Microsoft Server Capabilities

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Author Note

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Abstract

The purpose of this paper is to identify multiple problems an organization could encounter regarding their system (and its administration) and evaluate then demonstrate how such problems could be solved through use of a Windows 2016 Server.

Microsoft Server Capabilities

An organization will likely encounter a multitude of problems as it establishes its IT (Information Technology) department and—by extension—its computer information systems. Two issues that would likely be encountered is that of IP (Internet Protocol) address distribution and file sharing. These issues can be addressed through proper utilization of Windows Server 2016, and the steps to do are explained in the following text.

DHCP Server

Windows Server 2016 allows—through its Server Manager—the installation of a DHCP (Dynamic Host Configuration Protocol) server, allowing clients that connect to it to receive IP addresses from a selected range offered by the server.

First, the means to create and offer a DHCP server must be installed. Using Server Manager, DHCP Server tools were installed on the server.

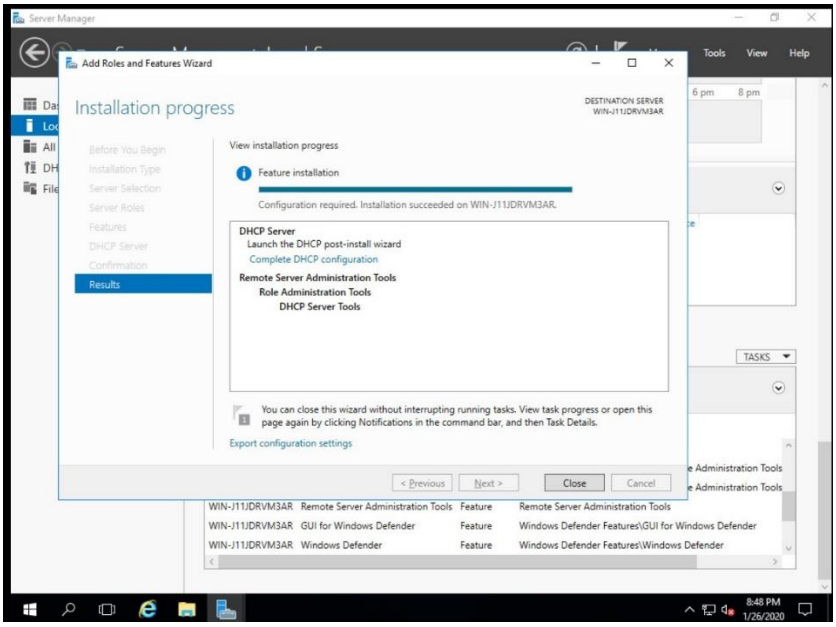

Figure 1. Windows Server screenshot. This figure demonstrates the installation of DHCP Server Tools on a Windows Server 2016 machine.

Next, further configuration continues as credentials are required to go further in the process. On the machine, administrator credentials were used and the process continued.

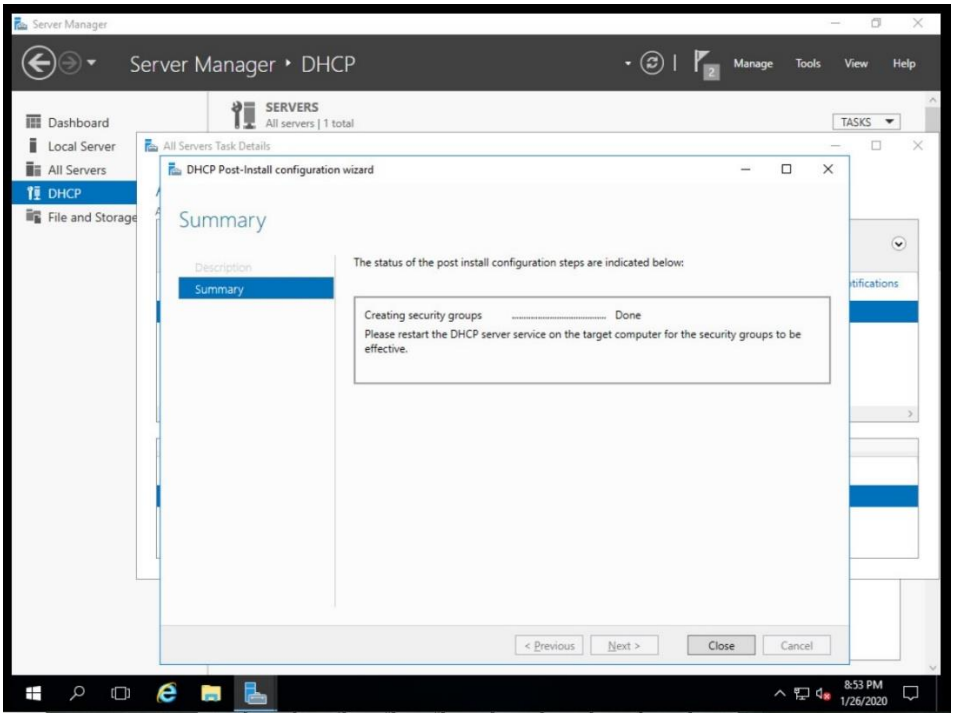

Figure 2. Windows Server screenshot. This figure demonstrates conclusion of the installation of DHCP Server tools by allowing credentials to be used to finalize the process.

After that, the server itself must be configured at fit with a scope: essentially, an IP address range to distribute IP addresses from, along with a main gateway and DNS. Using the configuration for the VM's (virtual machine) pod in the cluster it was installed in, the scope was configured.

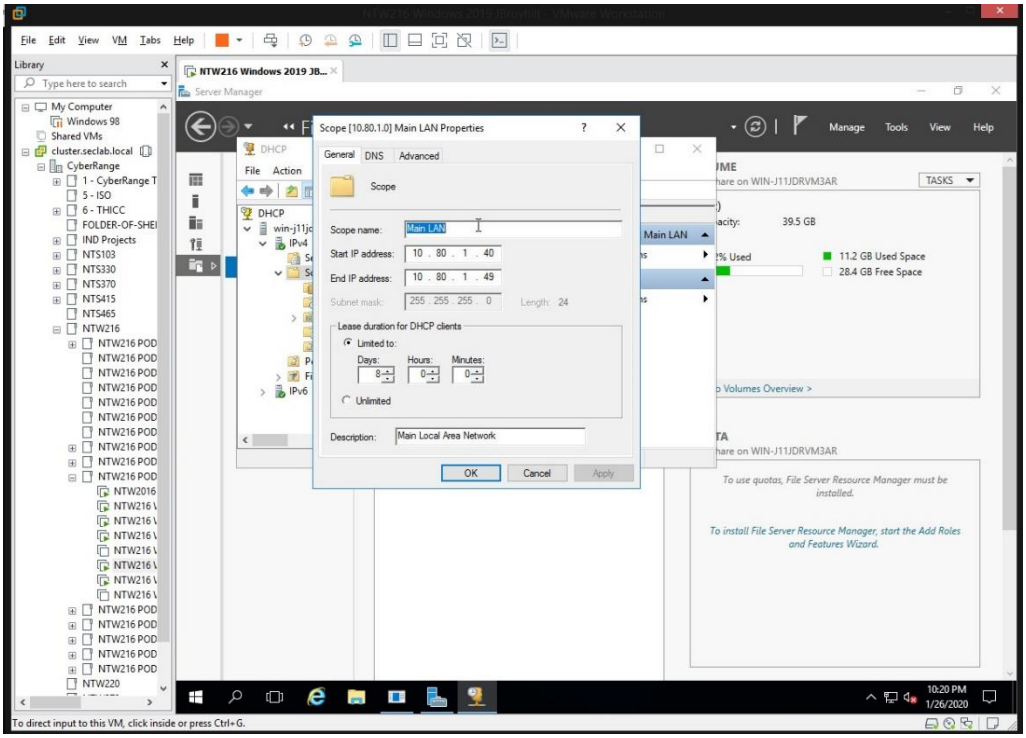

Figure 3. Windows Server screenshot. This figure demonstrates configuration of a scope for a DHCP server in Windows Server 2016 through Server Manager.

Afterwards, finalize the scope by configuring any further options (IP addresses/ranges to exclude, parent domain, optional WINS server, lease duration, etc.) Then, the configuration and installation of a DHCP server using Windows Server 2016 will be finished. To connect, Windows 10 clients must have their settings configured so that they can obtain an IP address from the DHCP server.

File Sharing

Now that the Windows Server had a means of distributing IP addresses, the ability for it to share files across the network it is on is a logical next step. Upon opening Server Manager, however, it seemed that the node for file sharing to occur—the “Shares” node—was missing.

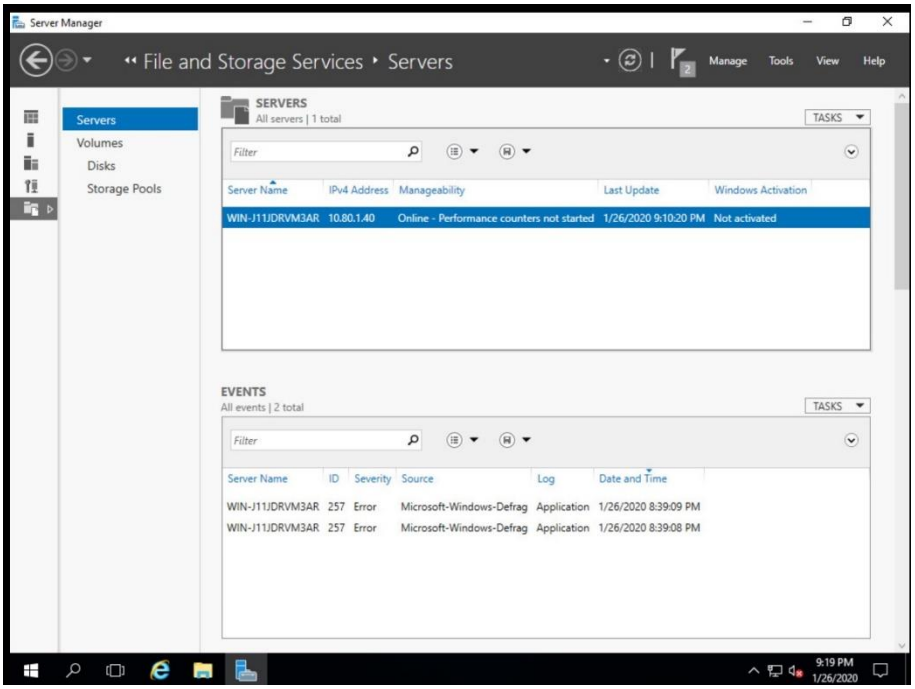

Figure 4. Windows Server screenshot. This figure demonstrates the lack of a "Shares" node under the File and Storage Services in Server Manager.

In the event that this also occurs for any organization, it can easily be rectified through PowerShell. Simply opening the application and typing in a command will allow the full capacity of the File and Storage Services category of Server Manager to be installed.

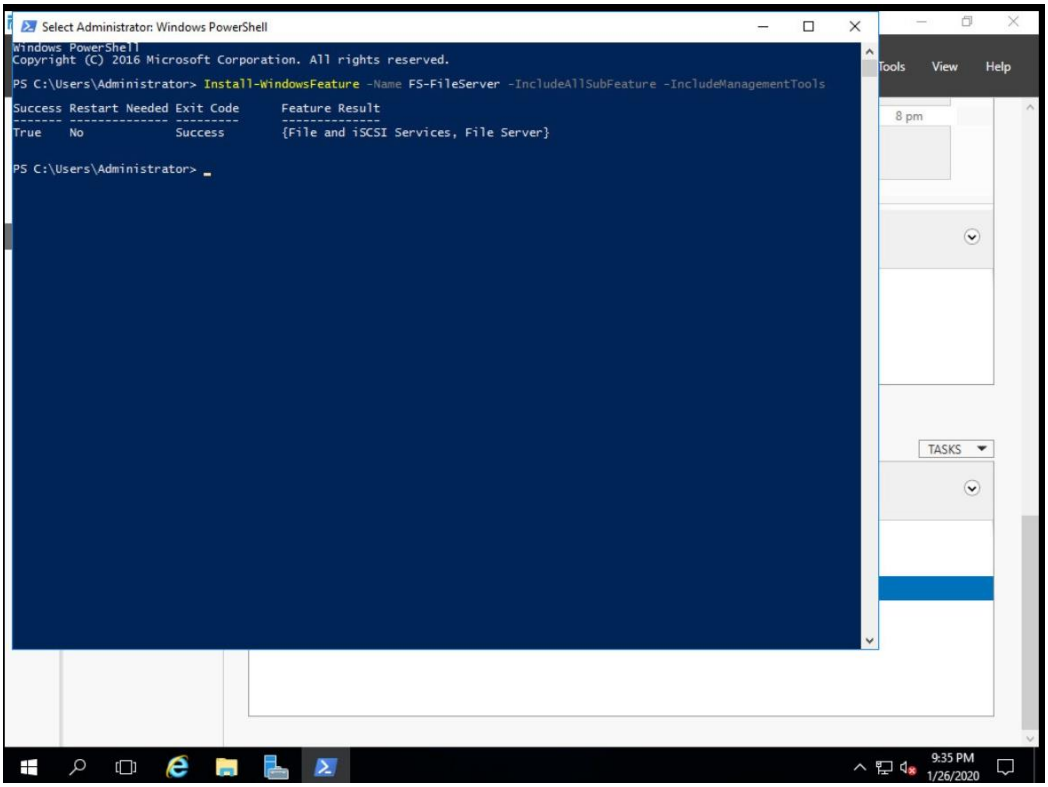

Figure 5. Windows Server screenshot. This figure demonstrates the use of the "*Install-WindowsFeature -Name FS-FileServer -IncludeAllSubFeature -IncludeManagementTools"* command to install all the sub features of File and Storage Services that were missing.

Afterwards, the next step is to simply create a new share and grant it configurations per the desires of the organization. The machine in this example was configured with the enabling of access-based enumeration to ensure users without proper permissions couldn't see certain files and the encryption of data access to secure the data against unauthorized access as its being transferred to and from the share.

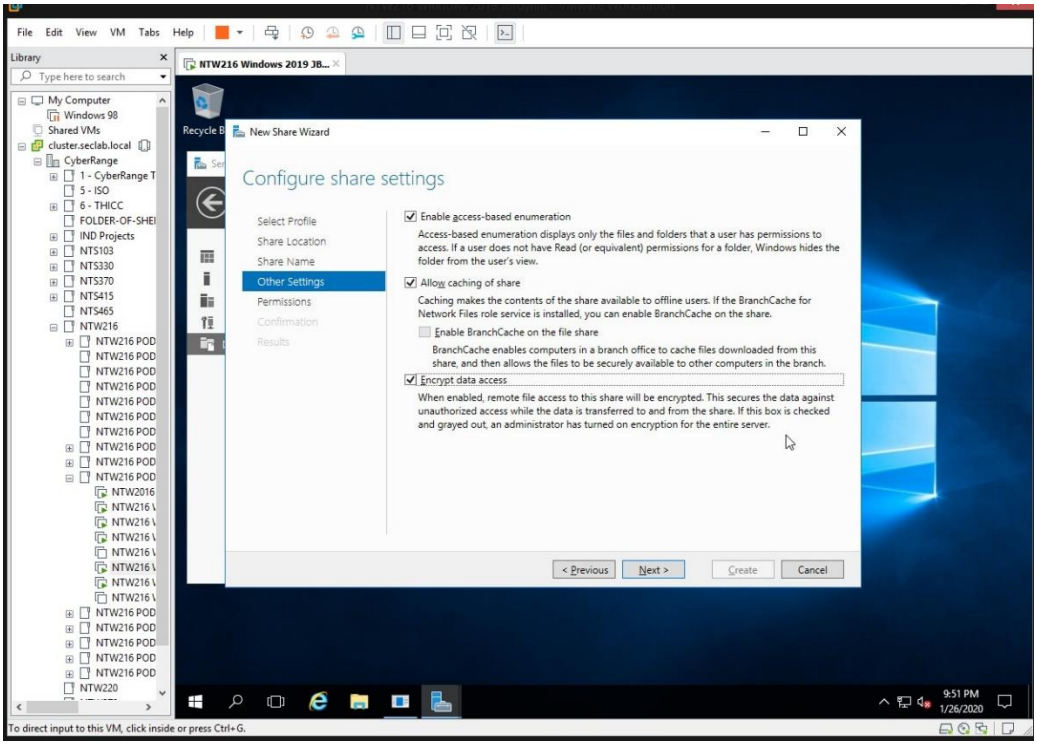

Figure 6. Windows Server screenshot. This figure demonstrates the use of the configuration of a Windows File Share.

After all other settings and configurations are modified as required (such as the name, type of share, its path, and permissions) the share will be visible and accessible from the Shares node in File and Storage Services in Server Manager.

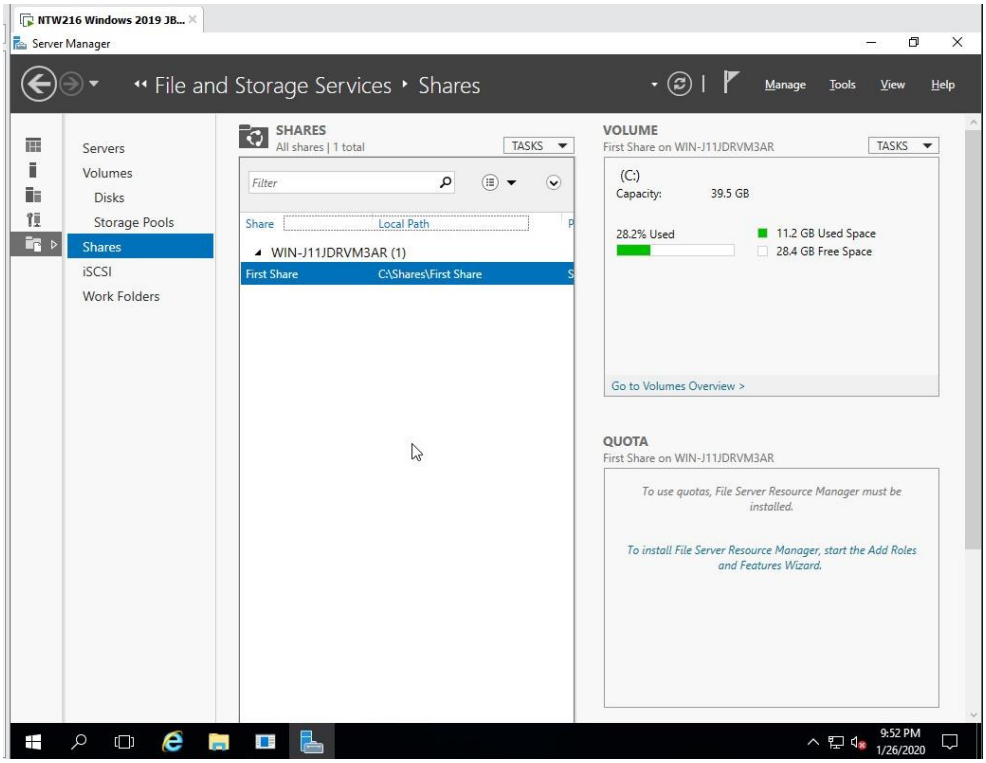

Figure 7. Windows Server screenshot. This figure demonstrates availability of the "First Share" Windows File share from Server Manager after the completion of its configuration.

Conclusion

With these two problems solved, a corporation or other organization should be able to properly ensure that their Windows Server is properly configured to offer a DHCP pool for clients to obtain IP addresses from, and that files can be shared from the server and to clients through use of Windows File share, thus eliminating two of a multitude of issues an organization could encounter in the development of an IT department and computer system.

References

No references were utilized in this paper aside from the author's virtual machine.