

[MS-TDS]: Tabular Data Stream Protocol

This topic lists the Errata found in [MS-TDS] 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.

To view a PDF file of the errata for the previous versions of this document, see the following ERRATA Archives:

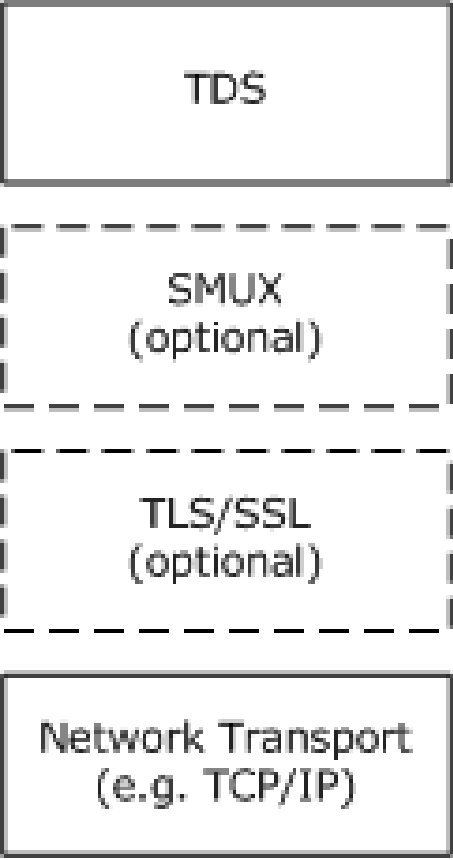
October 16, 2015 - [Download](#)

June 30, 2015 - [Download](#)

March 20, 2017 - [Download](#)

Errata below are for Protocol Document Version [V20.0 – 2017/06/01](#).

Errata Published*	Description
2017/07/24	<p>In Section 1.1, Glossary, the definition of Session Multiplex Protocol was changed from:</p> <p>Session Multiplex Protocol (SMUX): An entity on a network that implements the Secure Socket Tunneling Protocol (SSTP) and that listens for SSTP connections over TCP port 443.</p> <p>Changed to:</p> <p>Session Multiplex Protocol (SMP): A multiplexing protocol that enables multiple logical client connections to share a single transport connection to a server. Used by Multiple Active Result Sets (MARS). For more information, see [MC-SMP].</p> <p>In Section 1.4, Relationship to Other Protocols, in Figure 2: Protocol relationship, the abbreviation SMUX was changed to SMP.</p> <p>Changed from:</p>

Errata Published*	Description
	 <p data-bbox="483 1144 617 1178">Changed to:</p>

Errata Published*	Description
	<div style="border: 1px solid black; width: fit-content; margin: 0 auto; padding: 10px; text-align: center;"> <p>TDS</p> </div> <div style="border: 1px dashed black; width: fit-content; margin: 10px auto; padding: 10px; text-align: center;"> <p>SMP (optional)</p> </div> <div style="border: 1px dashed black; width: fit-content; margin: 10px auto; padding: 10px; text-align: center;"> <p>TLS/SSL (optional)</p> </div> <div style="border: 1px solid black; width: fit-content; margin: 10px auto; padding: 10px; text-align: center;"> <p>Network Transport (e.g. TCP/IP)</p> </div> <p>In Section 3.2.4, Higher-Layer Triggered Events, the abbreviation SMUX was changed to SMP in the second and third bullets of the fourth bullet list.</p> <p>Changed from:</p> <ul style="list-style-type: none"> • If MARS is enabled, the client MUST keep track whether there is an outstanding active request. If this is the case, then the client MUST initiate a new SMUX session, or else an existing SMUX session MAY be used. • Send either SQL Command, SQL Command with Binary Data, Transaction Manager Request, or a RPC message to the server. The message and its content MUST match the requested message from the Client Request. If MARS is enabled, the TDS message MUST be passed through to the SMUX layer. <p>Changed to:</p> <ul style="list-style-type: none"> • If MARS is enabled, the client MUST keep track whether there is an outstanding active request. If this is the case, then the client MUST initiate a new SMP session, or else an existing SMP session MAY be used. • Send either SQL Command, SQL Command with Binary Data, Transaction Manager Request, or a RPC message to the server. The message and its content MUST match the requested message from the Client Request. If MARS is enabled, the TDS message MUST be passed through to the SMP layer. <p>The abbreviation was also changed in the second bullet of the last bullet list.</p>

Errata Published*	Description
	<p>Changed from:</p> <ul style="list-style-type: none"> • Send an Attention message to the server. This indicates to the server that the client intends to abort the currently executing request. If MARS is enabled, the Attention message MUST be passed through to the SMUX layer. <p>Changed to:</p> <ul style="list-style-type: none"> • Send an Attention message to the server. This indicates to the server that the client intends to abort the currently executing request. If MARS is enabled, the Attention message MUST be passed through to the SMP layer. <p>In Section 3.2.5.6, Logged In State, in the third sentence, the abbreviation SMUX was changed to SMP.</p> <p>Changed from:</p> <p>If MARS is enabled, the TDS client MUST send the appropriate request to the SMUX layer.</p> <p>Changed to:</p> <p>If MARS is enabled, the TDS client MUST send the appropriate request to the SMP layer.</p> <p>In Section 3.3.5.7, Client Request Execution State, in the fifth bullet of the bullet list, the abbreviation SMUX was changed to SMP.</p> <p>Changed from:</p> <ul style="list-style-type: none"> • If MARS is enabled, all TDS server responses to client request messages MUST be passed through to the SMUX layer. <p>Changed to:</p> <ul style="list-style-type: none"> • If MARS is enabled, all TDS server responses to client request messages MUST be passed through to the SMP layer.
2017/07/24	<p>In Section 2.2.3.1.1, Type, in the first table, the heading of the third column was changed from:</p> <p>Buffer data?</p> <p>Changed to:</p> <p>Packet contains data?</p>
2017/07/24	<p>In Section 1.3, Overview, the word "buffer" was changed to "packet" in the penultimate paragraph.</p> <p>Changed from:</p>

Errata Published*	Description
	<p>For more information about the correlation between data stream and TDS buffer, see section 2.2.4.<1></p> <p>Changed to: For more information about the correlation between data stream and TDS packet, see section 2.2.4.<1></p> <p>In Section 2.2.1.7, Attention, the word "buffer" was changed to "packet" in the last sentence.</p> <p>Changed from:</p> <p>For more details about the buffer header status code, see section 2.2.3.1.2.</p> <p>Changed to:</p> <p>For more details about the packet header status code, see section 2.2.3.1.2.</p> <p>In Section 2.2.3.1, Packet Header, the word "buffer" was changed to "packet" in the last sentence of the first paragraph.</p> <p>Changed from:</p> <p>Most importantly, the buffer header states the Type and Length of the entire packet.</p> <p>Changed to:</p> <p>Most importantly, the packet header states the Type and Length of the entire packet.</p> <p>In Section 2.2.3.1.1, Type, in the second table, the heading of the third column was changed from:</p> <p>Buffer header type</p> <p>Changed to:</p> <p>Packet header type</p> <p>The title of Section 2.2.5.8 was changed from:</p> <p>Data Buffer Stream Tokens</p> <p>Changed to:</p> <p>Data Packet Stream Tokens</p> <p>In Section 2.2.6.5, PRELOGIN, under the subheading "Encryption", the word "buffer" was changed to "packet" in the penultimate paragraph and example.</p> <p>Changed from:</p>

Errata Published*	Description
	<p>If client and server negotiate to enable encryption, an SSL handshake takes place immediately after the initial PRELOGIN/table response message exchange. The SSL payloads MUST be transported as data in TDS buffers with the message type set to 0x12 in the packet header. For example:</p> <pre data-bbox="576 409 1112 457"> 0x 12 01 00 4e 00 00 00 00// Buffer Header 0x 16 03 01 00 &// SSL payload </pre> <p>Changed to:</p> <p>If client and server negotiate to enable encryption, an SSL handshake takes place immediately after the initial PRELOGIN/table response message exchange. The SSL payloads MUST be transported as data in TDS packets with the message type set to 0x12 in the packet header. For example:</p> <pre data-bbox="576 741 1112 789"> 0x 12 01 00 4e 00 00 00 00// Packet Header 0x 16 03 01 00 &// SSL payload </pre> <p>In Section 4.14, TVP Insert Statement, "BufferData" was changed to "PacketData" in the following lines of XML.</p> <p>Changed from:</p> <pre data-bbox="548 1056 857 1171"> <tds version="katmai"> <BufferData> . . . </BufferData> </tds> </pre> <p>Changed to:</p> <pre data-bbox="548 1318 857 1434"> <tds version="katmai"> <PacketData> . . . </PacketData> </tds> </pre> <p>In Section 4.15, SparseColumn Select Statement, "BufferHeader" was changed to "PacketHeader" and "BufferData" was changed to "PacketData" in the following lines of XML.</p> <p>Changed from:</p> <pre data-bbox="548 1728 857 1894"> <tds version="katmai"> <BufferHeader> . . . </BufferHeader> <BufferData> . . . </BufferData> </pre>

Errata Published*	Description
	<p data-bbox="576 241 657 268"></tds></p> <p data-bbox="479 321 613 348">Changed to:</p> <pre data-bbox="544 409 860 598"> <tds version="katmai"> <PacketHeader> . . . </PacketHeader> <PacketData> . . . </PacketData> </tds> </pre> <p data-bbox="479 688 1388 766">In Section 4.16, FeatureExt with SessionRecovery Feature Data, "BufferHeader" was changed to "PacketHeader" and "BufferData" was changed to "PacketData" in the following lines of XML.</p> <p data-bbox="479 808 641 835">Changed from:</p> <pre data-bbox="544 892 860 1081"> <tds version="latest"> <BufferHeader> . . . </BufferHeader> <BufferData> . . . </BufferData> </tds> </pre> <p data-bbox="479 1140 613 1167">Changed to:</p> <pre data-bbox="544 1228 860 1417"> <tds version="latest"> <PacketHeader> . . . </PacketHeader> <PacketData> . . . </PacketData> </tds> </pre> <p data-bbox="479 1507 1404 1585">In Section 4.17, FeatureExtAck with SessionRecovery Feature Data, "BufferHeader" was changed to "PacketHeader" and "BufferData" was changed to "PacketData" in the following lines of XML.</p> <p data-bbox="479 1627 641 1654">Changed from:</p> <pre data-bbox="544 1711 860 1877"> <tds version="latest"> <BufferHeader> . . . </BufferHeader> <BufferData> . . . </BufferData> </pre>

Errata Published*	Description
	<p data-bbox="578 247 656 268"></tds></p> <p data-bbox="483 325 613 346">Changed to:</p> <pre data-bbox="548 411 860 600"> <tds version="latest"> <PacketHeader> . . . </PacketHeader> <PacketData> . . . </PacketData> </tds> </pre> <p data-bbox="483 688 1383 766">In Section 4.18, Table Response with SessionState Token Data, "BufferHeader" was changed to "PacketHeader" and "BufferData" was changed to "PacketData" in the following lines of XML.</p> <p data-bbox="483 810 646 831">Changed from:</p> <pre data-bbox="548 896 860 1085"> <tds version="latest"> <BufferHeader> . . . </BufferHeader> <BufferData> . . . </BufferData> </tds> </pre> <p data-bbox="483 1140 613 1161">Changed to:</p> <pre data-bbox="548 1226 860 1415"> <tds version="latest"> <PacketHeader> . . . </PacketHeader> <PacketData> . . . </PacketData> </tds> </pre>
2017/07/24	<p data-bbox="483 1491 1367 1568">In Section 6, Appendix A: Product Behavior, in note 1, support by versions of SQL Server and the .NET Framework was clarified by separating the one table into two tables.</p> <p data-bbox="483 1608 646 1629">Changed from:</p> <p data-bbox="483 1675 1399 1780"><1> Section 1.3: The following table describes the latest TDS version that is supported by a particular version of Microsoft SQL Server or the .NET Framework. To determine the earliest TDS version that is supported by a particular SQL Server or .NET Framework version, refer to the product documentation.</p>

TDS version	SQL Server version	.NET Framework version
7.0	SQL Server 7.0	.NET Framework 1.1
7.1	SQL Server 2000	.NET Framework 1.1
7.1 Revision 1	SQL Server 2000 SP1	.NET Framework 1.1
7.2	SQL Server 2005	.NET Framework 2.0
7.3.A	SQL Server 2008	.NET Framework 4.0
7.3.B	SQL Server 2008 R2	.NET Framework 4.0
7.4	SQL Server 2012 SQL Server 2014 SQL Server 2016 SQL Server 2017 RC1	.NET Framework 4.5 .NET Framework 4.6 .NET Framework 4.7

Changed to:

<1> Section 1.3: The following table describes the latest TDS version that is supported by a particular version of Microsoft SQL Server. To determine the earliest TDS version that is supported by a particular SQL Server version, refer to the product documentation.

TDS version	SQL Server version
7.0	SQL Server 7.0
7.1	SQL Server 2000
7.1 Revision 1	SQL Server 2000 SP1
7.2	SQL Server 2005
7.3.A	SQL Server 2008
7.3.B	SQL Server 2008 R2
7.4	SQL Server 2012 SQL Server 2014 SQL Server 2016 SQL Server 2017 RC1

The following table describes the TDS versions that are supported by particular versions of the .NET Framework.

TDS version	.NET Framework version
7.0	.NET Framework 1.1
7.1	.NET Framework 1.1
7.1 Revision 1	.NET Framework 1.1
7.2	.NET Framework 2.0

Errata Published*	Description												
	<table border="1"> <tr> <td data-bbox="500 241 954 327">7.3.A</td> <td data-bbox="954 241 1430 327">.NET Framework 2.0 .NET Framework 4.0</td> </tr> <tr> <td data-bbox="500 327 954 413">7.3.B</td> <td data-bbox="954 327 1430 413">.NET Framework 2.0 .NET Framework 4.0</td> </tr> <tr> <td data-bbox="500 413 954 537">7.4</td> <td data-bbox="954 413 1430 537">.NET Framework 4.5 .NET Framework 4.6 .NET Framework 4.7</td> </tr> </table>	7.3.A	.NET Framework 2.0 .NET Framework 4.0	7.3.B	.NET Framework 2.0 .NET Framework 4.0	7.4	.NET Framework 4.5 .NET Framework 4.6 .NET Framework 4.7						
7.3.A	.NET Framework 2.0 .NET Framework 4.0												
7.3.B	.NET Framework 2.0 .NET Framework 4.0												
7.4	.NET Framework 4.5 .NET Framework 4.6 .NET Framework 4.7												
2017/07/24	<p>In Section 6, Appendix A: Product Behavior, in note 24, SQL Server 2016 was added to the list of products. Changed from:</p> <p><24> Section 2.2.6.4: ANSI_DEFAULTS, CURSOR_CLOSE_ON_COMMIT, IMPLICIT_TRANSACTIONS, and ROWCOUNT are supported only by SQL Server 7.0, SQL Server 2000, SQL Server 2005, SQL Server 2008, SQL Server 2008 R2, SQL Server 2012, and SQL Server 2014.</p> <p>Changed to:</p> <p><24> Section 2.2.6.4: ANSI_DEFAULTS, CURSOR_CLOSE_ON_COMMIT, IMPLICIT_TRANSACTIONS, and ROWCOUNT are supported by SQL Server 7.0, SQL Server 2000, SQL Server 2005, SQL Server 2008, SQL Server 2008 R2, SQL Server 2012, SQL Server 2014, and SQL Server 2016.</p>												
2017/06/15	<p>In Section 2.2.6.4, LOGIN7, in the Stream Parameter Details table, in the description of the OffsetLength parameter, the eleventh bullet was changed from:</p> <ul style="list-style-type: none"> ClientID: The unique client ID (created used NIC address). <p>Changed to:</p> <ul style="list-style-type: none"> ClientID: The unique client ID (created by using the NIC address). ClientID is the MAC address of the physical network layer. It is used to identify the client that is connecting to the server. This value is mainly informational, and no processing steps on the server side use it. 												
2017/06/15	<p>In Section 2.2.6.5, PRELOGIN, in the first table, the description of the VERSION token was revised, and a new product behavior note was added. The first row of the table was changed from:</p> <table border="1"> <thead> <tr> <th data-bbox="500 1325 743 1377">PL_OPTION_TOKEN</th> <th data-bbox="743 1325 862 1377">Value</th> <th data-bbox="862 1325 1430 1377">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="500 1377 743 1709">VERSION</td> <td data-bbox="743 1377 862 1709">0x00</td> <td data-bbox="862 1377 1430 1709"> PL_OPTION_DATA = UL_VERSION US_SUBBUILD UL_VERSION is represented in network byte order (big-endian). The server SHOULD use the VERSION sent by the client to the server. The client SHOULD use the version returned from the server to determine which features are enabled or disabled. The client SHOULD do this only if it is known that this feature is supported by that version of the database.<28> </td> </tr> </tbody> </table> <p><28> Section 2.2.6.5: The US_SUBBUILD returned by SQL Server is always 0.</p> <p>Changed to:</p> <table border="1"> <thead> <tr> <th data-bbox="500 1787 743 1839">PL_OPTION_TOKEN</th> <th data-bbox="743 1787 862 1839">Value</th> <th data-bbox="862 1787 1430 1839">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="500 1839 743 1892">VERSION</td> <td data-bbox="743 1839 862 1892">0x00</td> <td data-bbox="862 1839 1430 1892">PL_OPTION_DATA = UL_VERSION</td> </tr> </tbody> </table>	PL_OPTION_TOKEN	Value	Description	VERSION	0x00	PL_OPTION_DATA = UL_VERSION US_SUBBUILD UL_VERSION is represented in network byte order (big-endian). The server SHOULD use the VERSION sent by the client to the server. The client SHOULD use the version returned from the server to determine which features are enabled or disabled. The client SHOULD do this only if it is known that this feature is supported by that version of the database.<28>	PL_OPTION_TOKEN	Value	Description	VERSION	0x00	PL_OPTION_DATA = UL_VERSION
PL_OPTION_TOKEN	Value	Description											
VERSION	0x00	PL_OPTION_DATA = UL_VERSION US_SUBBUILD UL_VERSION is represented in network byte order (big-endian). The server SHOULD use the VERSION sent by the client to the server. The client SHOULD use the version returned from the server to determine which features are enabled or disabled. The client SHOULD do this only if it is known that this feature is supported by that version of the database.<28>											
PL_OPTION_TOKEN	Value	Description											
VERSION	0x00	PL_OPTION_DATA = UL_VERSION											

Errata Published*	Description		
			<p style="text-align: right;">US_SUBBUILD</p> <p>UL_VERSION = ((US_BUILD<<16) (VER_SQL_MINOR<<16) (VER_SQL_MAJOR<<16))</p> <p>UL_VERSION is represented in network byte order (big-endian).</p> <p>The server SHOULD use the VERSION sent by the client to the server. The client SHOULD use the version returned from the server to determine which features are enabled or disabled. The client SHOULD do this only if it is known that this feature is supported by that version of the database.<28></p> <p>The VERSION token contains the product build version numbers. It SHOULD contain the major and minor version and build numbers of the data access provider.<28a></p>
	<p><28> Section 2.2.6.5: The US_SUBBUILD returned by SQL Server is always 0.</p> <p><28a> Section 2.2.6.5: The major and minor version numbers of the data access provider's build are intended to match the major and minor versions of the most recent SQL Server build that a client is intended to use.</p>		

*Date format: YYYY/MM/DD