

HP ThinPro

Enabling RemoteFX for RDP



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Overview

Microsoft RDP 7.1 and RDP 8 support high-compression, image-based codecs that provide a full-featured, high-performance desktop to RDP users. While some servers use RDP 7.1 or RDP 8 RemoteFX codecs by default, the codecs must be specifically enabled on many RDP servers using group policies.

When using previous versions of RDP, some apps might have slow performance, high network usage, and high latency because every change on the screen has to be transmitted between the RDP server and the client. These changes are transmitted as a series of graphics primitives (lines, characters, rectangles, and so on), and there can be thousands of graphics primitives per change. RemoteFX codecs efficiently compress the parts of the screen that have changed with an algorithm similar to JPEG-2000. Because the codec now performs only periodic frame captures, the server can throttle the generation of screen updates to match the rate at which the client can consume them, reducing session latency.

The basic RDP 7.1 RemoteFX codecs are used with some configurations of Windows® 7 SP1 running on Windows Server 2008 R2.

For RDP 8, Microsoft introduced new codecs and graphics methods, including RemoteFX Progressive Codec Compression. These codecs are used with Windows 8 and Windows Server® 2012, but they can also be used with Windows 7 and Windows Server 2008 R2 if an optional update is installed.

The RemoteFX Progressive Codec sends a low-resolution version of screen updates in one frame and progressively refines the image sharpness in later updates. This allows a desktop to be displayed more quickly in environments where bandwidth is limited. RDP 8 RemoteFX codecs also enable new methods of copying or moving a portion of the screen to another position, which allows operations like web page or spreadsheet scrolling to be performed more efficiently.

While RemoteFX frequently is mentioned in the context of video content or advanced 3D model viewing, it is also valuable in the context of standard office applications, web browsing, and similar usages.

System requirements

The basic RemoteFX codec is supported on HP ThinPro 4.1 and later.

RDP 8 RemoteFX codecs are supported on the following:

- HP ThinPro 4.4, 5.0, and 5.1 (with the Freerdp-1.1hp8 or later service pack)
- HP ThinPro 5.2 and later (no service pack required)

Note:

HP recommends using the latest available version of the Freerdp service pack because it likely contains corrections and enhancements beyond those available when an HP ThinPro release was originally published.

USB redirection

General-purpose, low-level USB redirection is generally available with RemoteFX support on Windows 8 and Windows Server 2012 and later. Storage devices, printers, audio devices, and other devices that can make use of older channels (available since Windows Server 2003) do not require RemoteFX support for USB redirection.

Enabling RemoteFX on the RDP server

If your thin client system meets the requirements listed in [System requirements](#), you can use RDP Server Probe to verify whether your RDP server supports RemoteFX and RDP 8 Adaptive Graphics.

To open RDP Server Probe:

1. Open **RDP Connection Manager**.
2. Select the **Network** tab.
3. Select **Server Probe**.

After an RDP session has concluded, it might be possible to determine whether RemoteFX was used during the session using either the log file for the connection (in System Information) or the event log on the server. See [Verifying results from the server](#) and [Verifying results from the client](#).

If RemoteFX is not enabled on the server, you can enable it to determine whether it improves your RDP sessions.

Windows 7 and Windows Server 2008 R2

By default, on computers running the Windows 7 or Windows Server 2008 R2 operating system, RemoteFX codecs are supported only on Remote Desktop Virtualization Host (RDVH) servers running Windows Server 2008 R2 with Hyper-V virtual machines of Windows 7 SP1 with RemoteFX specifically enabled.

To configure a Windows Server 2008 R2 RDVH session with basic RemoteFX:

1. Select **Local Computer Policy**, select **Computer Configuration**, select **Administrative Templates**, select **Windows Components**, select **Remote Desktop Services**, select **Remote Desktop Session Host**, select **Remote Session Environment**, and then select **Configure RemoteFX**.

To enable RDP 8 functions on Windows 7 and Windows Server 2008 R2:

1. Select **Start**, and then select **Windows Update**.
2. Install optional update **KB2592687**.
3. Select **Local Computer Policy**, select **Computer Configuration**, select **Administrative Templates**, select **Windows Components**, select **Remote Desktop Services**, select **Remote Desktop Session Host**, select **Remote Session Environment**, and then select **Enable Remote Desktop Protocol 8.0**.
4. Set this policy to **Enabled**.

Low-level USB redirection is not available on computers running Windows 7 or Windows Server 2008 R2, except for computers using the RDVH configuration.

Windows 8 and Windows Server 2012 R2 and later

Windows 8.1 and Windows Server 2012 R2 natively support RDP 8. If you use either HP ThinPro or a service pack that supports RDP 8 with Windows Server 2012 R2, an RDP session automatically defaults to using these new codecs. Low-level USB redirection should be possible, unless it is disabled on the server.

If you are using an older version of HP ThinPro that supports only basic RemoteFX, it might be necessary to change Group Policy settings to support the older codec.

To enable support for the older codec:

1. Select **Local Computer Policy**, select **Computer Configuration**, select **Administrative Templates**, select **Windows Components**, select **Remote Desktop Services**, select **Remote Desktop Session Host**, select **Remote Session Environment**, and then select **Enable RemoteFX encoding for RemoteFX clients designed for Windows Server 2008 R2 SP1**.
2. Set this policy to **Enabled**.

On computers running Windows Server 2012 or Windows Server 2012 R2, additional configuration might be necessary because RemoteFX is supported only when the server is in 32-bit color mode. This is the same mode that HP ThinPro uses.

To set the server to 32-bit color mode:

1. Select **Local Computer Policy**, select **Computer Configuration**, select **Administrative Templates**, select **Windows Components**, select **Remote Desktop Services**, select **Remote Desktop Session Host**, select **Remote Session Environment**, and then select **Limit maximum color depth**.
2. Select **32-bit**.

Implications

Enabling RemoteFX can increase the load on the server since it has to perform RemoteFX encoding in software. However, the desktop is likely to be much more responsive, with near-instant desktop redraws, especially on a “busy” desktop with a

lot of graphic primitives such as scrolling text. Non-RDSH (Remote Desktop Session Host) desktops also support advanced desktop features such as Aero compositing.

Note:

The RDSH video driver does not support compositing.

Disabling the RemoteFX Progressive Codec

While the RemoteFX Progressive Codec offers many advantages, in some situations it might be desirable to disable it. If the frame content is constantly changing (for example, an image of a rotating Earth at a high resolution and high framerate), the server constantly sends a low-resolution version of the frame data and might never update the frame to full fidelity. This results in a blurry image until the frame content stops changing.

To disable the RemoteFX Progressive Codec on the thin client:

1. Open **RDP Connection Manager**.
2. Select the **Options** tab.
3. Clear the **Enable Progressive RemoteFX Codec** box.

Verifying results from the server

After making the changes and restarting the connection, it might be immediately obvious that RemoteFX is in use rather than the older RDP 6-era graphics methods. To verify its use from the Windows desktop:

1. Open **Event Viewer**.
2. Select **View**, and then select **Show Analytic and Debug Logs**.
3. Select **Application and Services Logs**, select **Microsoft**, and then select **Windows**.
4. Select either **RemoteDesktopServices-RdpCoreTS** or **RemoteDesktopServices-RemoteDesktopSessionManager**.
5. Look for key events such as the following:
 - RDP 8: **"A channel Microsoft::Windows::RDP::Graphics has been connected between the server and the client using transport tunnel: 0."** or **"A channel rdpgfx has been connected."**
 - Windows 7.1 RDVH: Event 2 **"Remote Desktop Protocol will use RemoteFX module to connect to the client computer."**
 - Windows Server 2008 R2 SP1 RDSH: Event 1000 **"Microsoft RemoteFX for Remote Desktop Session Host is enabled and a session was created."**
 - Windows 8.1, Windows 8, Windows Server 2012, Windows Server 2012 R2: Event 165 **"RemoteFX Encoding for RemoteFX Clients designed for Windows Server 2008 R2 SP1 is enabled and a compatible session was created."**

Note:

If you see event 258, it refers to RDP 8 RemoteFX extensions.

Verifying results from the client

With HP ThinPro 5.0 or with a Freerdp-1.1 service pack for HP ThinPro 4.4, you can check for usage of the RemoteFX surface command by examining the **Connection Manager** system log in the **System Information** window after a session has concluded. The log records how many RemoteFX frames were processed during the session and the average framerate over the entire RDP session.

Note that RemoteFX frames are only processed when the screen content is changing, so the average framerate naturally drops unless there are frequent updates. Frequently, the RDP client is not the limiting factor on average framerate. The framerate might be limited by the server's ability to produce new frames, a media file's built-in recorded framerate, or the network.

For more information

For more information about HP ThinPro, go to the following websites:

- **HP thin client software and operating system website:** <http://www8.hp.com/us/en/thin-clients/software-and-os.html>
- **HP support website:** <http://www.hp.com/support>
 - For documentation, search for the thin client model and select the **Manuals** page.
 - For software updates, search for the thin client model and select the **Download options** page.

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