



# **RDP Configuration Guide for Windows Server 2016**

*This guide is intended for the purpose of building up a common RDP server, it is not for use in other advanced purposes.*

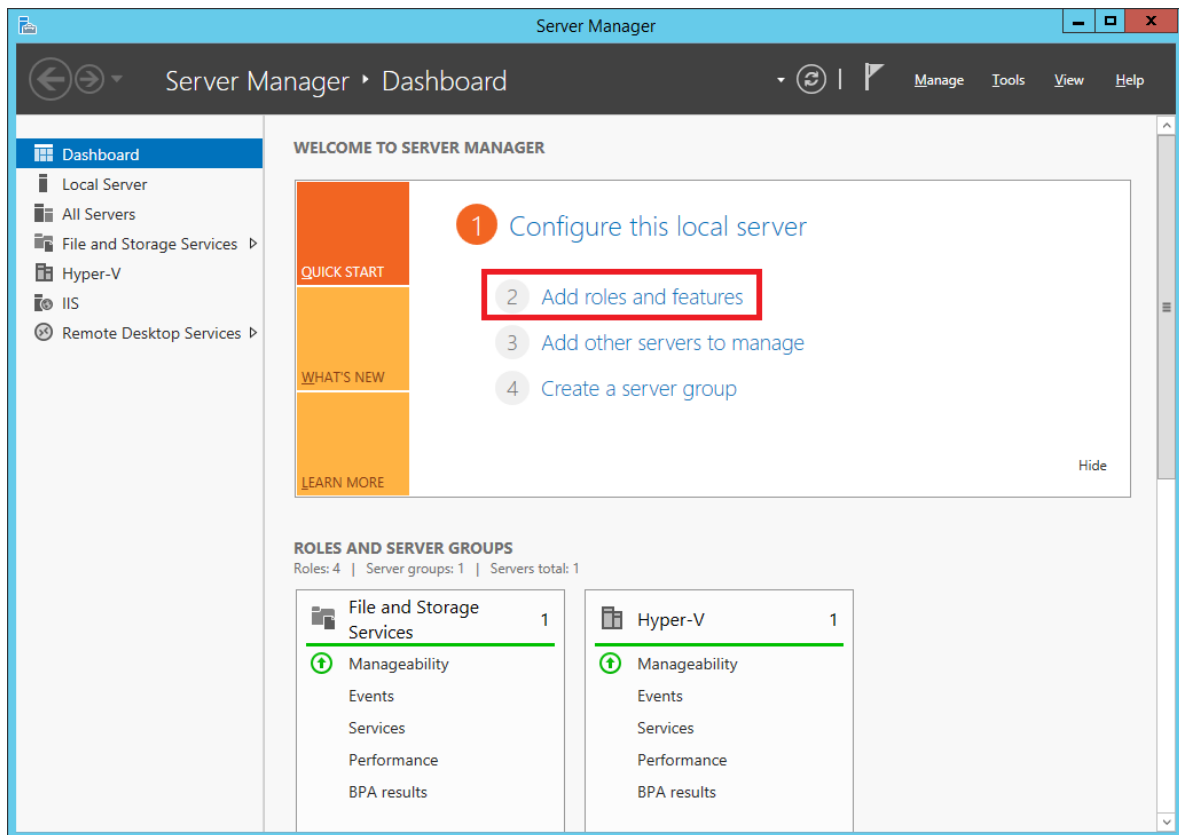
*Please follow this guide to set up a Session Host and/or Virtual Host server properly. The configurations might vary in different Windows server OS versions.*

## Summary:

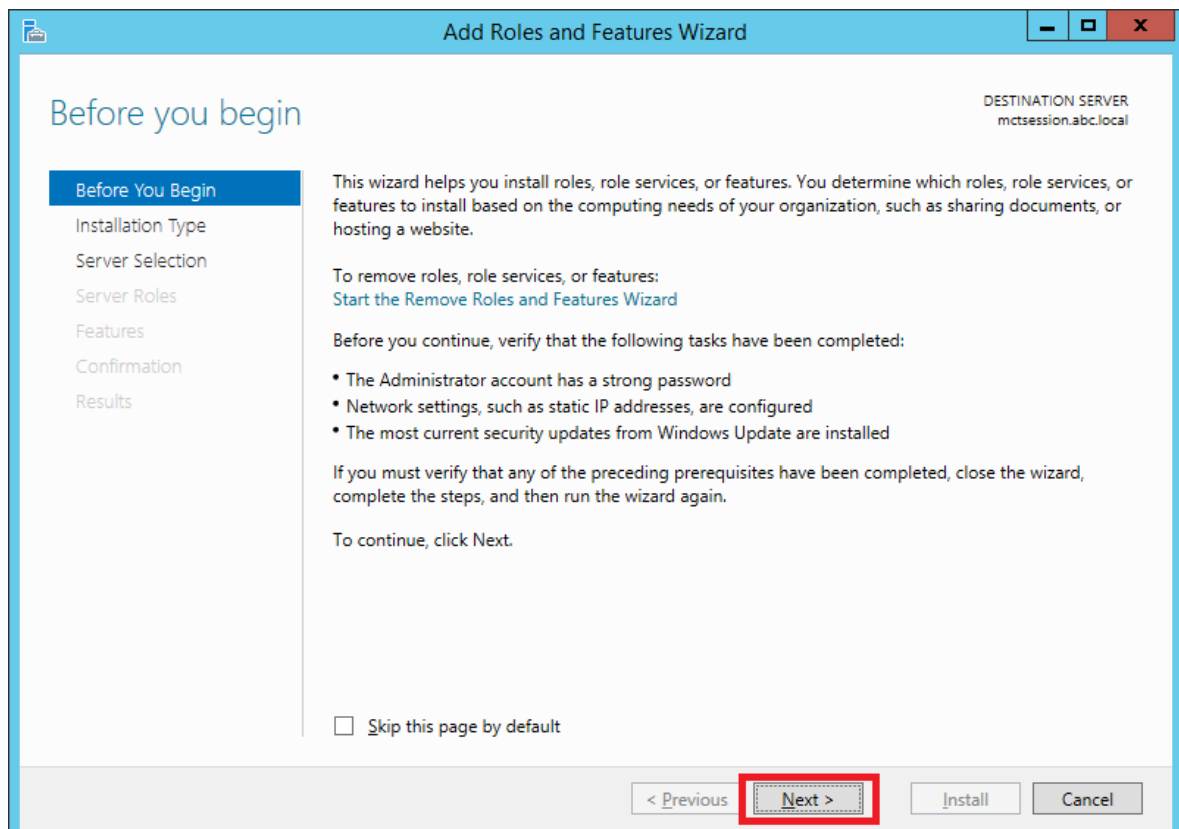
1	Add Roles (Remote Desktop Session Host) .....	2
2	Configure Remote User Authentication In “Control Panel”.....	6
3	Configure “Windows Firewall” in “Control Panel”.....	9
4	Group policy setting for system optimization.....	10
5	Reboot the system.....	21

# 1 Add Roles (Remote Desktop Session Host)

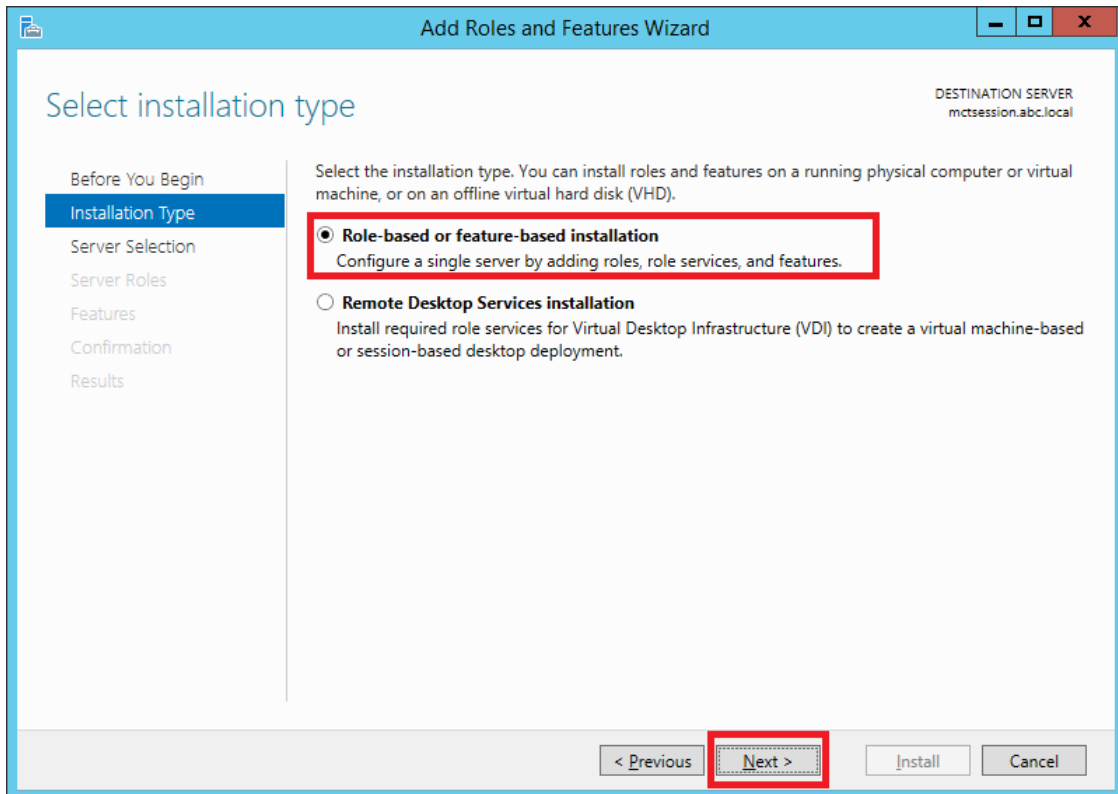
- Launch "Server Manager"
- Click "Add roles and features"



- Click "Next"



- Click “Role-based or feature-based installation”
- Click “Next”



The screenshot shows the 'Add Roles and Features Wizard' window. The title bar says 'Add Roles and Features Wizard'. The main heading is 'Select installation type'. On the left, there is a navigation pane with the following steps: 'Before You Begin', 'Installation Type' (highlighted), 'Server Selection', 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main content area has a sub-heading 'Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD)'. There are two radio button options: 'Role-based or feature-based installation' (selected and highlighted with a red box) and 'Remote Desktop Services installation'. Below the first option is the text 'Configure a single server by adding roles, role services, and features.' Below the second option is the text 'Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.' At the bottom right, there is a 'DESTINATION SERVER' label with the value 'mctsession.abc.local'. At the bottom, there are four buttons: '< Previous', 'Next >' (highlighted with a red box), 'Install', and 'Cancel'.

DESTINATION SERVER  
mctsession.abc.local

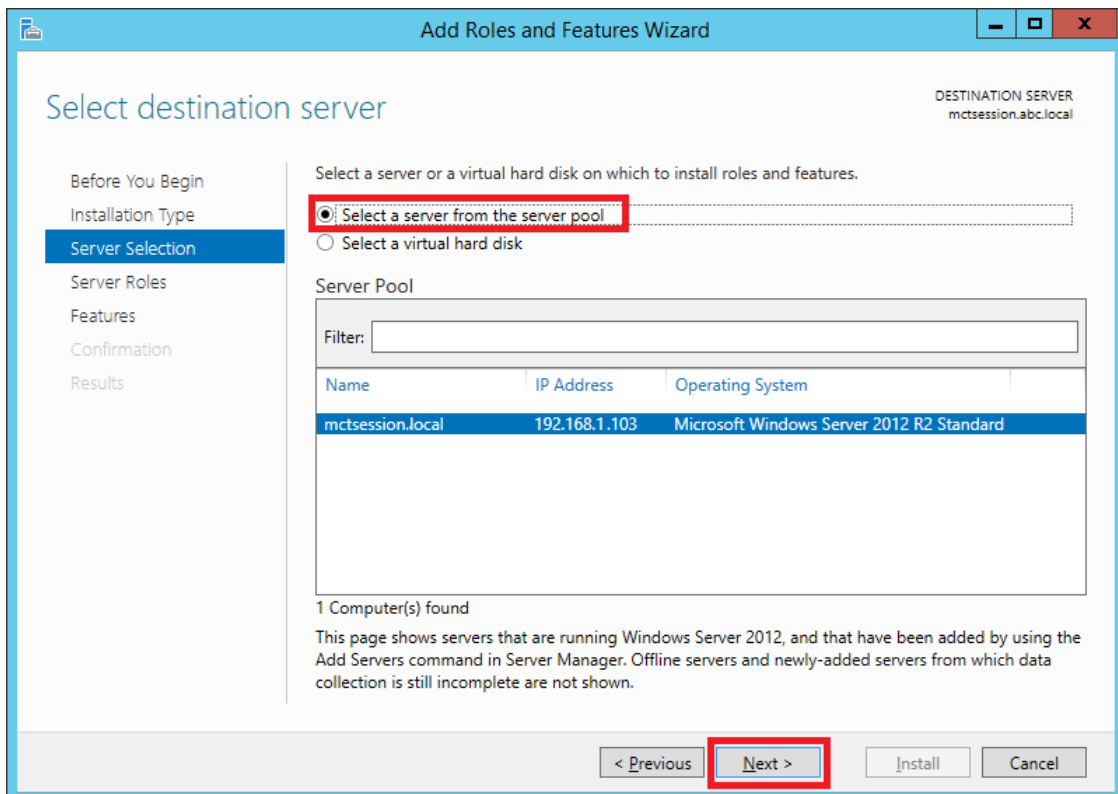
Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

☒ **Role-based or feature-based installation**  
Configure a single server by adding roles, role services, and features.

☐ **Remote Desktop Services installation**  
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

< Previous   **Next >**   Install   Cancel

- Click “Select a server from the server pool”
- Click “Next”



The screenshot shows the 'Add Roles and Features Wizard' window. The title bar says 'Add Roles and Features Wizard'. The main heading is 'Select destination server'. On the left, there is a navigation pane with the following steps: 'Before You Begin', 'Installation Type', 'Server Selection' (highlighted), 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main content area has a sub-heading 'Select a server or a virtual hard disk on which to install roles and features.' There are two radio button options: 'Select a server from the server pool' (selected and highlighted with a red box) and 'Select a virtual hard disk'. Below the first option is a text box for the server name. Below the second option is a text box for the virtual hard disk path. Below these is a 'Server Pool' section with a 'Filter:' text box and a table. The table has three columns: 'Name', 'IP Address', and 'Operating System'. The table contains one row: 'mctsession.local', '192.168.1.103', and 'Microsoft Windows Server 2012 R2 Standard'. Below the table, it says '1 Computer(s) found'. At the bottom, there is a note: 'This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.' At the bottom right, there is a 'DESTINATION SERVER' label with the value 'mctsession.abc.local'. At the bottom, there are four buttons: '< Previous', 'Next >' (highlighted with a red box), 'Install', and 'Cancel'.

DESTINATION SERVER  
mctsession.abc.local

Select a server or a virtual hard disk on which to install roles and features.

☒ **Select a server from the server pool**

☐ Select a virtual hard disk

Server Pool

Filter:

Name	IP Address	Operating System
mctsession.local	192.168.1.103	Microsoft Windows Server 2012 R2 Standard

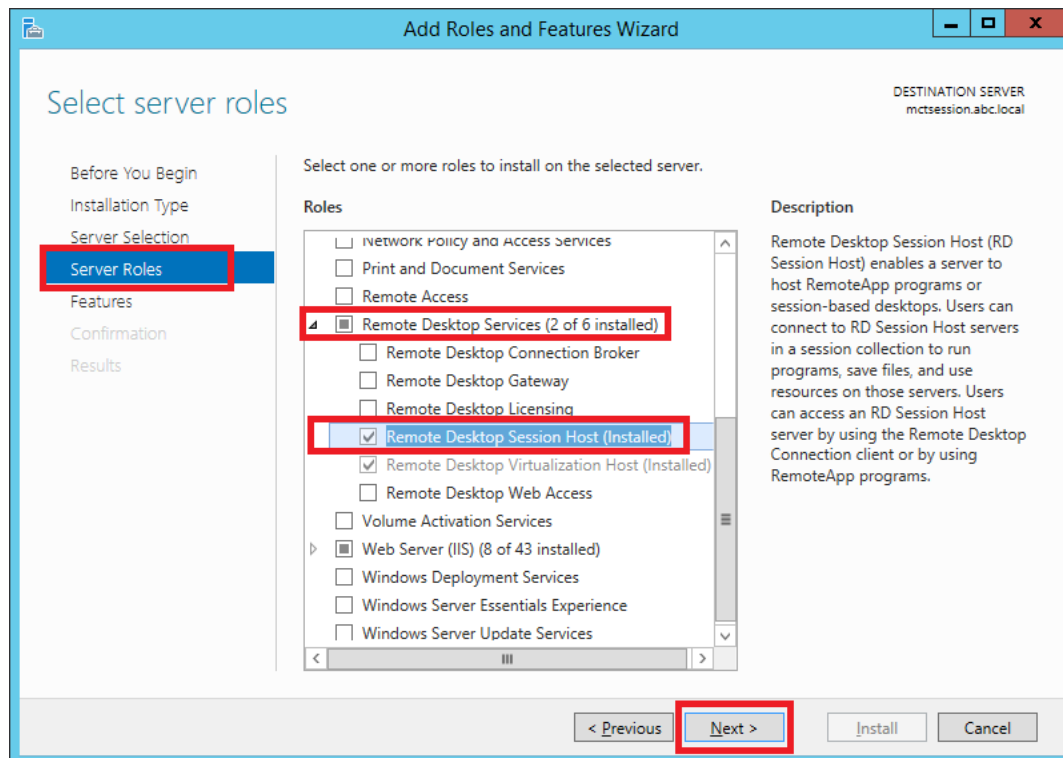
1 Computer(s) found

This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

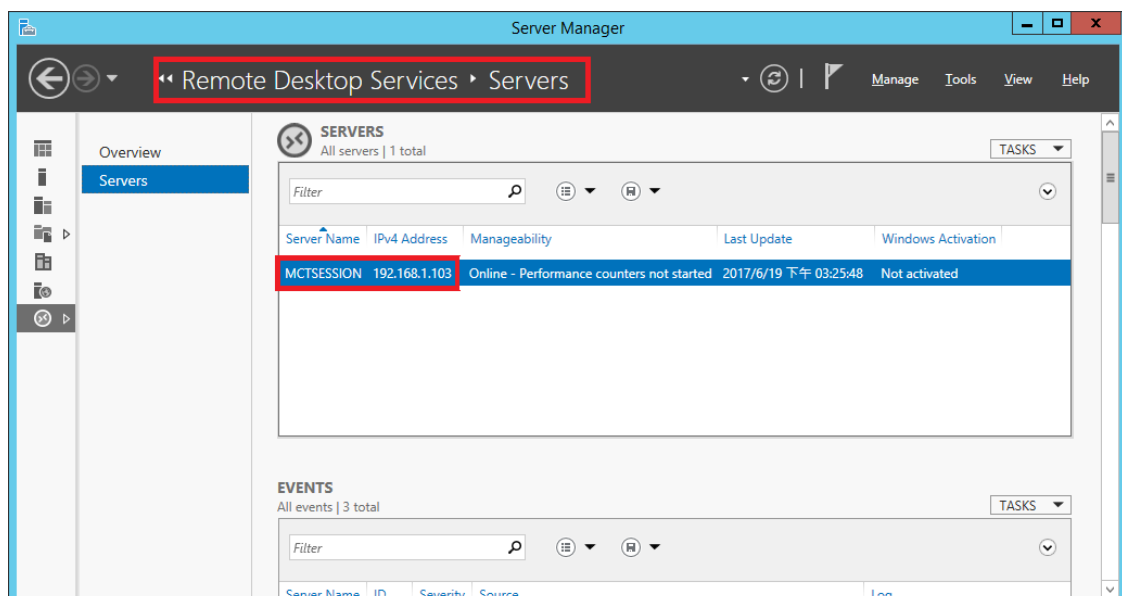
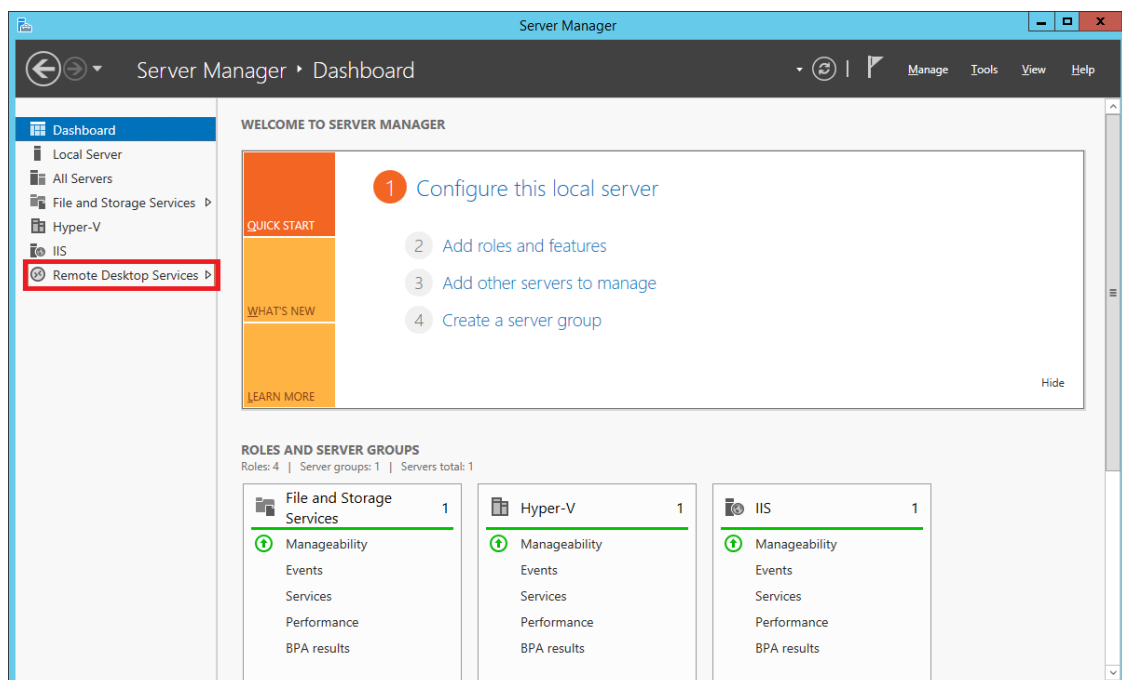
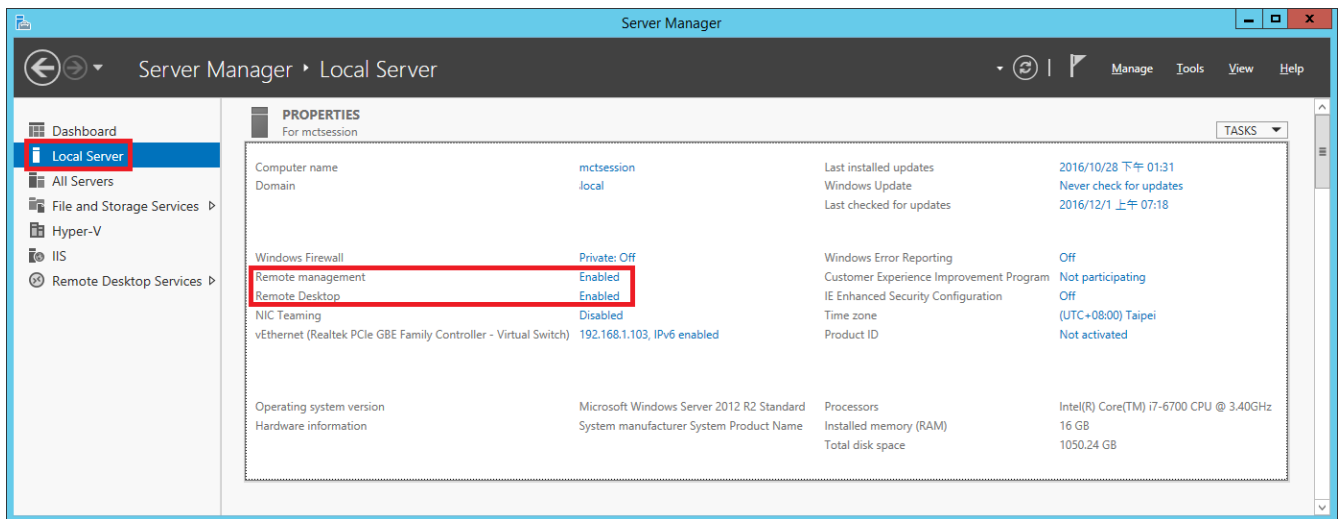
< Previous   **Next >**   Install   Cancel

- Expand “Remote Desktop Services”
- Check “Remote Desktop Session Host”
- Click “Next”
- Click “Install”

**Note:** Once you click “Install” the system will initiate the “Role and Feature” installation process. Please reboot the system once the status shows installation successful.

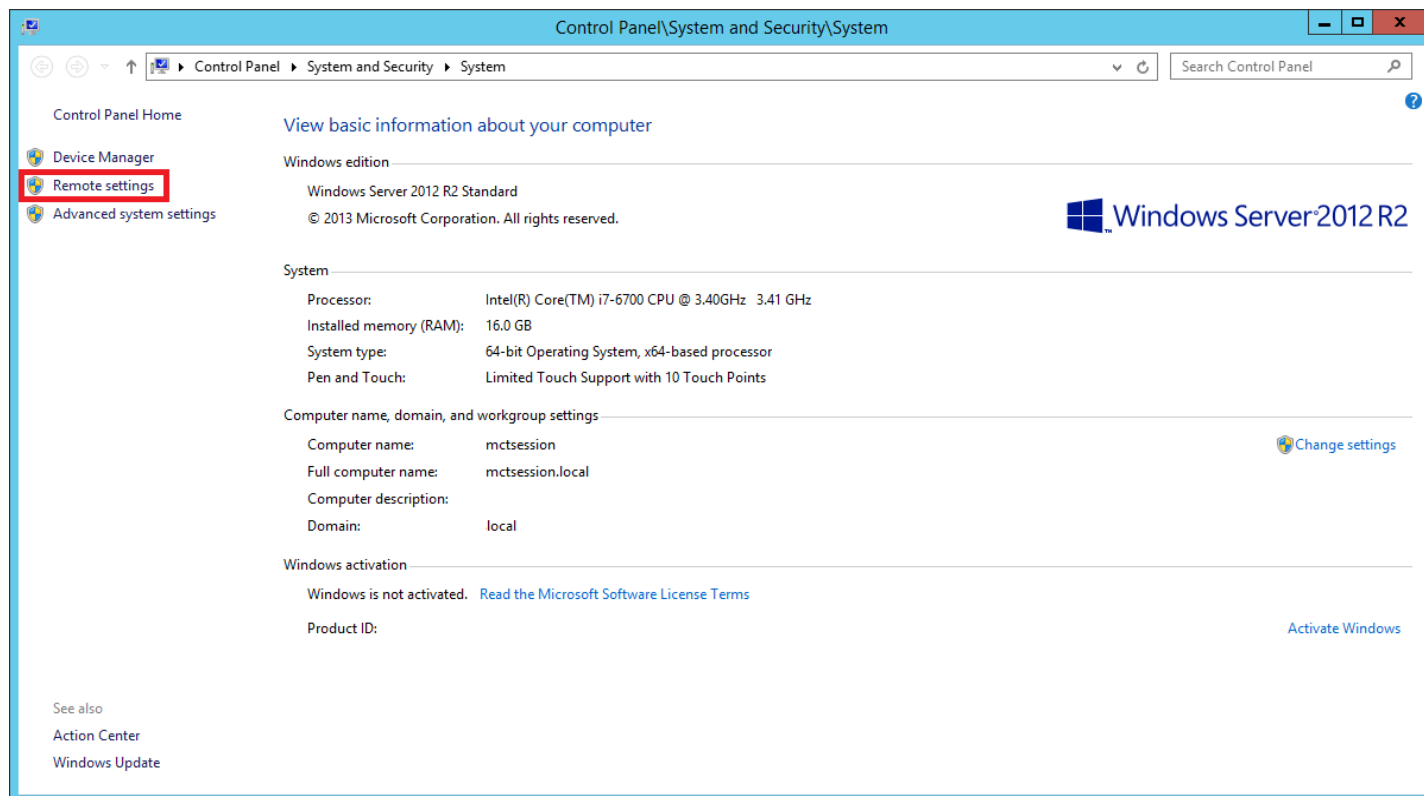


- Launch “Server Manager” to verify the “Remote Desktop Session Host” is installed successfully



## 2 Configure Remote User Authentication in “Control Panel”

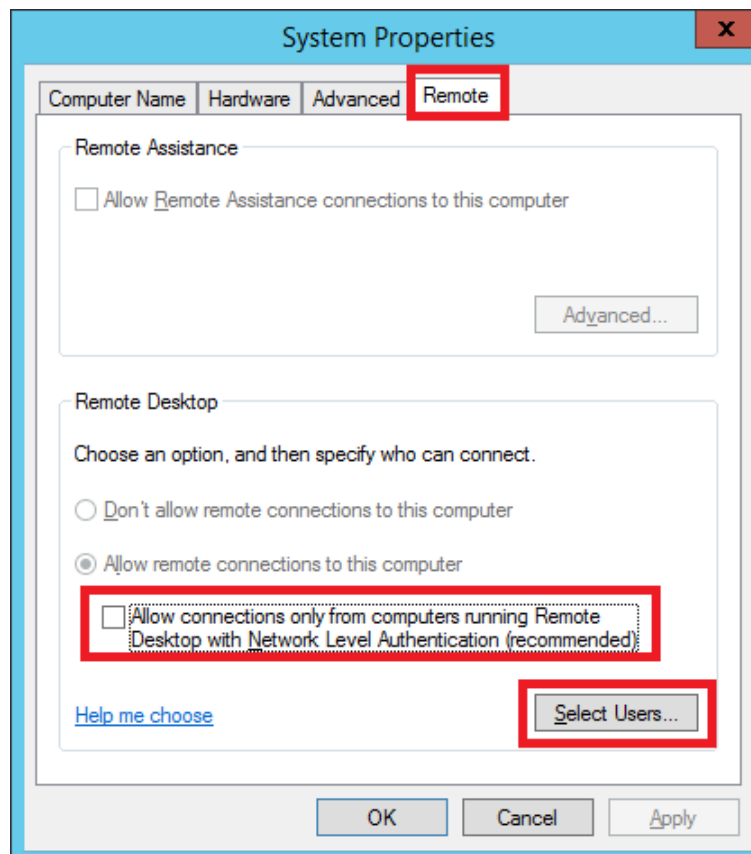
- Configure “Remote settings”
  - Go to “Control Panel \ System and Security \ System”
  - Click “Remote settings”



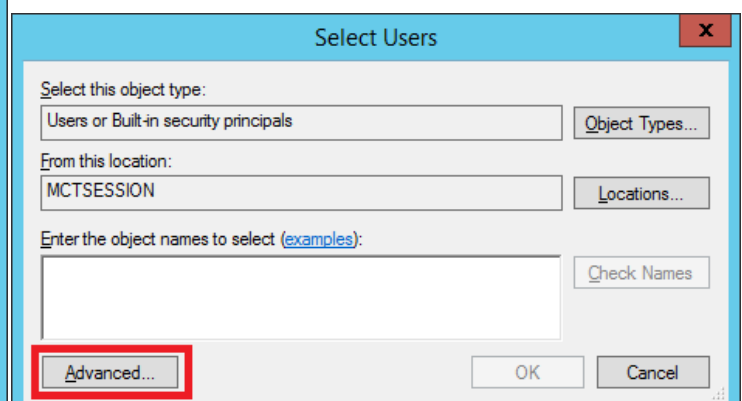
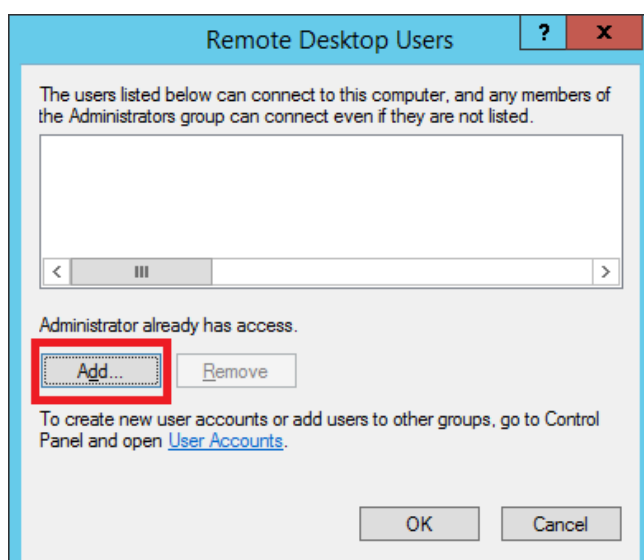
- Click the "Remote" tab
- Select "Allow remote connections to this computer"
- **Uncheck** "Allow connections only from computers running Remote Desktop with Network Level Authentication (Recommended)"

**Note:** This will allow the user remote access to the host without entering a user name and password in the client connection settings.

- Click "Select Users..."



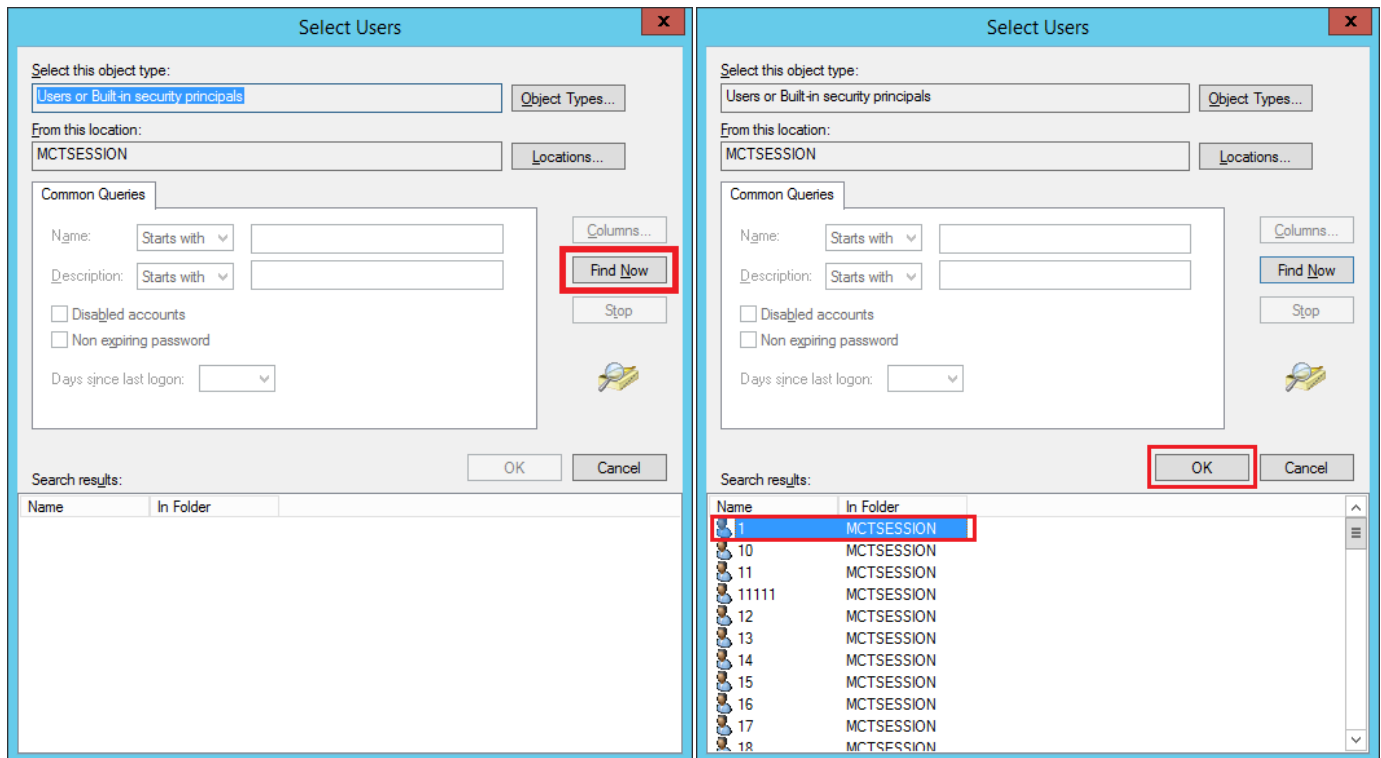
- Click "Add"
- Click "Advanced..."



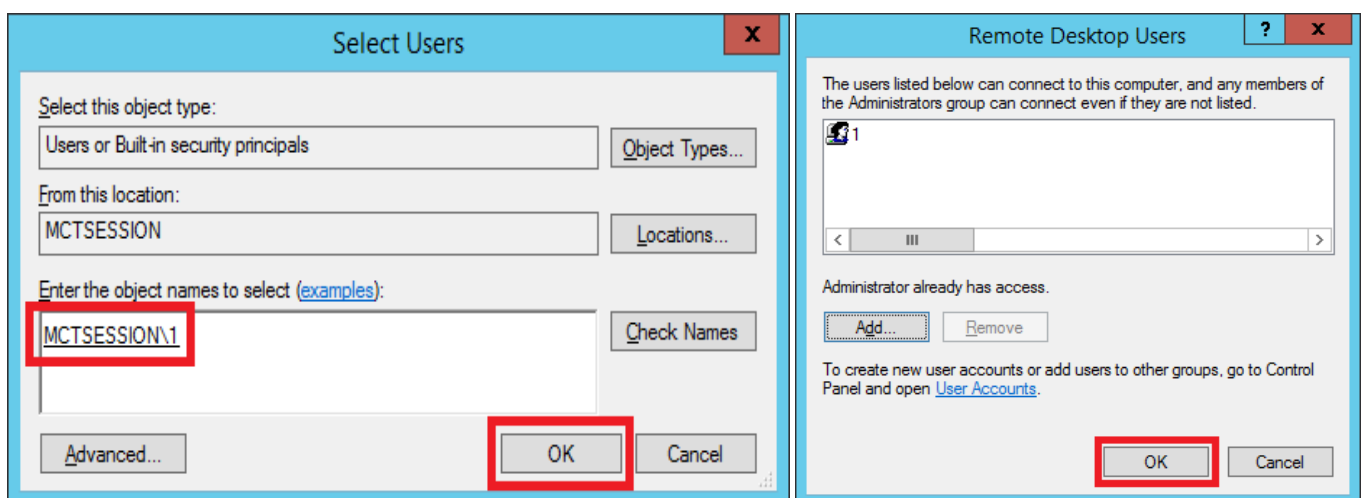


- Click “Find Now”
- Select users to assign who has permission to remote access this pc
- Click “OK”

**Note:** Choose “Everyone” to require all existing users to obtain remote access authority from the host.

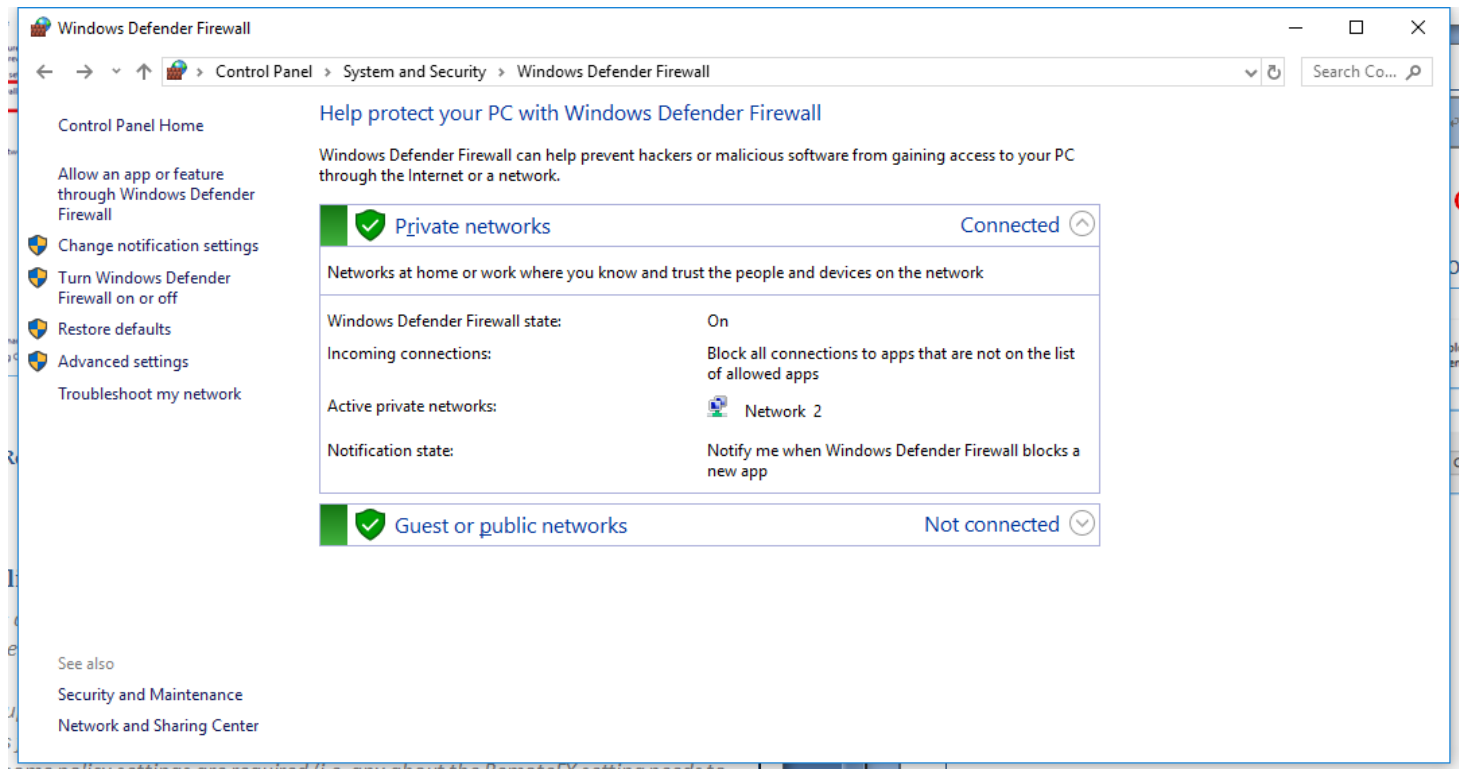


- Click “OK” in the Select Users dialog
- Click “OK” in the Remote Desktop Users dialog

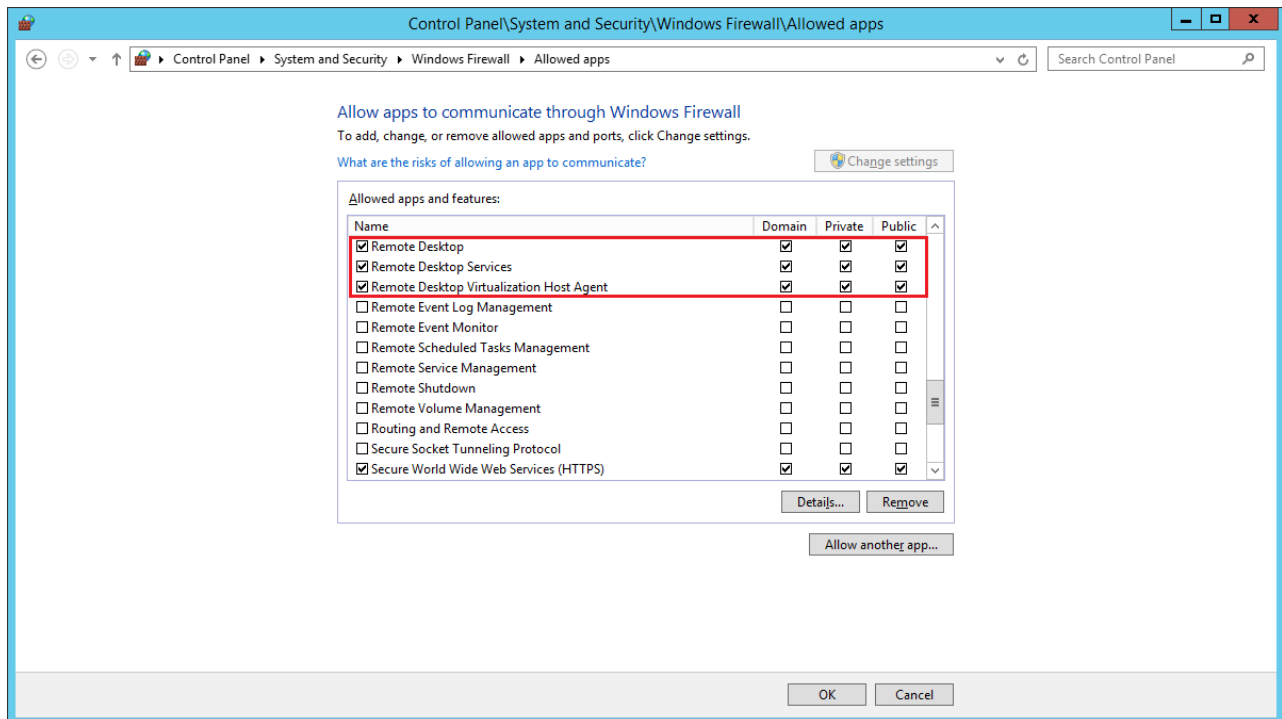


### 3 Configure the “Windows Firewall” in the “Control Panel”

- Go to path “Control Panel\System and Security\Windows Firewall”
- Click “Allow an app or feature through Windows Firewall”




- Select "Remote Desktop" and choose: "Domain" , "Private" , "Public"
- Select "Remote Desktop Services" and choose: "Domain" , "Private" , "Public"
- Select "Remote Desktop Virtualization Host Agent" and choose: "Domain" , "Private" , "Public" if user have install the Virtualization Host service.

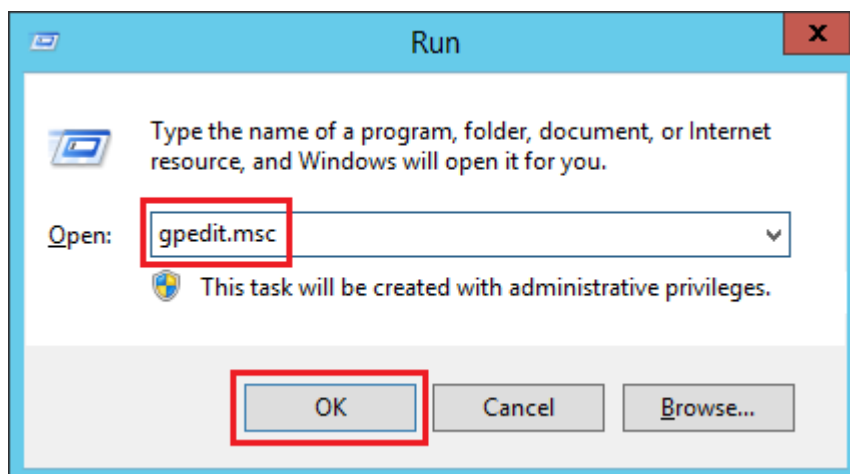


## 4 Group policy setting for system optimization

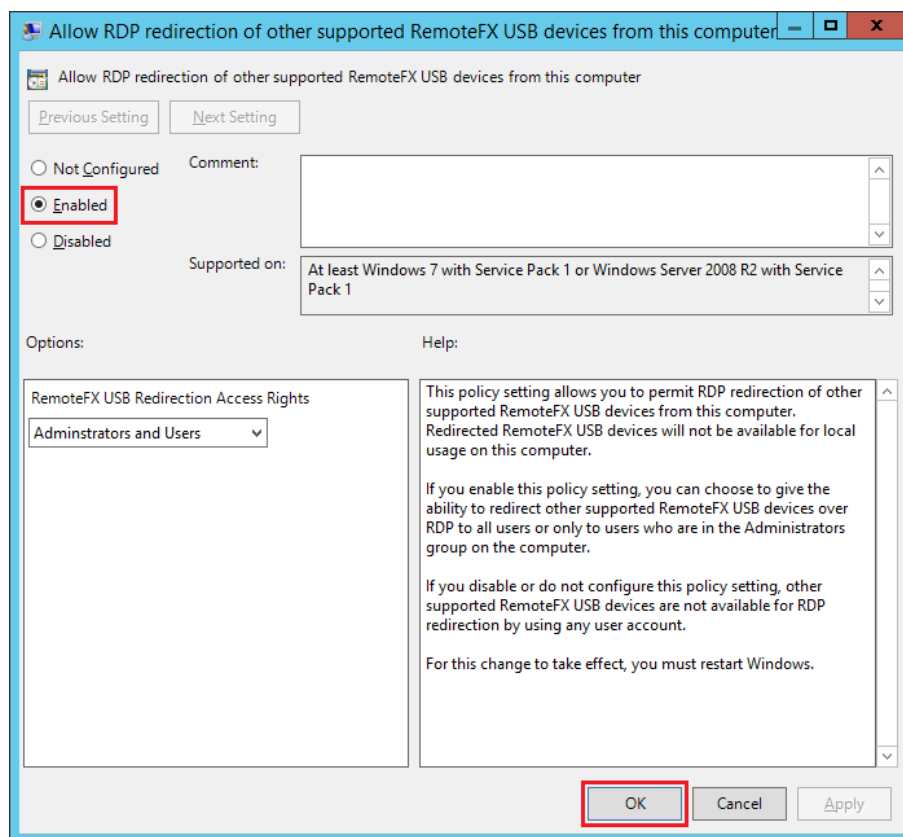
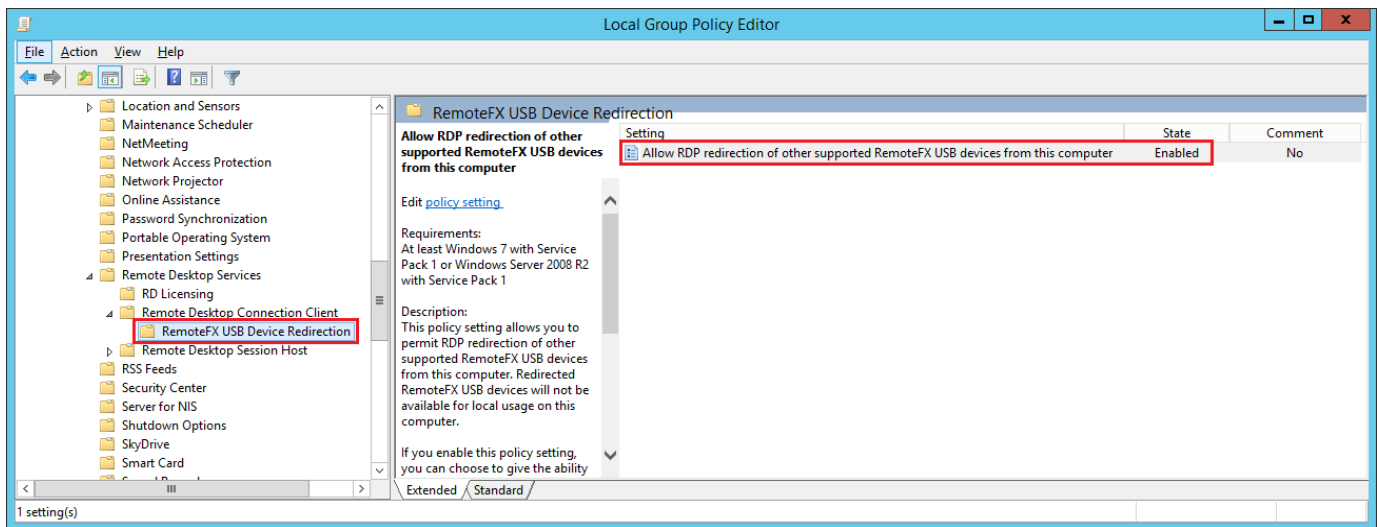
The following is a list of policy changes required to lower CPU utilization while maintaining the RDS session video and audio quality on a Windows Server OS.

Launch the group policy editor "gpedit.msc" as an administrator on the Windows Server. Below are suggestions for getting better performance between the Session Host or Virtual Host and the RDP client, some policy settings are required (i.e. any about the RemoteFX setting needs to be enabled). Please refer to the text in red below to enable or disable the required policy settings.

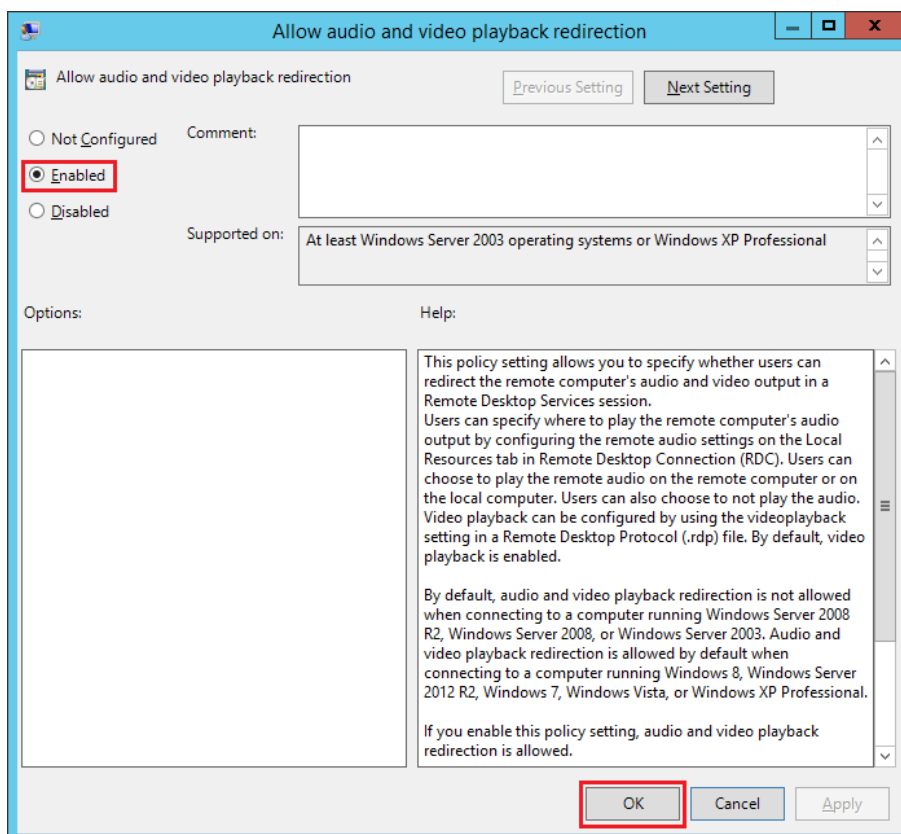
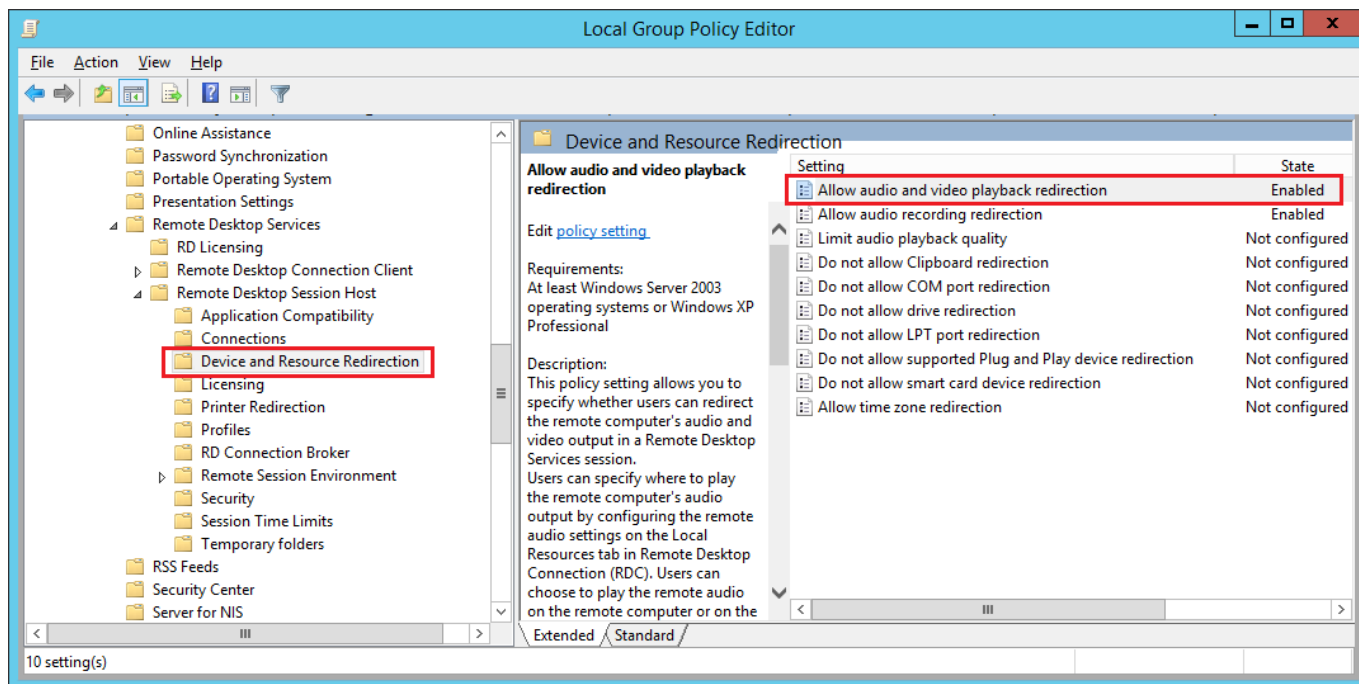
- Launch the Local Group Policy Editor
  - Press the Windows key  + R.
  - Enter "gpedit.msc"
  - Click "OK" to launch



- Enable "Allow RDP redirection of other supported RemoteFX USB devices from this computer"
  - Expand the path "Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Connection Clients >> RemoteFX USB Device Redirection"
  - Double click "Allow RDP redirection of other supported RemoteFX USB devices from this computer"
  - Select "Enabled"

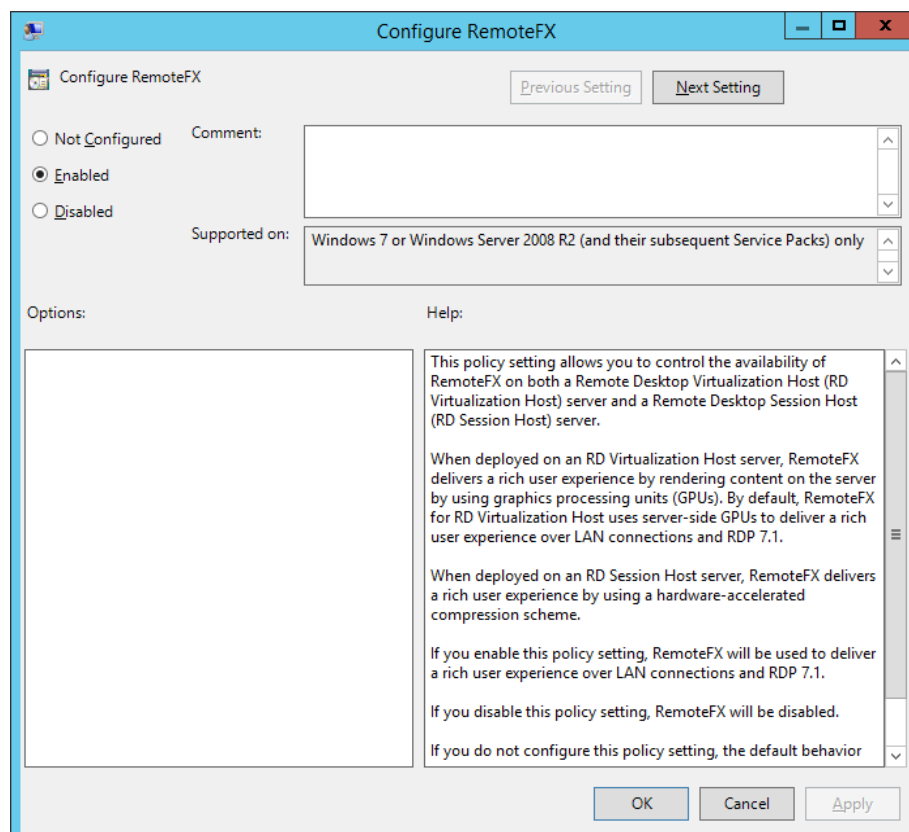
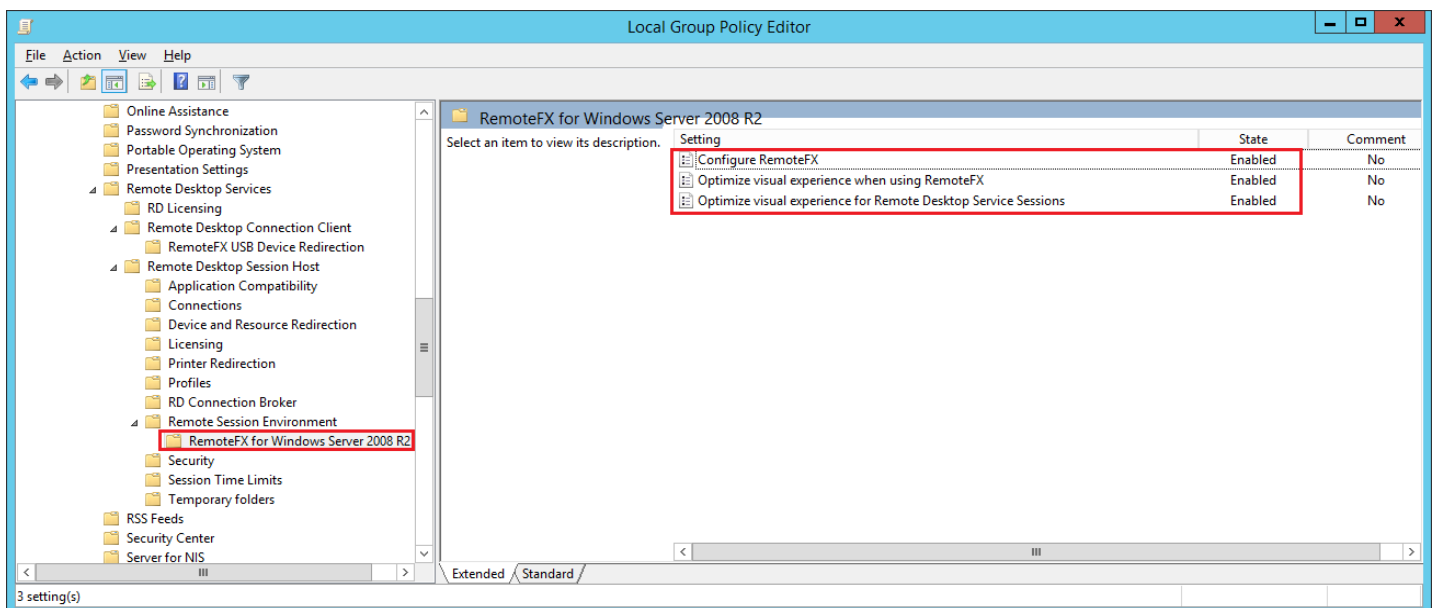


- Enable “Allow audio and video playback redirection”
  - Expand the path “Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Device and Resource Redirection”
  - Double click “Allow audio and video playback redirection”
  - Select “Enabled”

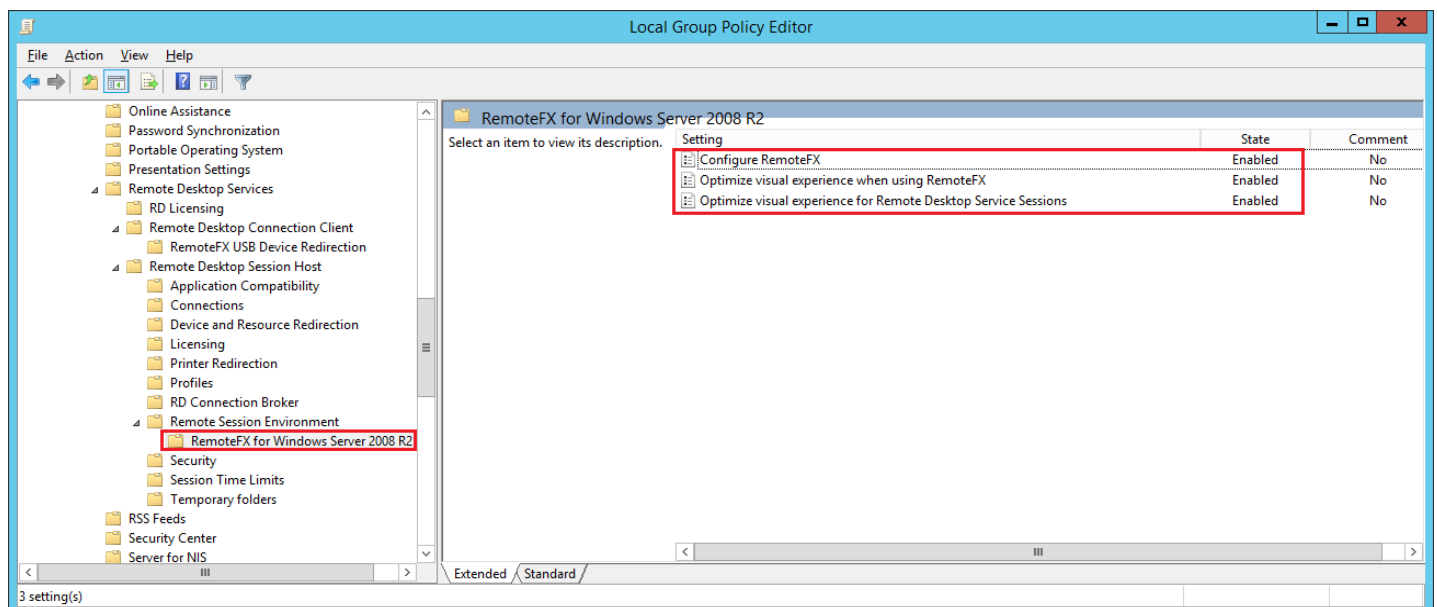


## ■ Enable "Configure RemoteFX"

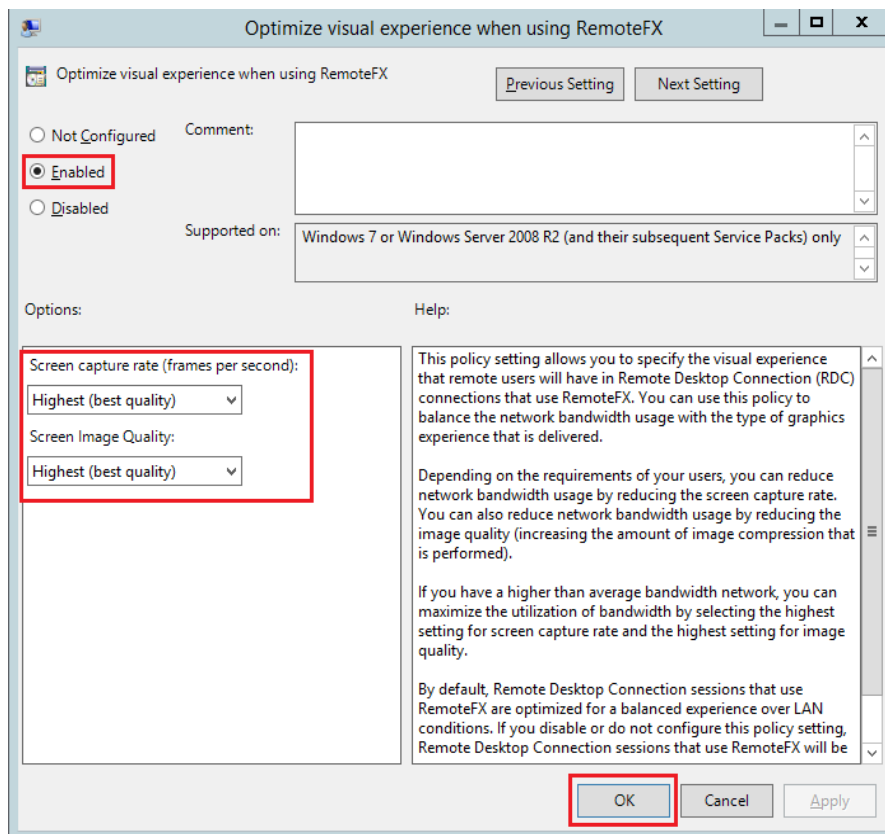
- Expand the path "Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Remote Session Environment >> RemoteFX for Windows Server 2008R2"
- Double click "Configure RemoteFX"
- Select "Enabled"



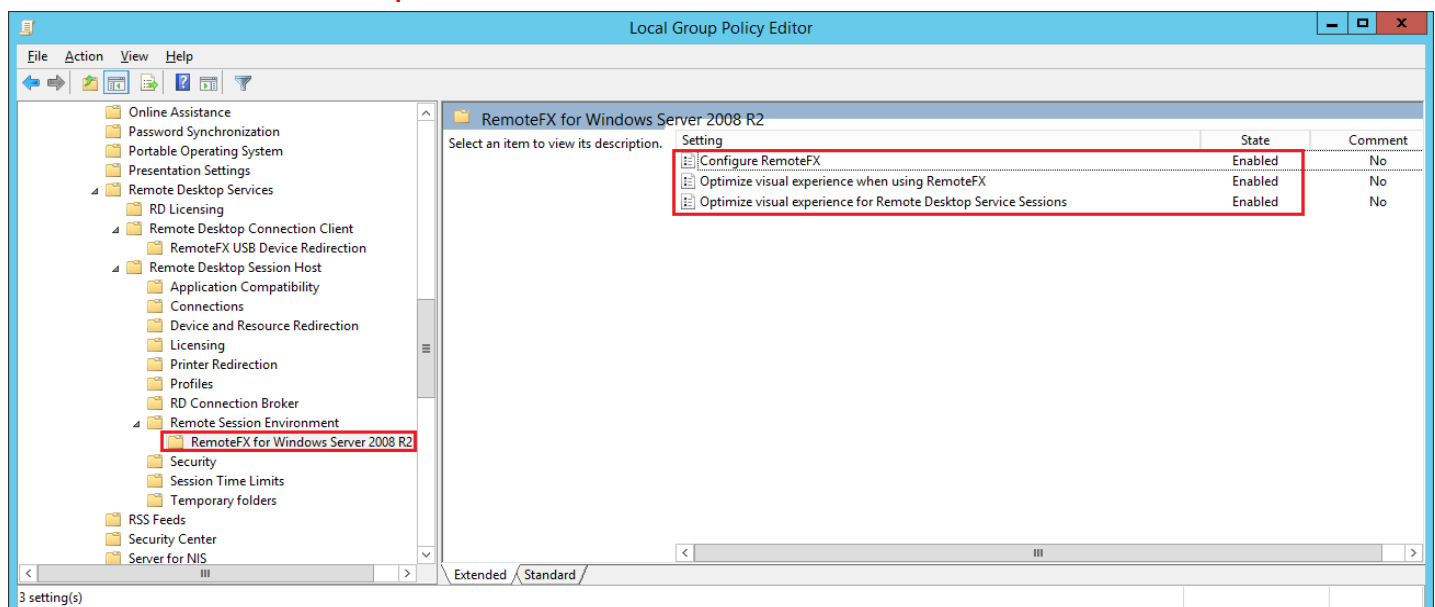
- Enable and set “Optimize visual experience when using Remote FX”
  - Expand the path “Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Remote Session Environment >> RemoteFX for Windows Server 2008R2”
  - Double click “Optimize visual experience when using Remote FX”
  - Select “Enabled”







- Enable and set “Optimize visual experience for Remote Desktop Service Sessions”
  - Expand the path “Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Remote Session Environment >> RemoteFX for Windows Server 2008R2”
  - Double click “Optimize visual experience for Remote Desktop Service Sessions”
  - Select “Enabled”
  - Set “Visual experience” to “Rich Multimedia”



Optimize visual experience for Remote Desktop Service Sessions

Optimize visual experience for Remote Desktop Service Sessions [Previous Setting](#) [Next Setting](#)

☐ Not Configured Comment:

☒ Enabled

☐ Disabled Supported on: Windows 7 or Windows Server 2008 R2 (and their subsequent Service Packs) only

Options: Visual experience: Rich multimedia

Help: This policy setting allows you to specify the visual experience that remote users receive in Remote Desktop Services sessions. Remote sessions on the remote computer are then optimized to support this visual experience.

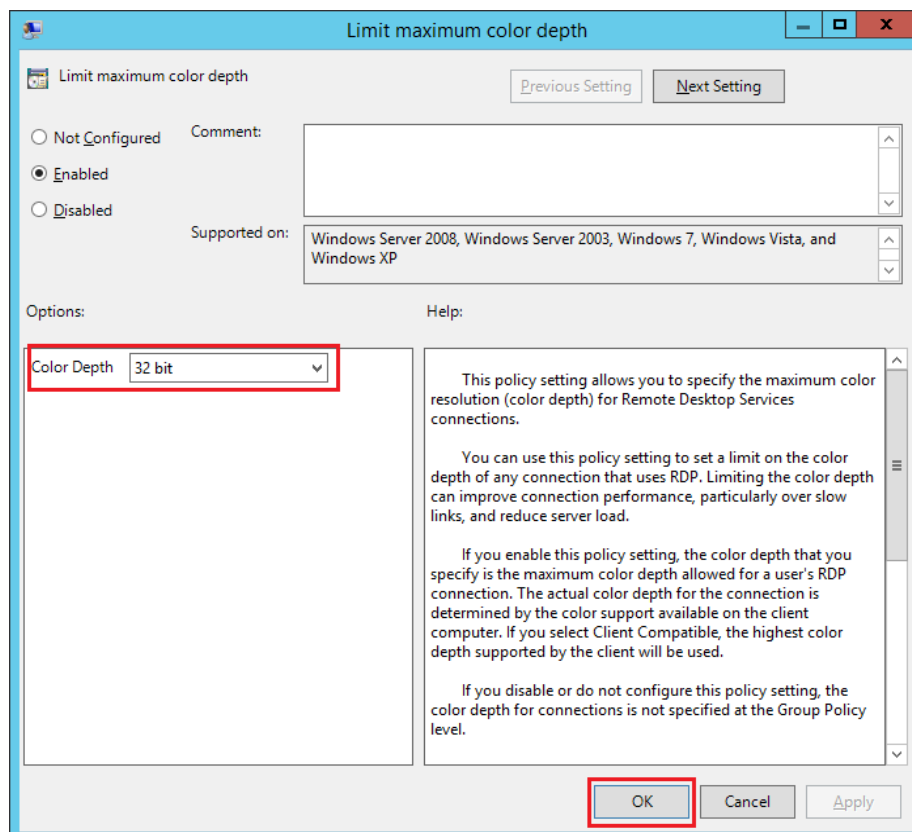
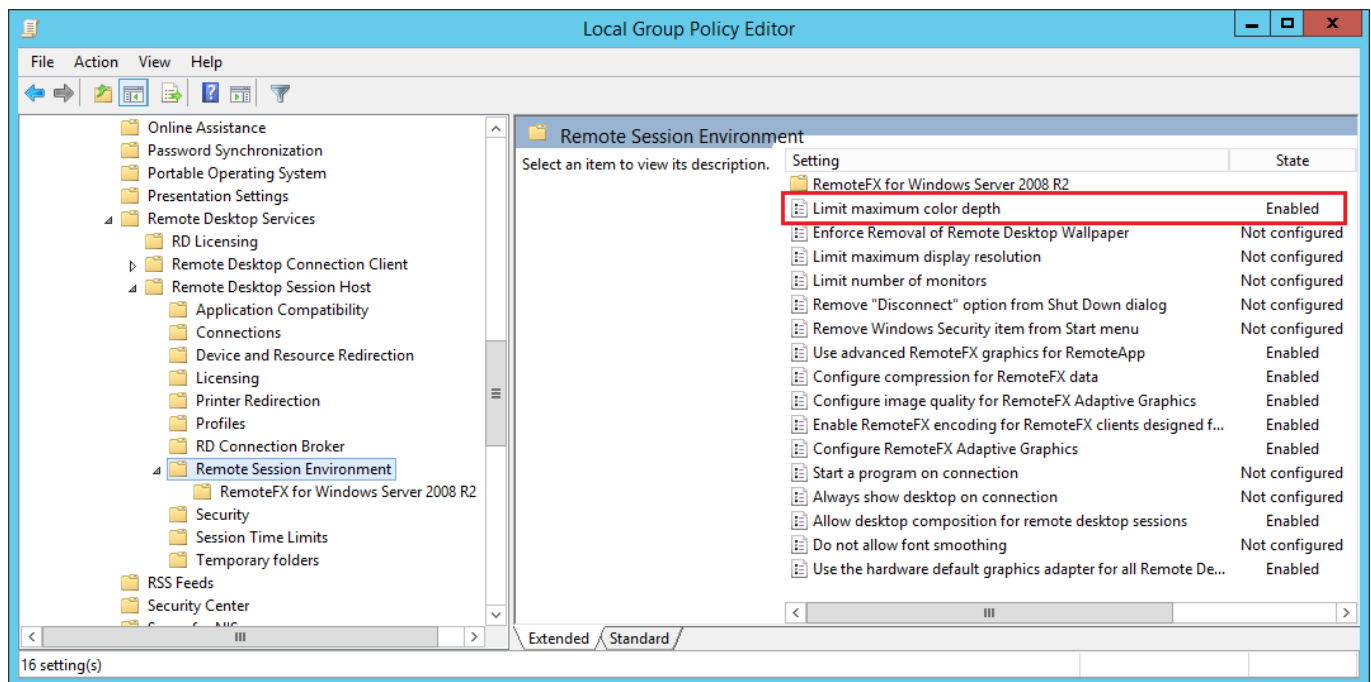
By default, Remote Desktop Services sessions are optimized for rich multimedia, such as applications that use Silverlight or Windows Presentation Foundation.

If you enable this policy setting, you must select the visual experience for which you want to optimize Remote Desktop Services sessions. You can select either Rich multimedia or Text.

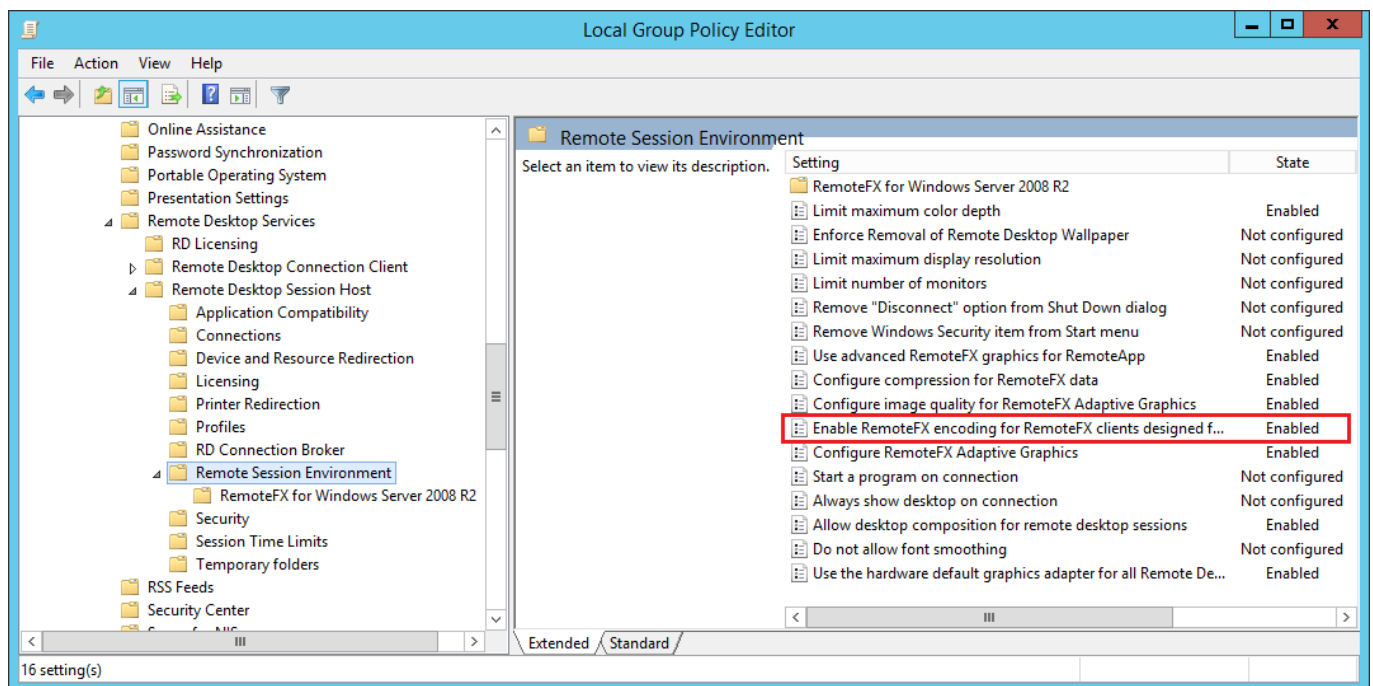
If you disable or do not configure this policy setting, Remote Desktop Services sessions are optimized for rich multimedia.

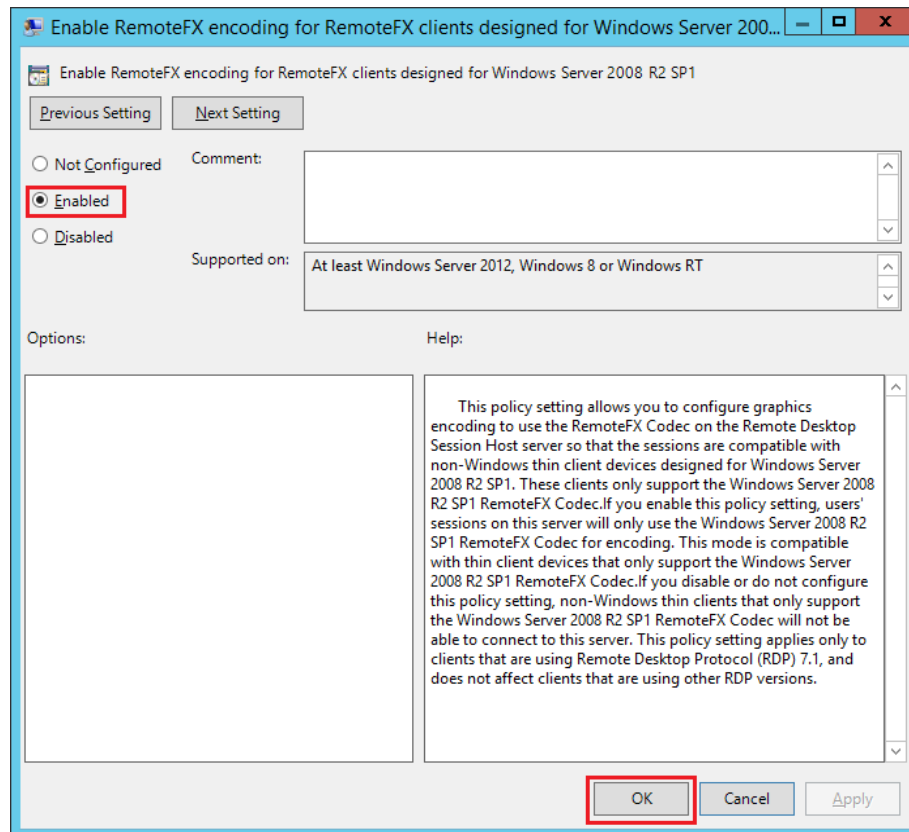
[OK](#) [Cancel](#) [Apply](#)

- Enable "Limit maximum color depth" .
  - Expand the path "Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Remote Session Environment"
  - Double click "Limit maximum color depth"
  - Select "Enabled"
  - Set "Color Depth" to "32 bit" or "Client Compatible"



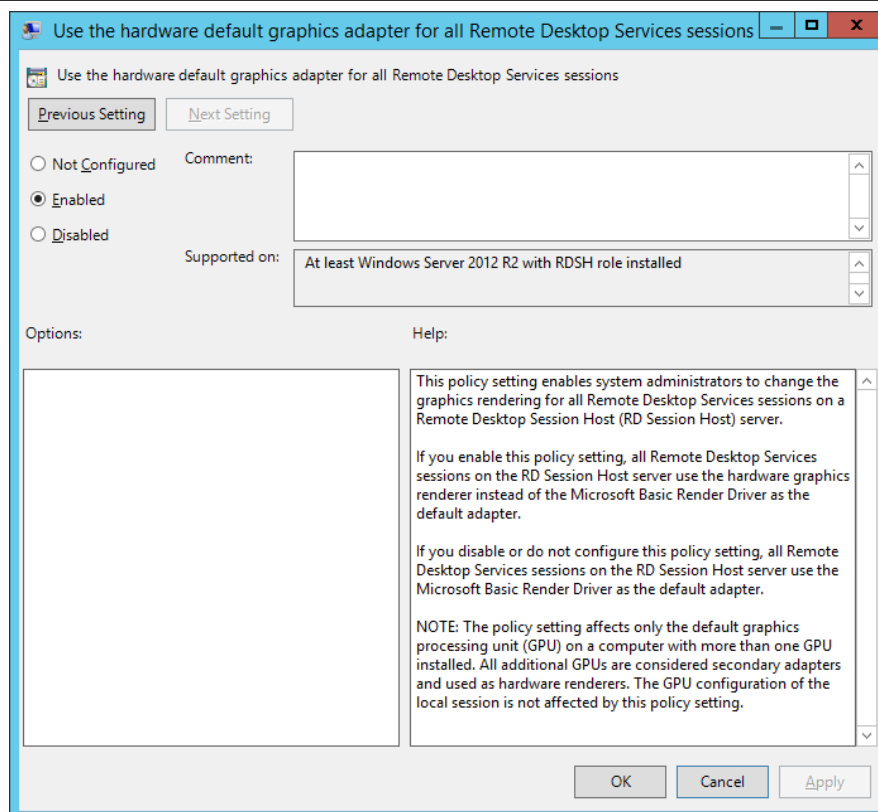
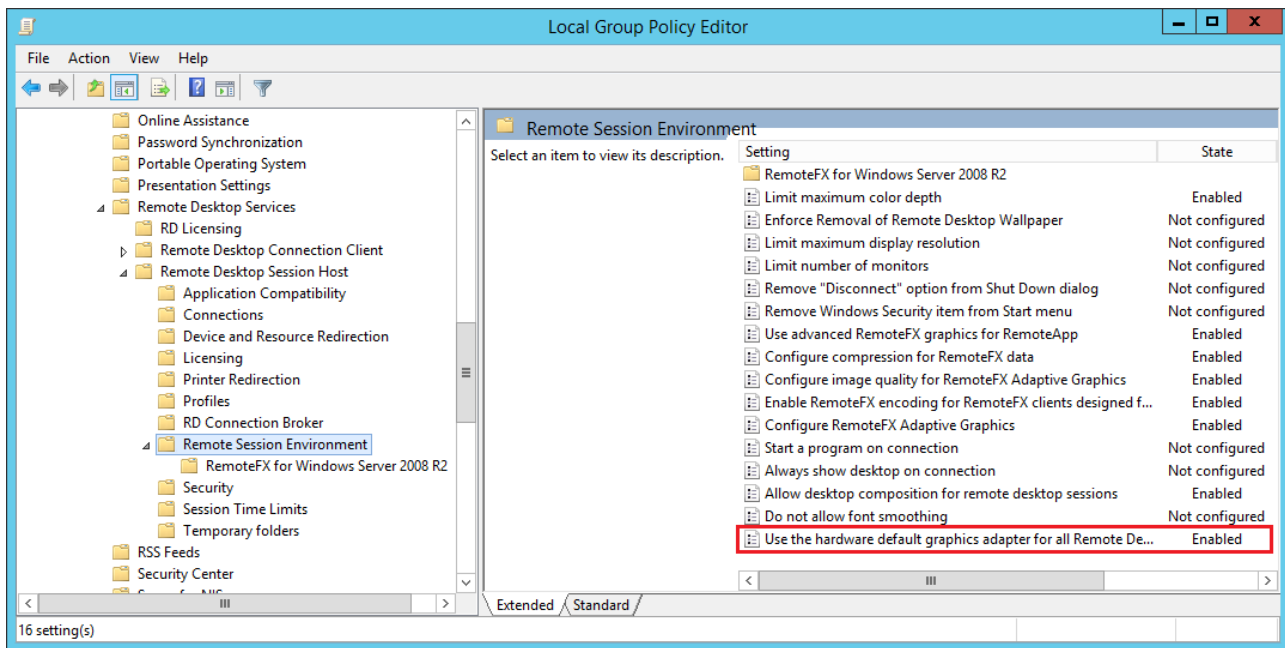
- Enable “Enable RemoteFX encoding for RemoteFX clients designed for Windows Server2008R2 SP1”
  - Expand the path “Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Remote Session Environment”
  - Double click “Enable RemoteFX encoding for RemoteFX clients designed for Windows Server2008R2 SP1”
  - Select “Enabled”



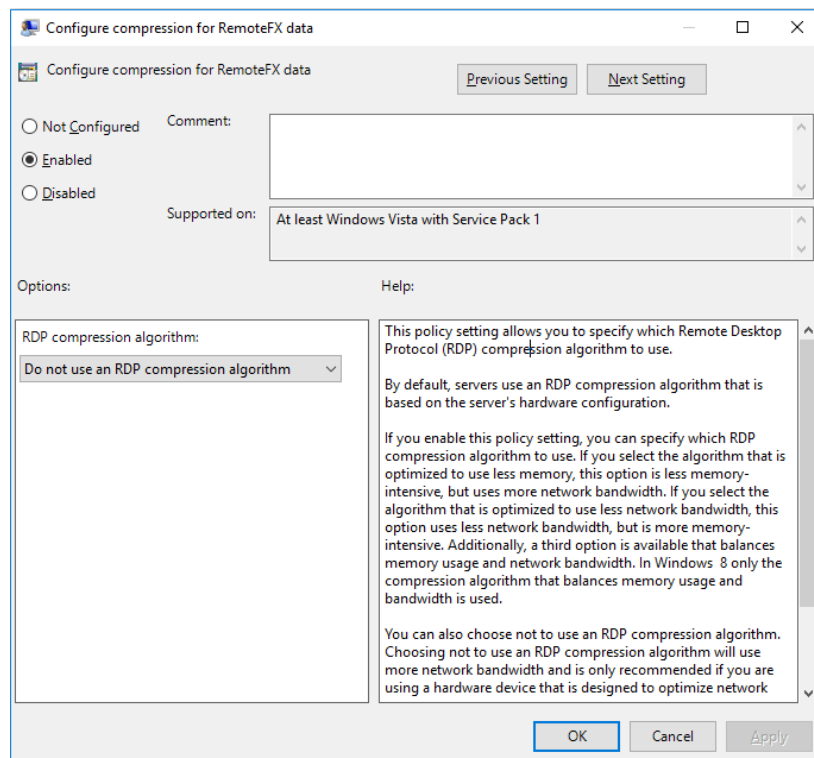


- Enable “Use the hardware default graphics adapter for all Remote Desktop Services sessions”
  - Expand the path “Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Remote Session Environment”
  - Double click “Use the hardware default graphics adapter for all Remote Desktop Services sessions”
  - Select “Enabled”

**Note:** Enabling this policy might affect your remote connections. Disabling or enabling this policy will decide the connection decoded by the CPU or GPU.

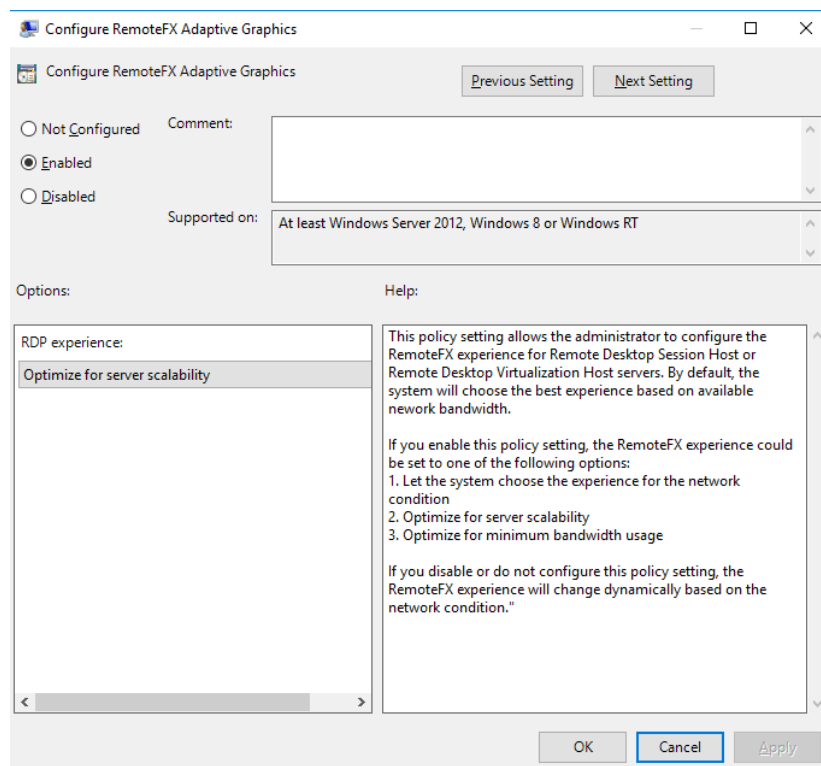


- Enable “Configure compression for RemoteFX data”
  - Expand the path “Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Remote Session Environment”
  - Double click “Configure compression for RemoteFX data” .
  - .Select “Enabled”
  - Set RDP compression algorithm to “Do not use an RDP compression algorithm”



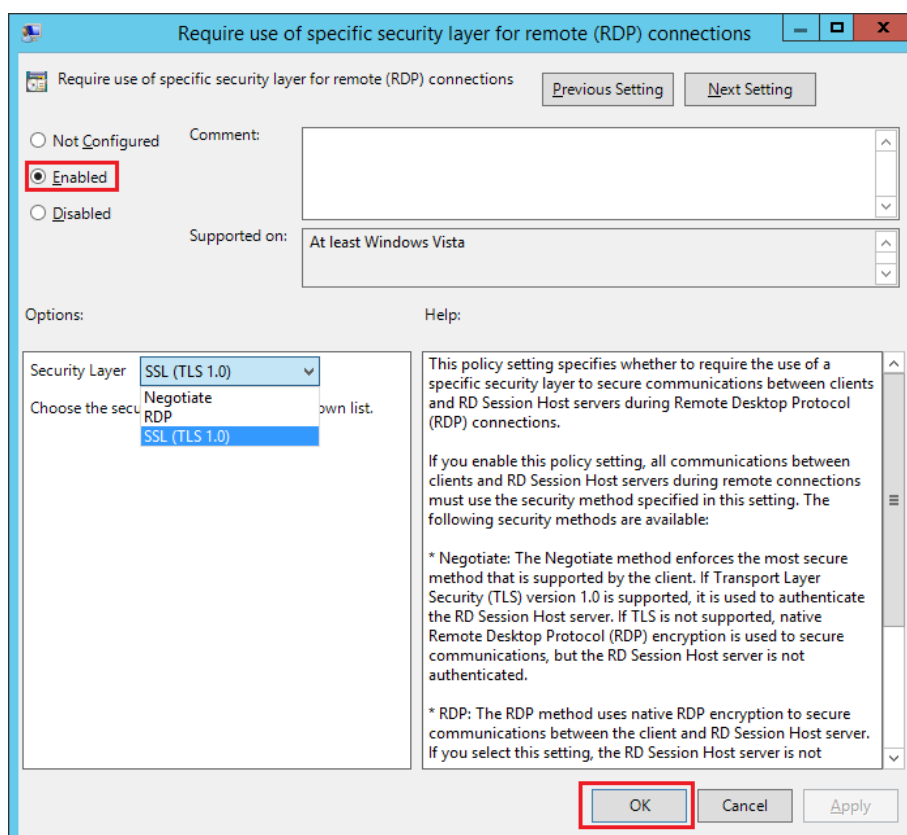
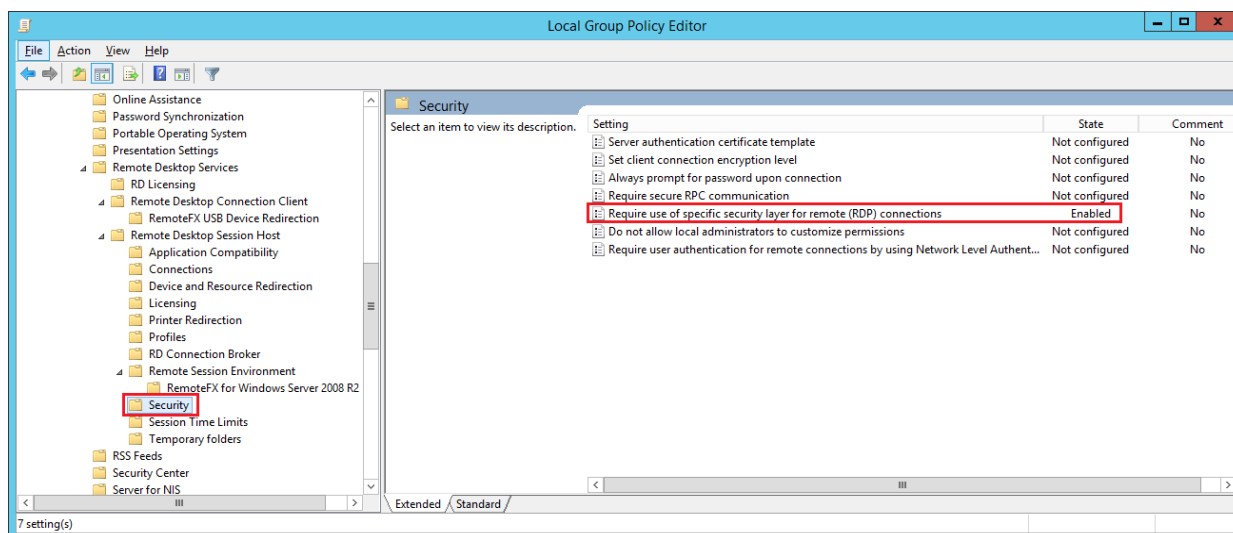
## ■ Enable “Configure RemoteFX Adaptive Graphics”

- Expand the path “Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Remote Session Environment”
- Double click “Configure RemoteFX Adaptive Graphics” .
- .Select “Enabled”
- Set RDP Experience to **“Optimize for server scalability”**





- Enable the policy “Require use specific security layer for remote (RDP) connections”
  - Expand the path “Computer configuration >> Administrative templates >> Windows components >> Remote Desktop Services >> Remote Desktop Session host >> Security”
  - Double click “Require use specific security layer for remote (RDP) connections” .
  - Select “Enabled”
  - Set the “Security Layer” to “Negotiate”



## 5 Reboot the system

- Reboot the system to complete the Remote Desktop configuration and to be able to allow the client remote access