 1066 621 1098">Changed to:</p> <p data-bbox="492 1140 1422 1318">Before submitting a password from the client to the server, for every byte in the password buffer starting with the position pointed to by ibPassword or ibChangePassword, the client MUST first swap the four high bits with the four low bits and then do a bit-XOR with 0xA5 (10100101). After reading a submitted password, for every byte in the password buffer starting with the position pointed to by ibPassword or ibChangePassword, the server MUST first do a bit-XOR with 0xA5 (10100101) and then swap the four high bits with the four low bits.</p>
2017/11/13	<p data-bbox="492 1341 1422 1415">In Section 2.2.7.4, COLMETADATA, a new product behavior note was added regarding the fHidden bit flag. In the Flags row of the Token Stream Parameter Details table, the tenth bullet was changed from:</p> <ul data-bbox="492 1457 1390 1509" style="list-style-type: none"> <li data-bbox="492 1457 1390 1509">• fHidden is a bit flag. Its value is 1 if the column is part of a hidden primary key created to support a T-SQL SELECT statement containing FOR BROWSE. <p data-bbox="492 1551 621 1583">Changed to:</p> <ul data-bbox="492 1625 1390 1677" style="list-style-type: none"> <li data-bbox="492 1625 1390 1677">• fHidden is a bit flag. Its value is 1 if the column is part of a hidden primary key created to support a T-SQL SELECT statement containing FOR BROWSE.<41> <p data-bbox="492 1719 1365 1772"><41> Section 2.2.7.4: SQL Server 2016 supports the fHidden flag only through a many-to-many result and by connecting via ODBC.</p>
2017/11/13	<p data-bbox="492 1791 1222 1822">In Section 3.3.5.1, Initial State, the two bullets were changed from:</p>

Errata Published*	Description
	<ul style="list-style-type: none"> • Return to the client a PRELOGIN structure wrapped in a table response (0x04) packet with Encryption and enter "TLS/SSL Negotiation" state if encryption is negotiated. • Return to the client a PRELOGIN structure wrapped in a table response (0x04) packet without Encryption and enter unencrypted "Login Ready" state if encryption is not negotiated. <p>Changed to:</p> <ul style="list-style-type: none"> • Return to the client a PRELOGIN structure wrapped in a table response (0x04) packet and enter "TLS/SSL Negotiation" state if encryption is negotiated. • Return to the client a PRELOGIN structure wrapped in a table response (0x04) packet and enter unencrypted "Login Ready" state if encryption is not negotiated.

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[MS-TLSP]: Transport Layer Security (TLS) Profile

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[MS-TPMVSC]: Trusted Platform Module (TPM) Virtual Smart Card Management Protocol

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[MS-TSCH]: Task Scheduler Service Remoting Protocol

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[MS-TSGU]: Terminal Services Gateway Server Protocol

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Errata below are for Protocol Document Version [V38.0 – 2017/09/15](#).

Errata Published*	Description
2017/11/27	<p>In Sections 1.3.2.1.2, 1.7.2, 2.2.3.3, 2.2.3.3.1 through 2.2.3.3.7, 2.2.5.3.2, 2.2.5.3.10, 2.2.6.1, 3.3.5.1, 3.3.5.3, 3.3.5.3.1 through 3.3.5.3.3, and 4.2.1, the following preliminary note was removed:</p> <p>Note: Some of the information in this section is subject to change because it applies to a preliminary product version, and thus may differ from the final version of the software when released.</p> <p>In Section 3.4.3.2, Connection Setup Phase, extra spaces were removed from three field names.</p> <p>Changed from:</p> <p>AUTHN_COOKIE_DATA .ftExpiryTime AUTHN_COOKIE_DATA .szServerName AUTHN_COOKIE_DATA .szServerIP</p> <p>Changed to:</p> <p>AUTHN_COOKIE_DATA.ftExpiryTime AUTHN_COOKIE_DATA.szServerName AUTHN_COOKIE_DATA.szServerIP</p> <p>In Section 2.2.5.4.1, UdpPktType Enumeration, an extra space was removed from the following constant/value in the table.</p> <p>Changed from:</p> <p>PKT_TYPE_CONNECT_REQ_FRAGMENT /5</p>

Errata Published*	Description
	Changed to: PKT_TYPE_CONNECT_REQ_FRAGMENT/5

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[MS-TSTS]: Terminal Services Terminal Server Runtime Interface Protocol

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[MS-UAMG]: Update Agent Management Protocol

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[MS-UCODEREF]: Windows Protocols Unicode Reference

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[MS-VAPR]: Virtual Application Publication and Reporting (App-V) Protocol

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[MS-VHDX]: Virtual Hard Disk v2 (VHDX) File Format

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[MS-W32T]: W32Time Remote Protocol

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[MS-WCCE]: Windows Client Certificate Enrollment Protocol

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[MS-WCFESAN]: WCF-Based Encrypted Server Administration and Notification Protocol

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[MS-WDSMT]: Windows Deployment Services Multicast Transport Protocol

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[MS-WFDAA]: Wi-Fi Direct (WFD) Application to Application Protocol

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[MS-WFDPE]: Wi-Fi Display Protocol Extension

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[MS-WKST]: Workstation Service Remote Protocol

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[MS-WPO]: Windows Protocols Overview

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[MS-WMF]: Windows Metafile Format

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[MS-WSDS]: WS-Enumeration Directory Services Protocol Extensions

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[MS-WSMV]: Web Services Management Protocol Extensions for Windows Vista

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Errata below are for Protocol Document Version [V31.0 - 2017/09/15](#).

Errata Published*	Description
2017/11/13	<p>In Section 3.1.4.15, Disconnect, a sentence was added to clarify the requirements for a client to support the Disconnect operation.</p> <p>Changed from:</p> <p>...</p> <p>This operation is applicable for the Custom Remote Shell scenario only. To disconnect from an existing shell instance, a client sends the Disconnect message to the EPR of that shell instance. The server MUST process the Disconnect request as follows:</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>This operation is applicable for the Custom Remote Shell scenario only. To disconnect from an existing shell instance, a client sends the Disconnect message to the EPR of that shell instance. For a server to support the Disconnect operation, the client must supply a unique ShellId in the original Create (section 3.1.4.5) request, as specified in the definition for the Shell complex type (section 2.2.4.37). The server MUST process the Disconnect request as follows:</p> <p>...</p>
2017/10/02	<p>In Section 2.2.9.1.3.1.2.2, Encrypted Data, and Section 2.2.9.1.3.2.2.2, Encrypted Data, added a sentence to the description of Length-Field to include a reference for further details.</p> <p>Changed from:</p> <p>...</p> <p>Length-Field: The Length-Field MUST follow immediately after the previous token. It MUST be a 32-bit unsigned integer that specifies the length of any trailer portion of the Message field.</p>

Errata Published*	Description
	Changed to: ... Length-Field: The Length-Field MUST follow immediately after the previous token. It MUST be a 32-bit unsigned integer that specifies the length of any trailer portion of the Message field. For details, see padding_length as defined in [RFC5246] section 6.2.3.2

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[MS-WSP]: Windows Search Protocol

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[MS-WSTEP]: WS-Trust X.509v3 Token Enrollment Extensions

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[MS-WSUSAR]: Windows Server Update Services: Administrative API Remoting Protocol

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[MS-WSUSOD]: Windows Server Update Services Protocols Overview

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[MS-WSUOSS]: Windows Update Services: Server-Server Protocol

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[MS-WUSP]: Windows Update Services: Client-Server Protocol

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[MS-XCEP]: X.509 Certificate Enrollment Policy Protocol

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