

[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 [V27.0 – 2018/09/12](#).

Errata Published*	Description
2019/09/02	<p>In this document, multiple sections have been updated to clarify resize margins.</p> <p>For details on these changes, see the PDF doc here.</p>
2019/07/08	<p>In Section 2.2.2.2, Client Information PDU (TS_RAIL_ORDER_CLIENTSTATUS), clarified that one or more flags must be set and addressed the scenario when zero flags would be set in the Flags field description.</p> <p>Changed from:</p> <p>...</p> <p>Flags (4 bytes): An unsigned 32-bit integer. RAIL features that are supported by the client; MUST be set to one of the following.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>Flags (4 bytes): An unsigned 32-bit integer. RAIL features that are supported by the client; MUST be set to one or more of the following feature flags, or zero if none of the features are supported.</p> <p>...</p>
2019/06/24	<p>In this document, information about window resize margins has been added for clarification.</p> <p>In Section 1.3.4, Window Resize Margins, clarified how the resize margins should be processed relative to the window boundaries.</p> <p>Changed from:</p> <p>Window resize margins are supported by RDP 10.2. The dimensions of these margins are defined by the server and are to be used by the client to create a transparent hit-testable region around the RemoteApp window graphics. Any mouse, pen, or touch input within these margins is to be sent to the server.</p> <p>...</p> <p>Changed to:</p> <p>Window resize margins are supported by RDP 10.2. The dimensions of these margins are defined by the server and are to be used by the client to create a transparent hit-testable region around the RemoteApp window graphics. Any mouse, pen, or touch input within these margins is to be sent to the server.</p>

Errata Published*	Description
	<p>Window resize margins must be used to extend the window geometry and are not included in the boundaries of the window sent in the Window Information Order (section 2.2.1.3.1.2.1). ...</p> <p>In Section 2.2.1.3.1.2.1, New or Existing Window, clarified how the resize margins should be processed relative to the window boundaries in the WindowLeftResizeMargin, WindowRightResizeMargin, WindowTopResizeMargin, and WindowBottomResizeMargin field descriptions.</p> <p>Changed from:</p> <p>WindowLeftResizeMargin (4 bytes): An unsigned 32-bit integer specifying the width of the transparent hit-testable margin along the left edge of the window. Any mouse, pen, or touch input within this margin SHOULD be sent to the server.</p> <p>This field is present only if the WINDOW_ORDER_FIELD_RESIZE_MARGIN_X flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>WindowRightResizeMargin (4 bytes): An unsigned 32-bit integer specifying the width of the transparent hit-testable margin along the right edge of the window. Any mouse, pen or touch input within this margin SHOULD be sent to the server.</p> <p>This field is present only if the WINDOW_ORDER_FIELD_RESIZE_MARGIN_X flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>WindowTopResizeMargin (4 bytes): An unsigned 32-bit integer specifying the height of the transparent hit-testable margin along the top edge of the window. Any mouse, pen or touch input within this margin SHOULD be sent to the server.</p> <p>This field is present only if the WINDOW_ORDER_FIELD_RESIZE_MARGIN_Y flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>WindowBottomResizeMargin (4 bytes): An unsigned 32-bit integer specifying the height of the transparent hit-testable margin along the bottom edge of the window. Any mouse, pen or touch input within this margin SHOULD be sent to the server.</p> <p>This field is present only if the WINDOW_ORDER_FIELD_RESIZE_MARGIN_Y flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>WindowLeftResizeMargin (4 bytes): An unsigned 32-bit integer specifying the width of the transparent hit-testable margin along the left edge of the window. Any mouse, pen, or touch input within this margin SHOULD be sent to the server.</p> <p>This field is present only if the WINDOW_ORDER_FIELD_RESIZE_MARGIN_X flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>Resize margins SHOULD be used to extend the window geometry (defined by the WindowOffsetX, WindowOffsetY, WindowWidth and WindowHeight fields) and are not included in the window boundaries.</p>

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	<p>WindowRightResizeMargin (4 bytes): An unsigned 32-bit integer specifying the width of the transparent hit-testable margin along the right edge of the window. Any mouse, pen or touch input within this margin SHOULD be sent to the server.</p> <p>This field is present only if the WINDOW_ORDER_FIELD_RESIZE_MARGIN_X flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>Resize margins SHOULD be used to extend the window geometry (defined by the WindowOffsetX, WindowOffsetY, WindowWidth and WindowHeight fields) and are not included in the window boundaries.</p> <p>WindowTopResizeMargin (4 bytes): An unsigned 32-bit integer specifying the height of the transparent hit-testable margin along the top edge of the window. Any mouse, pen or touch input within this margin SHOULD be sent to the server.</p> <p>This field is present only if the WINDOW_ORDER_FIELD_RESIZE_MARGIN_Y flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>Resize margins SHOULD be used to extend the window geometry (defined by the WindowOffsetX, WindowOffsetY, WindowWidth and WindowHeight fields) and are not included in the window boundaries.</p> <p>WindowBottomResizeMargin (4 bytes): An unsigned 32-bit integer specifying the height of the transparent hit-testable margin along the bottom edge of the window. Any mouse, pen or touch input within this margin SHOULD be sent to the server.</p> <p>This field is present only if the WINDOW_ORDER_FIELD_RESIZE_MARGIN_Y flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>Resize margins SHOULD be used to extend the window geometry (defined by the WindowOffsetX, WindowOffsetY, WindowWidth and WindowHeight fields) and are not included in the window boundaries.</p> <p>...</p> <p>In Section 2.2.2.2.2, Client Information PDU (TS_RAIL_ORDER_CLIENTSTATUS), added the TS_RAIL_CLIENTSTATUS_HIGH_DPI_ICONS_SUPPORTED value and its meaning to the Flags field description table.</p> <p>Changed from:</p> <p>...</p> <p>Flags (4 bytes): An unsigned 32-bit integer. RAIL features that are supported by the client; MUST be set to one of the following.</p> <table border="0"> <thead> <tr> <th>Value</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>...</td> <td></td> </tr> <tr> <td>TS_RAIL_CLIENTSTATUS_WINDOW_RESIZE_MARGIN_SUPPORTED</td> <td></td> </tr> <tr> <td>0x00000010</td> <td>Indicates that the client supports resize margins using the Window Information PDU (section 2.2.1.3.1).</td> </tr> <tr> <td>TS_RAIL_CLIENTSTATUS_APPBAR_REMOTING_SUPPORTED</td> <td></td> </tr> <tr> <td>0x00000040</td> <td>Indicates that the client supports application desktop toolbar remoting using the Window Information PDU (section 2.2.1.3.1).</td> </tr> <tr> <td>...</td> <td></td> </tr> </tbody> </table>	Value	Meaning	...		TS_RAIL_CLIENTSTATUS_WINDOW_RESIZE_MARGIN_SUPPORTED		0x00000010	Indicates that the client supports resize margins using the Window Information PDU (section 2.2.1.3.1).	TS_RAIL_CLIENTSTATUS_APPBAR_REMOTING_SUPPORTED		0x00000040	Indicates that the client supports application desktop toolbar remoting using the Window Information PDU (section 2.2.1.3.1).	...	
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	<p>Changed to:</p> <p>Flags (4 bytes): An unsigned 32-bit integer. RAIL features that are supported by the client; MUST be set to one of the following.</p> <p>Value Meaning</p> <p>...</p> <p>TS_RAIL_CLIENTSTATUS_WINDOW_RESIZE_MARGIN_SUPPORTED 0x00000010 Indicates that the client supports resize margins using the Window Information PDU (section 2.2.1.3.1).</p> <p>TS_RAIL_CLIENTSTATUS_HIGH_DPI_ICONS_SUPPORTED 0x00000020 Indicates that the client supports icons up to 96×96 pixels in size in the Window Icon PDU (section 2.2.1.3.1.2.2). If this flag is not present, icon dimensions are limited to 32×32 pixels.</p> <p>TS_RAIL_CLIENTSTATUS_APPBAR_REMOTING_SUPPORTED 0x00000040 Indicates that the client supports application desktop toolbar remoting using the Window Information PDU (section 2.2.1.3.1).</p> <p>...</p> <p>In Section 3.2.5.1.6, Processing Window Information Orders, described what the boundaries of the window defined by the WindowOffsetX, WindowOffsetY, WindowWidth and WindowHeight fields include and do not include.</p> <p>Changed from:</p> <p>...</p> <p>Upon receipt of a Window Information Order for the deregistration of an application desktop toolbar window, the client SHOULD locate the local RAIL window that corresponds to the WindowId reported in the Hdr field and deregister the application desktop toolbar window. If no such window can be found, the client SHOULD ignore the order.</p> <p>Upon receipt of a Window Information Order for the edge of an application desktop toolbar window, the client SHOULD locate the local RAIL window that corresponds to the WindowId reported in the Hdr field and update the edge to which the window is anchored. If no such window can be found, the client SHOULD ignore the order.</p> <p>Changed to:</p> <p>...</p> <p>Upon receipt of a Window Information Order for the deregistration of an application desktop toolbar window, the client SHOULD locate the local RAIL window that corresponds to the WindowId reported in the Hdr field and deregister the application desktop toolbar window. If no such window can be found, the client SHOULD ignore the order.</p> <p>The boundaries of the window (defined by the WindowOffsetX, WindowOffsetY, WindowWidth and WindowHeight fields) only include the visible area of the window, and do not include window resize margins (if present). However, the Client Window Move PDU (section 2.2.2.7.4) and Client Window Snap PDU (section 2.2.2.7.5) do include resize margins in the window boundaries. For this reason, clients SHOULD NOT expect the window boundaries reported in the Window Information Order (section 2.2.1.3.1.2.1) to match boundaries previously sent in a Window Move/Snap PDU.</p> <p>Upon receipt of a Window Information Order for the edge of an application desktop toolbar window, the client SHOULD locate the local RAIL window that corresponds to the WindowId reported in the Hdr field and update the edge to which the window is anchored. If no such window can be found, the client SHOULD ignore the order.</p>

Errata Published*	Description
2019/02/19	<p>In Section 2.2.1.3.1.2.1, New or Existing Window, added that the string is not guaranteed to be null-terminated in the TitleInfo field description.</p> <p>Changed from:</p> <p>...</p> <p>TitleInfo (variable): UNICODE_STRING. Variable length. Contains the window's title string. The maximum value for the CbString field of UNICODE_STRING is 520 bytes. This structure is present only if the WINDOW_ORDER_FIELD_TITLE flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>TitleInfo (variable): UNICODE_STRING. Variable length. Contains the window's title string. This string is not guaranteed to be null-terminated. The maximum value for the CbString field of UNICODE_STRING is 520 bytes. This structure is present only if the WINDOW_ORDER_FIELD_TITLE flag is set in the FieldsPresentFlags field of TS_WINDOW_ORDER_HEADER.</p> <p>...</p> <p>In Section 2.2.2.7.1, Server Min Max Info PDU (TS_RAIL_ORDER_MINMAXINFO), changed unsigned 16-bit integer to signed 16-bit integer in the MaxWidth, MaxHeight, MaxPosX, MaxPosY, MinTrackWidth, MinTrackHeight, MaxTrackWidth, and MaxTrackHeight field descriptions.</p> <p>Changed from:</p> <p>...</p> <p>MaxWidth (2 bytes): An unsigned 16-bit integer. The width of the maximized window.</p> <p>MaxHeight (2 bytes): An unsigned 16-bit integer. The height of the maximized window.</p> <p>MaxPosX (2 bytes): An unsigned 16-bit integer. The x-coordinate of the top-left corner of the maximized window.</p> <p>MaxPosY (2 bytes): An unsigned 16-bit integer. The y-coordinate of the top-left corner of the maximized window.</p> <p>MinTrackWidth (2 bytes): An unsigned 16-bit integer. The minimum width to which the window can be resized.</p> <p>MinTrackHeight (2 bytes): An unsigned 16-bit integer. The minimum height to which the window can be resized.</p> <p>MaxTrackWidth (2 bytes): An unsigned 16-bit integer. The maximum width to which the window can be resized.</p> <p>MaxTrackHeight (2 bytes): An unsigned 16-bit integer. The maximum height to which the window can be resized.</p> <p>Changed to:</p> <p>...</p> <p>MaxWidth (2 bytes): A signed 16-bit integer. The width of the maximized window.</p>

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	<p>MaxHeight (2 bytes): A signed 16-bit integer. The height of the maximized window.</p> <p>MaxPosX (2 bytes): A signed 16-bit integer. The x-coordinate of the top-left corner of the maximized window.</p> <p>MaxPosY (2 bytes): A signed 16-bit integer. The y-coordinate of the top-left corner of the maximized window.</p> <p>MinTrackWidth (2 bytes): A signed 16-bit integer. The minimum width to which the window can be resized.</p> <p>MinTrackHeight (2 bytes): A signed 16-bit integer. The minimum height to which the window can be resized.</p> <p>MaxTrackWidth (2 bytes): A signed 16-bit integer. The maximum width to which the window can be resized.</p> <p>MaxTrackHeight (2 bytes): A signed 16-bit integer. The maximum height to which the window can be resized.</p> <p>In Section 2.2.2.7.2, Server Move/Size Start PDU (TS_RAIL_ORDER_LOCALMOVESIZE), changed unsigned 16-bit integer to signed 16-bit integer in the PosX and PosY field descriptions.</p> <p>Changed from:</p> <p>...</p> <p>PosX (2 bytes): An unsigned 16-bit integer. The meaning of this field depends upon the value of the MoveSizeType field.</p> <p>...</p> <p>PosY (2 bytes): An unsigned 16-bit integer. The meaning of this field depends on the value of the MoveSizeType field.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p>PosX (2 bytes): A signed 16-bit integer. The meaning of this field depends upon the value of the MoveSizeType field.</p> <p>...</p> <p>PosY (2 bytes): A signed 16-bit integer. The meaning of this field depends on the value of the MoveSizeType field.</p> <p>...</p> <p>In Section 2.2.2.7.3, Server Move/Size End PDU (TS_RAIL_ORDER_LOCALMOVESIZE), changed unsigned 16-bit integer to signed 16-bit integer in the TopLeftX and TopLeftY field descriptions.</p> <p>Changed from:</p> <p>...</p>

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	<p>TopLeftX (2 bytes): An unsigned 16-bit integer. The x-coordinate of the moved or resized window's top-left corner.</p> <p>TopLeftY (2 bytes): An unsigned 16-bit integer. The y-coordinate of the moved or resized window's top-left corner.</p> <p>Changed to:</p> <p>...</p> <p>TopLeftX (2 bytes): A signed 16-bit integer. The x-coordinate of the moved or resized window's top-left corner.</p> <p>TopLeftY (2 bytes): A signed 16-bit integer. The y-coordinate of the moved or resized window's top-left corner.</p> <p>In Section 2.2.2.7.4, Client Window Move PDU (TS_RAIL_ORDER_WINDOWMOVE), changed unsigned 16-bit integer to signed 16-bit integer in the Left, Top, Right, and Bottom field descriptions.</p> <p>Changed from:</p> <p>...</p> <p>Left (2 bytes): An unsigned 16-bit integer. The x-coordinate of the top-left corner of the window's new position.</p> <p>Top (2 bytes): An unsigned 16-bit integer. The y-coordinate of the top-left corner of the window's new position.</p> <p>Right (2 bytes): An unsigned 16-bit integer. The x-coordinate of the bottom-right corner of the window's new position.</p> <p>Bottom (2 bytes): An unsigned 16-bit integer. The y-coordinate of the bottom-right corner of the window's new position.</p> <p>Changed to:</p> <p>...</p> <p>Left (2 bytes): A signed 16-bit integer. The x-coordinate of the top-left corner of the window's new position.</p> <p>Top (2 bytes): A signed 16-bit integer. The y-coordinate of the top-left corner of the window's new position.</p> <p>Right (2 bytes): A signed 16-bit integer. The x-coordinate of the bottom-right corner of the window's new position.</p> <p>Bottom (2 bytes): A signed 16-bit integer. The y-coordinate of the bottom-right corner of the window's new position.</p> <p>In Section 2.2.2.7.5, Client Window Snap PDU (TS_RAIL_ORDER_SNAP_ARRANGE), changed unsigned 16-bit integer to signed 16-bit integer in the Left, Top, Right, and Bottom field descriptions.</p>

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	<p>Changed from:</p> <p>...</p> <p>Left (2 bytes): An unsigned 16-bit integer. The x-coordinate of the top-left corner of the window's new position.</p> <p>Top (2 bytes): An unsigned 16-bit integer. The y-coordinate of the top-left corner of the window's new position.</p> <p>Right (2 bytes): An unsigned 16-bit integer. The x-coordinate of the bottom-right corner of the window's new position.</p> <p>Bottom (2 bytes): An unsigned 16-bit integer. The y-coordinate of the bottom-right corner of the window's new position.</p> <p>Changed to:</p> <p>...</p> <p>Left (2 bytes): A signed 16-bit integer. The x-coordinate of the top-left corner of the window's new position.</p> <p>Top (2 bytes): A signed 16-bit integer. The y-coordinate of the top-left corner of the window's new position.</p> <p>Right (2 bytes): A signed 16-bit integer. The x-coordinate of the bottom-right corner of the window's new position.</p> <p>Bottom (2 bytes): A signed 16-bit integer. The y-coordinate of the bottom-right corner of the window's new position.</p> <p>In Section 2.2.2.8.1, Server Get Application ID Response PDU (TS_RAIL_ORDER_GET_APPID_RESP), changed the ApplicationId field size from 512 bytes to 520 bytes.</p> <p>Changed from:</p> <p>...</p> <p><Bit table></p> <p>Hdr</p> <p>WindowId</p> <p>ApplicationId (512 bytes)</p> <p>...</p> <p>...</p> <p>ApplicationId (512 bytes): A null-terminated string of Unicode characters specifying the Application ID that the Client SHOULD associate with its window, if it supports using the Application ID for identifying and grouping windows.</p> <p>Changed to:</p> <p>...</p> <p><Bit table></p> <p>Hdr</p> <p>WindowId</p> <p>ApplicationId (520 bytes)</p>

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	<p>...</p> <p>...</p> <p>ApplicationId (520 bytes): A null-terminated string of Unicode characters specifying the Application ID that the Client SHOULD associate with its window, if it supports using the Application ID for identifying and grouping windows.</p> <p>In Section 2.2.2.8.2, Server Get Application ID Extended Response PDU (TS_RAIL_ORDER_GET_APPID_RESP_EX), changed the ApplicationId field size from 512 bytes to 520 bytes.</p> <p>Changed from:</p> <p>...</p> <p><Bit table></p> <p>Hdr</p> <p>WindowId</p> <p>ApplicationId (512 bytes)</p> <p>...</p> <p>...</p> <p>ApplicationId (512 bytes): A null-terminated string of Unicode characters specifying the Application ID that the Client SHOULD associate with its window, if it supports using the Application ID for identifying and grouping windows.</p> <p>...</p> <p>Changed to:</p> <p>...</p> <p><Bit table></p> <p>Hdr</p> <p>WindowId</p> <p>ApplicationId (520 bytes)</p> <p>...</p> <p>...</p> <p>ApplicationId (520 bytes): A null-terminated string of Unicode characters specifying the Application ID that the Client SHOULD associate with its window, if it supports using the Application ID for identifying and grouping windows.</p> <p>...</p>
2019/02/19	<p>In Section 4.2.1, TS_RAIL_ORDER_HANDSHAKE, Filter Updated PDUs has been changed to Handshake PDU.</p> <p>Changed from:</p> <p>The following are network captures of the Filter Updated PDUs (TS_RAIL_ORDER_HANDSHAKE, as specified in 2.2.2.2.1).</p> <p>...</p> <p>Changed to:</p> <p>The following are network captures of the Handshake PDU (TS_RAIL_ORDER_HANDSHAKE, as specified in 2.2.2.2.1).</p> <p>...</p>

Errata Published*	Description
2019/02/19	<p>In Section 1.3.2.1, RAIL Session Connection, text that describes EnhancedRemoteApp in a RAIL-specific connection establishment sequence bulleted item and clarifies when the server should send a HandshakeEx PDU instead of a Handshake PDU after the RDP connection is established has been added.</p> <p>Changed from:</p> <p>...</p> <ul style="list-style-type: none"> • The Alternate Shell field of the Client Info PDU, as specified in [MS-RDPBCGR] section 2.2.1.11, is NOT used to communicate the initial application started in the session. Instead, the initial application information is communicated to the server via the Client Execute PDU. <p>• If the server supports RAIL, the Demand Active PDU has to contain the Remote Programs Capability Set and Window List Capability Set to indicate that it supports RAIL.</p> <p>..</p> <p>After the RDP connection is established, a RAIL client and server exchange Handshake PDUs over the RAIL Virtual Channel to indicate that each is ready for data on the virtual channel.</p> <p>..</p> <p>Changed to:</p> <p>...</p> <ul style="list-style-type: none"> • The Alternate Shell field of the Client Info PDU, as specified in [MS-RDPBCGR] section 2.2.1.11, is NOT used to communicate the initial application started in the session. Instead, the initial application information is communicated to the server via the Client Execute PDU. <p>• The client can set the INFO_HIDEF_RAIL_SUPPORTED flag of the Client Info PDU (as specified in [MS-RDPBCGR] section 2.2.1.11.1.1) to request an Enhanced RemoteApp session. If the server does not support Enhanced RemoteApp, it should fall back to a standard RemoteApp session.</p> <p>• If the server supports RAIL, the Demand Active PDU has to contain the Remote Programs Capability Set and Window List Capability Set to indicate that it supports RAIL.</p> <p>...</p> <p>After the RDP connection is established, a RAIL client and server exchange Handshake PDUs over the RAIL Virtual Channel to indicate that each is ready for data on the virtual channel. The server should send a HandshakeEx PDU instead of a Handshake PDU if the client and server both indicate support for it in the Remote Programs Capability Set, or if Enhanced RemoteApp is in use. The client must respond with a Handshake PDU.</p> <p>...</p> <p>In Section 3.1.5.1, Constructing Handshake PDU, references have been added to the HandshakeEx PDU section.</p> <p>Changed from:</p> <p>The Handshake PDU is constructed during initialization of the remote applications integrated locally (RAIL) virtual channel. The buildNumber field SHOULD be initialized to the build or version of the sending party. This PDU MUST be sent before any other PDU on the virtual channel.</p> <p>Changed to:</p> <p>The Handshake PDU is constructed during initialization of the remote applications integrated locally (RAIL) virtual channel. The buildNumber field SHOULD be initialized to the build or version of the sending party. This PDU (or alternatively the HandshakeEx PDU (section 2.2.2.2.3) if the sending party is the server) MUST be sent before any other PDU on the virtual channel.</p>

Errata Published*	Description
	<p>In Section 3.1.5.2 Processing Handshake PDU, references have been added to the HandshakeEx PDU section.</p> <p>Changed from:</p> <p>...</p> <p>The receiving party MUST NOT process any other virtual channel PDUs unless the Handshake PDU has been received.</p> <p>Changed to:</p> <p>...</p> <p>The receiving party MUST NOT process any other virtual channel PDUs unless either the Handshake PDU or (if the receiving party is the client) the HandshakeEx PDU (section 2.2.2.2.3) has been received.</p> <p>In Section 3.2.5.1.3, Constructing Client Info PDU, text describing Enhanced RemoteApp and the INFO_HIDEF_RAIL_SUPPORTED flag has been added.</p> <p>Changed from:</p> <p>...</p> <p>For remote applications integrated locally (RAIL) clients, the flags field of the Info Packet (as specified in [MS-RDPBCGR] section 2.2.1.11.1.1) MUST have the INFO_RAIL (0x00008000) flag set. This informs the server that the client wants to create a RAIL session.</p> <p>Changed to:</p> <p>...</p> <p>For remote applications integrated locally (RAIL) clients, the flags field of the Info Packet (as specified in [MS-RDPBCGR] section 2.2.1.11.1.1) MUST have the INFO_RAIL (0x00008000) flag set. This informs the server that the client wants to create a RAIL session.</p> <p>If the client supports Enhanced RemoteApp, the flags field SHOULD also have the INFO_HIDEF_RAIL_SUPPORTED (0x02000000) flag set. This flag requests that the server create a RAIL session in Enhanced RemoteApp mode. Setting this flag does not guarantee that Enhanced RemoteApp will be enabled since the server may not support this mode.</p> <p>A new section, Section 3.2.5.2.1.2, Processing HandshakeEx PDU, has been added:</p> <p>The client SHOULD check the buildNumber field to verify compatibility of the receiver with the sender.<25></p> <p>If the TS_RAIL_ORDER_HANDSHAKEEX_FLAGS_HIDEF (0x00000001) flag in the railHandshakeFlags field is set, the remote session is running in Enhanced RemoteApp mode, and the client SHOULD handle the RDPGFX_MAP_SURFACE_TO_WINDOW_PDU ([MS-RDPEGFX] section 2.2.2.20) message. If this flag is not set, the session is not running in Enhanced RemoteApp mode, even if the client requested it in the Client Info PDU (as specified in section 3.2.5.1.3). In this scenario, the client SHOULD NOT expect to receive Enhanced RemoteApp messages.</p>

Errata Published*	Description
	<p>The client MUST NOT process any other virtual channel PDUs unless either the HandshakeEx PDU (section 2.2.2.2.3) or the Handshake PDU (section 2.2.2.2.1) has been received.</p> <p>In Section 3.3.5.1.3, Processing Client Info PDU, text that describes when the client has requested that the RAIL session be created in EnhancedRemoteApp mode and what happens if the server supports Enhanced RemoteApp mode has been added.</p> <p>Changed from:</p> <p>...</p> <p>If the flags field of the Info Packet (as specified in [MS-RDPBCGR] section 2.2.1.11.1.1) has the INFO_RAIL (0x00008000) flag set, it indicates that the client wants to start a remote applications integrated locally (RAIL) connection. If the server supports RAIL, it SHOULD indicate this by using the Demand Active PDU (see section 3.3.5.1.4).</p> <p>Changed to:</p> <p>...</p> <p>If the flags field of the Info Packet (as specified in [MS-RDPBCGR] section 2.2.1.11.1.1) has the INFO_RAIL (0x00008000) flag set, it indicates that the client wants to start a remote applications integrated locally (RAIL) connection. If the server supports RAIL, it SHOULD indicate this by using the Demand Active PDU (see section 3.3.5.1.4).</p> <p>If the flags field of the Info Packet has the INFO_HIDEF_RAIL_SUPPORTED (0x02000000) flag set, it indicates that the client has requested that the RAIL session be created in Enhanced RemoteApp mode. If the server supports Enhanced RemoteApp mode this mode SHOULD be enabled, and upon initialization of the RAIL virtual channel the HandshakeEx PDU (section 2.2.2.2.3) MUST be sent with the TS_RAIL_ORDER_HANDSHAKEEX_FLAGS_HIDEF (0x00000001) flag set (section 3.3.5.2.1.2). If the INFO_HIDEF_RAIL_SUPPORTED flag is not set, the server MUST NOT enable Enhanced RemoteApp.</p> <p>A new section, Section 3.3.5.2.1.2, Sending HandshakeEx PDU, has been added:</p> <p>The HandshakeEx PDU MUST be constructed as specified in section 2.2.2.2.3.</p> <p>If Enhanced RemoteApp has been enabled for the current RAIL session (section 3.3.5.1.3), the server MUST set the TS_RAIL_ORDER_HANDSHAKEEX_FLAGS_HIDEF (0x00000001) flag. If it has not been enabled, the server MUST NOT set this flag.</p> <p>If Enhanced RemoteApp is not enabled, and support for the HandshakeEx PDU was not indicated in the Remote Programs Capability Set (section 2.2.1.1.1), the server MUST send the Handshake PDU (section 3.1.5.1) instead of the HandshakeEx PDU.</p> <p>In Section 6: Appendix A, Product Behavior, a new product behavior note has been added:</p> <p><25> Section 3.2.5.2.1.2: Windows implementations ignore any incompatibility resulting from checking the buildNumber field between the sender and the receiver.</p>

*Date format: YYYY/MM/DD