

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

This topic lists the Errata found in [MS-RDPERP] 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 [V23.0 – 2019/09/23](#).

Errata Published*	Description
2019/10/28	<p>In Section 3.2.5.1.4, Constructing Confirm Active PDU, added a reference to explain the capabilitySets field of the TS_CONFIRM_ACTIVE_PDU structure.</p> <p>Changed from:</p> <p>...</p> <p>Remote applications integrated locally (RAIL) clients MUST populate this PDU with two RAIL-specific capabilities in the capabilitySets field of the TS_CONFIRM_ACTIVE_PDU structure: the Remote Programs Capability Set, as specified in section 2.2.1.1.1, and the Window List Capability Set, as specified in section 2.2.1.1.2.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>Remote applications integrated locally (RAIL) clients MUST populate this PDU with two RAIL-specific capabilities in the capabilitySets field of the TS_CONFIRM_ACTIVE_PDU ([MS-RDPBCGR] section 2.2.1.13.2.1) structure: the Remote Programs Capability Set, as specified in section 2.2.1.1.1, and the Window List Capability Set, as specified in section 2.2.1.1.2.</p> <p>...</p> <p>In Section 3.2.5.1.5, Processing Demand Active PDU, added a reference to explain the capabilitySets field of the TS_DEMAND_ACTIVE_PDU structure.</p> <p>Changed from:</p> <p>...</p> <p>Remote applications integrated locally (RAIL) clients MUST verify that this PDU contains two RAIL-specific capabilities in the capabilitySets field of the TS_DEMAND_ACTIVE_PDU structure: the Remote Programs Capability Set, as specified in section 2.2.1.1.1, and the Window List Capability Set, as specified in section 2.2.1.1.2. If it does not contain these capability sets, or if the RailSupportLevel of the Remote Programs Capability Set is not set to at least TS_RAIL_LEVEL_SUPPORTED, or the WndSupportLevel of the Window List Capability Set is TS_WINDOW_LEVEL_NOT_SUPPORTED (0), the client MUST drop the connection.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>Remote applications integrated locally (RAIL) clients MUST verify that this PDU contains two RAIL-specific capabilities in the capabilitySets field of the TS_DEMAND_ACTIVE_PDU ([MS-RDPBCGR] section 2.2.1.13.1.1) structure: the Remote Programs Capability Set, as specified in section 2.2.1.1.1, and the Window List Capability Set, as specified in section 2.2.1.1.2. If it</p>

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	<p>does not contain these capability sets, or if the RailSupportLevel of the Remote Programs Capability Set is not set to at least TS_RAIL_LEVEL_SUPPORTED, or the WndSupportLevel of the Window List Capability Set is TS_WINDOW_LEVEL_NOT_SUPPORTED (0), the client MUST drop the connection.</p> <p>...</p> <p>In Section 3.2.5.2.8.1, Sending Client Get Application ID PDU, changed Windows Information Order to Window Information Order.</p> <p>Changed from:  After being initialized as specified in section 2.2.2.6.5, this PDU MAY be sent from a client to a server after receiving a Windows Information Order containing the WINDOW_ORDER_STATE_NEW (0x10000000) flag.</p> <p>Changed to:  After being initialized as specified in section 2.2.2.6.5, this PDU MAY be sent from a client to a server after receiving a Window Information Order containing the WINDOW_ORDER_STATE_NEW (0x10000000) flag.</p> <p>In Section 3.3.5.1.4, Constructing Demand Active PDU, added a reference to explain the capabilitySets field of the TS_DEMAND_ACTIVE_PDU structure.</p> <p>Changed from:  ...  If the client has requested support for remote applications integrated locally (RAIL) in the Client Info PDU (as specified in [MS-RDPBCGR] section 2.2.1.11), and the server supports RAIL, the server MUST specify two RAIL-specific capabilities in the capabilitySets field of the TS_DEMAND_ACTIVE_PDU structure: the Remote Programs Capability Set (section 2.2.1.1.1) and the Window List Capability Set (section 2.2.1.1.2).</p> <p>...  Changed to:  ...  If the client has requested support for remote applications integrated locally (RAIL) in the Client Info PDU (as specified in [MS-RDPBCGR] section 2.2.1.11), and the server supports RAIL, the server MUST specify two RAIL-specific capabilities in the capabilitySets field of the TS_DEMAND_ACTIVE_PDU ([MS-RDPBCGR] section 2.2.1.13.1.1) structure: the Remote Programs Capability Set (section 2.2.1.1.1) and the Window List Capability Set (section 2.2.1.1.2).</p> <p>...  In Section 3.3.5.1.5, Processing Confirm Active PDU, added a reference to explain the capabilitySets field of the TS_CONFIRM_ACTIVE_PDU structure.</p> <p>Changed from:  ...  If the client has requested support for remote applications integrated locally (RAIL) in the Client Info PDU (see section 3.2.5.1.3), and the server has indicated support for RAIL in the Demand Active PDU (see section 3.3.5.1.4), the server MUST verify that this PDU contains two RAIL-specific capabilities in the capabilitySets field of the TS_CONFIRM_ACTIVE_PDU structure: the Remote Programs Capability Set (section 2.2.1.1.1) and the Window List</p>

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	<p>Capability Set (section 2.2.1.1.2). If it does not contain these capability sets, or the RailSupportLevel of the Remote Programs Capability Set is not set to at least TS_RAIL_LEVEL_SUPPORTED, or the WndSupportLevel of the Window List Capability Set is TS_WINDOW_LEVEL_NOT_SUPPORTED (0), the server MUST drop the connection.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>If the client has requested support for remote applications integrated locally (RAIL) in the Client Info PDU (see section 3.2.5.1.3), and the server has indicated support for RAIL in the Demand Active PDU (see section 3.3.5.1.4), the server MUST verify that this PDU contains two RAIL-specific capabilities in the capabilitySets field of the TS_CONFIRM_ACTIVE_PDU ([MS-RDPBCGR] section 2.2.1.13.2.1) structure: the Remote Programs Capability Set (section 2.2.1.1.1) and the Window List Capability Set (section 2.2.1.1.2). If it does not contain these capability sets, or the RailSupportLevel of the Remote Programs Capability Set is not set to at least TS_RAIL_LEVEL_SUPPORTED, or the WndSupportLevel of the Window List Capability Set is TS_WINDOW_LEVEL_NOT_SUPPORTED (0), the server MUST drop the connection.</p> <p>...</p> <p>In Section 4.3.1, TS_RAIL_ORDER_EXEC, changed ArgumentsLength to ArgumentsLen in the network capture.</p> <p>Changed from:</p> <p>...</p> <p>Header:</p> <pre>01 00 -&gt; TS_RAIL_PDU_HEADER::orderType = TS_RAIL_ORDER_EXEC (1) (2 Bytes) 5e 00 -&gt; TS_RAIL_PDU_HEADER::orderLength = 94 (2 Bytes) 08 00 -&gt; Flags : TS_RAIL_EXEC_FLAG_EXPAND_ARGUMENTS (2 Bytes) 14 00 -&gt; ExeOrFileLength : 0x14 (2 Bytes) 26 00 -&gt; WorkingDirLength : 0x26 (2 Bytes) 18 00 -&gt; ArgumentsLength : 0x18 (2 Bytes) ...</pre> <p>Changed to:</p> <p>...</p> <p>Header:</p> <pre>01 00 -&gt; TS_RAIL_PDU_HEADER::orderType = TS_RAIL_ORDER_EXEC (1) (2 Bytes) 5e 00 -&gt; TS_RAIL_PDU_HEADER::orderLength = 94 (2 Bytes) 08 00 -&gt; Flags : TS_RAIL_EXEC_FLAG_EXPAND_ARGUMENTS (2 Bytes) 14 00 -&gt; ExeOrFileLength : 0x14 (2 Bytes) 26 00 -&gt; WorkingDirLength : 0x26 (2 Bytes) 18 00 -&gt; ArgumentsLen : 0x18 (2 Bytes) ...</pre>
2019/10/28	<p>In Section 4.1.1.1, New or Existing Windows, changed TS_WINDOW_ORDER_HEADER::Flags to TS_WINDOW_ORDER_HEADER::Header in the network capture.</p> <p>Changed from:</p> <p>...</p> <pre>2e -&gt; TS_WINDOW_ORDER_HEADER::Flags (1 Byte) 81 00 -&gt; TS_WINDOW_ORDER_HEADER::OrderSize (2 Bytes)</pre>

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	<p>9e df 08 19 -&gt; TS_WINDOW_ORDER_HEADER::FieldsPresentFlags (4 Bytes)  58 01 12 00 -&gt; WindowId  00 00 00 00 -&gt; OwnerWindowId  00 00 cf 14 -&gt; Style  00 01 00 00 -&gt; ExtendedStyle  05 -&gt; ShowState  ...  Changed to:  ...  2e -&gt; TS_WINDOW_ORDER_HEADER::Header (1 Byte)  81 00 -&gt; TS_WINDOW_ORDER_HEADER::OrderSize (2 Bytes)  9e df 08 19 -&gt; TS_WINDOW_ORDER_HEADER::FieldsPresentFlags (4 Bytes)  58 01 12 00 -&gt; WindowId  00 00 00 00 -&gt; OwnerWindowId  00 00 cf 14 -&gt; Style  00 01 00 00 -&gt; ExtendedStyle  05 -&gt; ShowState  ...  In Section 4.1.1.2, Deleted Window, changed TS_WINDOW_ORDER_HEADER::Flags to TS_WINDOW_ORDER_HEADER::Header in the network capture.  Changed from:  ...  2e -&gt; TS_WINDOW_ORDER_HEADER::Flags (1 Byte)  0b 00 -&gt; TS_WINDOW_ORDER_HEADER::OrderSize (2 Bytes)  00 00 00 21 -&gt; TS_WINDOW_ORDER_HEADER::FieldsPresentFlags (4 Bytes)  (WINDOW_ORDER_TYPE_WINDOW   WINDOW_ORDER_STATE_DELETED )  24 00 03 00 -&gt; WindowId  Changed to:  ...  2e -&gt; TS_WINDOW_ORDER_HEADER::Header (1 Byte)  0b 00 -&gt; TS_WINDOW_ORDER_HEADER::OrderSize (2 Bytes)  00 00 00 21 -&gt; TS_WINDOW_ORDER_HEADER::FieldsPresentFlags (4 Bytes)  (WINDOW_ORDER_TYPE_WINDOW   WINDOW_ORDER_STATE_DELETED )  24 00 03 00 -&gt; WindowId  ...  In Section 4.1.1.3, New or Existing Notification Icons, changed TS_NOTIFYICON_ORDER_HEADER::Flags to TS_NOTIFYICON_ORDER_HEADER::Header in the network capture.  Changed from:  ...  2e -&gt; TS_NOTIFYICON_ORDER_HEADER::Flags(1 Byte)</p>

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	<p>9d 04 -&gt; TS_NOTIFYICON_ORDER_HEADER::OrderSize(2 Bytes)  01 00 00 52 -&gt; TS_NOTIFYICON_ORDER_HEADER::FieldsPresentFlags (4 Bytes)  WINDOW_ORDER_TYPE_NOTIFY   WINDOW_ORDER_FIELD_NOTIFY_TIP    WINDOW_ORDER_STATE_NEW   WINDOW_ORDER_ICON)  8e 00 01 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::WindowId  d2 9c 00 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::NotifyIconId  ...    Changed to:  ...  2e -&gt; TS_NOTIFYICON_ORDER_HEADER::Header(1 Byte)  9d 04 -&gt; TS_NOTIFYICON_ORDER_HEADER::OrderSize(2 Bytes)  01 00 00 52 -&gt; TS_NOTIFYICON_ORDER_HEADER::FieldsPresentFlags (4 Bytes)  WINDOW_ORDER_TYPE_NOTIFY   WINDOW_ORDER_FIELD_NOTIFY_TIP    WINDOW_ORDER_STATE_NEW   WINDOW_ORDER_ICON)  8e 00 01 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::WindowId  d2 9c 00 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::NotifyIconId  ...    In Section 4.1.1.4, Deleted Notification Icons, changed  TS_NOTIFYICON_ORDER_HEADER::Flags to TS_NOTIFYICON_ORDER_HEADER::Header in the  network capture.    Changed from:  ...  2e -&gt; TS_NOTIFYICON_ORDER_HEADER::Flags(1 Byte)  0f 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::OrderSize(2 Bytes)  01 00 00 62 -&gt; TS_NOTIFYICON_ORDER_HEADER::FieldsPresentFlags (4 Bytes)  WINDOW_ORDER_TYPE_NOTIFY   WINDOW_ORDER_STATE_DELETED    WINDOW_ORDER_FIELD_NOTIFY_TIP   WINDOW_ORDER_ICON)  f4 01 03 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::WindowId  00 00 00 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::NotifyIconId  ...    Changed to:  ...  2e -&gt; TS_NOTIFYICON_ORDER_HEADER::Header(1 Byte)  0f 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::OrderSize(2 Bytes)  01 00 00 62 -&gt; TS_NOTIFYICON_ORDER_HEADER::FieldsPresentFlags (4 Bytes)  WINDOW_ORDER_TYPE_NOTIFY   WINDOW_ORDER_STATE_DELETED    WINDOW_ORDER_FIELD_NOTIFY_TIP   WINDOW_ORDER_ICON)  f4 01 03 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::WindowId  00 00 00 00 -&gt; TS_NOTIFYICON_ORDER_HEADER::NotifyIconId  ...  </p>

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	<p>In Section 4.1.1.5, Actively Monitored Desktop, changed TS_DESKTOP_ORDER_HEADER::Flags to TS_DESKTOP_ORDER_HEADER::Header in the network capture.</p> <p>Changed from:</p> <p>...</p> <p>2e -&gt; TS_DESKTOP_ORDER_HEADER::Flags  14 00 -&gt; TS_DESKTOP_ORDER_HEADER::OrderSize  30 00 00 04 -&gt; TS_DESKTOP_ORDER_HEADER::FieldsPresentFlags (0x4000030)  (WINDOW_ORDER_TYPE_DESKTOP   WINDOW_ORDER_FIELD_DESKTOP_ZORDER  WINDOW_ORDER_FIELD_DESKTOP_ACTIVEWND )  a0 00 01 00 -&gt; ActiveWindowId  02 -&gt; NumWindowIds  66 00 02 00  a0 00 01 00 -&gt; WindowIds  ...</p> <p>Changed to:</p> <p>...</p> <p>2e -&gt; TS_DESKTOP_ORDER_HEADER::Header  14 00 -&gt; TS_DESKTOP_ORDER_HEADER::OrderSize  30 00 00 04 -&gt; TS_DESKTOP_ORDER_HEADER::FieldsPresentFlags (0x4000030)  (WINDOW_ORDER_TYPE_DESKTOP   WINDOW_ORDER_FIELD_DESKTOP_ZORDER  WINDOW_ORDER_FIELD_DESKTOP_ACTIVEWND )  a0 00 01 00 -&gt; ActiveWindowId  02 -&gt; NumWindowIds  66 00 02 00  a0 00 01 00 -&gt; WindowIds  ...</p> <p>In Section 4.1.1.6 Non-monitored Desktop, changed TS_DESKTOP_ORDER_HEADER::Flags to TS_DESKTOP_ORDER_HEADER::Header in the network capture.</p> <p>Changed from:</p> <p>...</p> <p>2e -&gt; TS_DESKTOP_ORDER_HEADER::Flags  07 00 -&gt; TS_DESKTOP_ORDER_HEADER::OrderSize  01 00 00 04 -&gt; TS_DESKTOP_ORDER_HEADER::FieldsPresentFlags  (WINDOW_ORDER_TYPE_DESKTOP   WINDOW_ORDER_FIELD_DESKTOP_NONE)  ...</p> <p>Changed to:</p> <p>...</p> <p>2e -&gt; TS_DESKTOP_ORDER_HEADER::Header  07 00 -&gt; TS_DESKTOP_ORDER_HEADER::OrderSize  01 00 00 04 -&gt; TS_DESKTOP_ORDER_HEADER::FieldsPresentFlags  (WINDOW_ORDER_TYPE_DESKTOP   WINDOW_ORDER_FIELD_DESKTOP_NONE)  ...</p>

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\*Date format: YYYY/MM/DD