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Delivering Published Desktops with Horizon 7

Following on from Chapter 11, Delivering Published Apps with Horizon 7, where we configured Horizon View to deliver published applications using a Microsoft RDSH environment, in this chapter, we will cover the other half of View's publishing capabilities and take a look at the ability of View to deliver published session-based desktops, again, using a Microsoft RDSH host server. The key advantage of this feature is that you don't need to deploy a full VDI-based desktop to an end user; they just use a session from the host.

As with the published applications feature we covered in Chapter 11, *Delivering Published Apps with Horizon 7*, the desktop sessions will be delivered to the end user's device using Horizon Client. We will cover the installation of the RDSH role and the configuration of the desktop sessions.

In this chapter, we will cover the following topics:

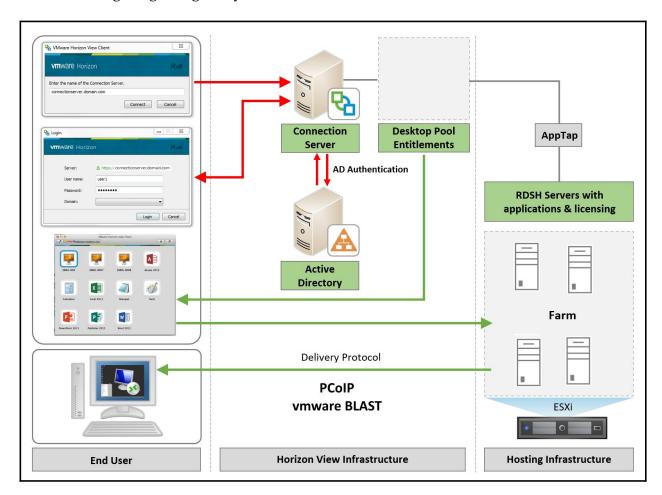
- Architectural overview
- RDSH sizing guidelines
- Installing and configuring View Published Apps
- Installing the Horizon View Agent for RDSH
- Configuring published desktops in View Administrator
- Load-balancing desktop sessions in View

Architectural overview

Let's take a look at the architecture and how published desktops work when compared to the standard View virtual desktop machine brokering. In terms of architecture, delivering published desktop sessions is pretty much the same as delivering remote applications.

Horizon View still acts as the broker, but instead of brokering a virtual desktop machine that is running on an ESXi host server, it is now brokering a published desktop session that is running on a Microsoft Windows server. This Windows server is configured to the RDS role and has a number of customizations and policies applied to make the Windows server GUI =look more like that of the Windows desktop operating system.

The following diagram gives you an outline of the architecture:



So, how does the architecture work? Basically, it works in exactly the same way as we have already discussed in the previous chapter, where we configured published applications, but now we are delivering published desktop sessions rather than applications.

Rather than covering the same ground again by describing in detail how this solution works and the system requirements, please refer back to that chapter, and in particular the application connection sequence section.

RDSH sizing guidelines

As with the sizing of View for virtual desktop machines, configuring the right specification for RDSH servers is also key, and in a similar way in which we consider the desktop sizing, we are going to look at different user types.

The VMware recommendations for the user workloads and the memory requirements are shown in the following table:

	Memory	Use Case
Light User	512 MB	Basic application user such as Microsoft Office applications and some web browsing
Medium User	768 MB	Running multiple Microsoft Office applications and light user of multimedia, and more intensive web browsing
Heavy User	1 GB	Advanced application user running 3D-based applications and multi- media, and heavy web-browsing

For the total memory in each RDSH server, VMware recommends that a virtual machine configured as an RDSH server should be provisioned with 64 GB of memory, and in terms of CPU requirements, the VMware recommendation is to create virtual servers for the RDSH roles and configure each one with four vCPUs. Make sure that you do not overcommit on the number of cores.

So, for example, if you had a virtual machine running as an RDSH server configured with 64 GB of memory, and had heavy users hosted on it, you would be able to host a maximum of 64 sessions on that server.

For the hardware configuration, let's say you had a physical ESXi host server, configured with a 2-socket CPU that had 12 cores, giving you a total of 24 cores.

This would allow a maximum of 6 RDSH servers, as we are going to provision virtual machines for the RDSH role so that each has 4 cores (24 cores/4 cores per server). That would mean that the physical server would also need to be configured with 384 GB of memory in total (64 GB x 6 RDSH host servers).

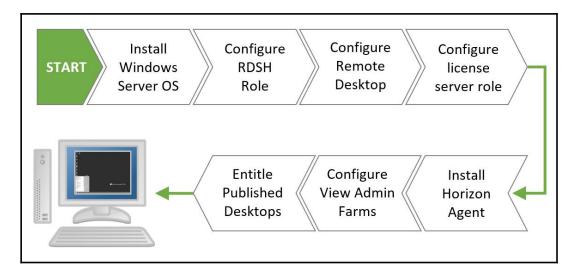
These figures are only guidelines and are based on some of VMware's recommended best practices. It is always best to run an assessment on your environment to work out your optimum configuration and what is required.

In the next section, we are going to install and configure the Horizon published applications feature.

Installing and configuring View Published Apps

We are now going to start the installation process, starting with configuring the server that is going to be used for hosting the published applications, by adding the RDSH role to it. In the example lab, there is a Windows Server 2016 server ready built, called **RDSH-Desktop**, to perform this role.

The installation and configuration process is pretty straightforward and can be summarized with the following schematic diagram:



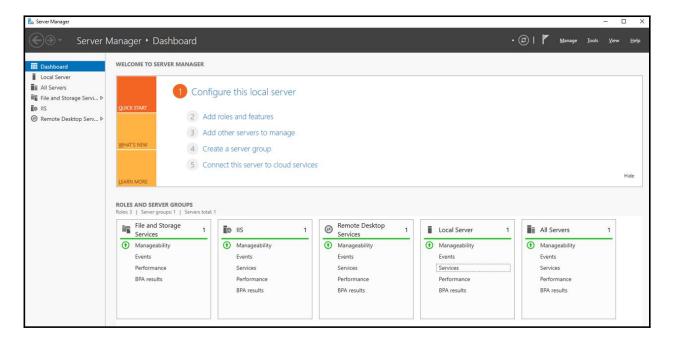
In the next sections, we are going to walk through this process, starting with configuring the RDSH role. As the process is pretty much the same as the process we covered in the Chapter 11, *Delivering Published Apps with Horizon 7*, when we configured the RDSH role for delivering apps, we will summarize the steps. For more detailed instructions, please refer to Chapter 11, *Delivering Published Apps with Horizon 7*.

Configuring the RDS server role

The first thing that we are going to do is configure the RDSH server role, and then configure this server to deliver the remote applications. In the example lab, the server we are going to configure is called RDSH-Desktop. To configure the RDSH role, follow these steps:

- 1. Open a console to the server, and then from the **Server Manager** and the **Dashboard** screen, click on **Add roles and features**.
- 2. The first screen you will see is the **Before you begin** screen.
- 3. Click **Next** > to continue.
- 4. You will now see the **Select installation type** screen.
- 5. Click the radio button for **Remote Desktop Services installation**, and then click **Next** > to continue.
- 6. You will now see the **Select deployment type** screen.
- 7. Click the radio button for **Quick Start**, and then click **Next** > to continue.
- 8. You will now see the **Select deployment scenario** screen.
- 9. Click the radio button for **Session-based desktop deployment**, and then click **Next** > to continue.
- 10. You will now see the **Select a server** screen.
- 11. From the **Server Pool** box, click and highlight the server you want to install the RDSH role on to and click the arrow to add it to the **Selected** box. In the example lab, this is the server called rdsh-desktop.pvolab.com.
- 12. Click **Next** > to continue.
- 13. You will now see the **Confirm selections** screen.
- 14. Check the services that are going to be installed, and then check the box next to **Restart the destination server automatically if required**.
- 15. Click **Deploy** to start the installation.

- 16. You will now see the progress of the installation.
- 17. During the installation, the server will reboot. After rebooting, log back in and launch the server manager again to monitor the rest of the installation process.
- 18. Once the installation has completed, from the **Server Manager Dashboard**, you will now see that the **Remote Desktop Services** role has been added as shown in the following screenshot:



You have now successfully installed the RDS role.



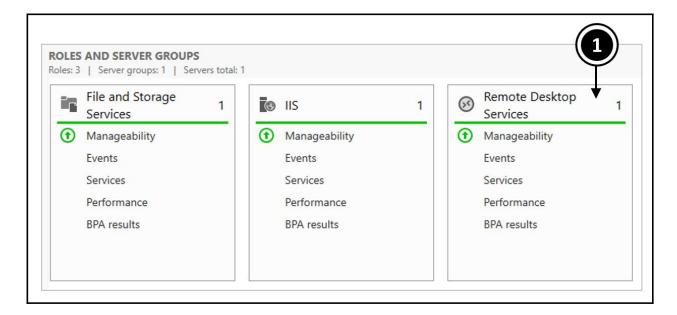
You will need to add and configure the Remote Desktop Licensing role on this server.

In the next section, we will configure the newly created RDSH server in preparation for delivering the published desktop sessions to the end users.

Configuring RDSH to deliver desktop sessions

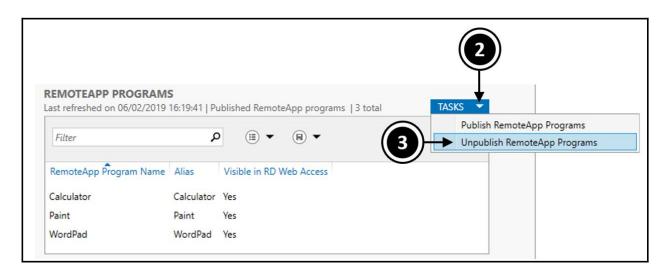
As we used the QuickStart installation method for setting up our RDSH role, it also included configuring some published applications. As we are going to use this RDSH host server for just desktop sessions, the first thing we are going to do is un-publish those applications. To do this, follow these steps:

1. From the **Server Manager Dashboard** screen, click on **Remote Desktop Services** (1) as shown in the following screenshot:

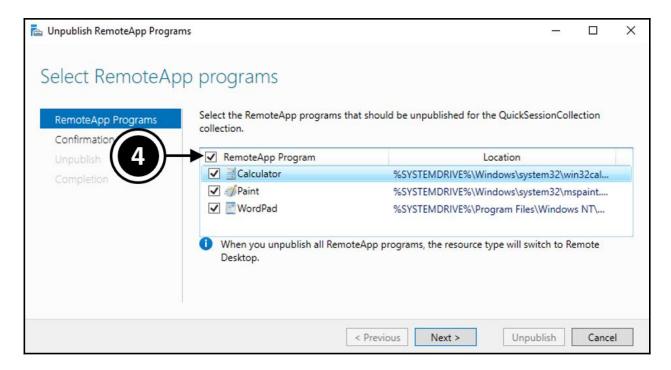


2. You will then see the list of servers that are configured with the RDSH role. In the example lab, this is the rdsh-desktop server. Click on this server, and then click on **QuickSessionCollection...**.

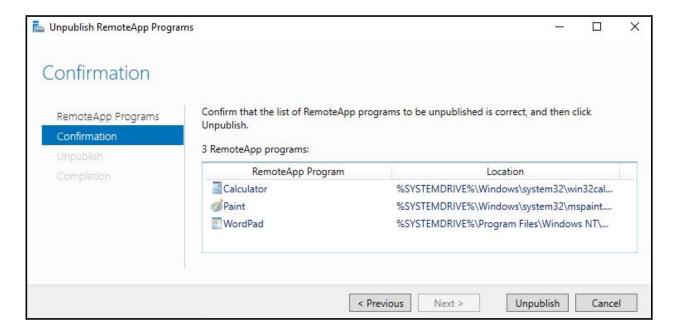
3. Scroll down to the **REMOTEAPP PROGRAMS** section as shown in the following screenshot:



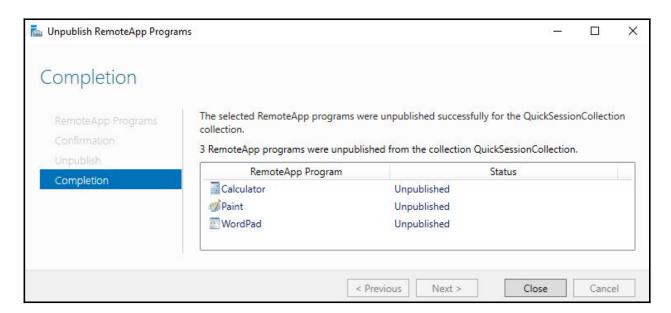
- 4. Click on the drop-down menu on the **TASKS** box (2), and then from the menu, select the **Unpublish RemoteApp Programs** option (3).
- 5. You will now see the **Unpublish RemoteApp programs** screen as shown in the following screenshot:



- 6. Check the box (4) to select all the applications.
- 7. Click **Next** > to continue.
- 8. You will now see the **Confirmation** screen as shown in the following screenshot:



- 9. Click the **Unpublish** buttton.
- 10. The applications will now be unpublished, and you will see the **Completion** screen as shown in the following screenshot:



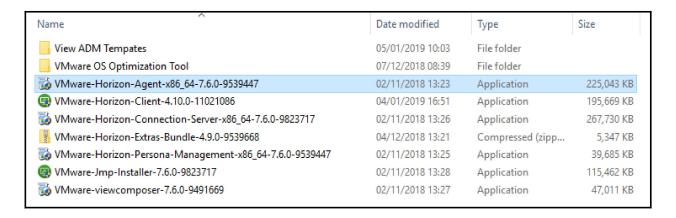
11. Finally, click the **Close** button to complete the configuration of removing the standard RemoteApp programs.

Now that you have unpublished the applications that were configured as part of the default installation process, you can now move on to the next step, installing the Horizon Agent.

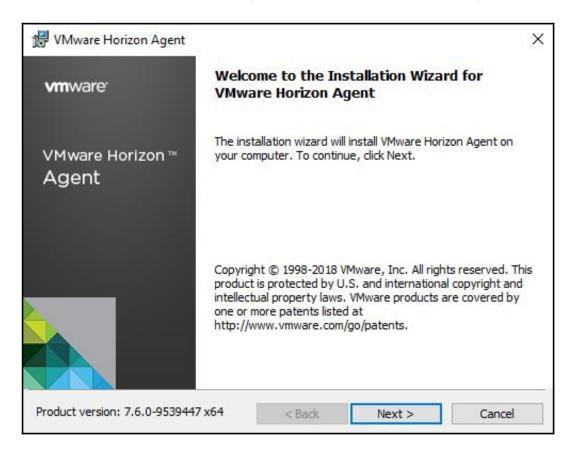
Installing the Horizon View Agent for RDSH

In the next part of the process, we are going to install the Horizon View Agent on to the RDSH server. The agent is exactly the same agent as the one that you would install on the virtual desktop machines and registers the RDSH server with the Horizon Connection Server. To install the agent, follow the steps as described:

1. Open a remote console to the RDSH server hosting the published desktop sessions and navigate to the shared software folder and then find the agent installer, as shown in the following screenshot:

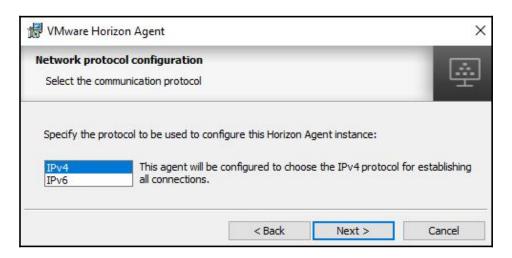


2. Double-click to launchVMware-Horizon-Agentx86_64-7.6.0-9539447. The seven-digit number at the end of the filename refers to the build version, and so you may have a different number depending on the build version you are using. 3. You will now see the **Welcome to the Installation Wizard for VMware Horizon View Agent** dialog box, as shown in the following screenshot:

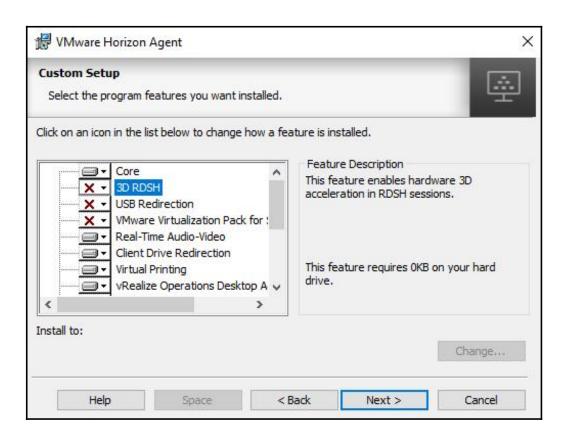


- 4. Click the **Next** > button to start the installation.
- 5. You will now see the **License Agreement** dialog box. Click the radio button for **I accept the terms in the license agreement**, and then click the **Next** > button to continue.

6. You will now see the **Network protocol configuration** screen, as shown in the following screenshot:



- 7. Click on **IPv4** and then click on the **Next >** button to continue the installation.
- 8. You will now see the **Custom Setup** screen, as shown in the following screenshot:



In the example lab, we are going to accept the default options; however, you can choose to install the 3D RDSH, USB Redirection, View Composer, and Flash Redirection options, should you want to.

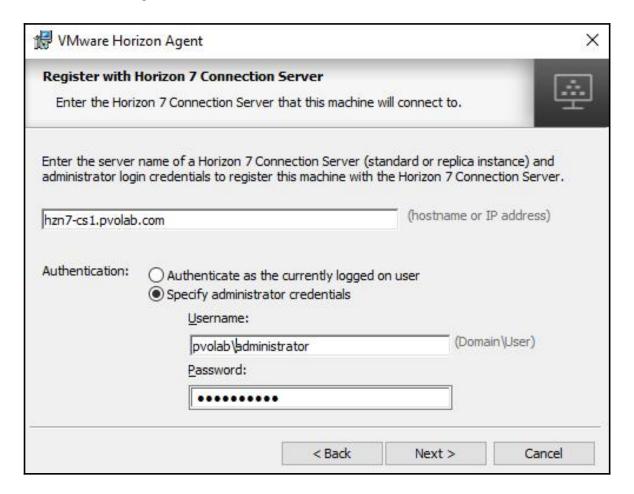
As you can see, there are a number of features that can be installed as part of the Horizon Agent installation. These are listed as follows:

- Core: Installs the core features required for RDSH
- 3D RDSH: Enabled 3D acceleration in RDSH sessions
- **USB Redirection**: Redirects USB devices from the client to the RDSH session
- VMware Horizon View Composer Agent: This allows RDS host servers to be built from a single parent image using linked clone technology to easily deploy RDS server farm
- Client Drive Redirection: Allows clients to share local drives with the RDS sessions (not supported when using IPv6)
- Virtual Printing: Allows printing from RDS sessions
- vRealize Operations Desktop Agent: Allows the management agent to be deployed for monitoring RDS sessions with vRealize
- **Flash Redirection**: Enables the Flash redirection feature with RDS sessions (note that this is currently the tech preview in this version of Horizon View)
- 9. Click the **Next** > button to continue the installation.
- 10. You will now see the **Register with Horizon 7 Connection Server** configuration screen, where we will configure the Horizon Agent to talk to the Connection Server. This allows the Connection Server to read the published applications list from the RemoteApp catalog and allows you to create application pools within View.
- 11. In the **hostname or IP address** box, enter the name of the Connection Server. In the example, this is hzn7-cs1.pvolab.com.
- 12. In the **Authentication** section, click the radio button for **Specify administrator credentials** and then in the **Username** box, enter the user account you want to use to connect to the Connection Server. In the example lab, this is pvolab\administrator.



Make sure you use the format **Domain\User** to enter the username, and also that the account has the correct privileges to access the Connection Server. You would typically use a service account for this

13. In the **Password** box, type in the password for the account, as shown in the following screenshot:



- 14. Click the **Next** > button to continue the installation.
- 15. You will now see the **Ready to Install the Program** screen. Click the **Install** button to start the installation process.
- 16. Once successfully installed, you will see the **Installer Complete** screen.
- 17. Click **Finish** to quit the installation.
- 18. You will then be prompted to reboot the server. Click **Yes** to reboot it.



One of the most common reasons that the installation of the View Agent fails is down to the configuration of the RDSH server. More often than not, there are no sound drivers loaded on the Windows server running the RDSH role. If this is the case, then the installation of the agent will fail and automatically rollback. If that happens, it is worth checking this first.

We have now completed the first part of the Horizon View configuration. In the next step of the process, we will turn our attention to the View Administrator and configure the published desktop pools.

Configuring published desktops in View Administrator

With the configuration of the RDSH server complete, the next stage in the installation and configuration process is performed from within the View Administrator console and, like a standard Horizon View setup, this involves creating pools and entitlements.

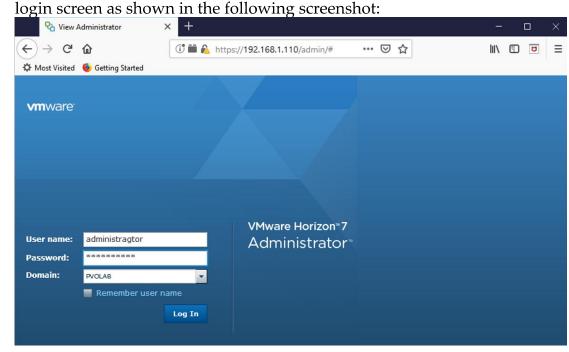
Before we do that, you first need to set up a farm that contains the newly built RDSH desktop session server.

Creating a farm for desktop sessions

To create the dekstop farm, follow the steps as described:

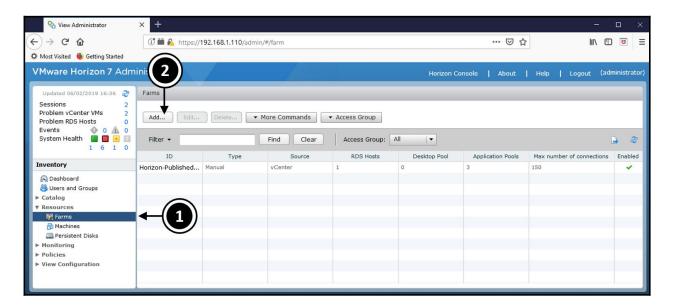
1. Open a browser and connect to the View Administrator. In our example lab, the address for the View Administrator is as

follows—https://hzn7-cs1.pvolab.com/admin/. You will now see the



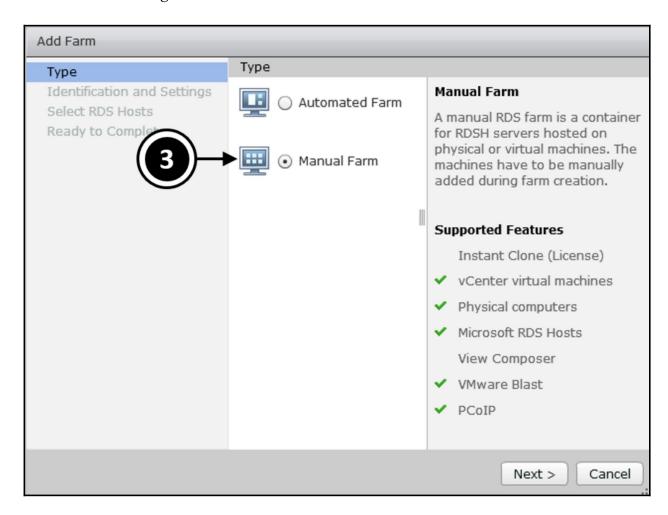
2. Log into the View Administrator using the administrator account and password.

3. You will now see the View Administrator **Dashboard**, as shown in the following screenshot:



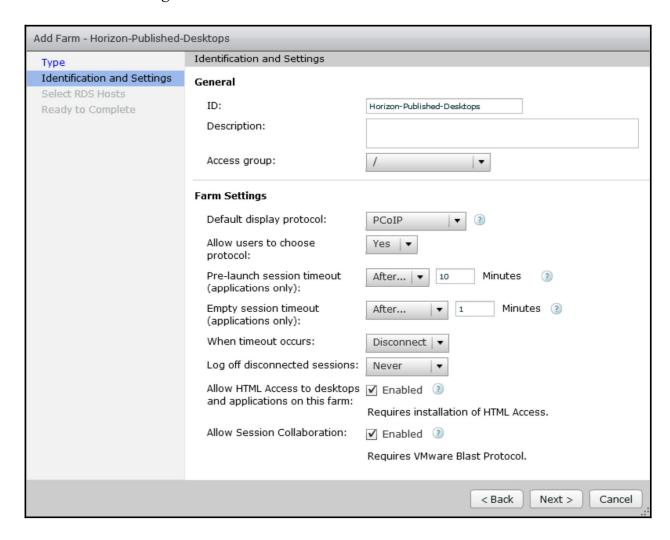
- 4. From **Dashboard**, expand the option for **Resources** from the **Inventory** pane on the left, and then click on **Farms** (1).
- 5. Now click the **Add...** button (2).

6. You will now see the **Add Farm** configuration screen, as shown in the following screenshot:



- 7. In the **Type** section, click the radio button for **Manual Farm** (3).
- 8. Click **Next** > to continue.

9. You will now see the **Identification and Settings** screen, as shown in the following screenshot:

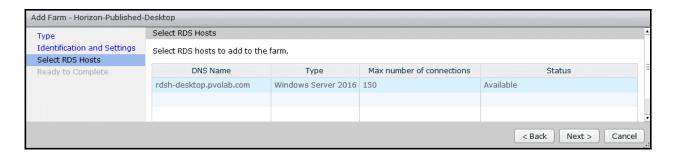


10. In the **ID** box, enter an ID for the farm that will be used by View to identify it. In the example lab, this is called <code>Horizon-Published-Desktops</code>.

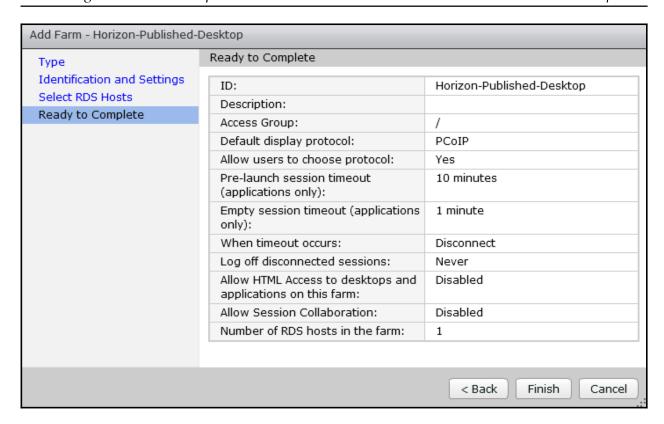


You cannot use spaces for the ID, only letters (uppercase and lowercase), numbers (0-9), and – (minus) or _ (underscore) characters.

- 11. In the **Description** box, enter an optional description for the farm and then from the **Access group** dropdown, select an access group if you have one.
- 12. Next, under **Farm Settings**, set the **Default display protocol** to **PCoIP** and from the **Allow users to choose protocol** dropdown, select **Yes**.
- 13. In **Pre-launch session timeout**, leave this as the default setting of 10 minutes. Pre-launch allows apps to load ahead of a user clicking to launch it. This option configures a timeout.
- 14. In **Empty session timeout**, enter a time after which the session should timeout when not being used, and then in the **When timeout occurs** box, from the drop-down menu, select what happens at timeout. In the example lab, this is set to **Disconnect** the user from the session.
- 15. The next option is whether to **Log off disconnected sessions**. This option will logoff any disconnected sessions. In the example lab, this is set to **Never**.
- 16. Check the **Enabled** box to **Allow HTML Access to desktops and applications on this farm**.
- 17. Finally, check the box for **Allow Session Collaboration**. This only works when you connect using the Blast protocol.
- 18. Once you have completed the configuration options on this screen, click the **Next** > button to continue.
- 19. You will now see the **Select RDS Hosts** configuration screen from where you select which hosts are going to participate in this farm, as shown in the following screenshot:

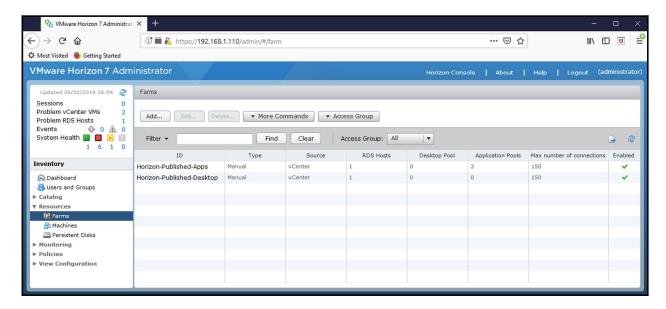


- 20. Click and select the **rdsh-desktops.pvolab.com** server entry from the table.
- 21. Click **Next** > to continue.
- 22. You will now see the **Ready to Complete** screen as shown in the following screenshot:

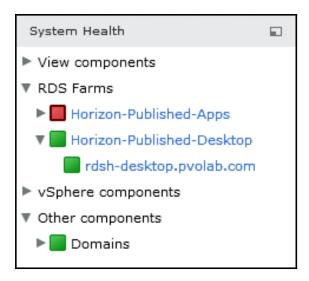


23. Check that the settings you have entered are correct, and then click the **Finish** button.

You have now successfully created a new farm configuration for published desktop sessions, as shown in the following screenshot:



You will also see in the **RDS Farms** section listed in the **System Health** box on the View Administrator **Dashboard**, the farm name and server name listed in the box, along with a green box to show they are working correctly, as shown in the following screenshot:



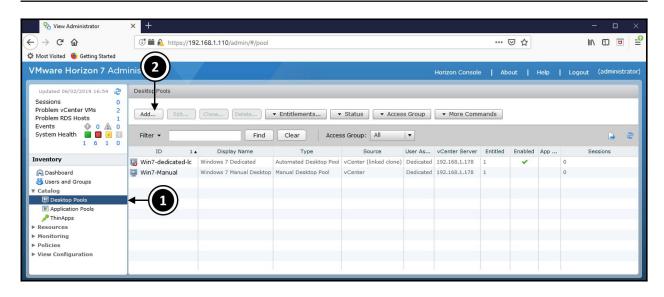
In the next section, we are going to create a desktop pool for the published desktop sessions.

Creating a desktop pool for published desktops

In this section, we are going to create a desktop pool. This allows you to create a pool that contains the published desktop sessions. You may want to create different pools using different farms to reflect different departments' desktop requirements, for example.

To configure a desktop pool, follow these steps:

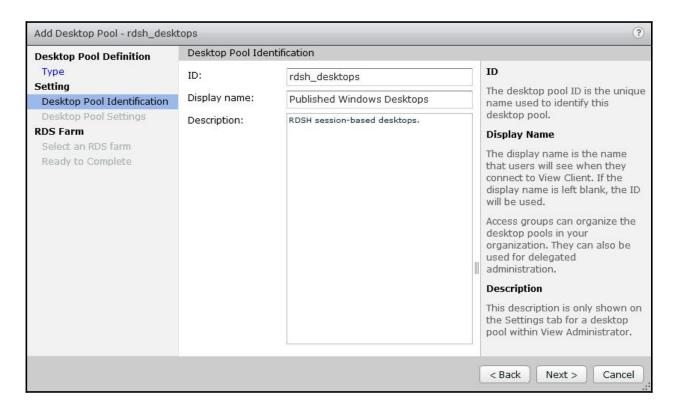
1. From the View Administrator, expand the option for **Catalog** from the **Inventory** pane on the left, and then click on **Desktop Pools** (1), as shown in the following screenshot:



- 2. Now click the **Add...** button (2).
- 3. You will now see the **Add Desktop Pool** configuration screen as shown in the following screenshot:



- 4. Click on the radio button for **RDS Desktop Pool** (3).
- 5. Click **Next** > to continue.
- 6. You will now see the **Desktop Pool Identification** screen as shown in the following screenshot:



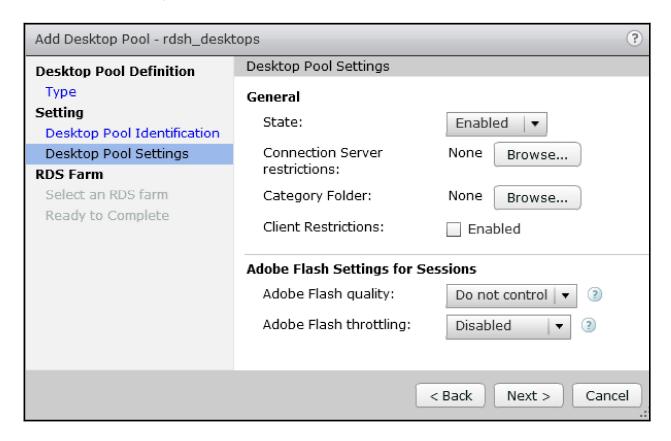
7. In the **ID** box, enter an ID for the pool. In the example lab, we are going to call the rdsh_desktops pool.



As with the farm ID, you cannot use spaces for the ID, only letters (uppercase and lowercase), numbers (0-9), and – (minus) or _ (underscore) characters.

- 8. In the **Display name** box, enter a name that will be displayed to the end users. In the example lab, we have called this Published Windows Desktops.
- 9. Click **Next** > to continue.

10. You will now see the **Desktop Pool Settings** screen as shown in the following screenshot:

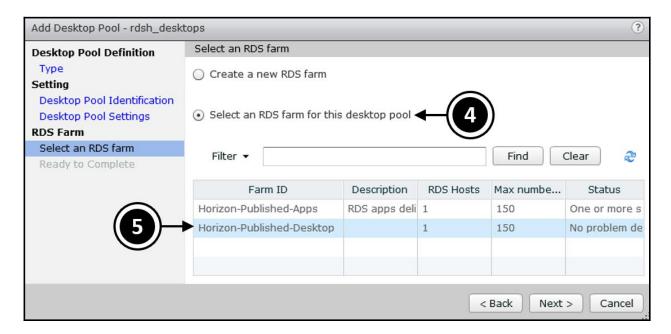


- 11. In the **General** section, in the **State** box, from the dropdown, select **Enabled** to enable this pool.
- 12. Next, you have the option to configure **Connection Server restrictions**, followed by the **Category Folder**, where you can add the pool to the desktop of the end user's device.
- 13. Next, configure the **Adobe Flash Settings for Sessions** section. On the **Adobe Flash quality** dropdown, select **Do not control**. The other options available under this dropdown are as follows:
 - **Do not control**: This allows the web page to determine the best setting.
 - Low (default): Low quality means less bandwidth consumption.
 - **Medium**: Medium quality means average bandwidth consumption.
 - **High**: High quality means more bandwidth consumption.

- 14. Then, from the **Adobe Flash throttling** dropdown, select **Disabled**. The other options available under this dropdown are as follows:
 - **Disabled**: Throttling is turned off
 - Conservative: Update interval set to 100 milliseconds
 - Moderate: Update interval set to 500 milliseconds
 - Aggressive: Update interval set to 2,500 milliseconds

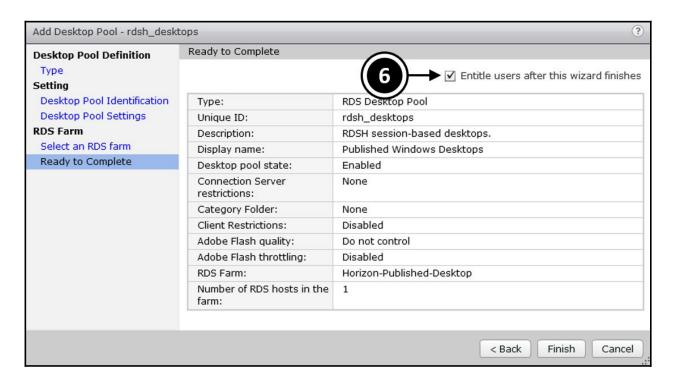
Adobe Flash updates the screen by default using a timer service to determine the update interval. By changing this time interval setting, you can control the frame rate of the screen updates and, therefore, reduce the bandwidth requirements.

- 15. Click **Next** > to continue.
- 16. You will now see the **Select an RDS farm** configuration screen as shown in the following screenshot:



- 17. Click on the radio button for **Select an RDS farm for this desktop pool** (4).
- 18. From the farms that are listed, select the **Farm ID** for the farm that will resource the published desktop sessions. In the example lab, this is the **Horizon-Published-Desktop** farm (5).
- 19. Click **Next** > to continue.

20. You will now see the **Ready to Complete** screen as shown in the following screenshot:



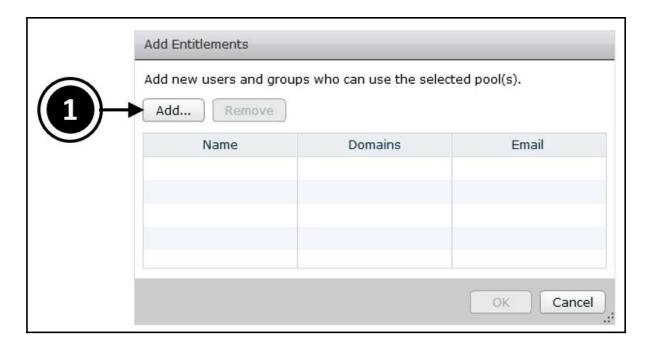
- 21. Check that the settings you have entered are correct, and then ensure you check the **Entitle users after this wizard finishes box** (6).
- 22. Finally, click the Finish button.

You have now successfully created a new farm configuration for the published desktop sessions. The next task is to entitle the end users to have access to the published desktops.

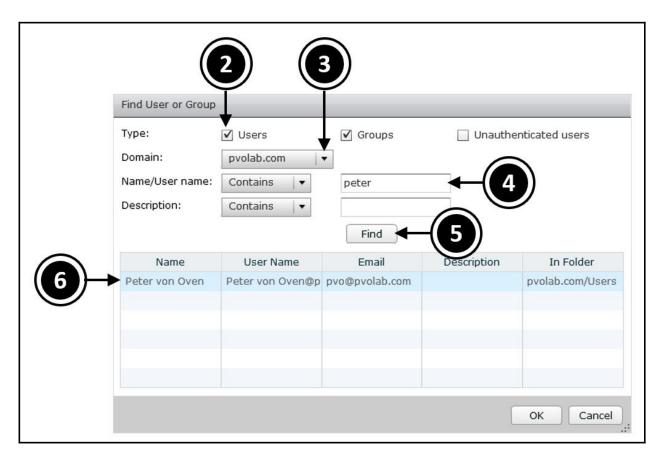
Entitling users to published desktop pools

In the previous section, we checked the **Entitle users after this wizard finished** box, which means that you will now see the **Add Entitlements** configuration screen, as shown in the following screenshot:

1. Click the **Add...** button (1):

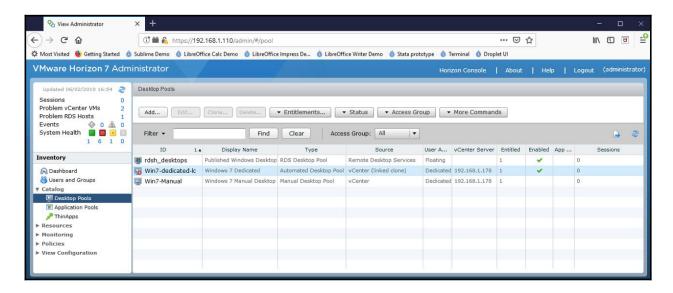


2. You will now see the **Find User or Group** configuration screen as shown in the following screenshot:



- 3. In the **Type** section, ensure that the **Users** box (2), is ticked.
- 4. From the **Domain** drop-down menu (3), select the domain that contained the user you want to entitle. In the example lab, this is the pvolab.com domain.
- 5. In the Name/User name box (4), enter the user details you want to entitle. In the example lab, we are going to entitle the user called Peter von Oven, so type the first part of the username, in this case, Peter, into the box and then click the **Find** button (5) to search for the user in the domain.
- 6. Once found, the user and their details will be displayed in the table. Select the user by clicking on the entry in the table to highlight and select the user.
- 7. Click **OK** to continue.

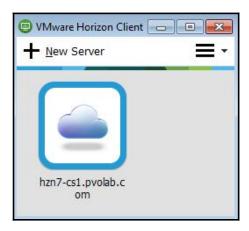
8. You will now return to the **Desktop Pools** screen, detailing the applications published, as shown in the following screenshot:



As a final check, we are going to launch the Horizon Client, log in as the entitled user, and then launch a published desktop session using the Horizon Client, to test that everything works.

To test the functionality, complete the steps described:

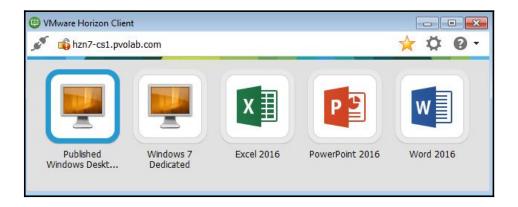
- 1. Launch the VMware Horizon Client and make sure that you have added the address of the Connection Server. We will cover the Horizon View Client in Chapter 12, Horizon Client Options.
- 2. In the example lab, we are connecting to the hzn7-cs1.pvolab.com Connection Server as shown in the following screenshot:



- 3. Double-click on the **hzn7-cs1.pvolab.com** icon in the VMware Horizon Client.
- 4. You will then see the **Login** box as shown in the following screenshot:



- 5. In the **User name** box, enter the username for the user who is entitled to the application pool. In the example lab, the user name for the user Peter von Oven is pvo.
- 6. In the **Password** box, enter the password for the preceding username.
- 7. In the **Domain** box, ensure the correct domain is selected from the drop-down menu. In the example lab, this is the **PVOLAB** domain.
- 8. Now click the **Login** box.
- 9. Once authenticated, the Horizon Client will connect to the desktop pool and display the available desktop sessions as shown in the following screenshot:



- 10. Double-click on the **Published Windows Desktop** icon to launch a published desktop.
- 11. You will see a message saying The Connection Server is preparing the desktop ..., and finally you will see the launch desktop, as shown in the following screenshot:



You have now successfully delivered a published desktop session to an end user from an RDSH server and brokered using Horizon View.



If you plan on using Windows Server 2016 as your RDS host, ensure that you install the operating system with a GUI. For Windows Server 2012, you can install the Desktop Experience feature.

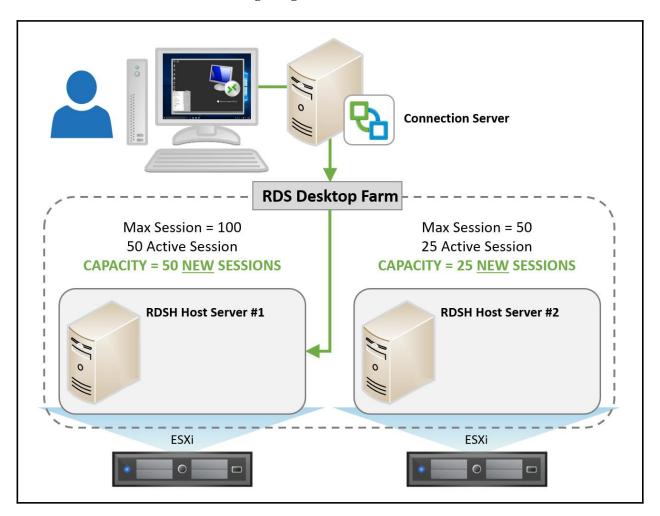
In the next section, we are are going to look at configuration options for the load-balancing of the published desktop sessions.

Load-balancing desktop sessions in View

The next thing we are going to cover is how the connection broker decides which of the RDS host servers in the farm is actually going to deliver the desktop session. There are two options for configuring load balancing.

For the first option, there is no really complicated science behind the load balancing from a Horizon View perspective. It is purely based on how many sessions are available on any given RDSH server. So, that means when a user logs in and launches a published desktop, the desktop session is delivered from the server that has the highest amount of free sessions available, that is, the one that is the least busy.

This is illustrated in the following diagram:



This first option works well, but how does it know what each session is consuming in terms of resources? A particular host may well have enough capacity for additional sessions based on the number of sessions it has free, but what if those sessions it's already hosting are consuming vast amounts of resources?

However, if you remember in the previous chapter, we looked at an optional feature whereby you could deploy scripts that would monitor the CPU and memory utilization of the RDS host servers.

When delivering desktop sessions, this might be a better option to more accurately load-balance the desktop sessions across all the hosts within the farm. Please refer back to the *Load-balancing published apps in the View* section of the previous chapter to configure this feature.

Summary

In this chapter, we have configured the RDSH server role in preparation to deliver published session-based desktops to the end users in your environment.

Once we built and configured the RDSH role, we then went on to configure the View Administrator and created a farm for the desktop sessions, as well as creating a desktop pool. The next step was to entitle an end user to be able to log in and connect to a desktop session.

Finally, we touched upon how to load-balance published desktop sessions across the servers in the farm.

In the next chapter, we will take a closer look at the different View Client options.