Lab 4: Storage Management

In this lab, we installed several roles and features for our serverDesktop and configured disks and volumes to share contents within the domain with SMB sharing. We installed and configured iSCSI target and initiator in two different servers present in our environment. We learned and experimented with tools to manage disks, however, we worked mostly with the File and Storage services in the server manager. Disk Management was also handy at times.

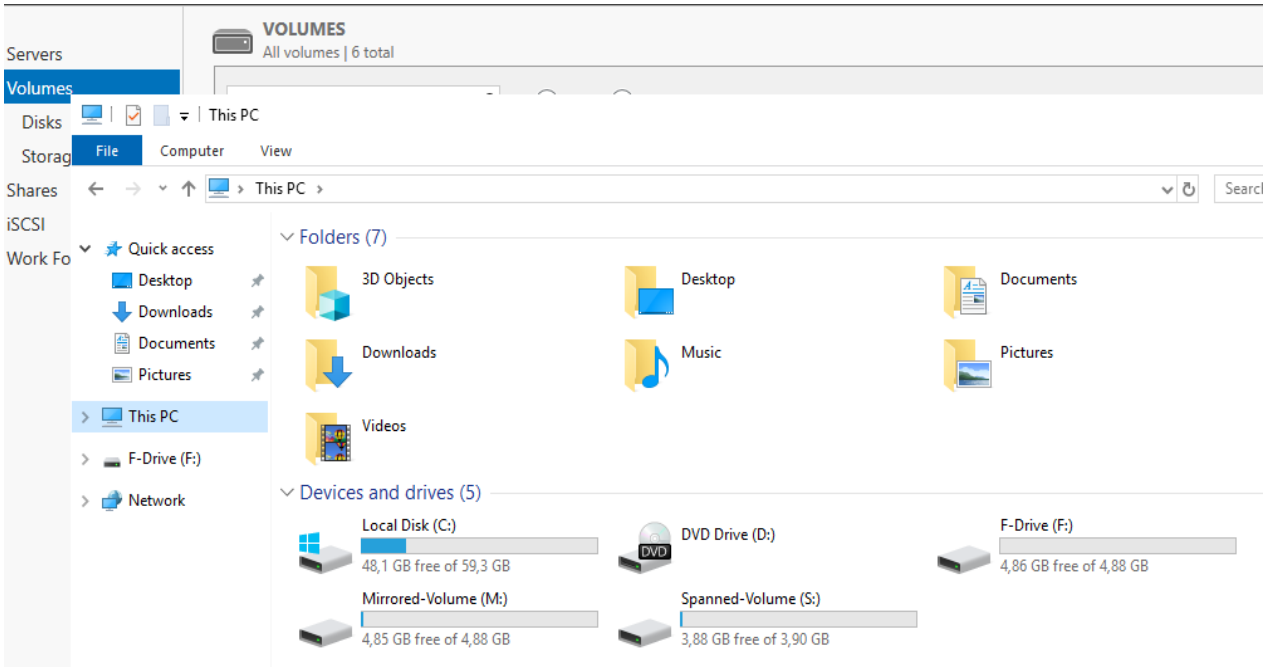


Figure1: Dynamic volumes created

Basic disks allow us to use the empty space available for that disk only. Dynamic disks allow much more functionalities and availability during failures, like Mirroring, Spanning, Parity features, and so on.

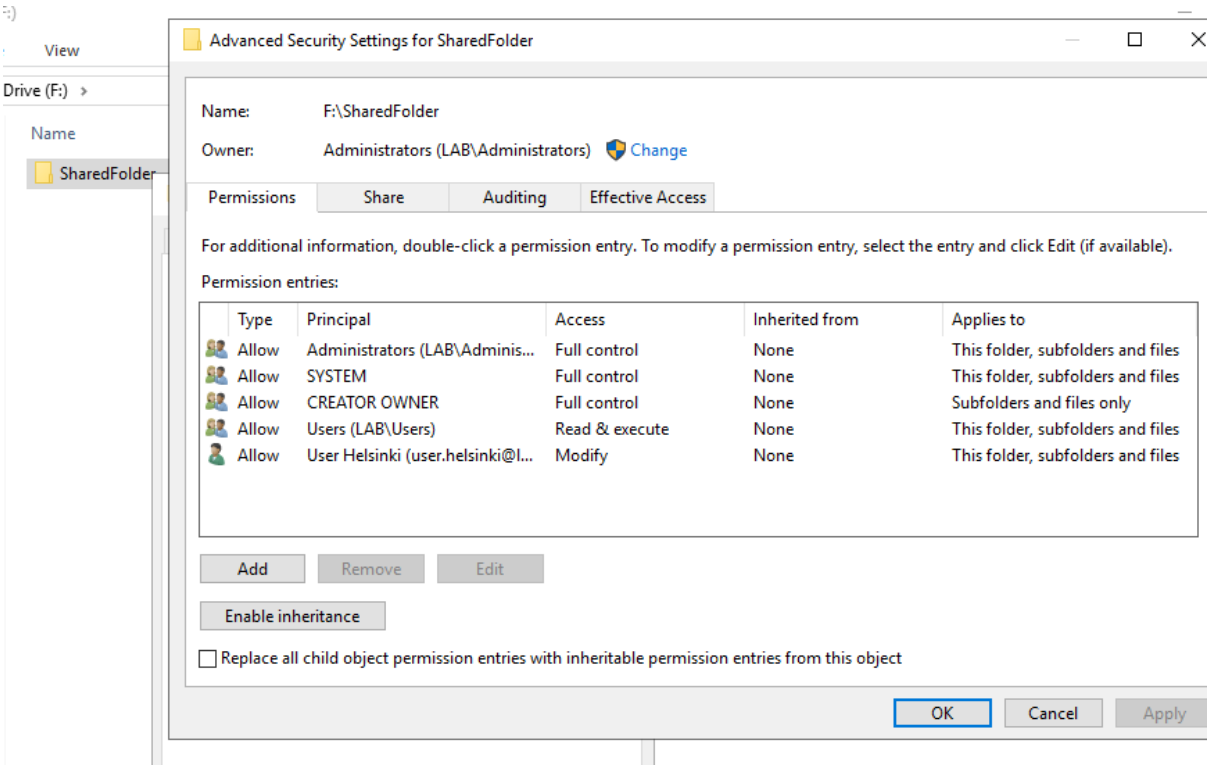
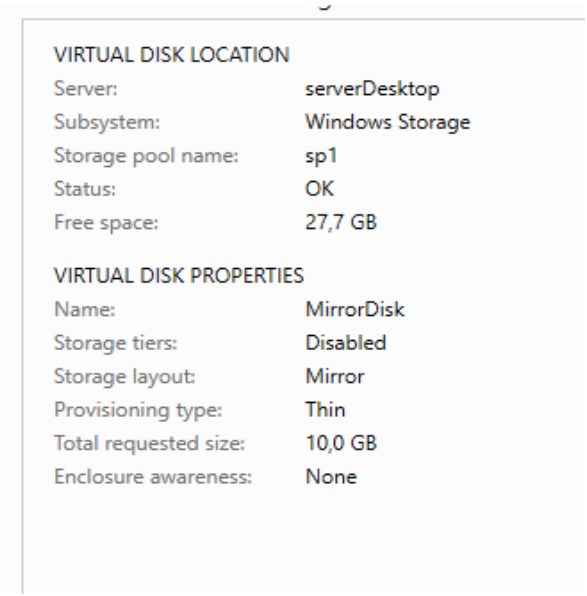
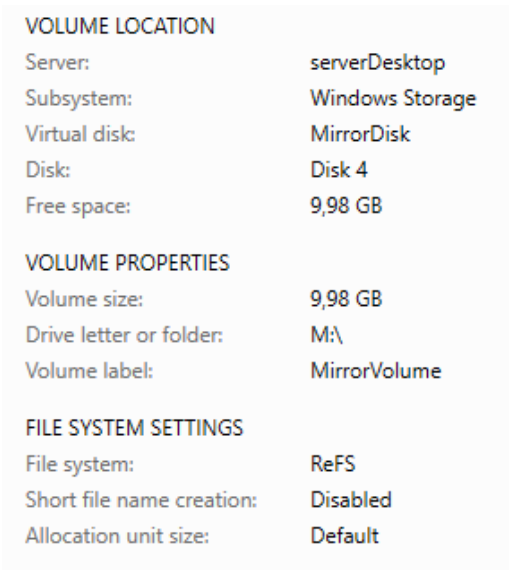


Figure2: SMB configured

Storage Spaces configuration

Due to the same problem, the NVMe disks not appearing in the primordial, I deleted the existing NVMe disks and created the SCSI disks as demonstrated in the lab guide.





As the above screenshots reveal, a storage pool of 3 disks was created. After that, a virtual disk (MirrorDisk) for the pool was also created and finally ReFS volume (MirrorVolume). The creation of parity disks was not successful. So, I had to go with the Mirror disks during this process.

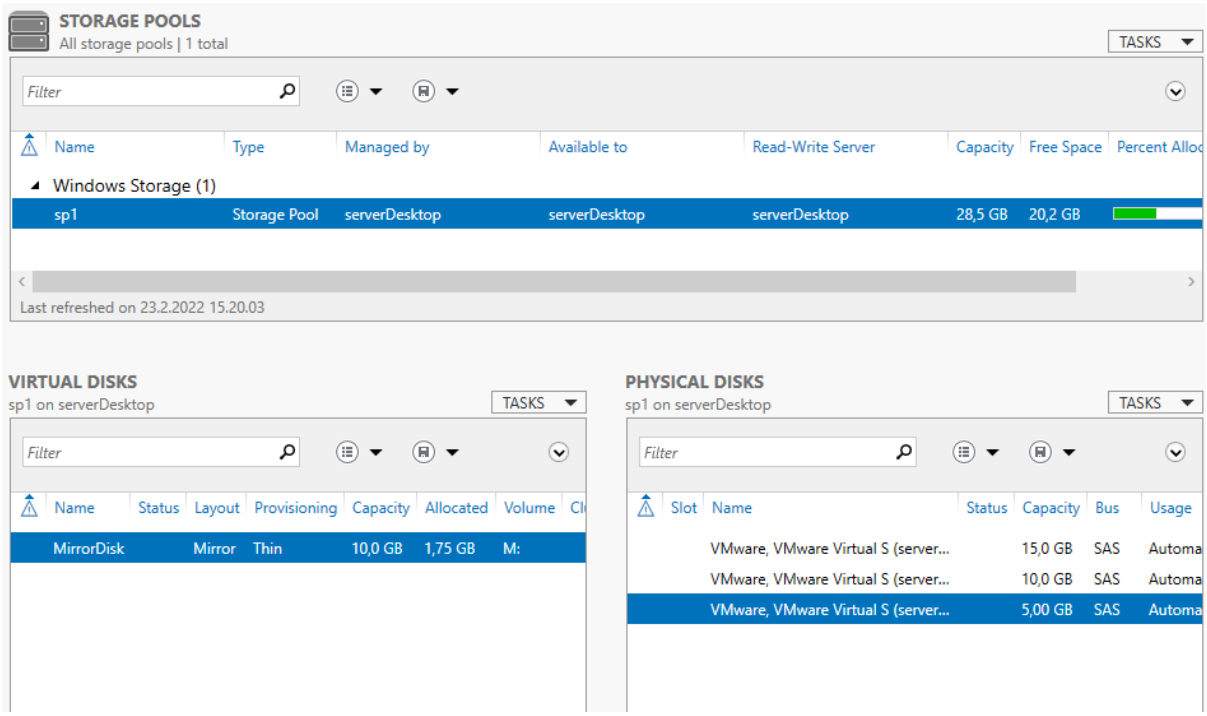
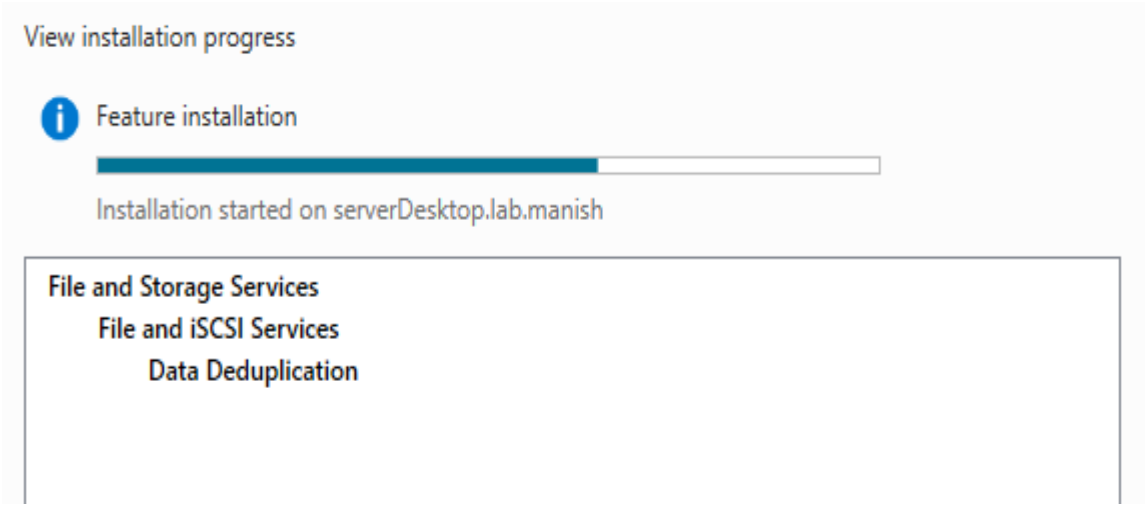


Figure: Mirrored Disks created

The data deduplication feature was installed on the serverDesktop.



The iSCSI target disk was configured on the serverDesktop and iSCSI initiator on the other server.

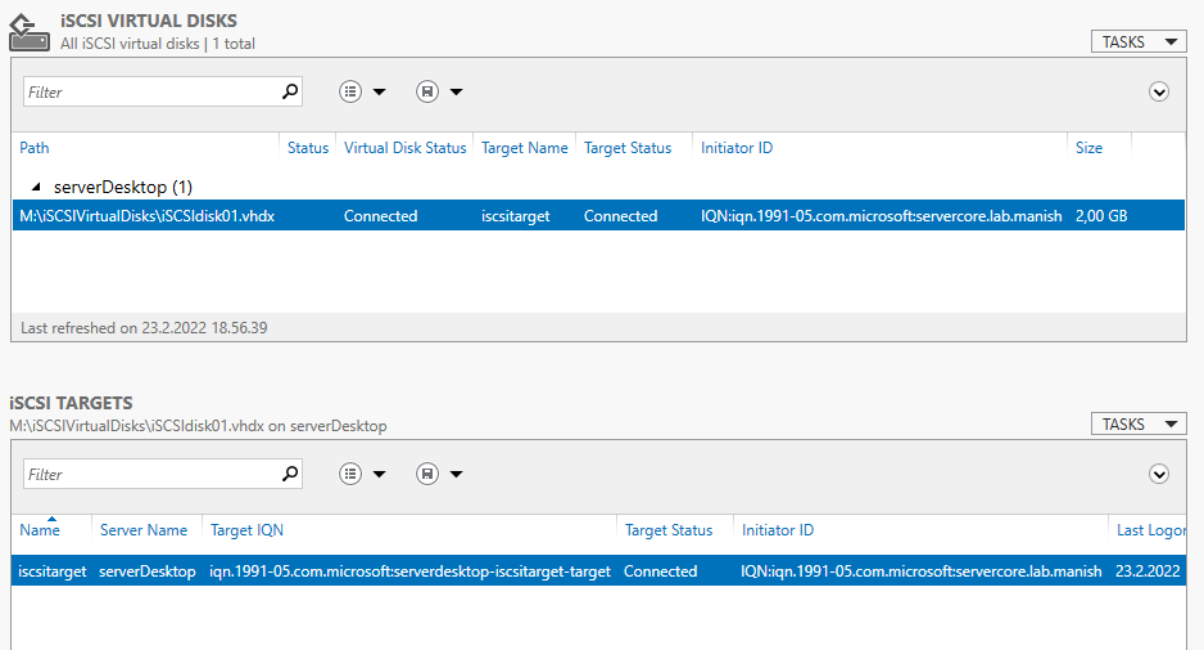


Figure: iSCSI target and initiator configured

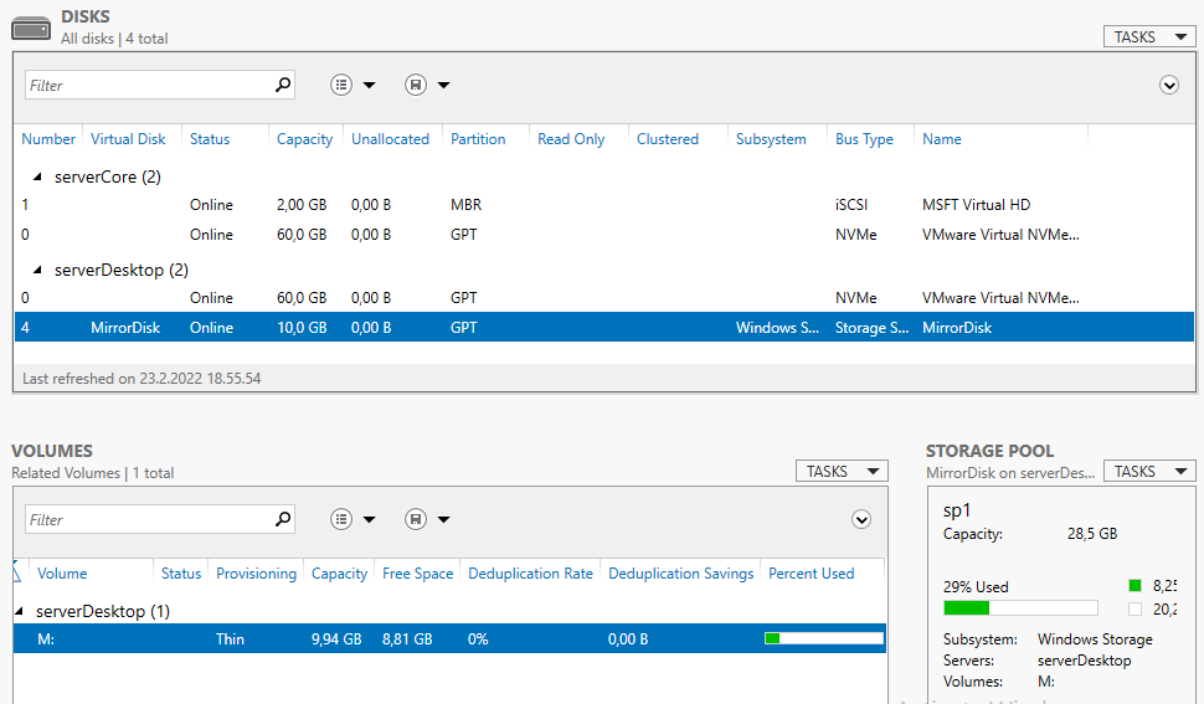


Figure: File and Storage Services\Disks - window showing both servers and the disks

Advanced Security Settings windows for the shared folder (showing permissions)

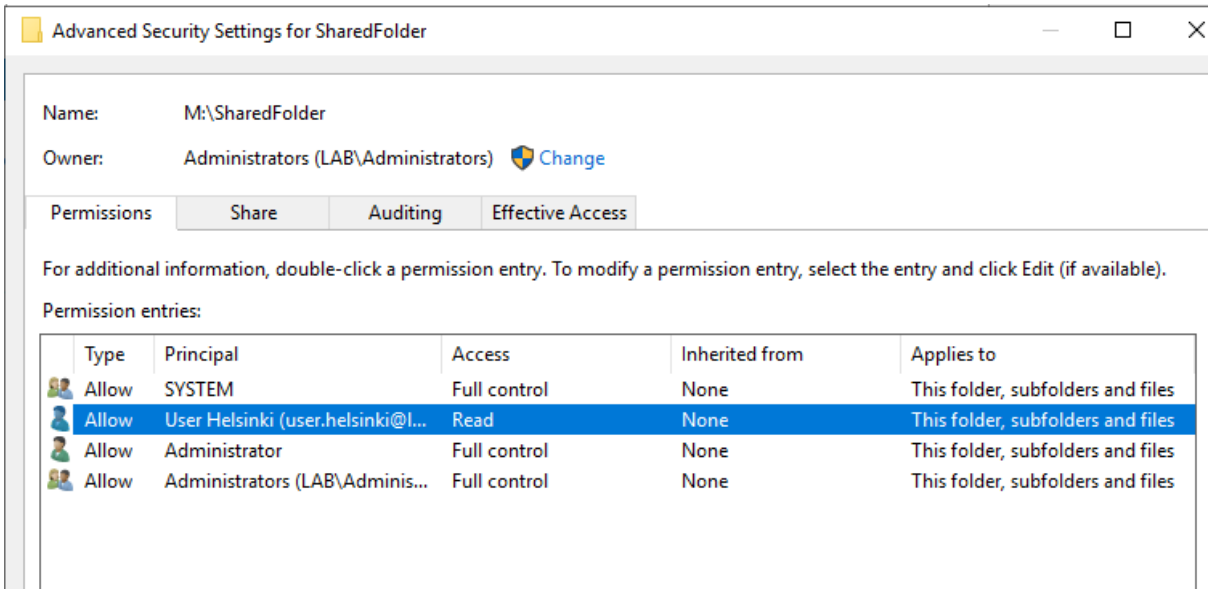


Figure: Permissions for SharedFolder

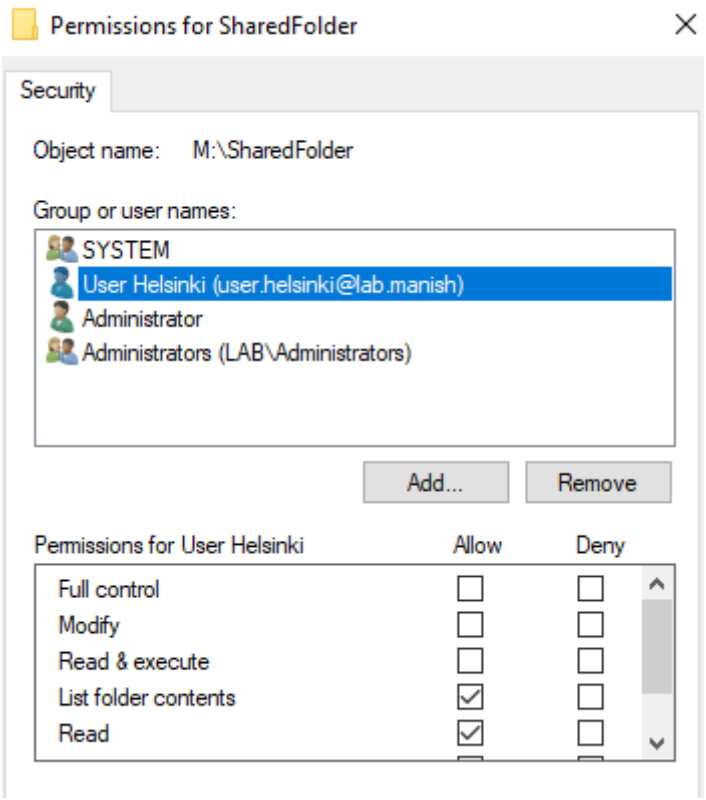


Figure: Permissions for SharedFolder

The shared folder is now visible in the Windows 10 workstation

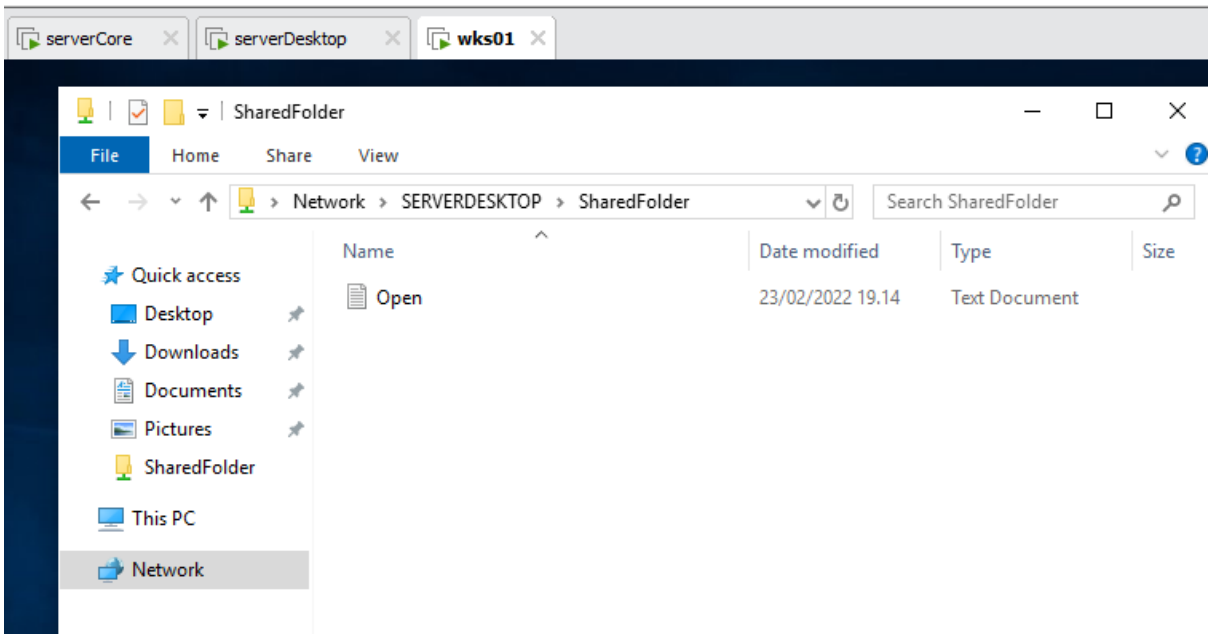


Figure: File explorer – windows 10

Conclusion and Reflections

Storage pool can be created from multiple disks.

Data deduplication feature optimizes the storage by compressing the duplicate data and reducing space usage.

In real-life environment, it is not a good practice to configure all the features on the same server.

There are 2 sets of permissions for file systems: share permissions and NTFS permissions. To access the shared files, both permissions must allow access.

All the users in the environment with trusted accounts are authenticated users.

iSCSI – Internet Small Computer Systems Interface transmits blocks over TCP/IP

CHAP – Challenge Handshake Authentication Protocol periodically verifies the identity of the client by using a three-way handshake