10

Managing Shared Data

In this chapter, we cover the following recipes:

* Managing NTFS files and folders
* Setting up and Securing an SMB File Server
* Creating and Securing SMB Shares
* Accessing SMB Shares
* Creating an iSCSI Target
* Using an ISCSI Target
* Creating a Clustered File Server
* Creating a Scale-Out SMB 3 File Server
* Implementing FSRM Quotas
* Implementing FSRM Reporting
* Implementing DFS Name Space
* Implementing DFS Replication

# Introduction

Sharing data with other users on your network has been a feature of computer operating systems from the very earliest days of networking. This chapter looks at Windows Server 2022 features that enable you to share files and folders and to use the data that you've shared.

Microsoft's LAN Manager was the company's first network offering. It enabled client computers to create, manage, and to share files securely. LAN Manager's protocol to provide this client/server functionality was an early version of the Server Message Block (SMB) protocol.

SMB is a file-level storage protocol running over TCP/IP. SMB enables you to share files and folders securely and reliably. To increase reliability for SMB servers, you can install a cluster and cluster the file server role. A simple cluster solution is an active-passive solution – you have one cluster member sitting by if the other member fails. This solution works great as long as the underlying data is accessible. The Scale-Out File Server (SOFS) is a clustering-based solution that is active-active. Both nodes of the cluster can serve cluster clients.

This chapter shows you how to implement and leverage the features of sharing data between systems in Windows Server 2022.

In the first recipe, Managing NTFS File and Folder Permissions, you use the NTFS Security 3rd party module to set ACLs and ACL inheritance for files held in NTFS from SRV1. In the following recipe, Setting up and Securing an SMB file server, you deploy a hardened SMB file server. You run that recipe SRV2.

iSCSI is a popular Storage Area Networking (SAN) technology. Many SAN vendors provide iSCSI as a way to access data stored in a SAN. There are two aspects to iSCSI: the server (the iSCSI target) and the client (the iSCSI initiator). With the Creating an iSCSI Target recipe, you create an iSCSI target on the SS1 server, while in the Using an iSCSI target recipe, you make use of that shared iSCSI disk from SRV1 and SRV2.

To increase a file server's performance and resiliency, you can deploy a basic cluster and cluster the file-sharing role. You see this in Creating a Clustered File Server recipe which you run using SRV1 and SRV2.

To further improve resilience, reliability, and performance, you can deploy a Scale-Out File Server (SOFS). A SOFS is a solution based on Windows Server fail-over clustering and SMB3. A SOFS is simple to deploy, as you can see in Creating a Scale-out SMB 3 File Server.

File System Resource Manager (FSRM) is a Windows Server feature designed to help you manage file servers.

The chapter completes with an examination of the Distributed File System (DFS). There are two distinct features under the banner of the DFS. DFS Namespaces allows you to create a logical folder structure that you distribute across multiple computers. DFS Replication replicates DFS target folders' data to provide a transparent, fault-tolerant, and load-balancing DFS implementation. Note that DFS Replication is separate from the Storage Replica feature discussed in Chapter 9, Managing Windows Storage.

In the Configuring a DFS Namespace recipe, you'll set up a domain-based DFS Namespace.  
And then, you configure and set up DFS Replication in the Configuring DFS Replication recipe.

Several servers are involved in the recipes in this chapter—each recipe describes the specific server(s) you use for that recipe. As with other chapters, all the servers are members of the Reskit.Org domain on which you have loaded PowerShell 7 and VS Code. You can install them by using the Reskit.Org setup scripts on GitHub.

# Managing NTFS File and Folder Permissions

## Getting Ready

This recipe uses SRV1, a domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also should have DC1 online.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...

# Setting up and Securing an SMB File Server

## Getting Ready

This recipe uses SRV1, a domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV2 and should have DC1 online.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...

# Creating and Securing SMB Shares

## Getting Ready

This recipe uses SRV1, a domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV2 and should have DC1 online.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...

# Accessing SMB Shares

## Getting Ready

This recipe uses SRV2, a domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV1 and should have DC1 online. You previously created SMB shares on SRV1 which you use in this recipe.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

**Insert image B42024\_09\_10.png**

## There's more...

# Creating an iSCSI Target

## Getting Ready

This recipe uses SS1, a (new to this book) domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...

# Using an ISCSI Target

## Getting Ready

This recipe uses SRV1 and SRV2, a domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV2 and should have DC1 online.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

**Insert image B42024\_09\_10.png**

## There's more...

# Creating a Clustered File Server

## Getting Ready

This recipe uses SRV1, SRV2, domain-joined hosts in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SS1 and should have DC1 online. You previously created and tested an iSCSI target on SS1.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...

# Creating a Scale-out SMB 3 File Server

## Getting Ready

This recipe uses SRV1 and SRV2, domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV2 and should have DC1 online. You previously clustered SRV1 and SRV2. In this recipe you create a Scale-out SMB 3 cluster.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

**Insert image B42024\_09\_10.png**

## There's more...

# Implementing FSRM Quotas

## Getting Ready

This recipe uses SRV1, a domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV2 and should have DC1 online.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...

# Implementing FSRM Reporting

## Getting Ready

This recipe uses SRV1, a domain-joined host in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV2 and should have DC1 online.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...

# Implementing DFS Name Space

## Getting Ready

This recipe uses DC1, DC2, SRV1, and SRV2, domain-joined hosts in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV2 and should have DC1 online.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...

# Implementing DFS Replication

## Getting Ready

This recipe uses DC1, DC2, SRV1, and SRV2, domain-joined hosts in the Reskit.Org domain, on which you have installed PowerShell 7 and VS Code. You also use SRV2 and should have DC1 online.

## How to do it...

## How it works...



Figure 9.10: Viewing all the disks in SRV1

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## There's more...