



# **How to Build a Dedicated Virtual Desktop Infrastructure Using Windows Server 2019, Azure Stack HCI, and QCT D52BQ-2U Servers**

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# Abstract

Windows Server 2019 brings about tremendous changes and improvements to the Windows Server architecture. There are great improvements in the realm of hybrid cloud, Storage Spaces Direct (S2D), security, HCI, and many others that help to take the enterprise data center to the next level when running on top of the Windows Server architecture.

Azure Stack HCI and the Windows Server Software Defined (WSSD) Program are both invitation-only programs in which solution providers are requested by Microsoft to design hyper-converged infrastructures with Windows Server technologies.

Azure Stack HCI offers the optimal platform for VDI. Leveraging a validated HCI solution and Microsoft's mature Remote Desktop Services (RDS), customers can create highly available and highly scalable architectures.

There are two types of virtual desktop solutions in the Microsoft ecosystem – Session Virtualization with Remote Desktop Services Host and Virtual Desktop Infrastructure served out by Hyper-V. You can use either solution or mix them effectively to meet the demands of most use cases presented to your business for remote connectivity.

In addition, Azure Stack HCI VDI solutions provide unique cloud-based capabilities for protecting VDI workloads and clients:

- Manage updates centrally using Azure Update Management
- Unified security management and advanced threat protection for VDI clients.

## REVISIONS

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# Overview of Virtual Desktop Infrastructure (VDI) and Windows Server RDS

Virtual Desktop Infrastructure, or VDI, uses server hardware to run desktop operating systems and software programs on a virtual machine. For as long as operating system virtualization existed, VDI offered the flexibility of running traditional desktop workloads on centralized servers.

Leveraging VDI in a business setting has a wide range of advantages, including keeping sensitive company applications and data in a secure datacenter, accommodating a bring-your-own-device policy without worrying about personal data getting mixed with corporate assets, reducing liability when corporate assets are lost - covering both data loss prevention and exposure of sensitive data to potential corporate espionage and/or hackers. In addition, VDI has become the de-facto standard for supporting remote and branch workers as well as for providing access to contractors and partners.

Today's businesses are empowering their employees to work from anywhere and from multiple devices. With Virtualization and Virtual Desktop Infrastructure (VDI) technologies driving the modern workforce, employees now have more connectivity and productivity options than ever before.

When it comes to utilizing Microsoft technologies for remote access to satisfy business needs, Windows Server Remote Desktop Services offer a wide range of features and capabilities. When used with underlying virtualization technologies, it provides a powerful platform for remote access.

## Types of VDI Virtual Desktop Implementations

Two types of VDI deployments exist in the Windows VDI world: pooled and personal desktops. What is the difference?

- **Pooled** – In this configuration, you set up a “pool” of virtual machines. When a user connects, they are automatically assigned a virtual machine that is not in use. When this user disconnects, this VM is reset to a default state and returned to the pool to be available for connection from other users.
- **Personal** – A personal desktop allows the same VM to be assigned to a specific user to cater to individual requirements. Such a VM may have a particular configuration or software that the specific user needs.

Pooled desktops hold certain advantages over personal desktops in terms of maintenance and other administrative tasks. Pooled desktops are generated from a “Gold” image VM. Since the data is reset each time a user logs off, there is no need to maintain specific VMs. You simply need to patch and update the Gold VM and all the other VMs will be updated upon their next generation.

Personal desktops are convenient for dealing with end-user data. Since they are persistent, end-user data are maintained locally. Therefore, system administrators do not have to worry as much about how to save users’ data.

In this guide, we will show you how to build a pooled desktop.

## The Enhancements with Windows Server 2019 RDS

**RDS web client** – as part of the RD web client in the browser, you can use the single-sign-on experience to allow authentication to be passed on to desktops you have access to from the RDS web client. RDS web client is a little limited in what it can redirect. You can create a PDF of the printout and then print when you are connected.

**GPU virtualization** is a big part of user experience. More and more applications today are requiring graphics acceleration. Discrete device assignment has been continually improved in Windows Server 2019 including RDSH scalability with GFX HW acceleration, use of all available GPUs, and improvements on video detection and handling.

Moving onto the Discrete Device Assignment or DDA functionality, let's compare DDA and Remote vGPU in Windows Server 2019.

### **DDA:**

- Primary story for GPU acceleration in WS2019
- Enhanced security and isolation
- Guaranteed GPU performance
- API compatibility (DirectX 12, OpenGL)
- We are continuing to evaluate GPU-P drivers for VDI and RDSH

### **Remote vGPU:**

- Deprecated in WS2019
- Clean OS installation cannot share RemoteFX vGPUs with new Hyper-V VMs
- Upgrade warning if RemoteFX vGPU is enabled in the upgraded OS
- If you already have a Remote FX vGPU-enabled VM, it will continue to work after upgrade
- Admins can remove RemoteFX vGPU after upgrading the system to WS2019

### **RDSH Improvements**

When we look at the RDSH improvements found in Windows Server 2019, there are several areas where improvements can be seen, including:

- **Video playback**
  - Hardware acceleration applied at any time
  - Supports smooth playback while moving the video window
  - Supports 4K downsampling
- **Device redirection**
  - High-level redirection of built-in or attached video camera
  - Less network bandwidth compared to USB camera
  - Increased video frame rate, up to 30 fps
  - Redirect multiple cameras

- **Improved printing messages**
  - Message queuing that is built-into the Windows client
- **User Input Delay performance counters**
  - Another measure to troubleshoot poor application performance
  - Correlate with other performance counters (Active Sessions, CPU, etc.)
  - Enabled by default in WS2019 RDSH and Windows 10, version 1809

## What Is Hyper-V VDI?

Hyper-V VDI is a centralized desktop delivery solution which enables running virtual desktop instances, including client operating systems (OSes), data, and applications in a server-based virtual machine (VM) in the data center.

To enable Hyper-V VDI, you need two Windows server roles: Hyper-V, which creates and manages VMs, and Remote Desktop Services (RDS), which enables and manages communication between a user and a virtual desktop over the network. With the help of a Remote Desktop Protocol, the user's input is sent to a remote application and the application's output is then displayed on the user's local device.

Thus, a Hyper-V VDI environment can be considered an alternative to traditional PC-based infrastructure. In this case, real physical computers are replaced by virtual desktops. Each user gets access to a dedicated VM that runs a separate OS (such as Windows, Windows Server, and Linux). Some users may be given administrator rights, which allows them to install or delete desktop applications, change system settings, install system updates, etc.

To better understand why some business owners choose to build a VDI environment, you need to understand how it works. In a nutshell, the Microsoft VDI technology entails the following:

- Every end user can access their virtual desktop, which is stored on a centralized server, from any device.
- An administrator can grant/deny users access to specific applications from a central management console.
- An administrator can easily identify when licensing is going to expire and determine whether any of your desktop instances requires updates.
- A selected virtual desktop can be maintained and supported by an administrator from a centralized server without having to disrupt the production environment.
- Every end user is assigned a specific VM with dedicated resources. All VMs run in isolation from one another, meaning that they cannot affect one another's performance and get hold of private data.
- All data are stored on a physical server in the data center, meaning that if a virtual desktop fails, you can still retrieve the required information from a remote server.





- Support and maintenance within the VDI environment are much easier compared to that within a traditional PC infrastructure in that an administrator can easily detect any issues and solve them from a centralized server.
- An end user can connect to their virtual desktop using a thin client, zero client, or thick client, as well as laptops or docking stations, tablets or phones. Note that the device should be connected to a corporate network in order to perform any I/O operations.

# QCT Deployment Lab

## Hardware and Software for this Guide

### Server Hardware BOM:

| QuantaGrid D52BQ-2U (2~4 nodes) (Alias name: S5BQ) |   |              |       |                             |
|--|---|--------------|-------|-----------------------------|
| SKU  | Description   | Qty per unit | Total | Version                     |
| Server Platform                                    | D52BQ-2U  | 1            | 4     | BIOS: S2P_3B10<br>BMC: 3.33 |
| CPU  | Intel Xeon Gold 5118 CPUs (2.3GHz, 12-core, 16.5MB cache) | 2            | 8     |                             |
| Memory   | Samsung 32GB DDR4 2666MHz ECC-Register DIMMs              | 16           | 64    |                             |
| Cache  | Samsung 1.92TB 2.5" SATA SSD                              | 4            | 16    | 104Q                        |
| Storage  | Seagate 8TB 3.5" SATA HDD (ST8000NM0055)                  | 8            | 32    | PN01                        |
| Boot Drive   | Intel 480G 2.5" SATA SSD                                  | 1            | 4     | G2010140                    |
| HBA Card   | QCT LSI SAS 9305-16i - IT firmware mode                   | 1            | 4     | FW: 1B03                    |
| NIC Card   | Mellanox Quanta OCP Mezz CX4, Dual Port 25G               | 1            | 4     | FW: 14.24.1000              |

**Network:**

Switch: 2x TOR [QuantaMesh T4048-IX8D](#) and 1x BMC [QuantaMesh T1048-LY4R](#)

**Hardware:**

The four servers were interconnected using Mellanox based 25GbE Ethernet RDMA cards that also support DCB/PFC/ETS Ethernet switches.

The SSD (cache tier) + HDD (capacity tier) drives were added to a single Storage Spaces Direct pool with multiple volumes based on the number of QCT S2D server nodes.

**Software:**

Each server ran Windows Server 2019 Datacenter Edition and participated in a Windows Failover Cluster (required for S2D).

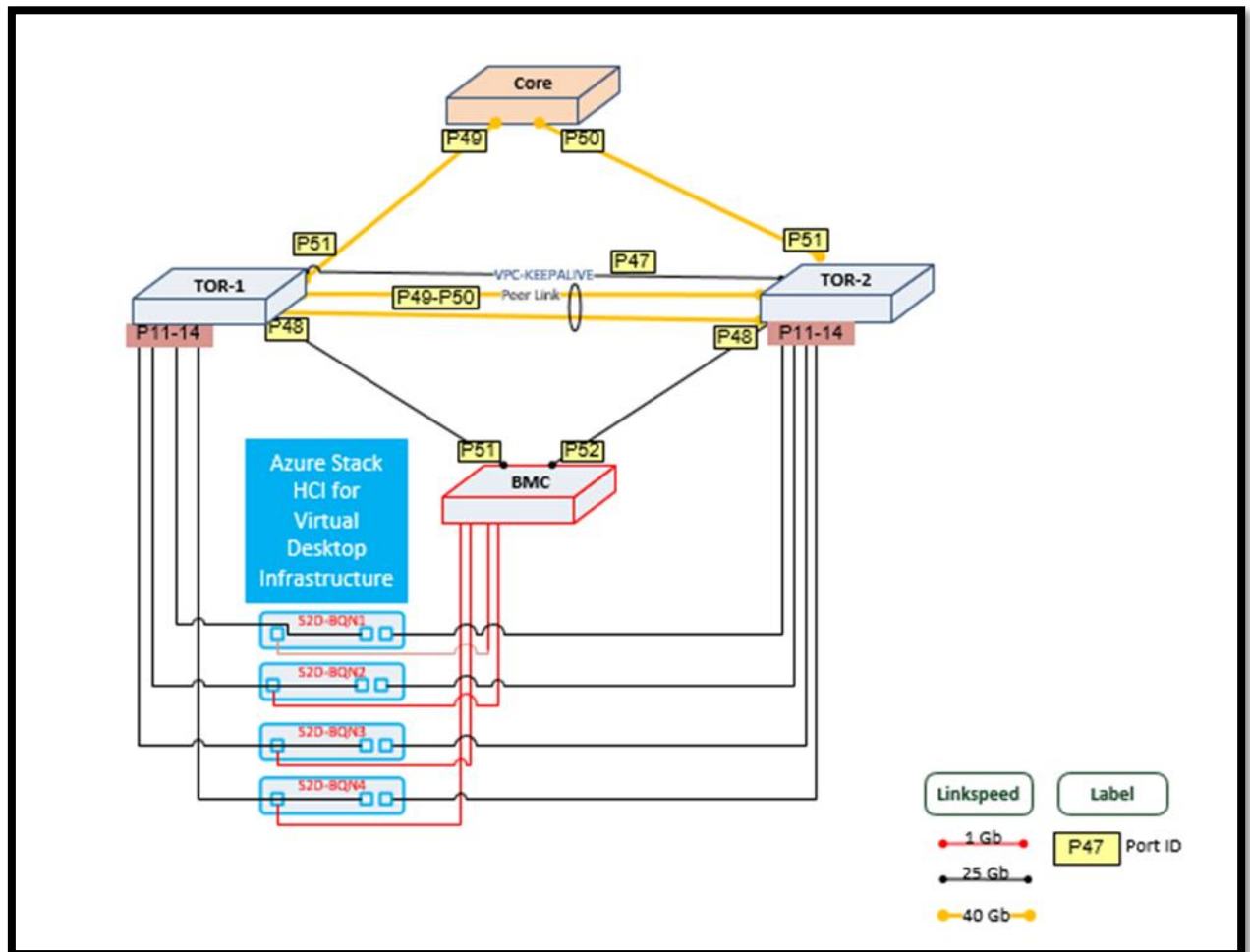
The volumes were configured for the operating system (OS) and data drives as 2-way mirrored volumes, resulting in one local copy of data and one remote copy on other nodes.

Client user workloads were run in Hyper-V virtual machines, with Windows 10 adopted as the guest OS and a few apps installed on windows 10 Enterprise Edition. Each VM was configured with 2 virtual cores (mapped to 1 physical core) and 8GB of RAM.

The disks included are shown below:

| Drive | Size(GB) | Purpose    | Note   |
|-------|----------|------------|--|
| C:    | 40       | Windows OS | Windows 10 client VM installed with Sysprep and other apps |
| D:    | 100      | User Data  | Client user data file                                      |

## Server Nodes / Network Diagram



## Prepare the QCT physical server node

Best practices dictate that with every new server deployment, the first task is to review the system firmware and drivers relevant to the incoming operating system. If the system has the latest firmware and drivers installed, it will expedite tech support calls, and may reduce the need for such calls.

<https://qct.io/product/index/Server/rackmount-server/2U-Rackmount-Server/QuantaGrid-D52BQ-2U#download>

In this tutorial, we will show how to set up Hyper-V VDI in Windows 2019 with the following features:

- Hyper-V host (RD Virtualization Host)
- Service broker for the distribution of connections
- Setting up a collection
- Building a Windows 10 Gold image
- User Profile Disk (UPD)

Composition:

| Name                     | IP           | Roles                            |
|--------------------------|--------------|----------------------------------|
| QCT-PH-167.ws19demo.qct  | 10.106.5.167 | RD Virtualization Host Server 1  |
| QCT-PH-169.ws19demo.qct  | 10.106.5.169 | RD Virtualization Host Server 2  |
| RDS-APP-151.ws19demo.qct | 10.106.5.151 | Remote APP Publish Host          |
| RDS-BRK-153.ws19demo.qct | 10.106.5.152 | Service Broker / License Manager |
| RDS-WEB-153.ws19demo.qct | 10.106.5.153 | Web Access                       |

For the realization of the tutorial, I used an AD server, dc01.ws19demo.qct with the IP address 10.106.48.100.

## Hyper-V VDI Components

In order to build a Hyper-V VDI environment using a Hyper-V virtualization platform, you should have the following Remote Desktop Services enabled:

- Remote Desktop Virtualization Host, which is a server with the Hyper-V role enabled. The hypervisor helps you host VMs and install desktop OSs on top of them. This way, you can provision each end user with their own workstation.
- Remote Desktop Session Host, which allows multiple end users to access Windows desktops and applications using the RemoteApp or the Remote Desktop Connection client.
- Remote Desktop Connection Broker, which enables connection between end users and specific virtual desktops. Remote Desktop Connection Broker can identify whether a user is allowed to connect to a desktop instance and access certain VM data and applications.
- Remote Desktop Gateway, which provides public users with a secure network to connect to Windows desktops and applications.
- Remote Desktop Web Access, which enables users to access virtual desktops and applications through a web page.
- Remote Desktop Licensing, which allows you to manage RD licensing within your Hyper-V VDI environment and ensure that each user and device has an RDS Client Access License (CAL).

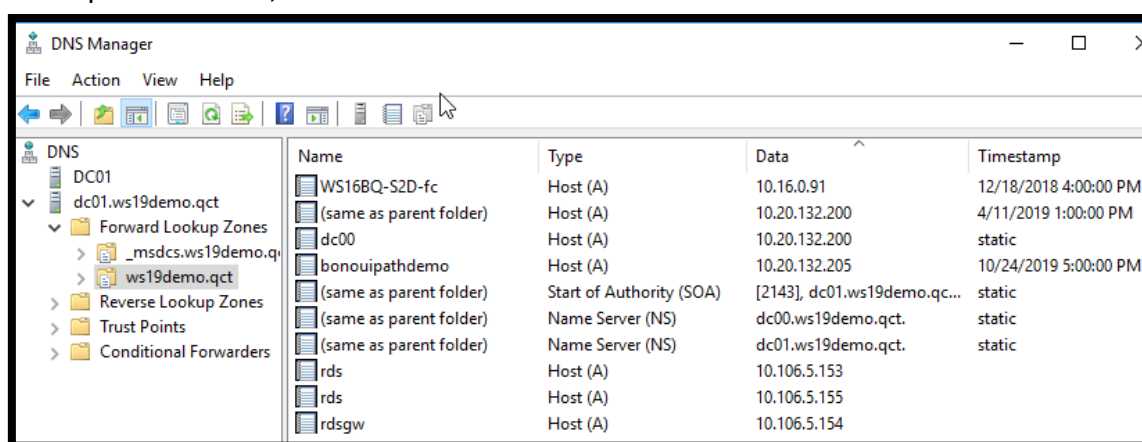
## How to Deploy Hyper-V VDI

The entire setup process is complex enough to make some business owners abandon the idea of building a Hyper-V VDI environment entirely. Below, I am going to describe the step-by-step process of deploying Hyper-V VDI in Windows Server 2019.

This section describes which Remote Desktop role services should be installed for Hyper-V VDI deployment.

### Add DNS records

Create a type A record with the same name that will point to the IPs of your remote desktop session host, as shown below.



| Name                    | Type                     | Data                        | Timestamp             |
|-------------------------|--------------------------|-----------------------------|-----------------------|
| WS16BQ-S2D-fc           | Host (A)                 | 10.16.0.91                  | 12/18/2018 4:00:00 PM |
| (same as parent folder) | Host (A)                 | 10.20.132.200               | 4/11/2019 1:00:00 PM  |
| dc00                    | Host (A)                 | 10.20.132.200               | static                |
| bonouipathdemo          | Host (A)                 | 10.20.132.205               | 10/24/2019 5:00:00 PM |
| (same as parent folder) | Start of Authority (SOA) | [2143], dc01.ws19demo.qc... | static                |
| (same as parent folder) | Name Server (NS)         | dc00.ws19demo.qct.          | static                |
| (same as parent folder) | Name Server (NS)         | dc01.ws19demo.qct.          | static                |
| rds                     | Host (A)                 | 10.106.5.153                |                       |
| rds                     | Host (A)                 | 10.106.5.155                |                       |
| rdsgw                   | Host (A)                 | 10.106.5.154                |                       |

I added a record of type A rdsgw pointing to the IP of the server RDS-WEB-154 to be able to use the gateway internally.

In production, it will be necessary to provide a recording on a domain accessible from Internet of type A on a public IP and to set up a rule on router / firewall to authorize the traffic on Port 443.

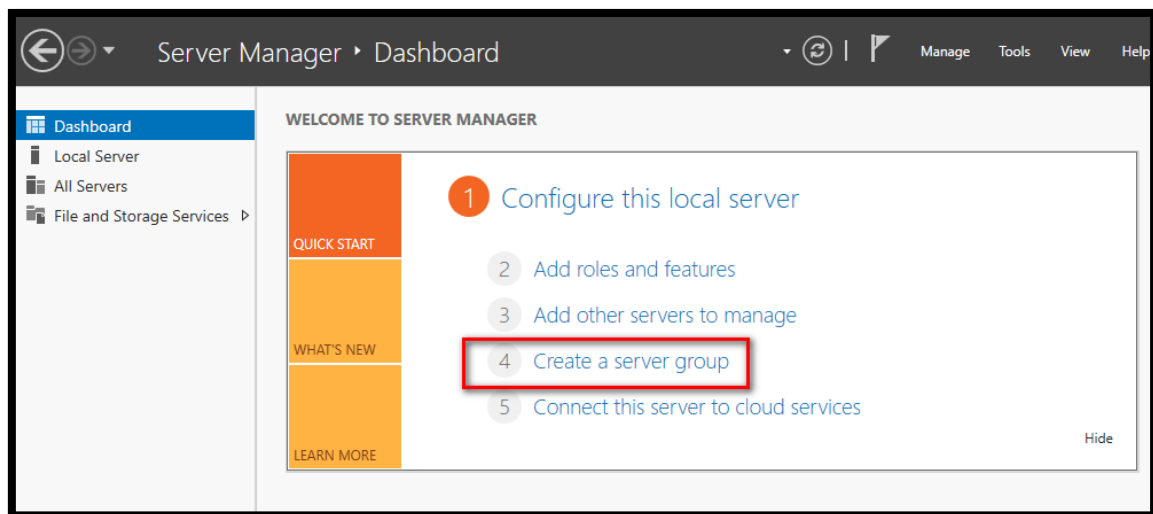
### Server Manager - Add Servers in One Console

To use the Windows Deployment Tool, you must add the servers that make up the RDS environment in one console.

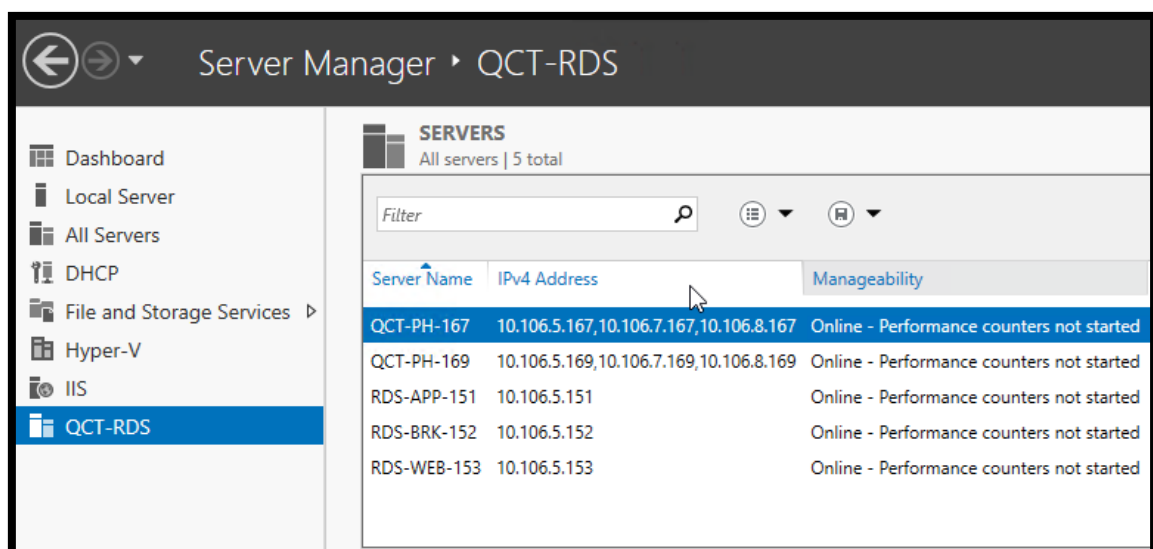


The following operations are to be done on the server RDS-BRK-152.ws19demo.qct.

From the Server Manager Dashboard, click Create Server Group



Name the group as QCT-RDS, select the servers and add them.



## Deploying RDS roles

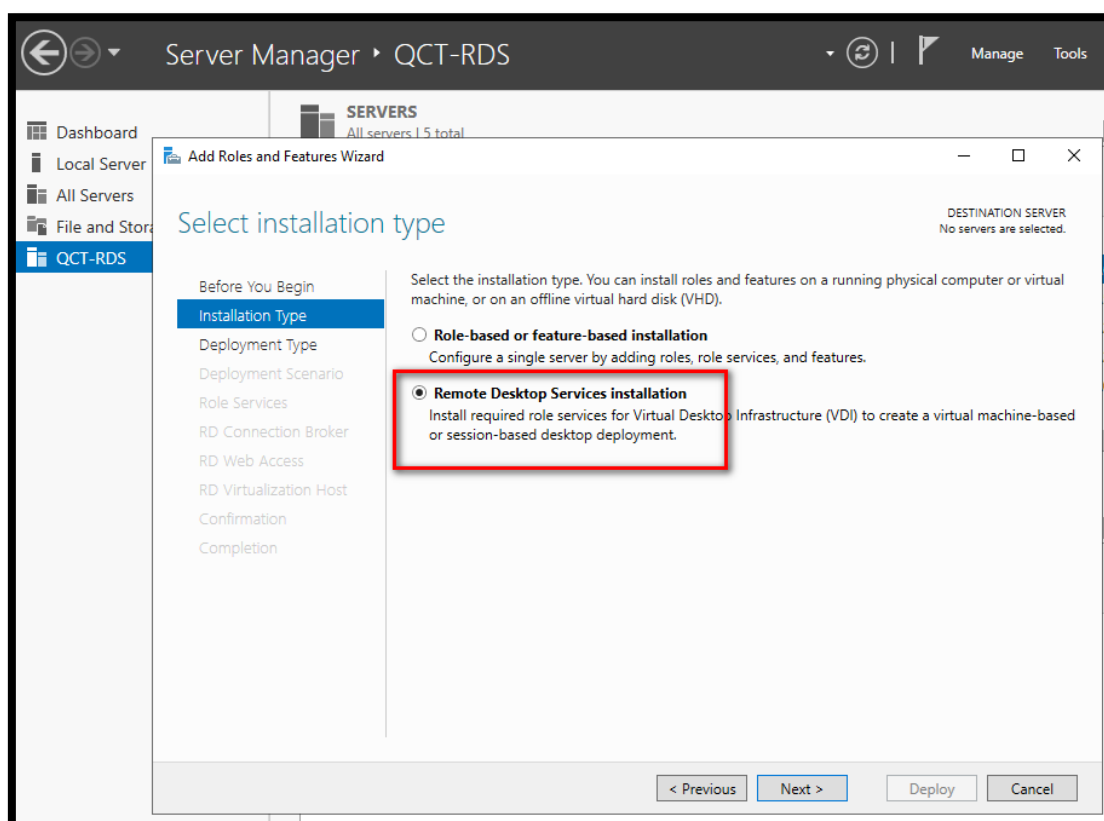
The deployment of an RDS infrastructure is facilitated by the tool built into the server managers, in a single manipulation the following roles will be installed:

- Hyper-V host (RD Virtualization Host)
- Connection Broker
- Remote Desktop Access via the Web
- RDS Licensing Server

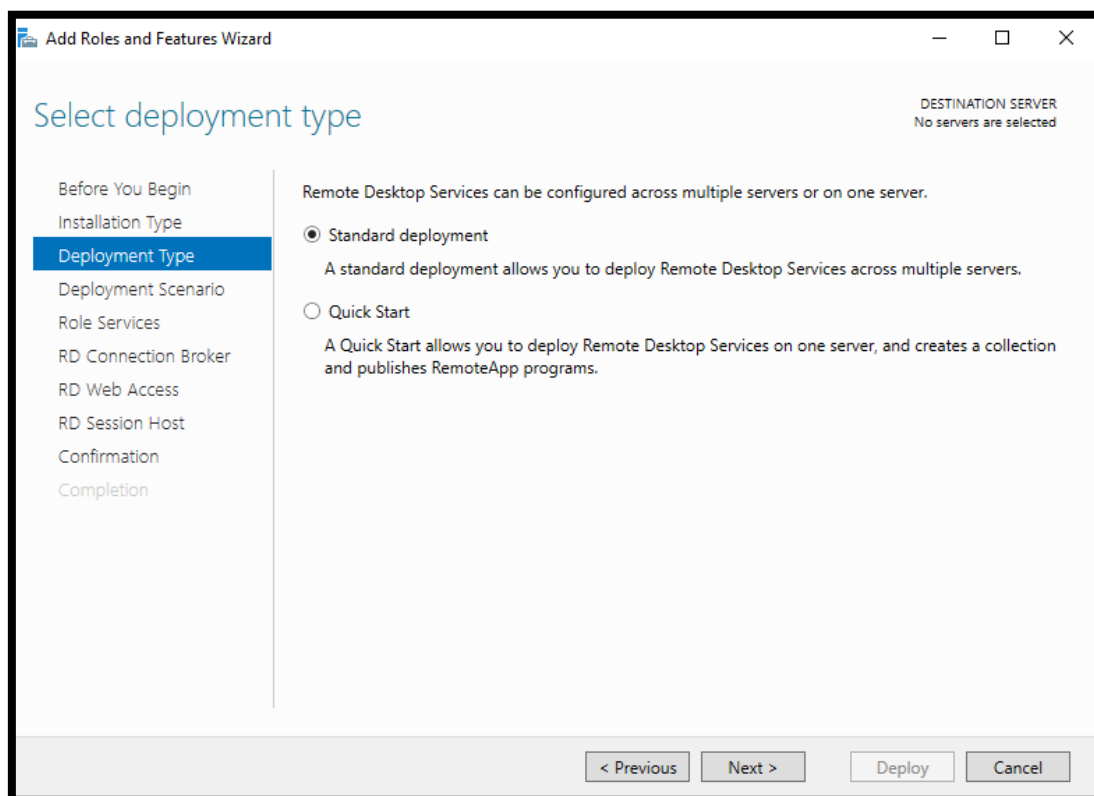
Be sure to add all servers that will be part of the deployment to all servers in server manager on connection broker.

1. From the Server Manager, click Manage → Add Roles and Features

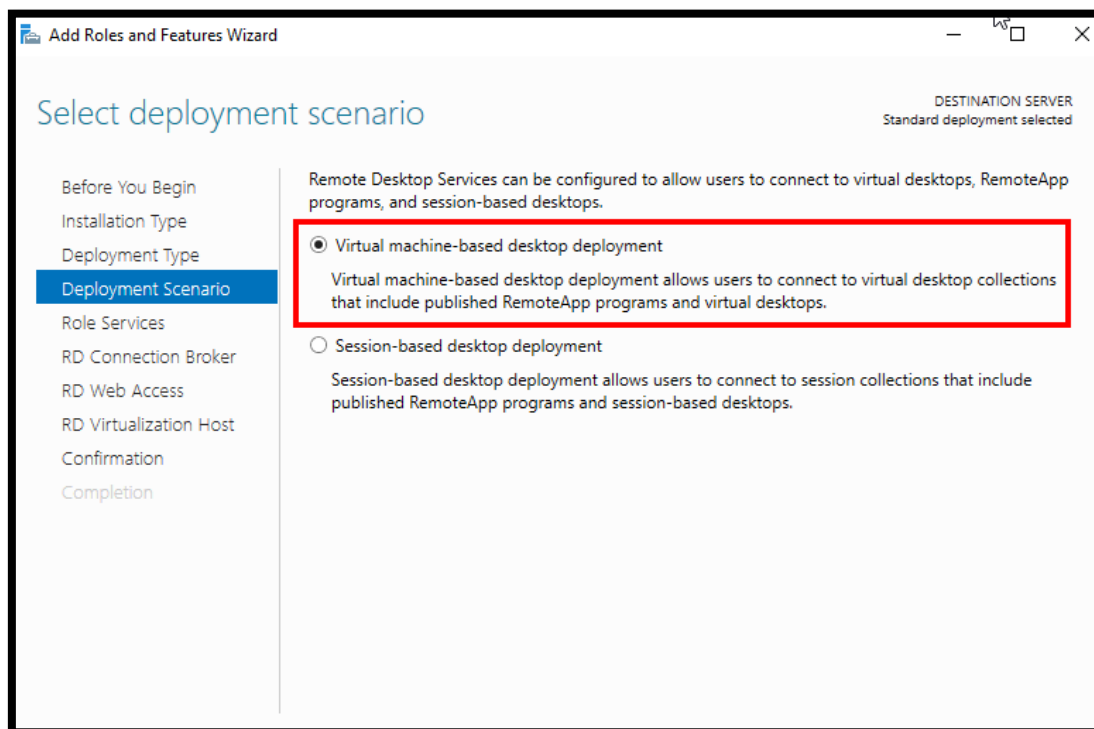
Installation Type: Select Remote Desktop Services Installation



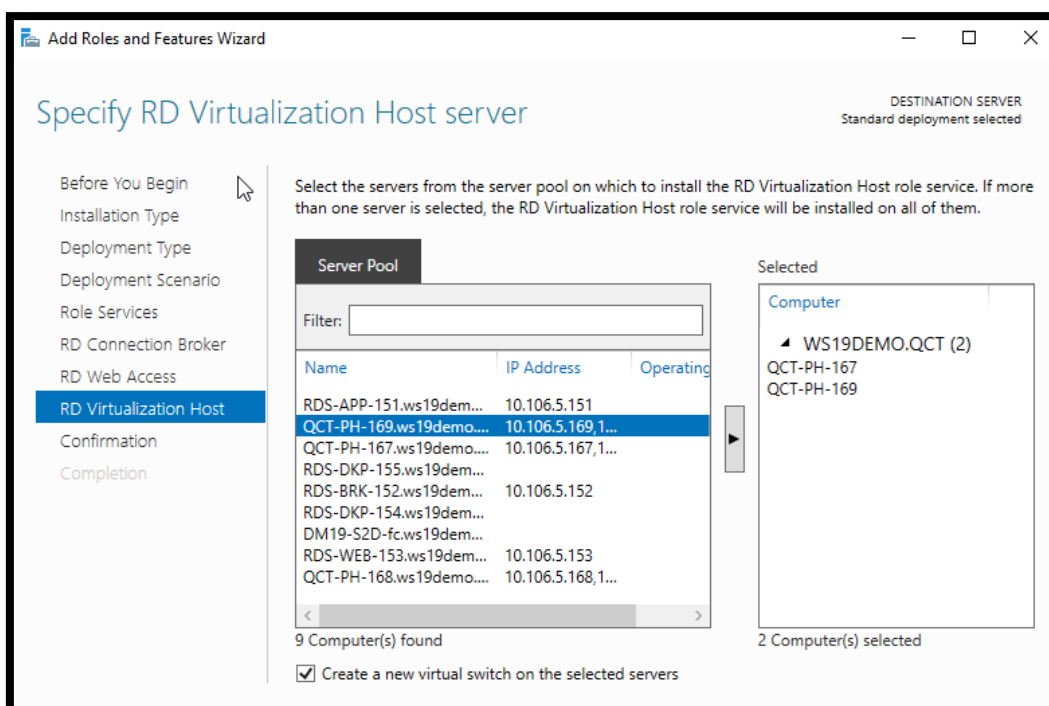
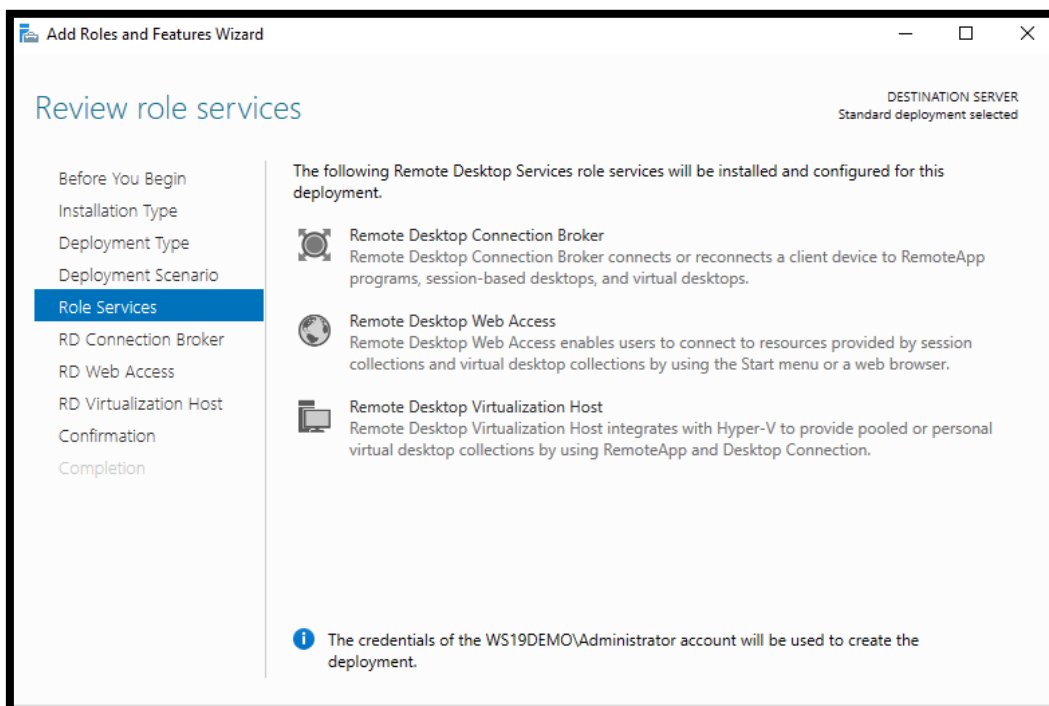
## 2. Deployment Type: select Standard Deployment



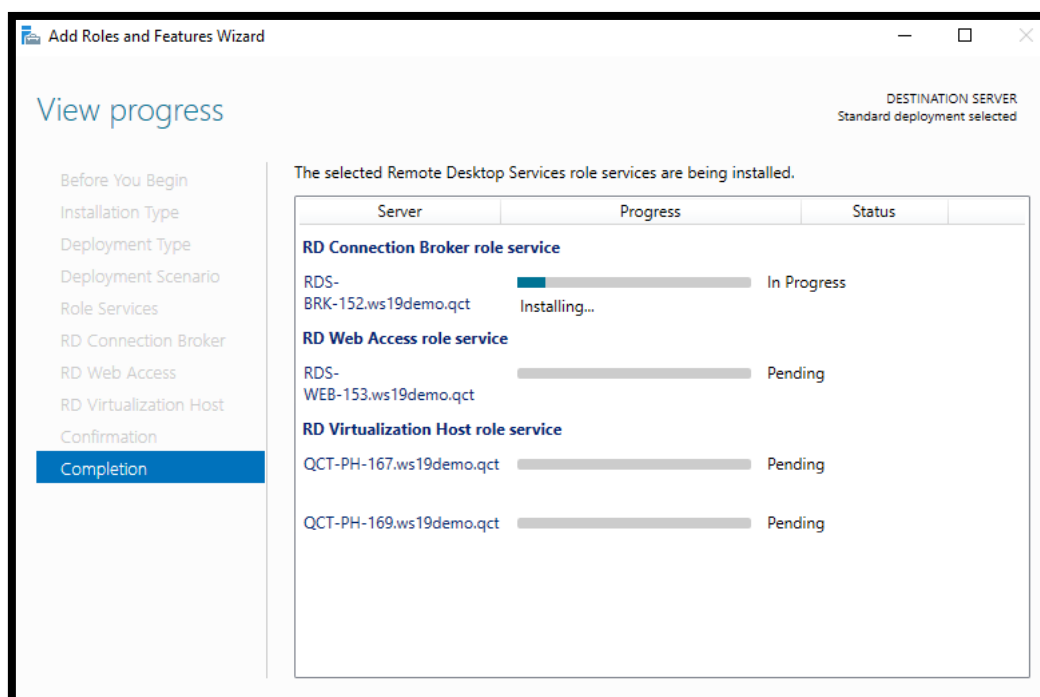
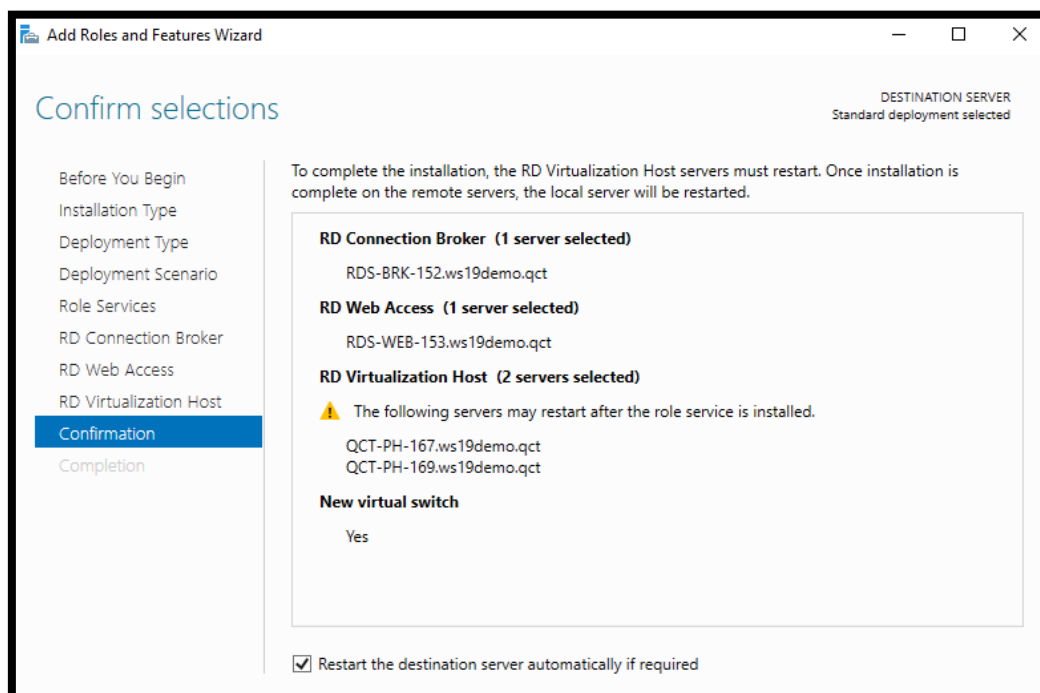
## 3. On the Deployment Scenario select Virtual machine-based desktop deployment



4. Specify **Connection Broker, Web Access and RD Virtualization Host** servers. When you select RD Virtualization Host you will have the option to **create a new virtual switch**. Check this if you want to allow the wizard to create a new virtual switch within Hyper-V to be used for our virtual desktops.



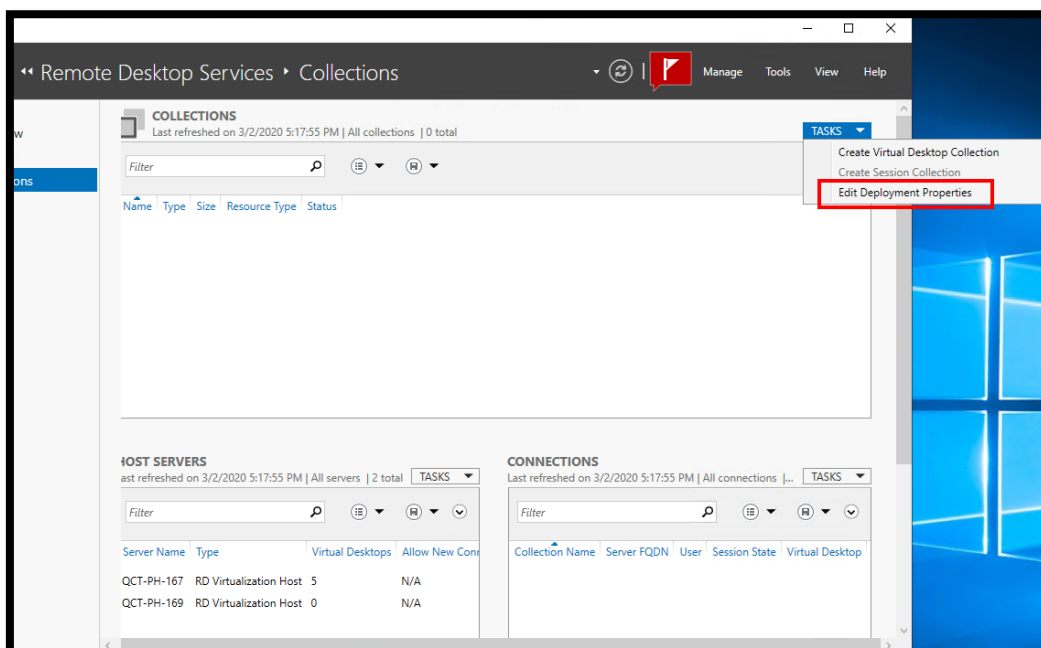
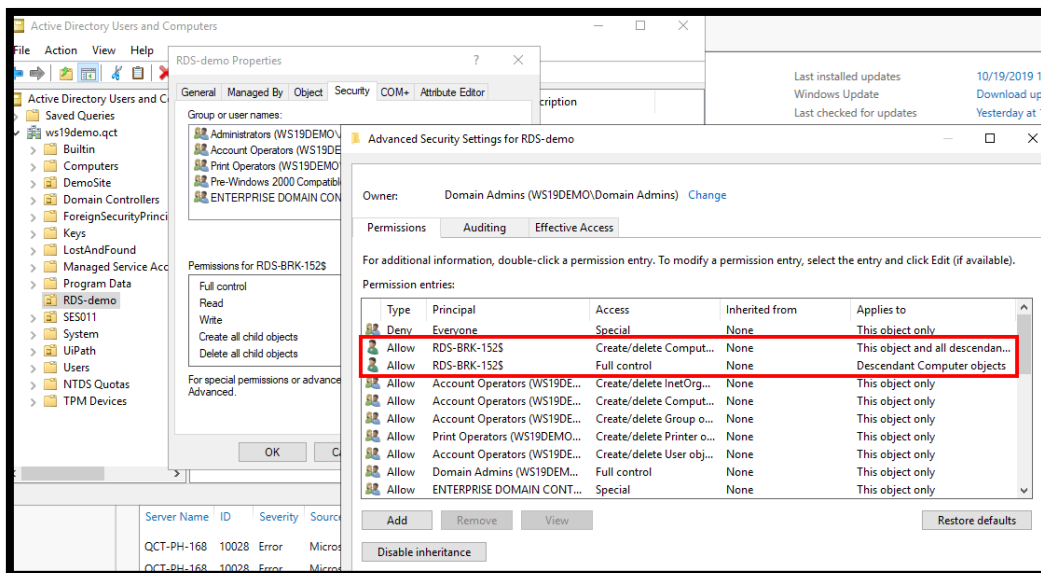
5. Check the box [Automatically restart the destination server] if necessary, then click on the Deploy

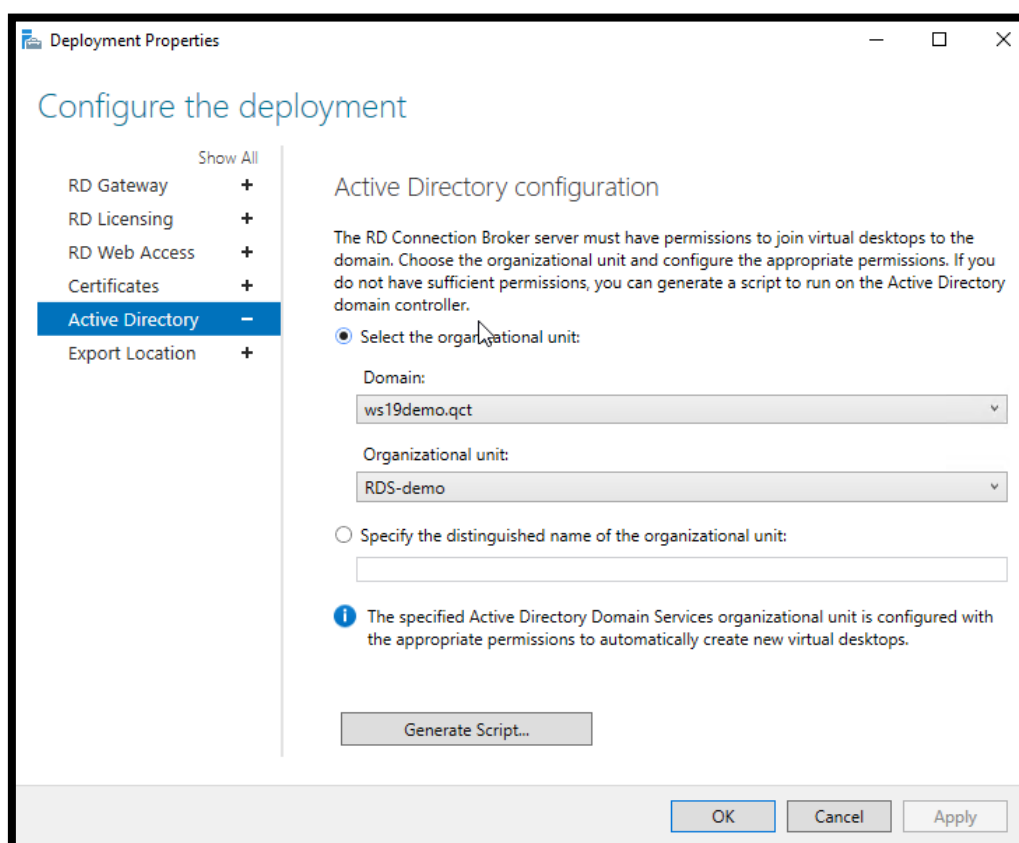


## 6. Configure the Deployment

Let's use Server Manager to edit our RDS deployment.

There are two new sections. **Active Directory and Export Location**. On the Active Directory section, we are configuring permissions so that our connection broker can join a VDI's domain. Broker will require full control. As noted earlier, we already created new OU called RDS-Demo.





**Deployment Properties**

### Configure the deployment

Show All

- RD Gateway +
- RD Licensing +
- RD Web Access +
- Certificates +
- Active Directory -**
- Export Location +

#### Active Directory configuration

The RD Connection Broker server must have permissions to join virtual desktops to the domain. Choose the organizational unit and configure the appropriate permissions. If you do not have sufficient permissions, you can generate a script to run on the Active Directory domain controller.

☒ Select the organizational unit:

Domain:

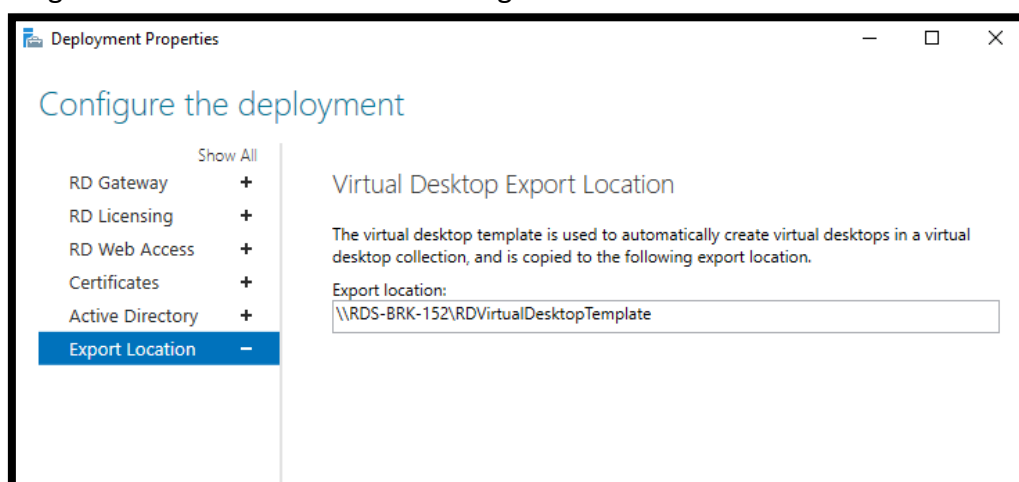
Organizational unit:

☐ Specify the distinguished name of the organizational unit:

**i** The specified Active Directory Domain Services organizational unit is configured with the appropriate permissions to automatically create new virtual desktops.

## 7. Export Location

The export location is a global setting that applies to all collections in the deployment. When you create a managed collection (a collection that is based off of a “Gold” image is part of the managed collection), we have to export the Gold image to this location and store it using the collection name.



**Deployment Properties**

### Configure the deployment

Show All

- RD Gateway +
- RD Licensing +
- RD Web Access +
- Certificates +
- Active Directory +
- Export Location -**

#### Virtual Desktop Export Location

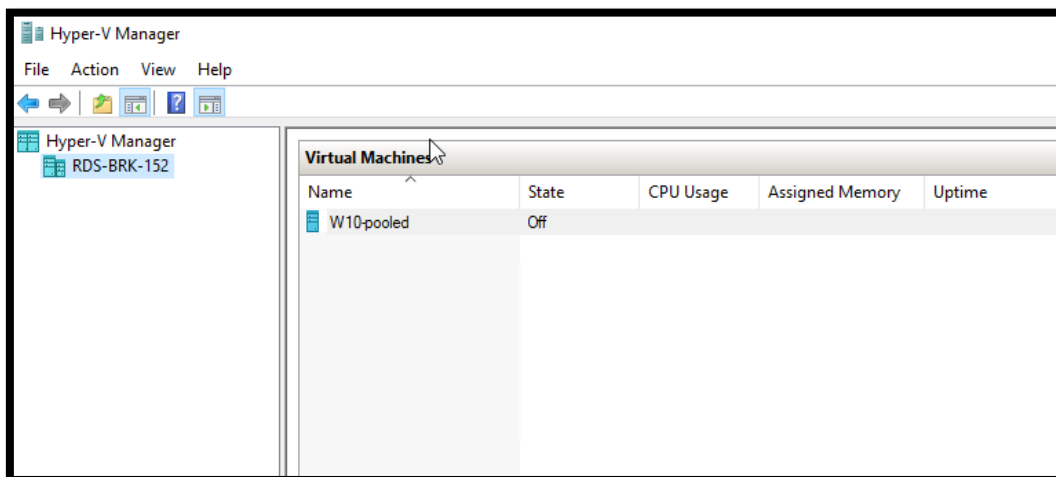
The virtual desktop template is used to automatically create virtual desktops in a virtual desktop collection, and is copied to the following export location.

Export location:

## 8. Create a “Gold” image

I will use Windows 10 Enterprise iso file and create a template with some applications on it. Now when you are done, create a checkpoint before running Sysprep. Doing this will give you an option to revert to point before Sysprep. Once done, run Sysprep with command

```
%WINDIR%\system32\sysprep\sysprep.exe /generalize /shutdown /oobe
```





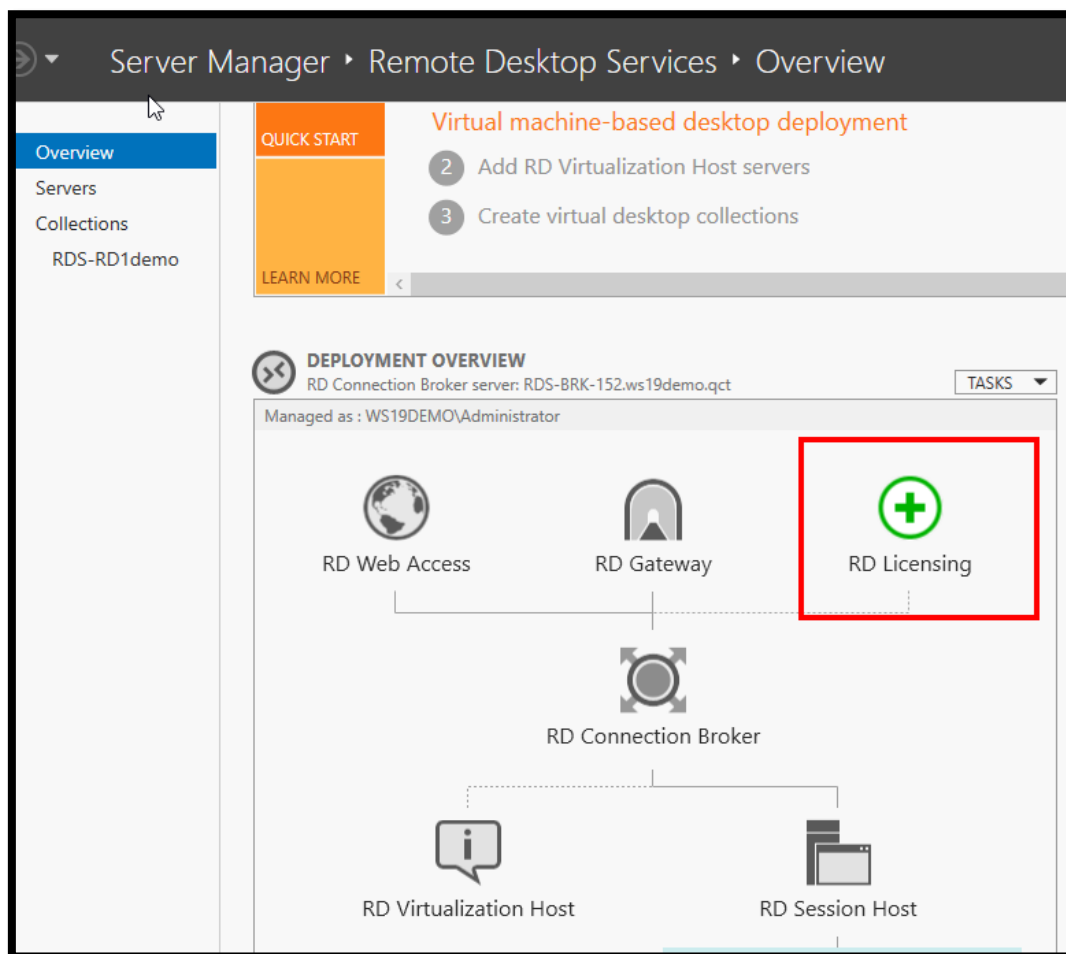
## Remote Desktop Services License Manager

The license manager allows users or devices that connect to the RDS farm to issue an access license (CAL).

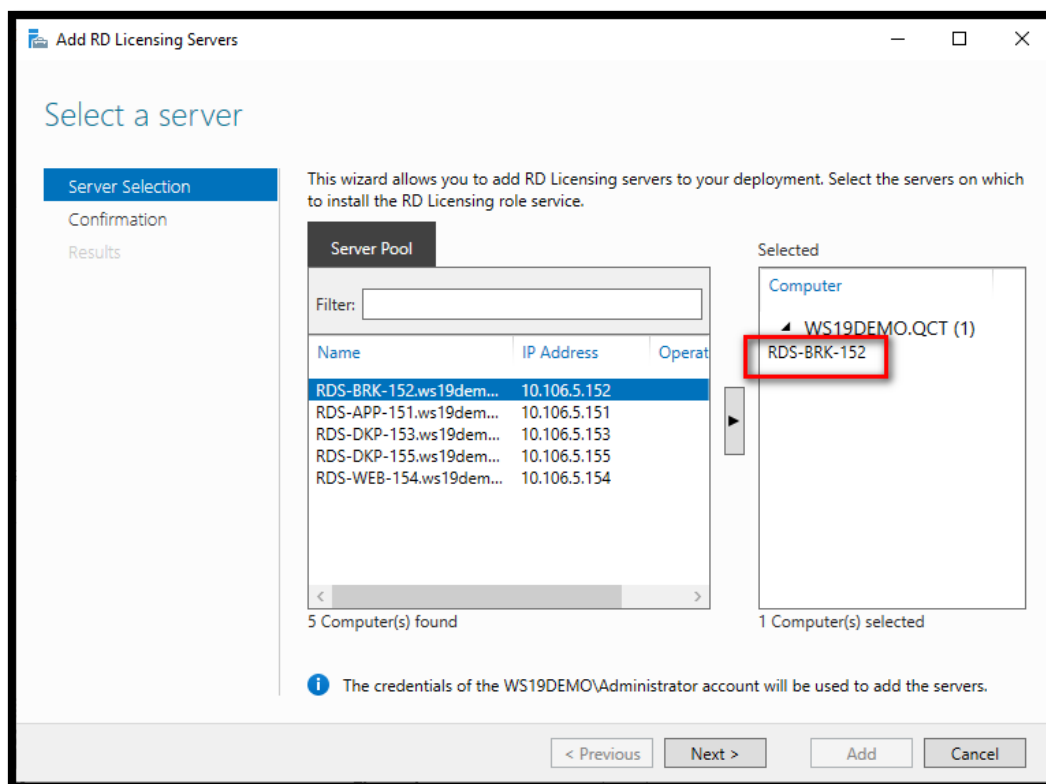
Only one licensing mode for the RDS farm can be configured: users or devices. A license server can distribute several types of licenses and different versions (2008/2012 ...).

### Installation

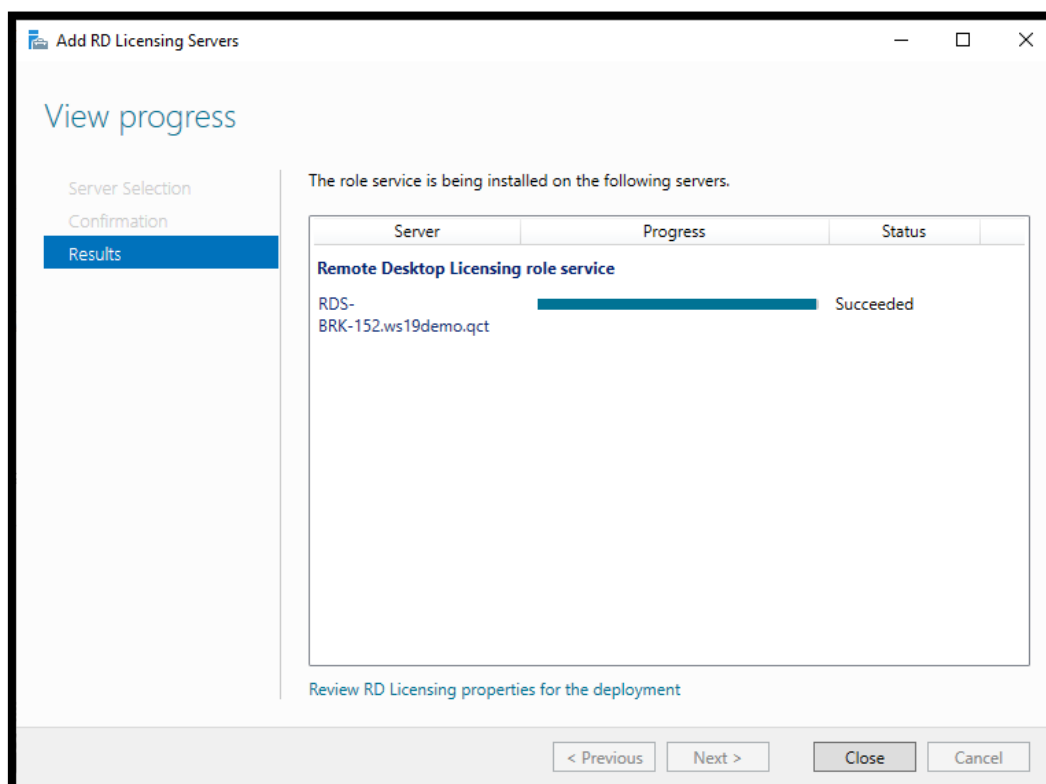
1. From Server Manager, on the RDS farm overview, click License Manager to open the wizard.



2. Add the server that will receive role and click Next.

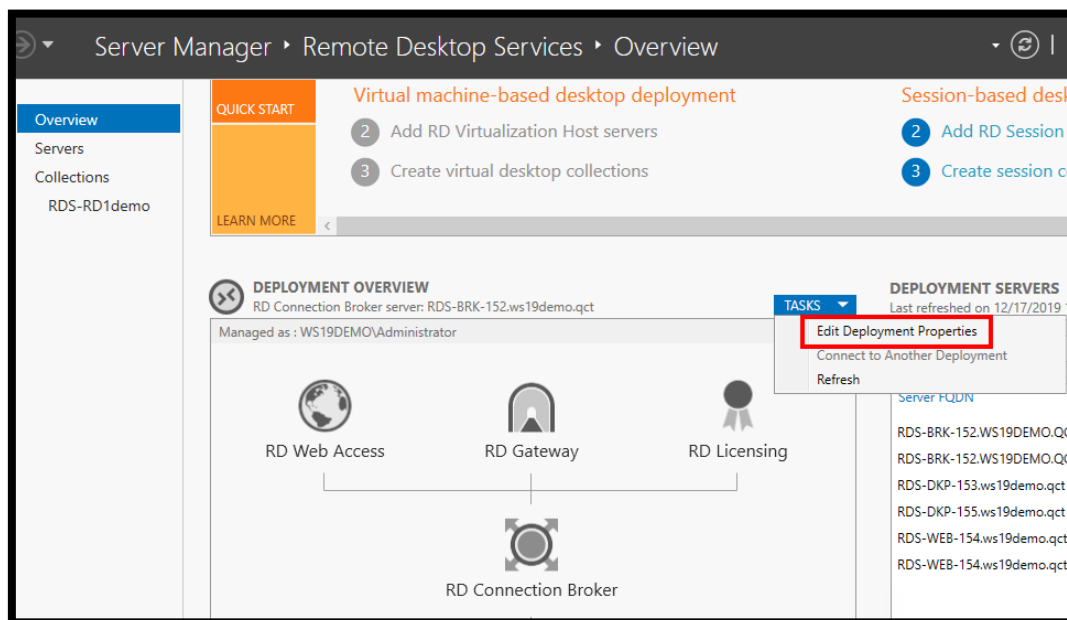


3. The installation is complete, click Close to exit the wizard.

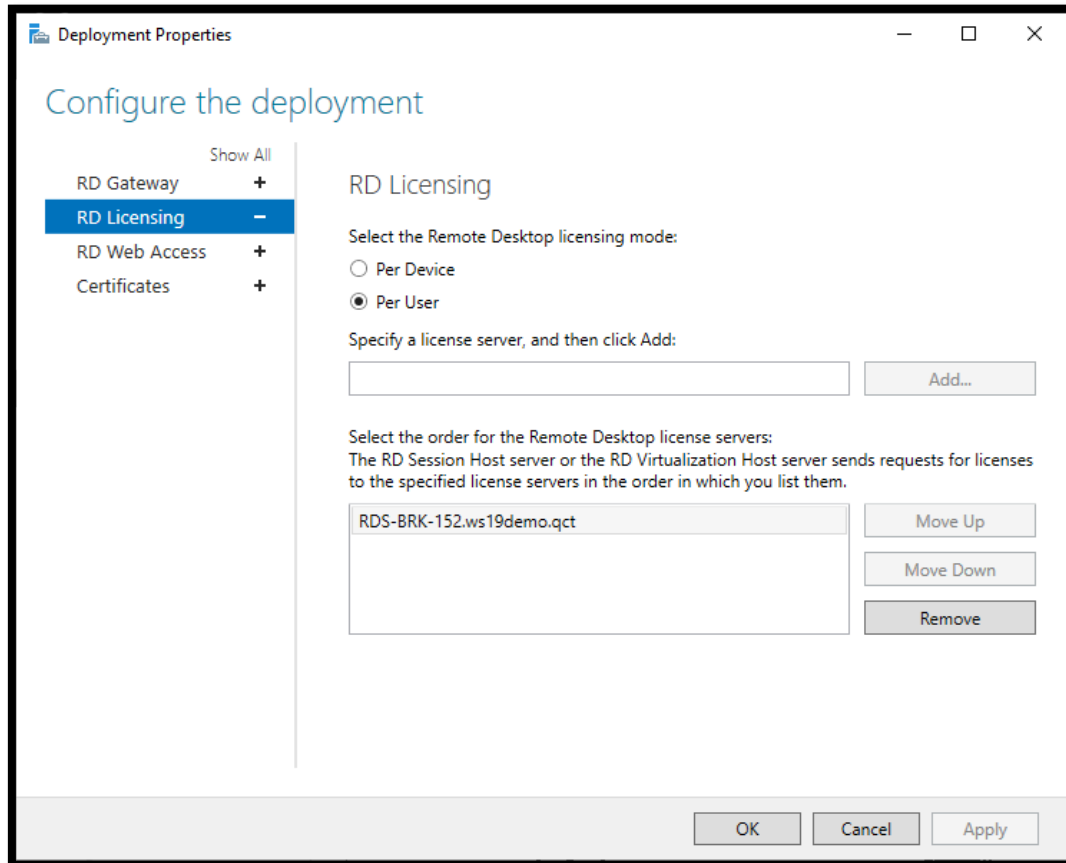


## Configuring the Remote Desktop Services Licensing Mode

1. From the overview, deployment overview, click on TASKS / Edit Deployment Properties.

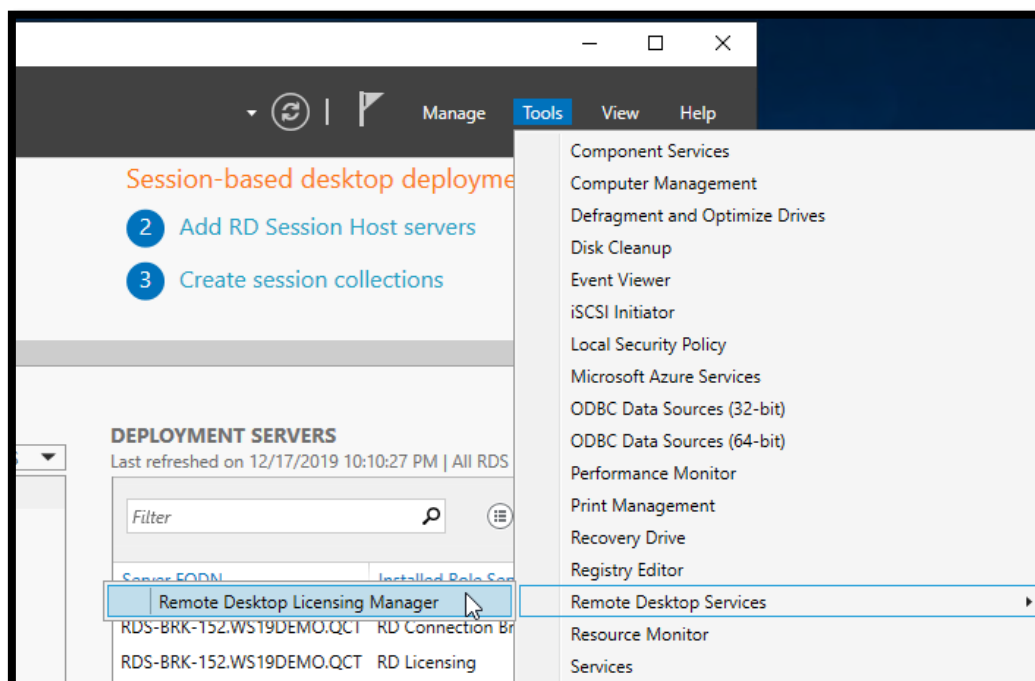


2. Select the license mode then click on Apply and OK.

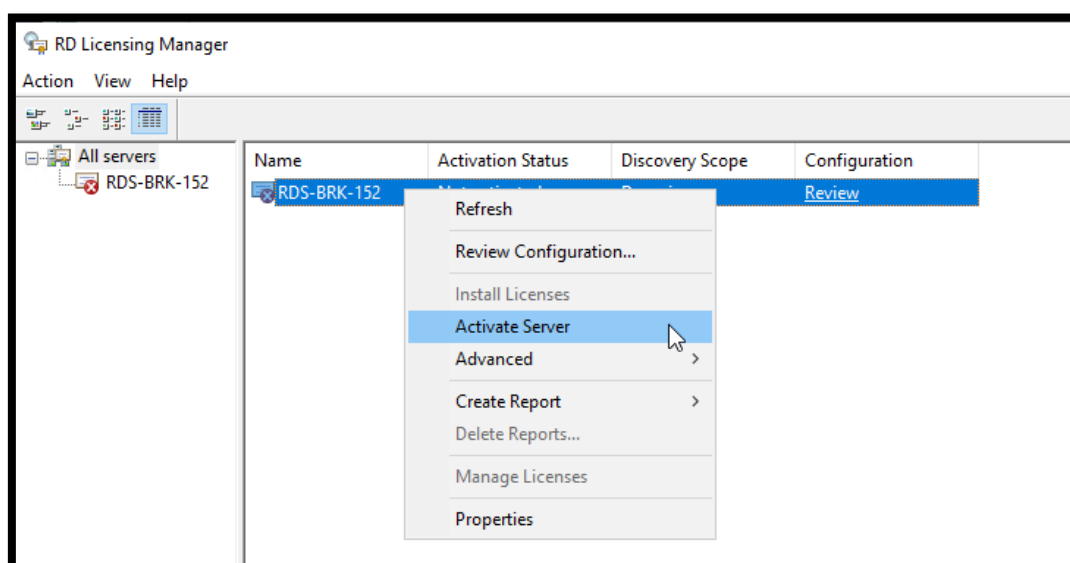


### Add licenses

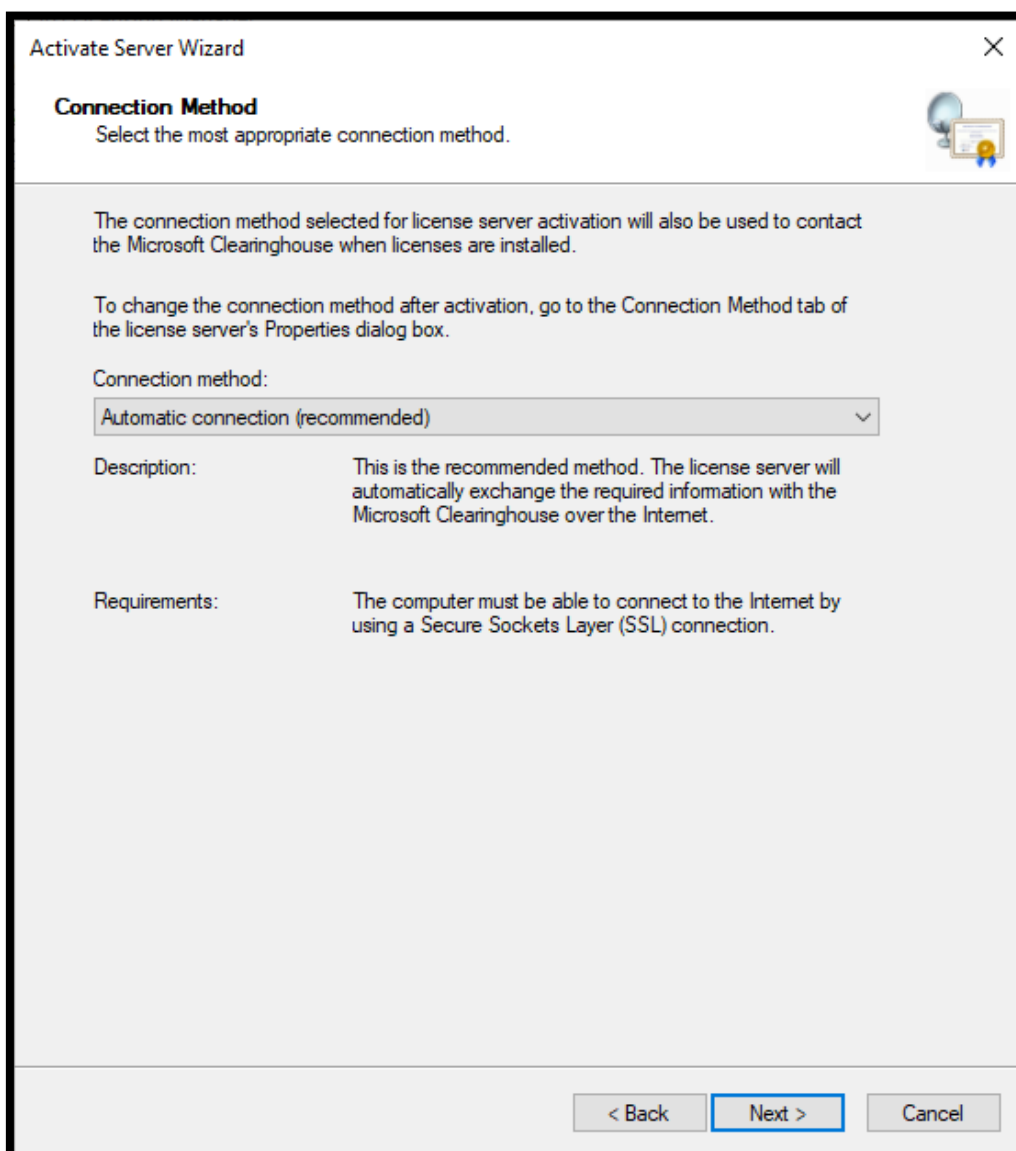
1. Open the console, from Server Manager, click Tools / Remote Desktop Services / Remote Desktop Licensing Manager.



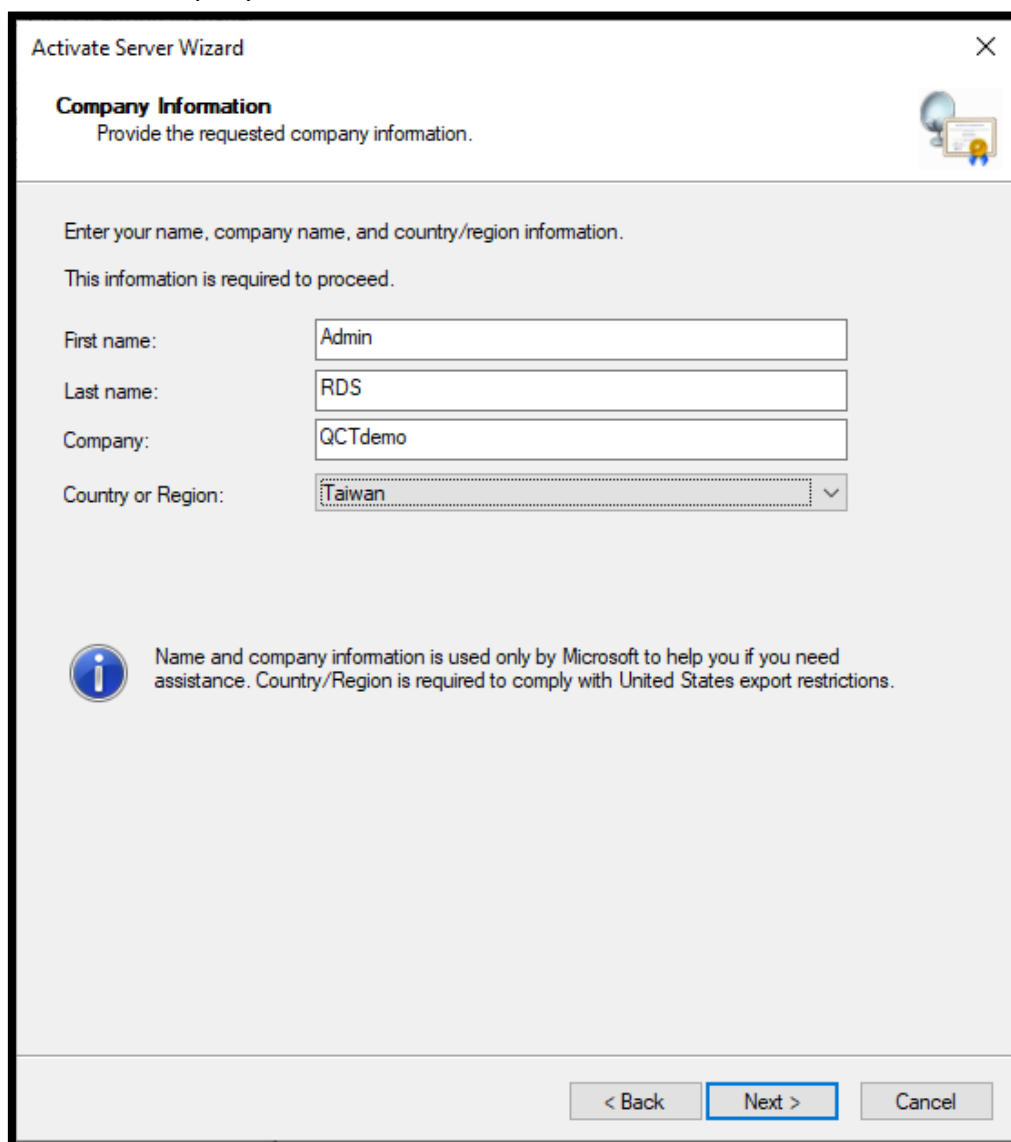
2. Before adding licenses, activate the server, right click on the server and click Activate server.



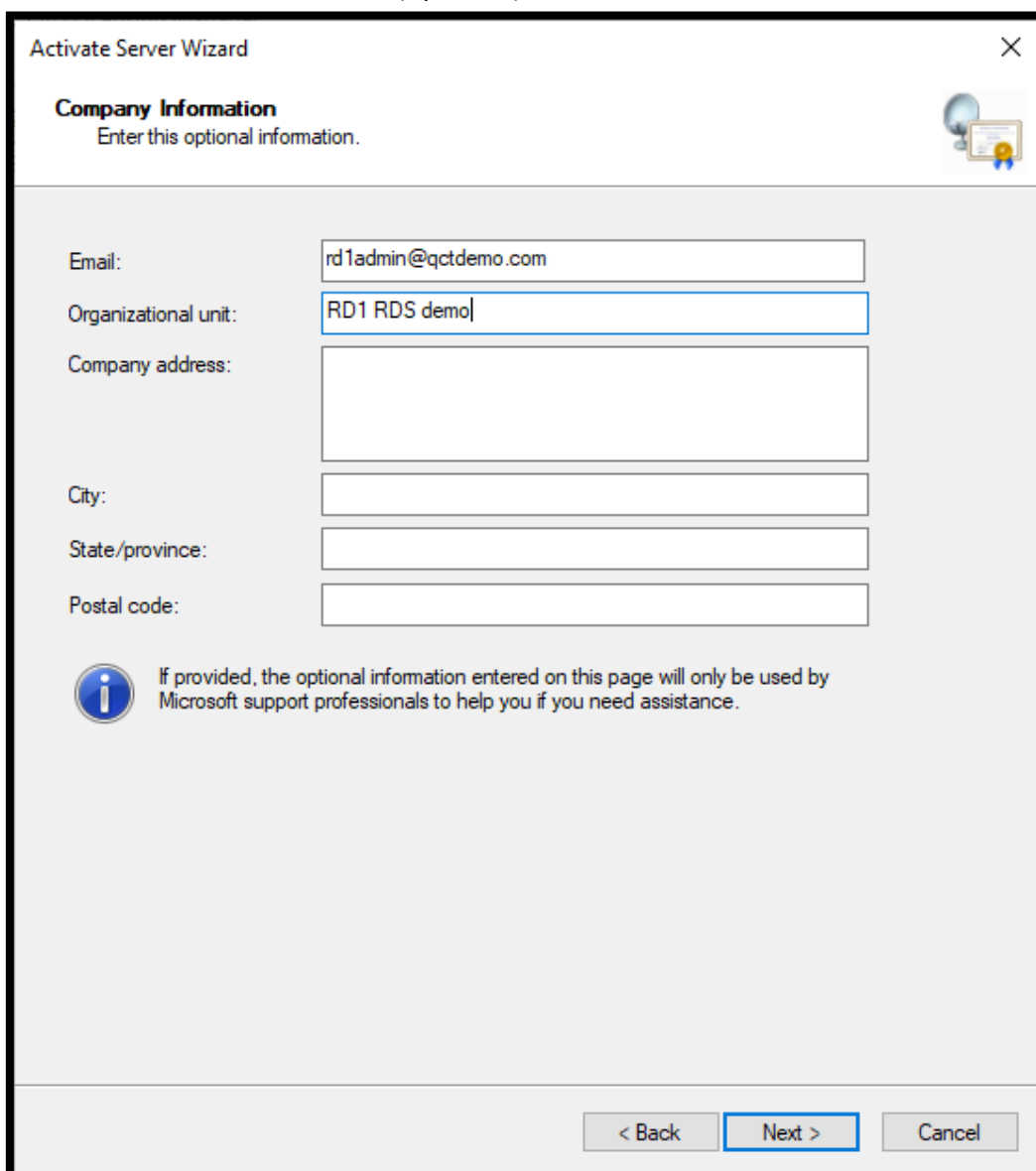
3. To leave the Connection Method screen, click Next.

The image shows a screenshot of the "Activate Server Wizard" window, specifically the "Connection Method" screen. The window has a title bar with the text "Activate Server Wizard" and a close button (X) in the top right corner. Below the title bar, the section "Connection Method" is displayed, followed by the instruction "Select the most appropriate connection method." To the right of this text is a small icon of a globe with a certificate. The main content area contains two paragraphs of text: "The connection method selected for license server activation will also be used to contact the Microsoft Clearinghouse when licenses are installed." and "To change the connection method after activation, go to the Connection Method tab of the license server's Properties dialog box." Below this text is a label "Connection method:" followed by a dropdown menu that currently shows "Automatic connection (recommended)". Underneath the dropdown, there are two sections: "Description:" with the text "This is the recommended method. The license server will automatically exchange the required information with the Microsoft Clearinghouse over the Internet." and "Requirements:" with the text "The computer must be able to connect to the Internet by using a Secure Sockets Layer (SSL) connection." At the bottom of the window, there are three buttons: "< Back", "Next >" (which is highlighted with a blue border), and "Cancel".

4. Enter Company Information and click Next.

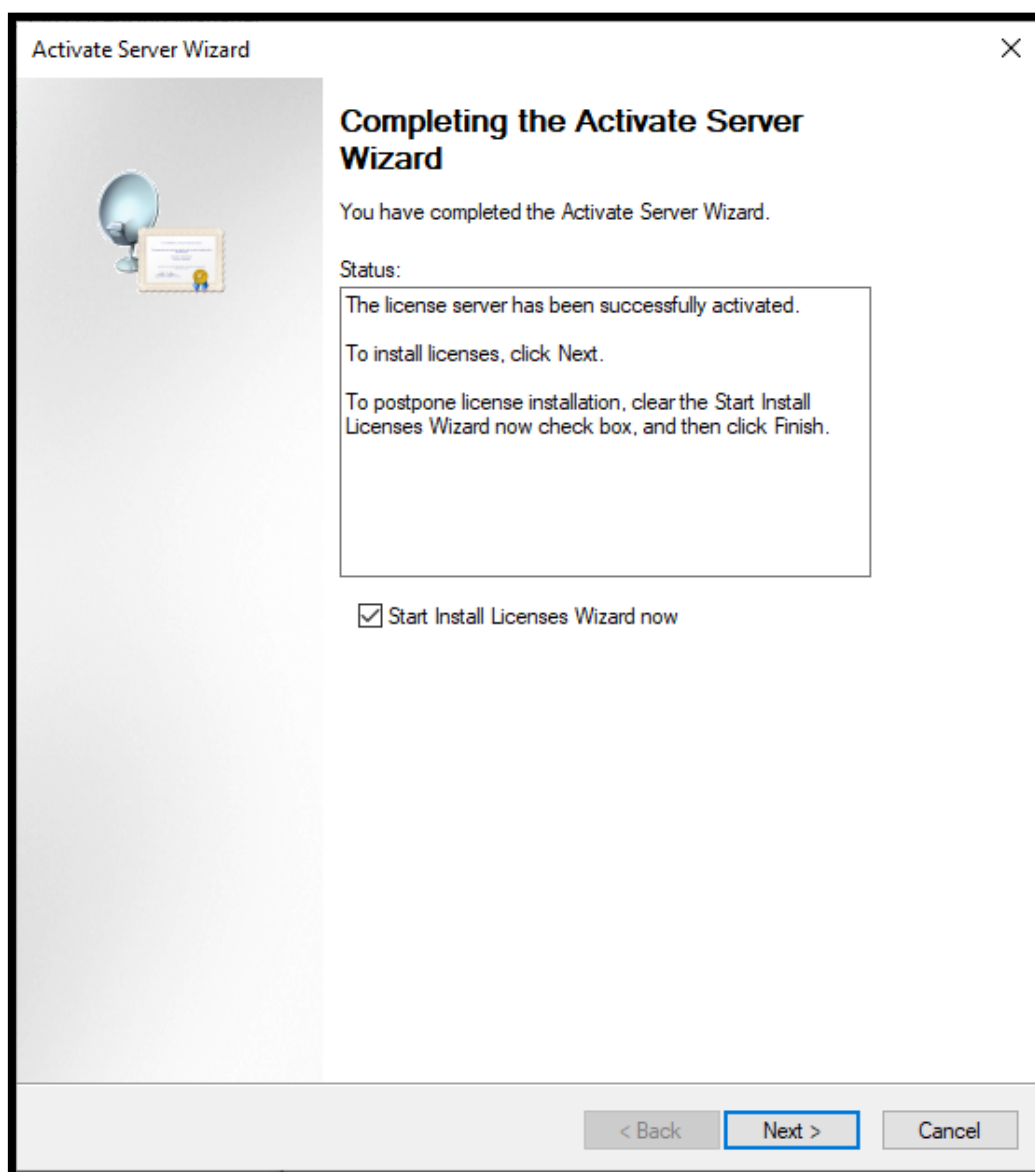
The screenshot shows a Windows-style dialog box titled "Activate Server Wizard" with a close button (X) in the top right corner. The main heading is "Company Information" in bold, followed by the instruction "Provide the requested company information." and a small icon of a lightbulb with a certificate. Below this, a grey-shaded area contains the text "Enter your name, company name, and country/region information." and "This information is required to proceed." There are four input fields: "First name:" with the text "Admin", "Last name:" with the text "RDS", "Company:" with the text "QCTdemo", and "Country or Region:" which is a dropdown menu currently showing "Taiwan". At the bottom left of the grey area is an information icon (i) and a paragraph: "Name and company information is used only by Microsoft to help you if you need assistance. Country/Region is required to comply with United States export restrictions." The bottom of the dialog box has three buttons: "< Back", "Next >" (which is highlighted with a blue border), and "Cancel".

5. Enter contact information (optional) and click Next.

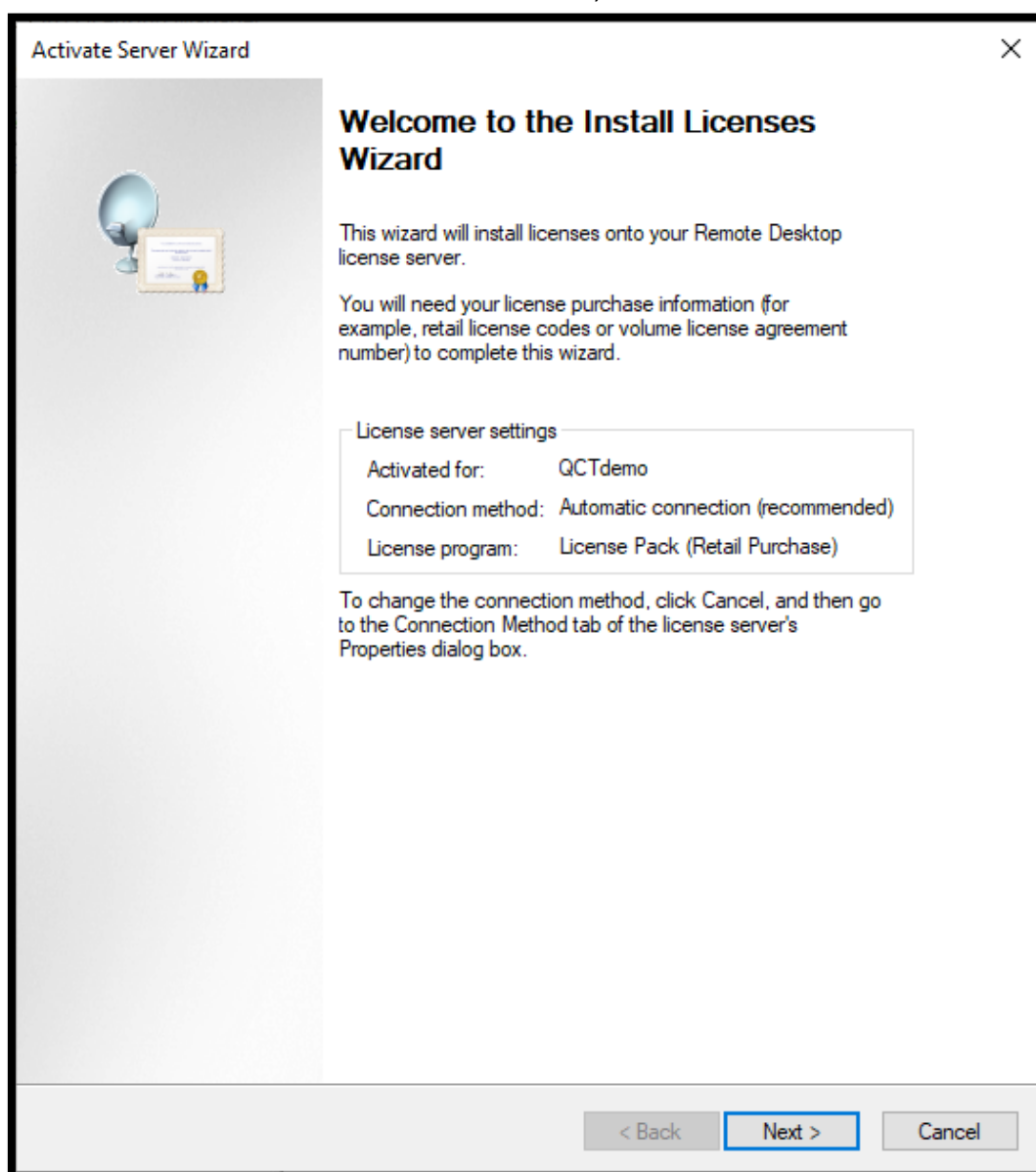
The screenshot shows a Windows-style window titled "Activate Server Wizard" with a close button (X) in the top right corner. The window has a light gray background. At the top, under the title bar, is the section "Company Information" with the instruction "Enter this optional information." and a small icon of a lightbulb and a certificate. Below this, there are several text input fields arranged vertically. The first field is labeled "Email:" and contains the text "rd1admin@qctdemo.com". The second field is labeled "Organizational unit:" and contains the text "RD1 RDS demo". The third field is labeled "Company address:" and is empty. Below the address field are three more empty fields labeled "City:", "State/province:", and "Postal code:". At the bottom of the main content area, there is a blue circular information icon (i) followed by a paragraph of text: "If provided, the optional information entered on this page will only be used by Microsoft support professionals to help you if you need assistance." At the very bottom of the window, there are three buttons: "< Back", "Next >" (which is highlighted with a blue border), and "Cancel".



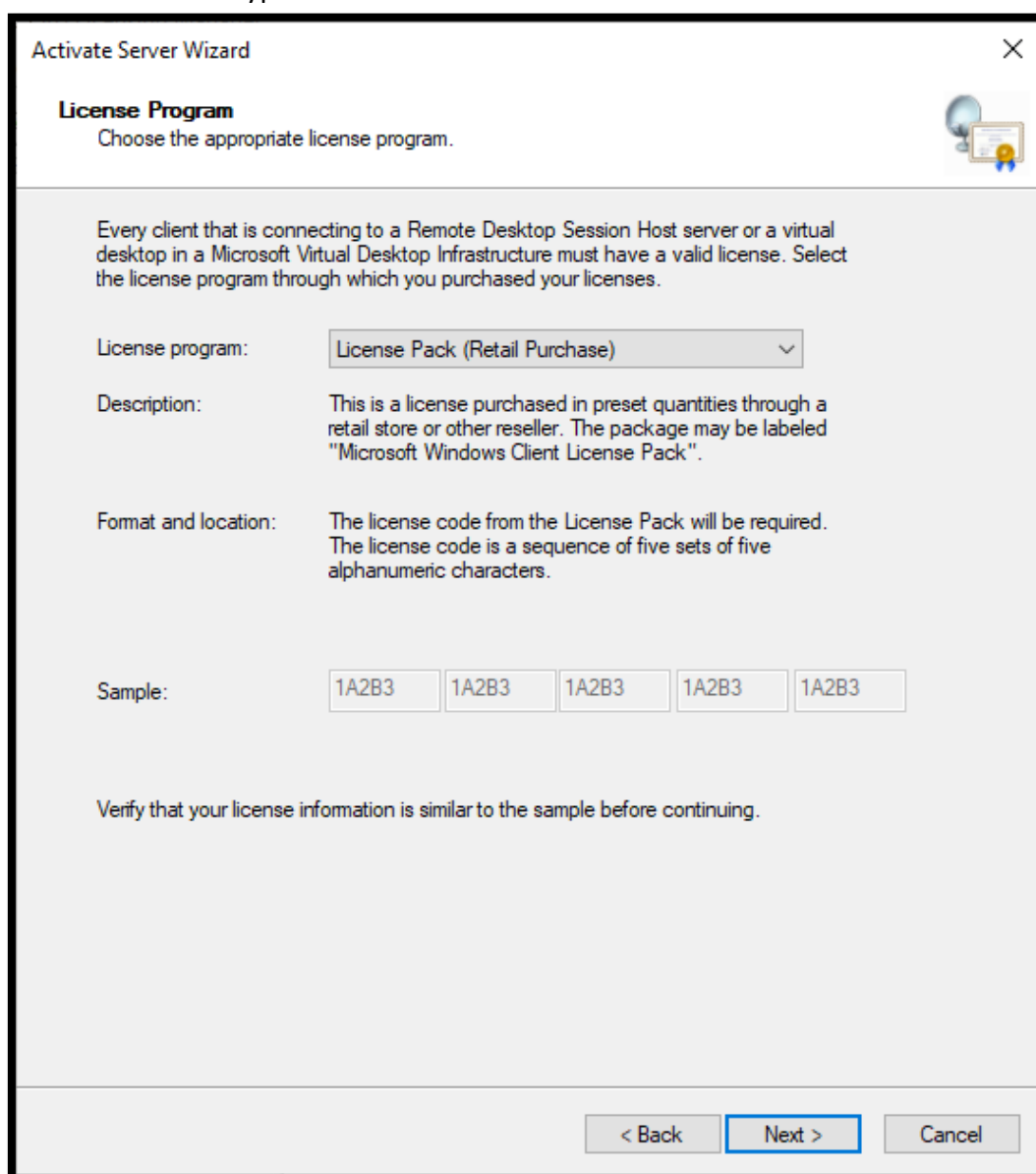
6. The server is now activated. When you click Next, the Install License Wizard will launch.



7. When the Install Licenses Wizard launches, click Next.



8. Select license type and click Next.

The screenshot shows a Windows-style dialog box titled "Activate Server Wizard" with a close button (X) in the top right corner. The main heading is "License Program" with a sub-instruction "Choose the appropriate license program." and a small icon of a globe with a certificate. The text explains that every client connecting to a Remote Desktop Session Host server or a virtual desktop in a Microsoft Virtual Desktop Infrastructure must have a valid license. A dropdown menu for "License program:" is set to "License Pack (Retail Purchase)". Below it, the "Description:" field states that this is a license purchased in preset quantities through a retail store or other reseller, and the package may be labeled "Microsoft Windows Client License Pack". The "Format and location:" field explains that the license code from the License Pack will be required, and it is a sequence of five sets of five alphanumeric characters. A "Sample:" field shows five boxes, each containing "1A2B3". A note at the bottom asks the user to verify that their license information is similar to the sample before continuing. At the bottom right, there are three buttons: "< Back", "Next >" (which is highlighted with a blue border), and "Cancel".

Activate Server Wizard

**License Program**  
Choose the appropriate license program.

Every client that is connecting to a Remote Desktop Session Host server or a virtual desktop in a Microsoft Virtual Desktop Infrastructure must have a valid license. Select the license program through which you purchased your licenses.

License program: License Pack (Retail Purchase) ▾

Description: This is a license purchased in preset quantities through a retail store or other reseller. The package may be labeled "Microsoft Windows Client License Pack".

Format and location: The license code from the License Pack will be required. The license code is a sequence of five sets of five alphanumeric characters.

Sample: 1A2B3 1A2B3 1A2B3 1A2B3 1A2B3

Verify that your license information is similar to the sample before continuing.

< Back Next > Cancel


9. Enter the license information and click Next.

Activate Server Wizard

×

License Code

Enter the license code found in your product packaging.



Type in the license code for each license you have purchased, and then click Add after entering each license code. The format for the license code is 5 sets of 5 alphanumeric digits.

License code:

License codes entered:

| License Code   | Status  | Product Type        |
|--|---------|---------------------|
| CC <span style="background-color: blue; color: white;">XXXXXXXXXX</span> V | Pending | Windows Server 2019 |

<

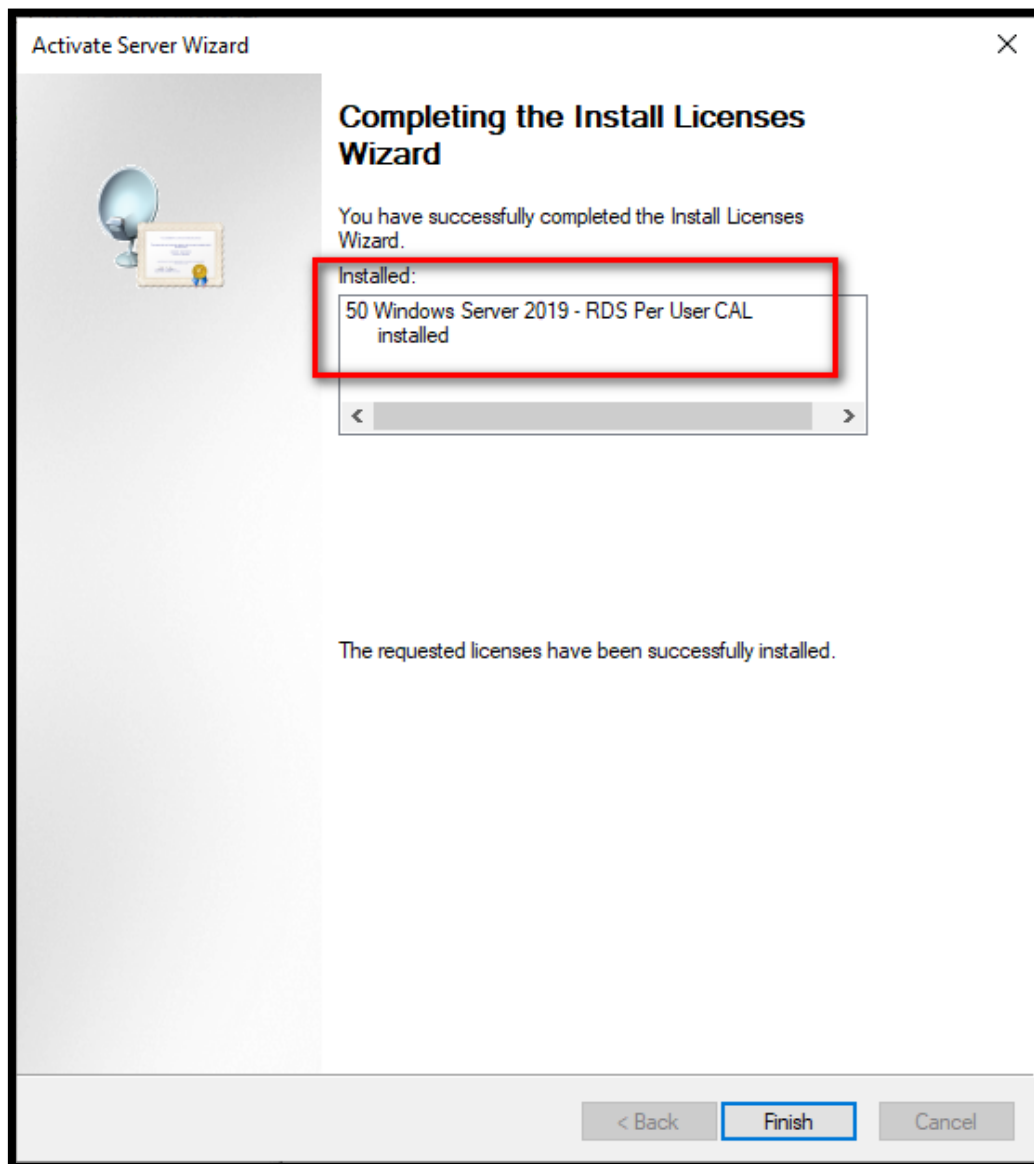
>

< Back

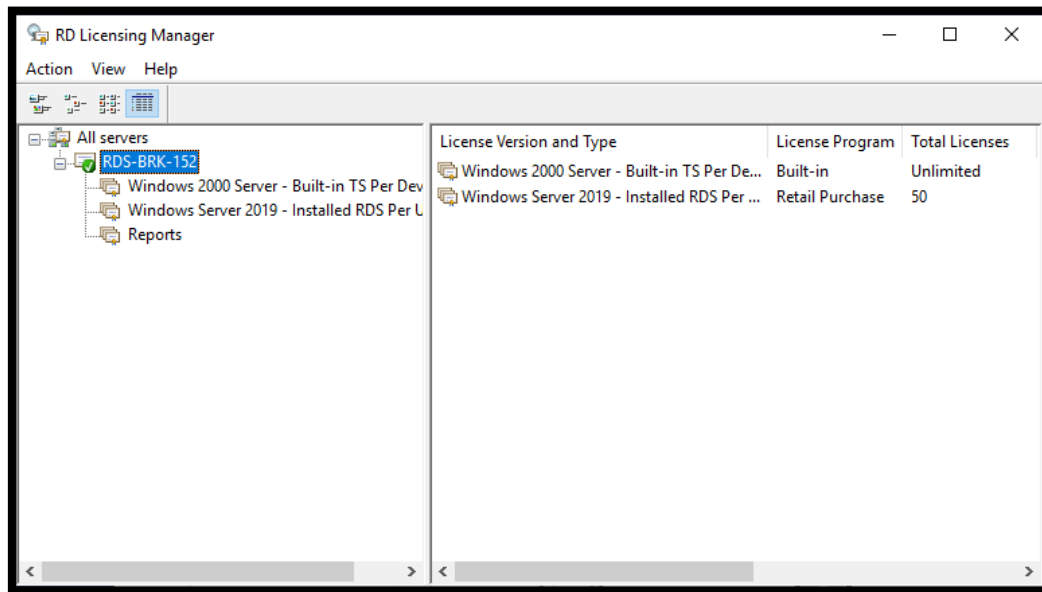
Next >

Cancel

10. Click Finish to close the wizard.



11. The licenses are now visible on the server.



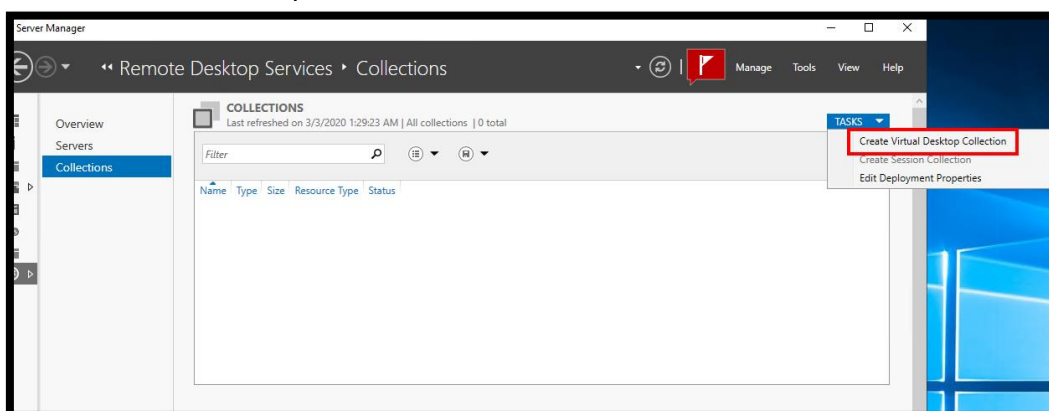
## Setting up a collection

A collection allows remote desktop configuration by specifying the hosts that make up the collection and who can access it.

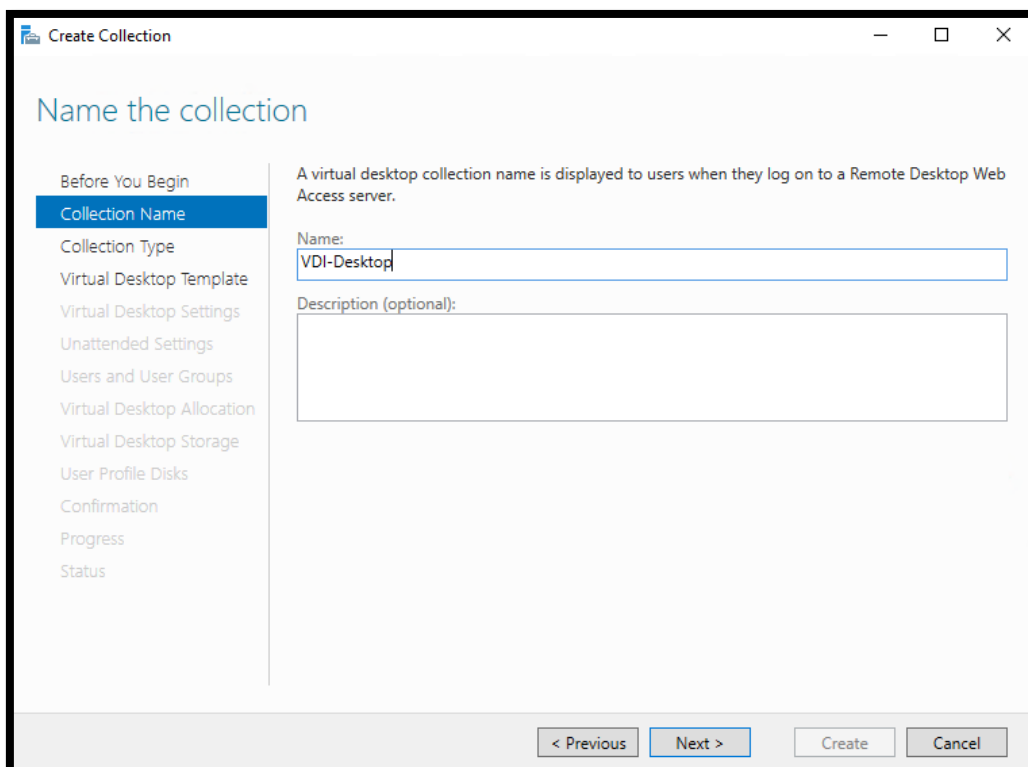
It is at the collection level that the use of User Profile Disks (UPDs) and applications published in RemoteApp via Web Access is configured.

### Create a collection

1. From the Server Manager on the collections management page, click on TASKS and Create a virtual desktop collection.



2. Enter the name of the collection and click Next.



**Create Collection**

### Name the collection

Before You Begin  
**Collection Name**  
 Collection Type  
 Virtual Desktop Template  
 Virtual Desktop Settings  
 Unattended Settings  
 Users and User Groups  
 Virtual Desktop Allocation  
 Virtual Desktop Storage  
 User Profile Disks  
 Confirmation  
 Progress  
 Status

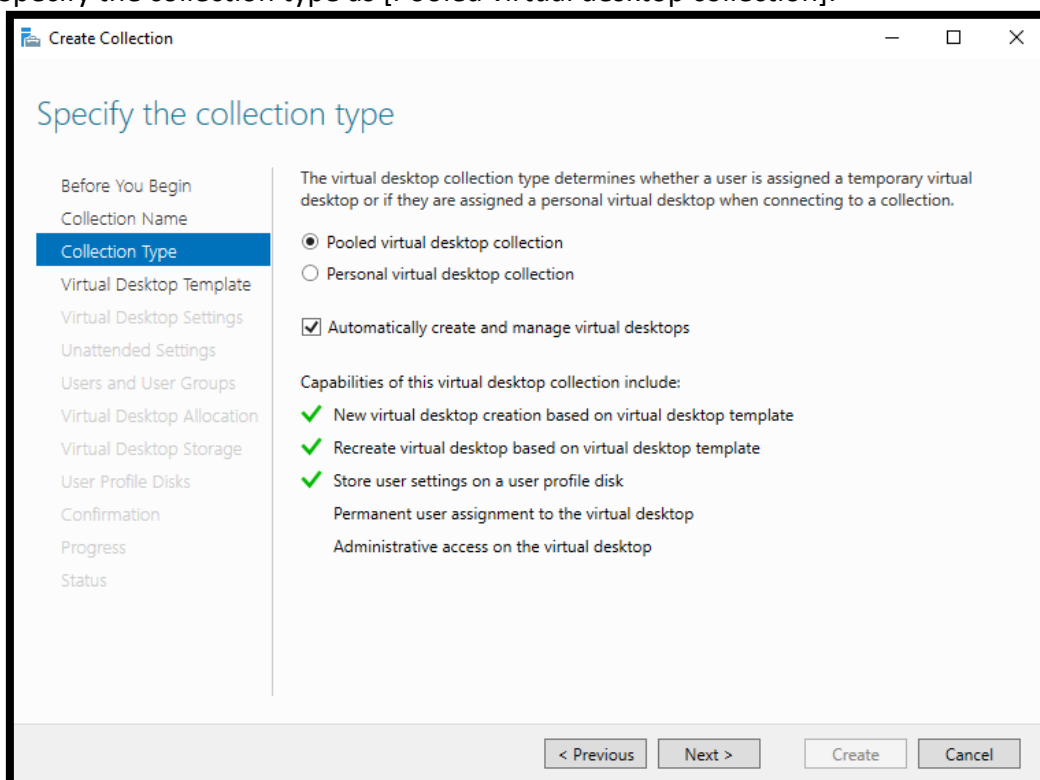
A virtual desktop collection name is displayed to users when they log on to a Remote Desktop Web Access server.

Name:

Description (optional):

< Previous   **Next >**   Create   Cancel

- Specify the collection type as [Pooled virtual desktop collection].



**Create Collection**

### Specify the collection type

The virtual desktop collection type determines whether a user is assigned a temporary virtual desktop or if they are assigned a personal virtual desktop when connecting to a collection.

- ☒ Pooled virtual desktop collection
- ☐ Personal virtual desktop collection

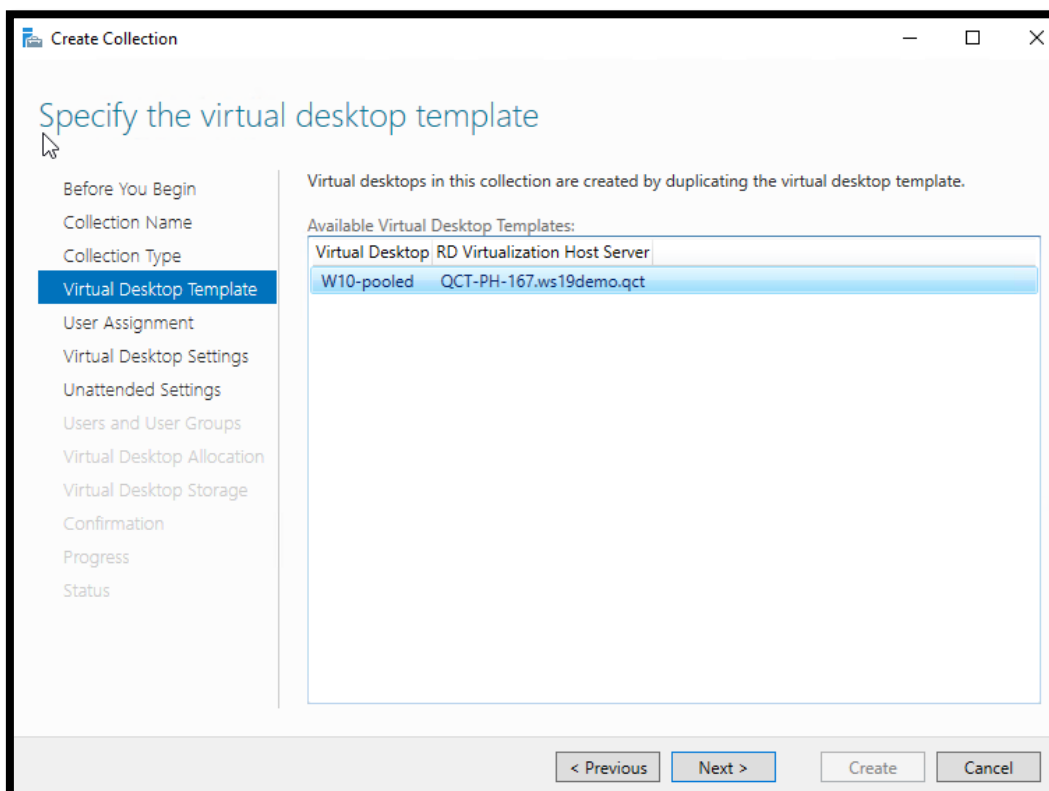
☒ Automatically create and manage virtual desktops

Capabilities of this virtual desktop collection include:

- ✓ New virtual desktop creation based on virtual desktop template
- ✓ Recreate virtual desktop based on virtual desktop template
- ✓ Store user settings on a user profile disk
- Permanent user assignment to the virtual desktop
- Administrative access on the virtual desktop

< Previous   Next >   Create   Cancel

- Specify the virtual desktop template (Pre-created on the Virtualization Host Server).



**Create Collection**

### Specify the virtual desktop template

Virtual desktops in this collection are created by duplicating the virtual desktop template.

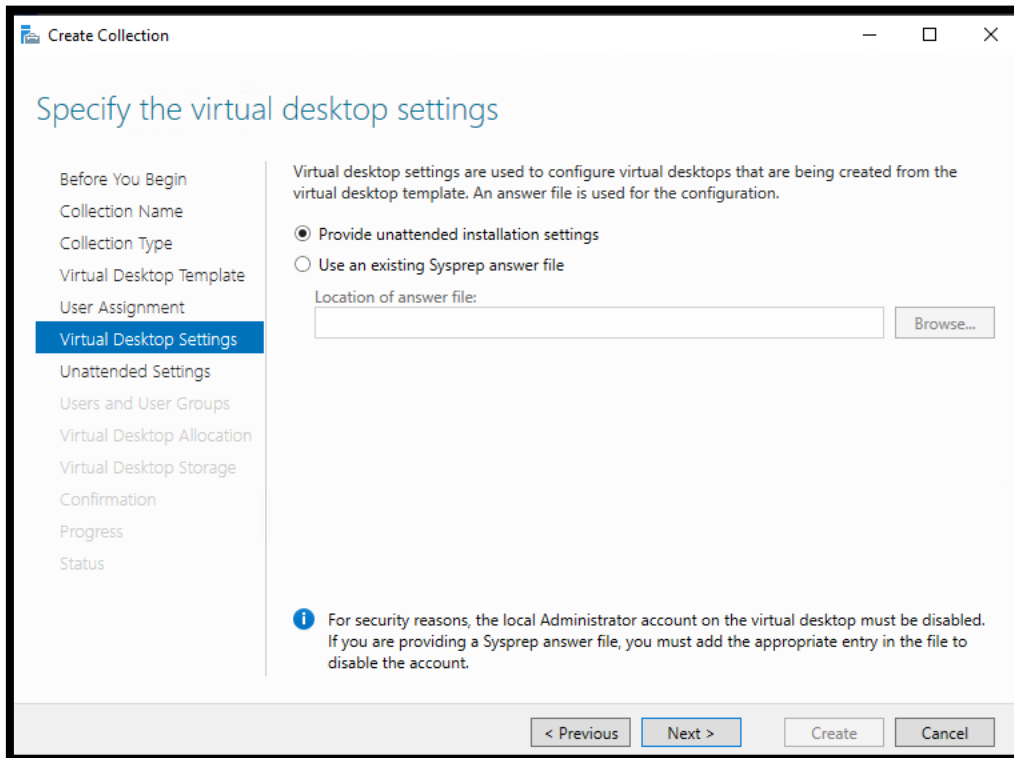
Available Virtual Desktop Templates:

| Virtual Desktop | RD Virtualization Host Server |
|-----------------|-------------------------------|
| W10-pooled      | QCT-PH-167.ws19demo.qct       |

< Previous   Next >   Create   Cancel



5. Use unattended installation setting (Or you can create your own customized Sysprep answer file).



**Create Collection**

### Specify the virtual desktop settings

Virtual desktop settings are used to configure virtual desktops that are being created from the virtual desktop template. An answer file is used for the configuration.

☒ Provide unattended installation settings  
☐ Use an existing Sysprep answer file

Location of answer file:

**Virtual Desktop Settings**

- Before You Begin
- Collection Name
- Collection Type
- Virtual Desktop Template
- User Assignment
- Virtual Desktop Settings**
- Unattended Settings
- Users and User Groups
- Virtual Desktop Allocation
- Virtual Desktop Storage
- Confirmation
- Progress
- Status

**Unattended Settings**

- Users and User Groups
- Virtual Desktop Allocation
- Virtual Desktop Storage
- Confirmation
- Progress
- Status

**Confirmation**

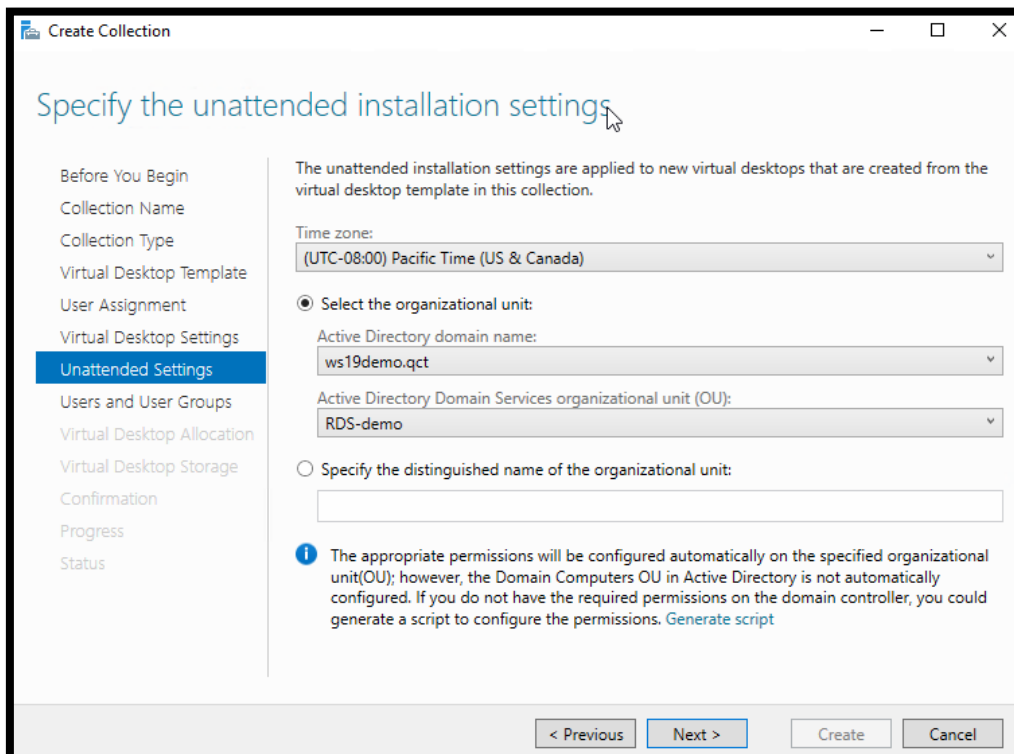
**Progress**

**Status**

**Next >** **Create** **Cancel**

**For security reasons, the local Administrator account on the virtual desktop must be disabled. If you are providing a Sysprep answer file, you must add the appropriate entry in the file to disable the account.**

6. Specify the Domain OU.



**Create Collection**

### Specify the unattended installation settings

The unattended installation settings are applied to new virtual desktops that are created from the virtual desktop template in this collection.

Time zone:

☒ Select the organizational unit:  
☐ Specify the distinguished name of the organizational unit:

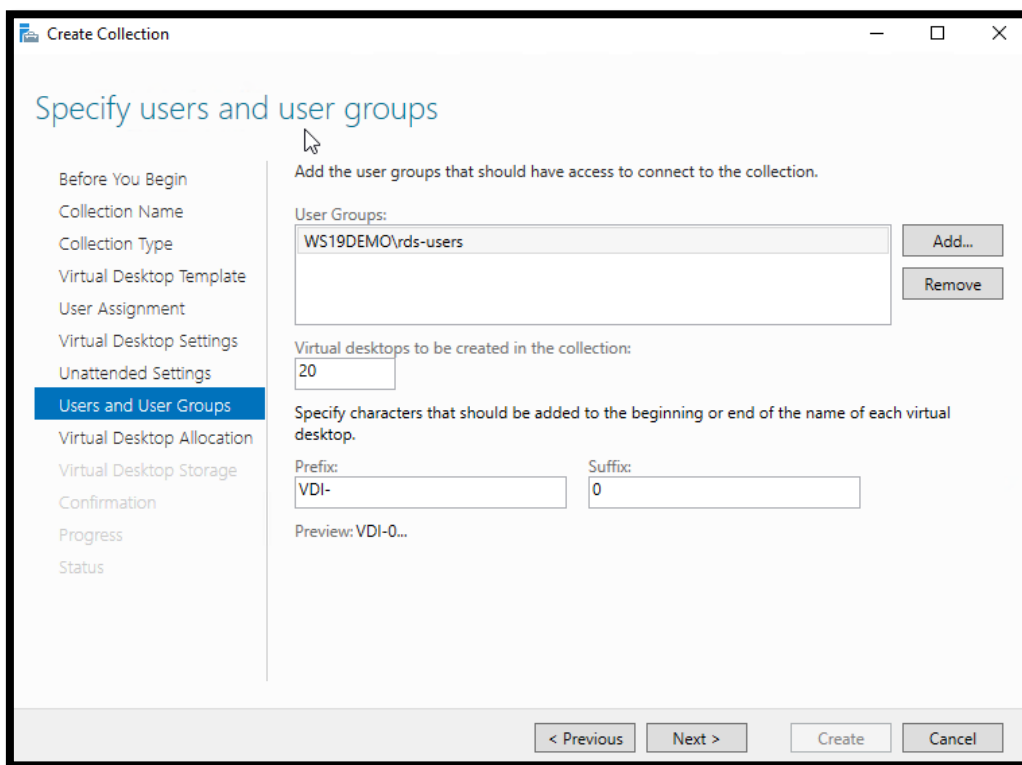
Active Directory domain name:

Active Directory Domain Services organizational unit (OU):

**Next >** **Create** **Cancel**

**The appropriate permissions will be configured automatically on the specified organizational unit(OU); however, the Domain Computers OU in Active Directory is not automatically configured. If you do not have the required permissions on the domain controller, you could generate a script to configure the permissions. [Generate script](#)**

7. Add the users and groups that can access the collection.



**Create Collection**

### Specify users and user groups

Add the user groups that should have access to connect to the collection.

User Groups:

WS19DEMO\rds-users

Add... Remove

Virtual desktops to be created in the collection:

20

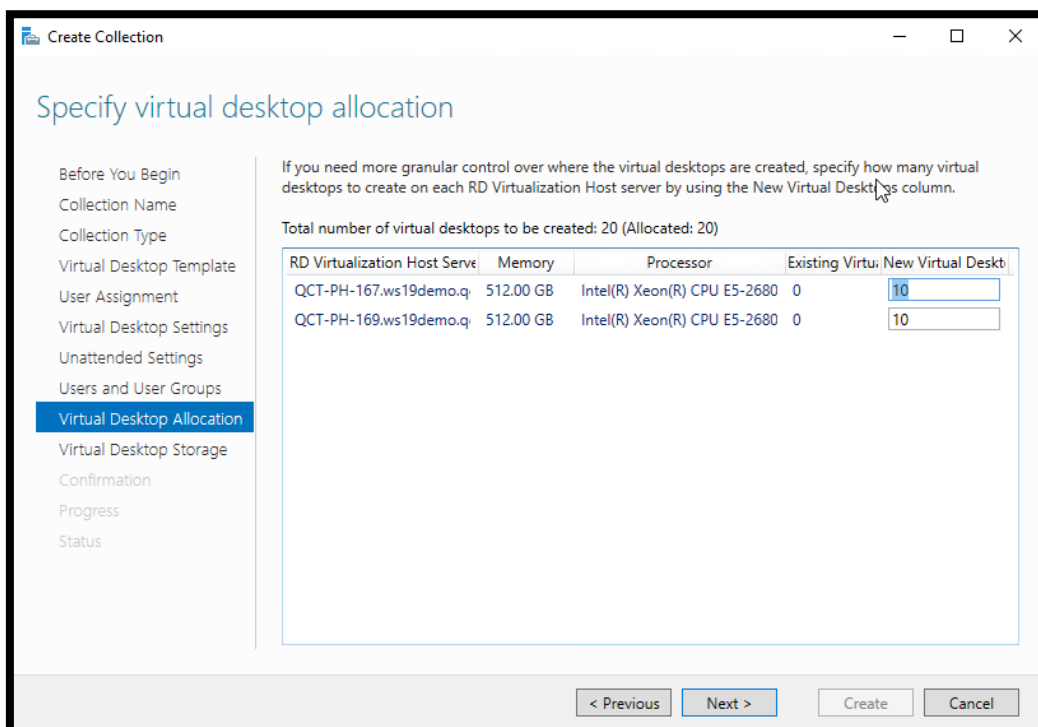
Specify characters that should be added to the beginning or end of the name of each virtual desktop.

Prefix: VDI- Suffix: 0

Preview: VDI-0...

< Previous Next > Create Cancel

8. Specify Virtual desktop allocation.



**Create Collection**

### Specify virtual desktop allocation

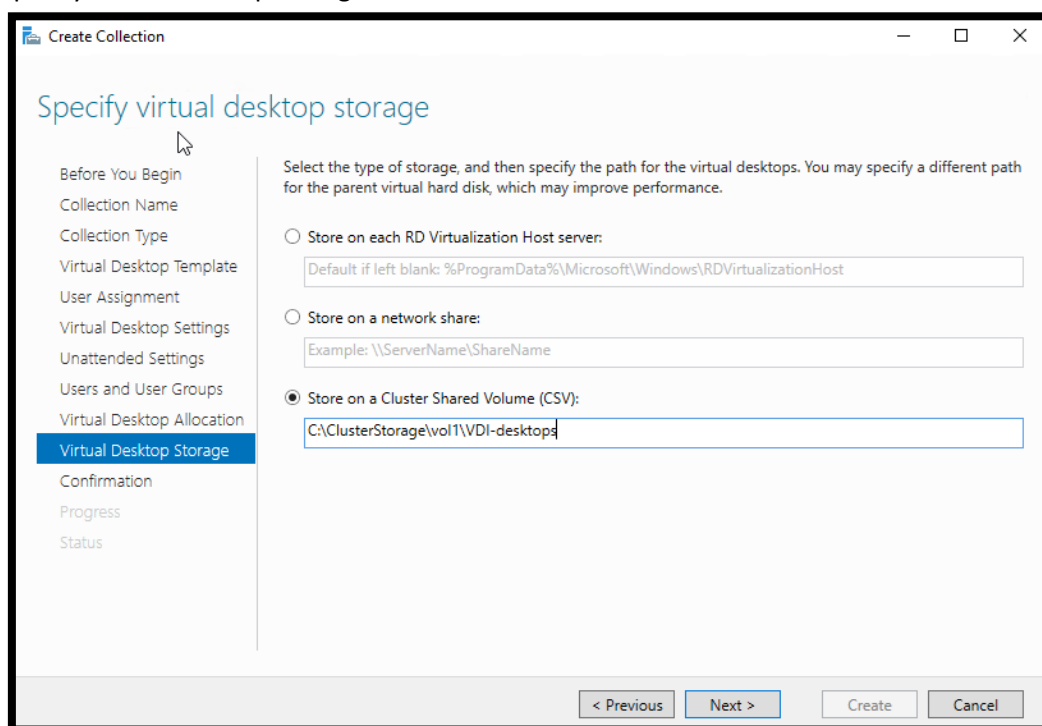
If you need more granular control over where the virtual desktops are created, specify how many virtual desktops to create on each RD Virtualization Host server by using the New Virtual Desktops column.

Total number of virtual desktops to be created: 20 (Allocated: 20)

| RD Virtualization Host Serve | Memory    | Processor                    | Existing Virtu | New Virtual Desk |
|------------------------------|-----------|------------------------------|----------------|------------------|
| QCT-PH-167.ws19demo.q        | 512.00 GB | Intel(R) Xeon(R) CPU E5-2680 | 0              | 10               |
| QCT-PH-169.ws19demo.q        | 512.00 GB | Intel(R) Xeon(R) CPU E5-2680 | 0              | 10               |

< Previous Next > Create Cancel

## 9. Specify virtual desktop storage.



**Create Collection**

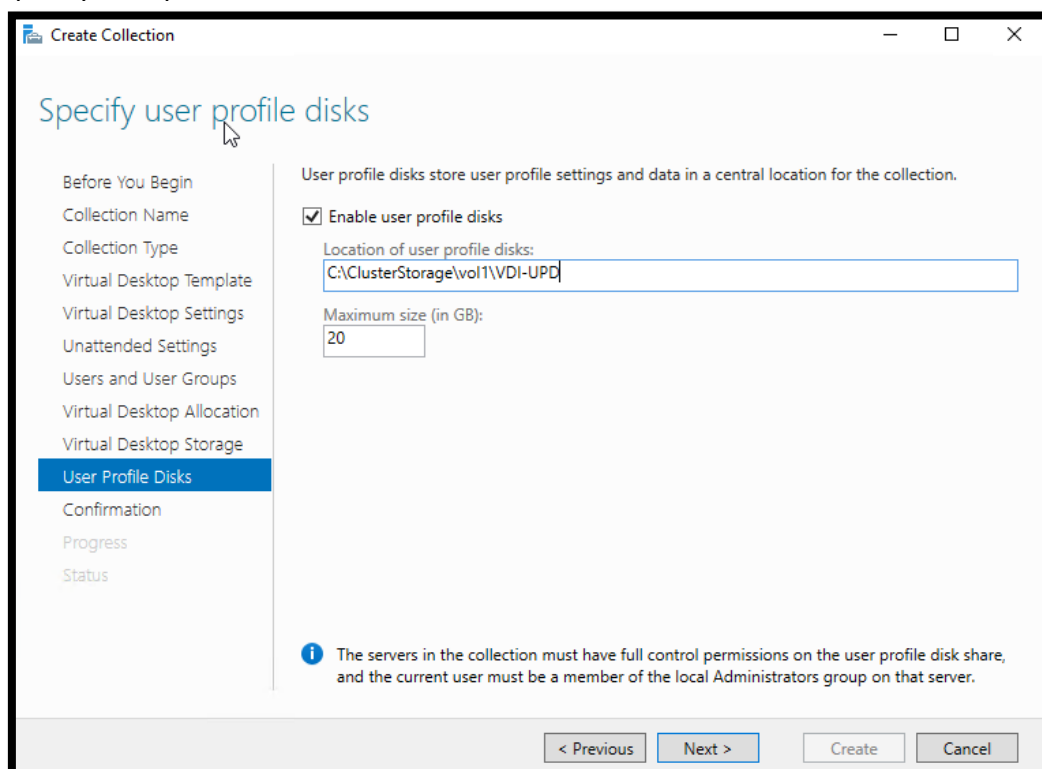
### Specify virtual desktop storage

Select the type of storage, and then specify the path for the virtual desktops. You may specify a different path for the parent virtual hard disk, which may improve performance.

- ☐ Store on each RD Virtualization Host server:  
Default if left blank: %ProgramData%\Microsoft\Windows\RDVirtualizationHost
- ☐ Store on a network share:  
Example: \\ServerName\ShareName
- ☒ Store on a Cluster Shared Volume (CSV):  
C:\ClusterStorage\vol1\VDI-desktops

< Previous   Next >   Create   Cancel

## 10. Specify user profile disks.



**Create Collection**

### Specify user profile disks

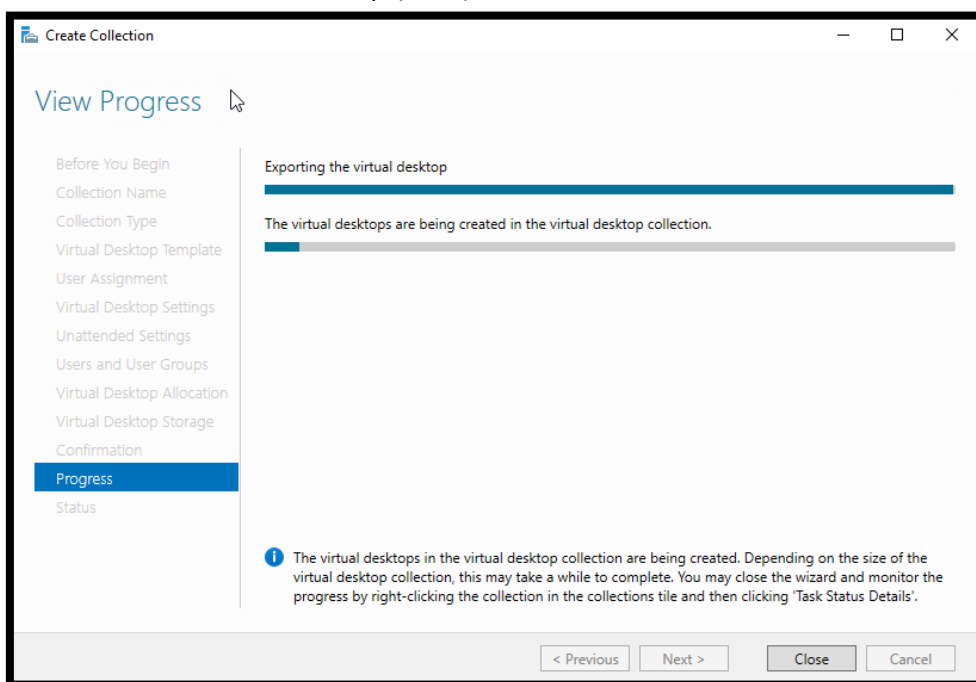
User profile disks store user profile settings and data in a central location for the collection.

- ☒ Enable user profile disks  
Location of user profile disks:  
C:\ClusterStorage\vol1\VDI-UPD
- Maximum size (in GB):  
20

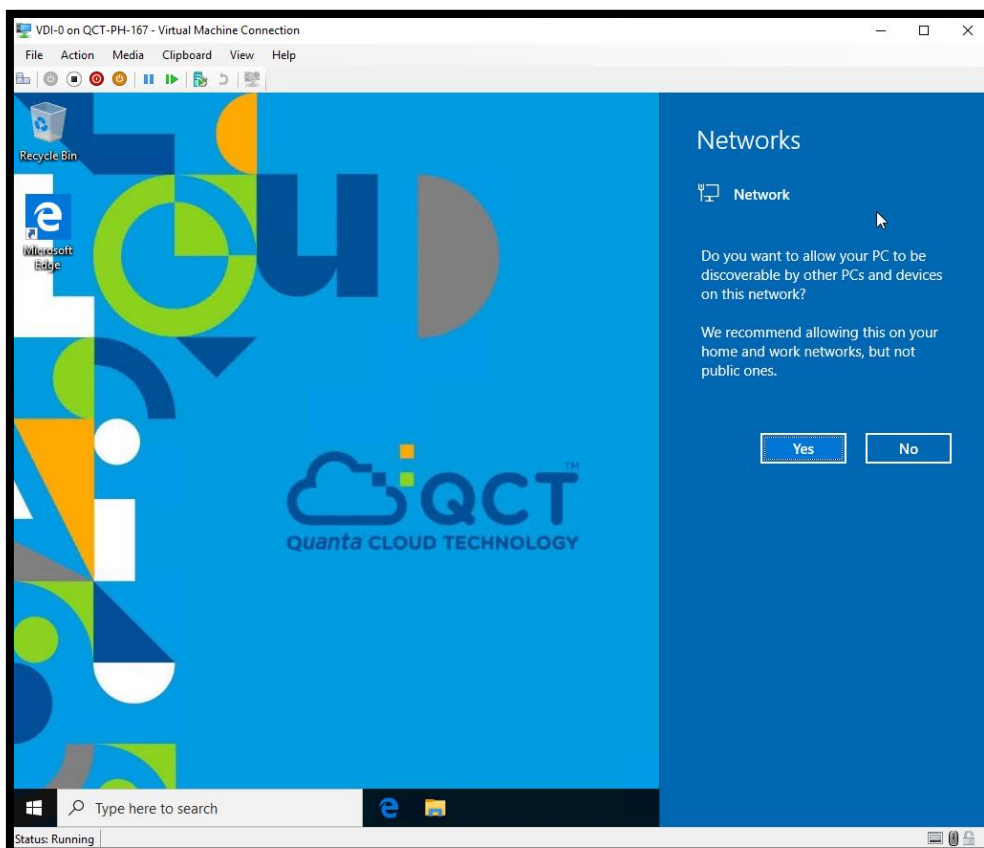
**i** The servers in the collection must have full control permissions on the user profile disk share, and the current user must be a member of the local Administrators group on that server.

< Previous   Next >   Create   Cancel

## 11. Start to create virtual desktop (VMs)



## 12. When the progress is done, open one of the VDI desktop VM to check the user's desktop.



It is possible to deploy several collections on the same RDS deployment, which allows pooling broker services and web access. The remote desktop session hosts are dedicated to a collection.

~ End



## About QCT



Quanta Cloud Technology (QCT) is a global data center solution provider. We combine the efficiency of hyperscale hardware with infrastructure software from a diversity of industry leaders to solve next-generation data center design and operation challenges. QCT serves cloud service providers, telecoms and enterprises running public, hybrid and private clouds.

Product lines include hyperconverged and software-defined data center solutions as well as servers, storage, switches and integrated racks with a diverse ecosystem of hardware component and software partners. QCT designs, manufactures, integrates and services cutting-edge offerings via its own global network. The parent of QCT is Quanta Computer, Inc., a Fortune Global 500 corporation. [www.QCT.io](http://www.QCT.io).

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