ISHIK UNIVERSITY
2008

Department of Information Technology

Lesson 4: Configuring File and Share Access

Server Management

Zina Yaaqub

Overview

- Configure File and Share Access
- Designing a File Sharing Strategy
- Creating Folder Shares
- Assigning Permissions
- Configure Print and Document Services
- Deploying a Print Server
- Using the Print and Document Services Role

Designing a File-Sharing Strategy

Why store user files on shared server drives?

- To enable users to collaborate on projects by sharing files
- To back up document files more easily
- To protect company information by controlling access to documents
- To reduce the number of shares needed on the network

Controlling Access

- The principle of "least privileges" states that users should have only the privileges they need to perform their required tasks and no more.
- Users should have complete access and control of their own files and no privileges to others' private files.
- Users should have complete control of their own Public folder, but limited access to others'.
- Administrators should have privileges to have full control over users' private and public folders.

Controlling Access

- Always assign permissions to security groups, not to individuals.
- Utilize domain local groups and global or universal groups to simplify administration of permissions.
- In special cases, use the Deny Access NTFS permission to override assigned permissions.

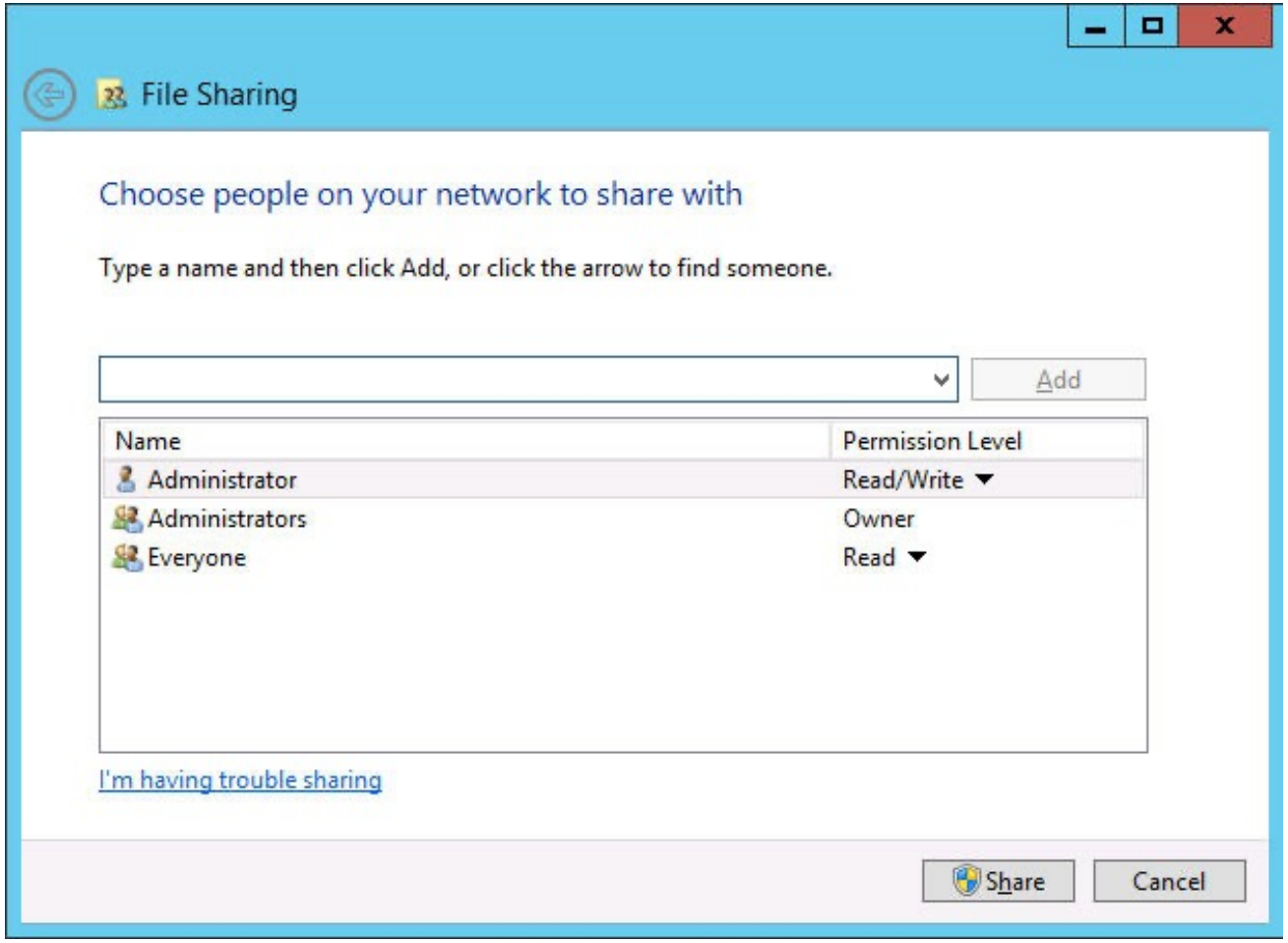
Creating Folder Shares

- Shares must be created in order for network users to be able to access the disks on the servers. You must determine:
  - What folders you will share
  - What names you will assign to the shares
  - What permissions you will grant users to the shares
  - What Offline Files settings you will use for the shares

Creator/Owner

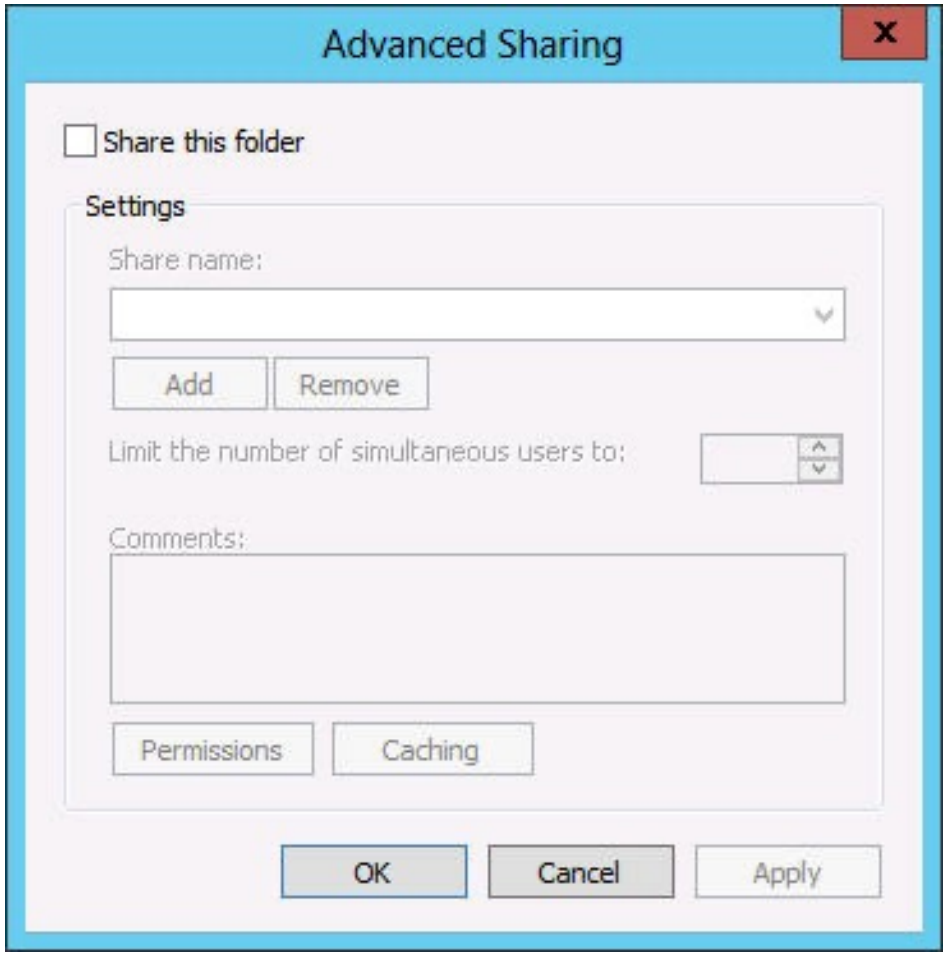
- You can share your own folders.
- Right-click and select **Share with > Specific People** to access a simplified interface.
- Use **Sharing** tab of the folder's Properties sheet for greater control.

Creating Folder Shares



The File Sharing dialog box

Creating Folder Shares

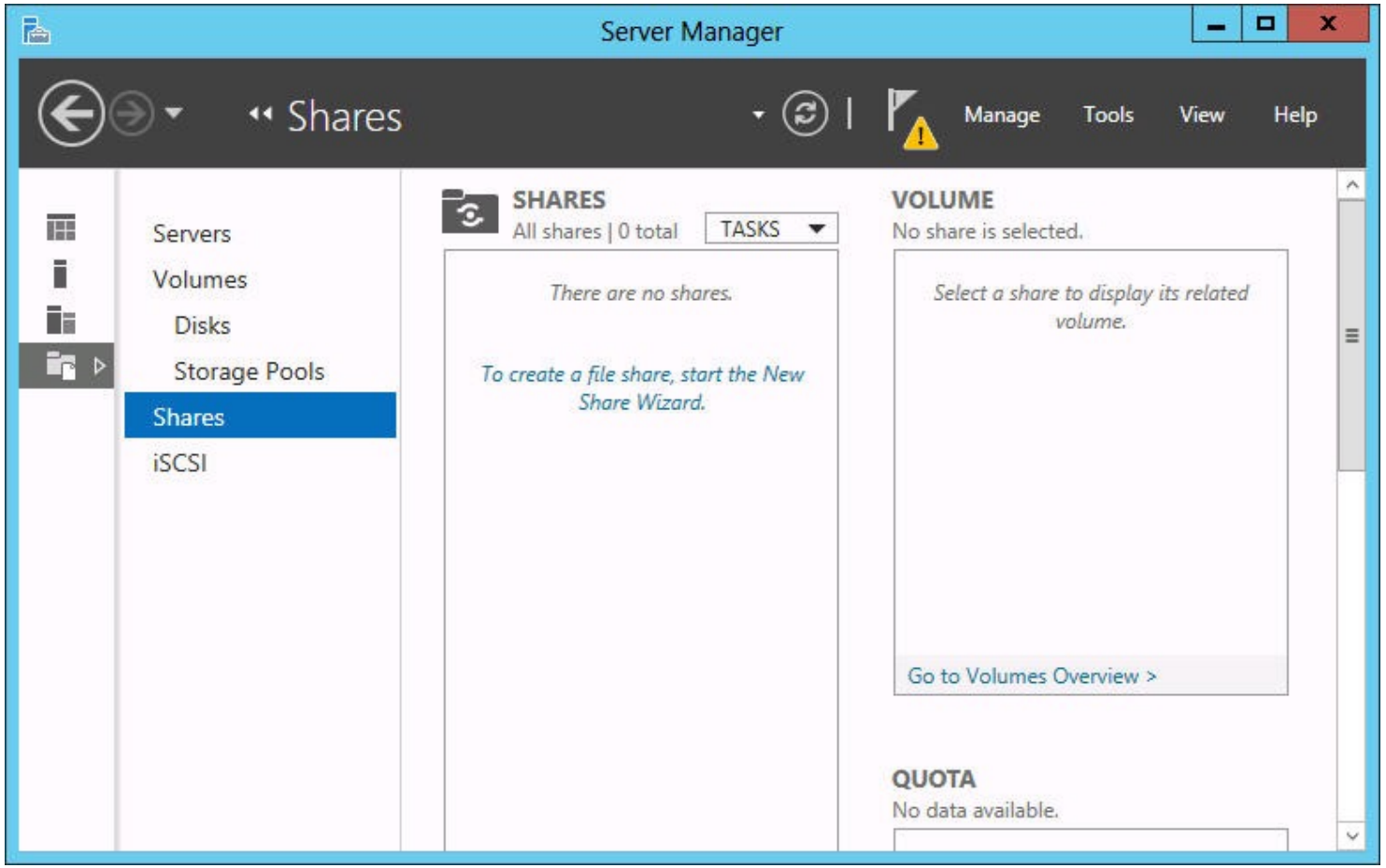


The Advanced Sharing dialog box

Types of Folder Shares

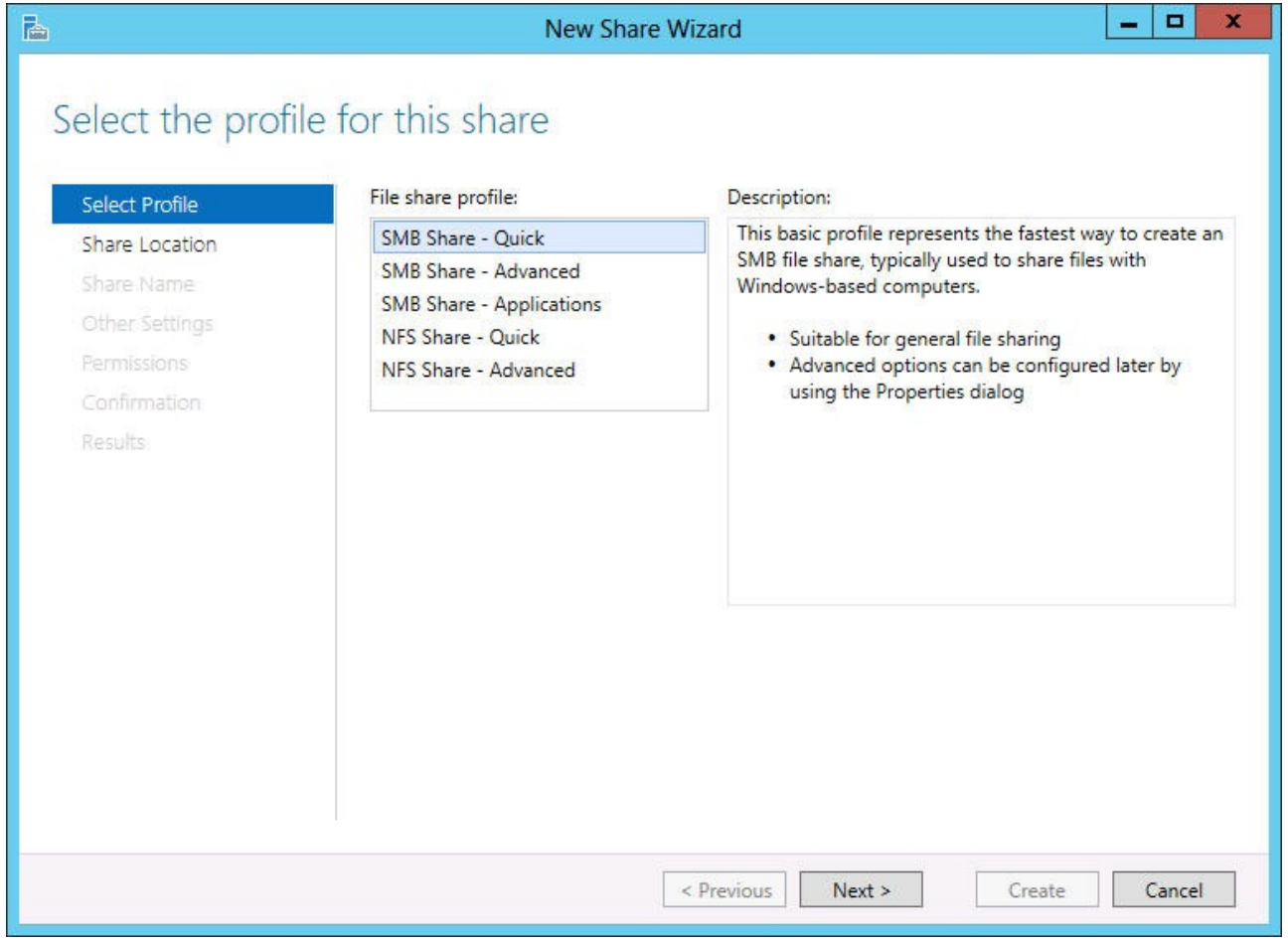
- **Server Message Blocks (SMB)**
  - The standard file-sharing protocol used by all versions of Windows.
  - Requires the File Server role service.
- **Network File System (NFS)**
  - The standard file sharing protocol used by most UNIX and Linux distributions.
  - Requires the Server for NFS role service.

Create a Folder Share



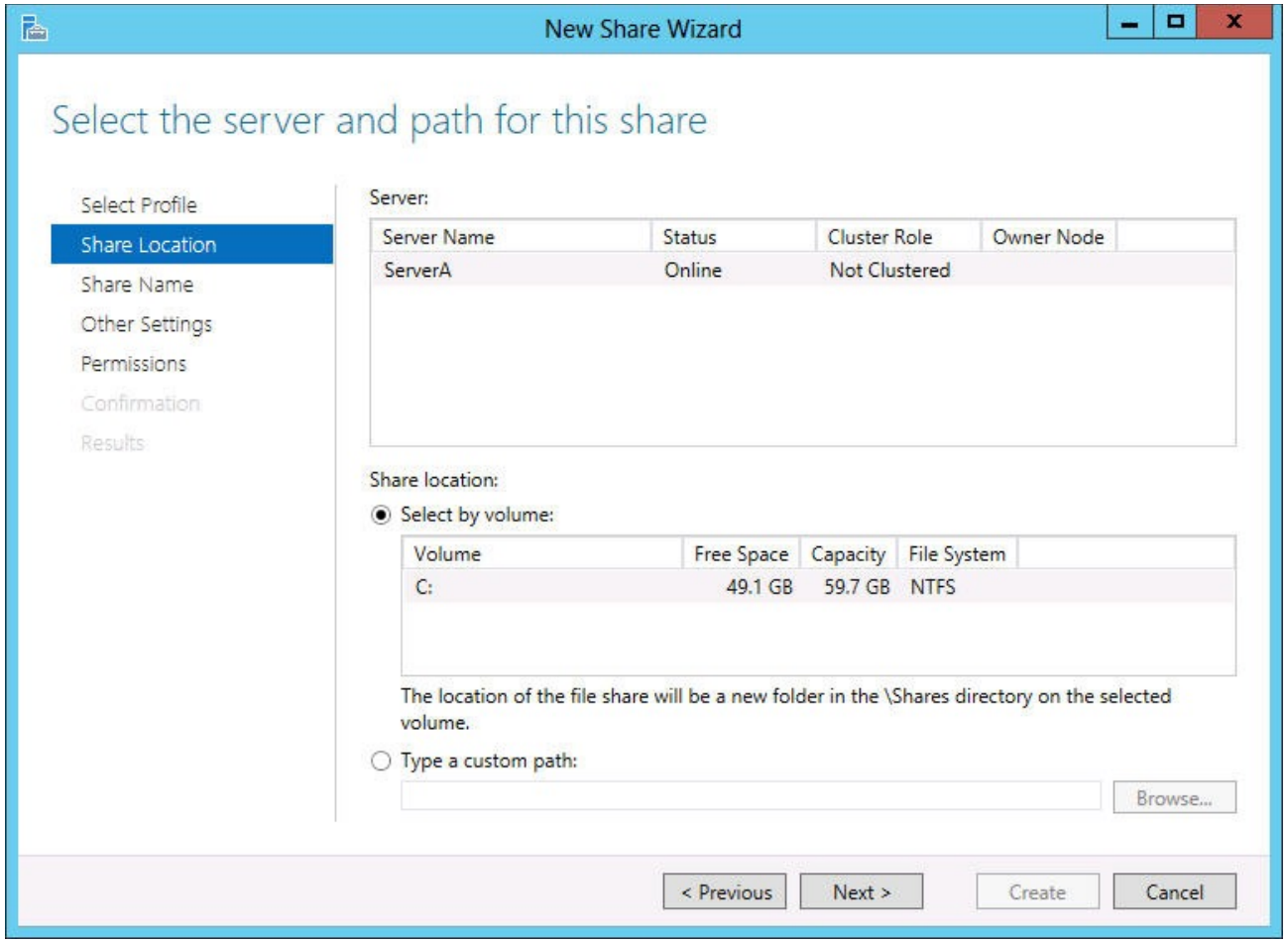
The Shares homepage

Create a Folder Share



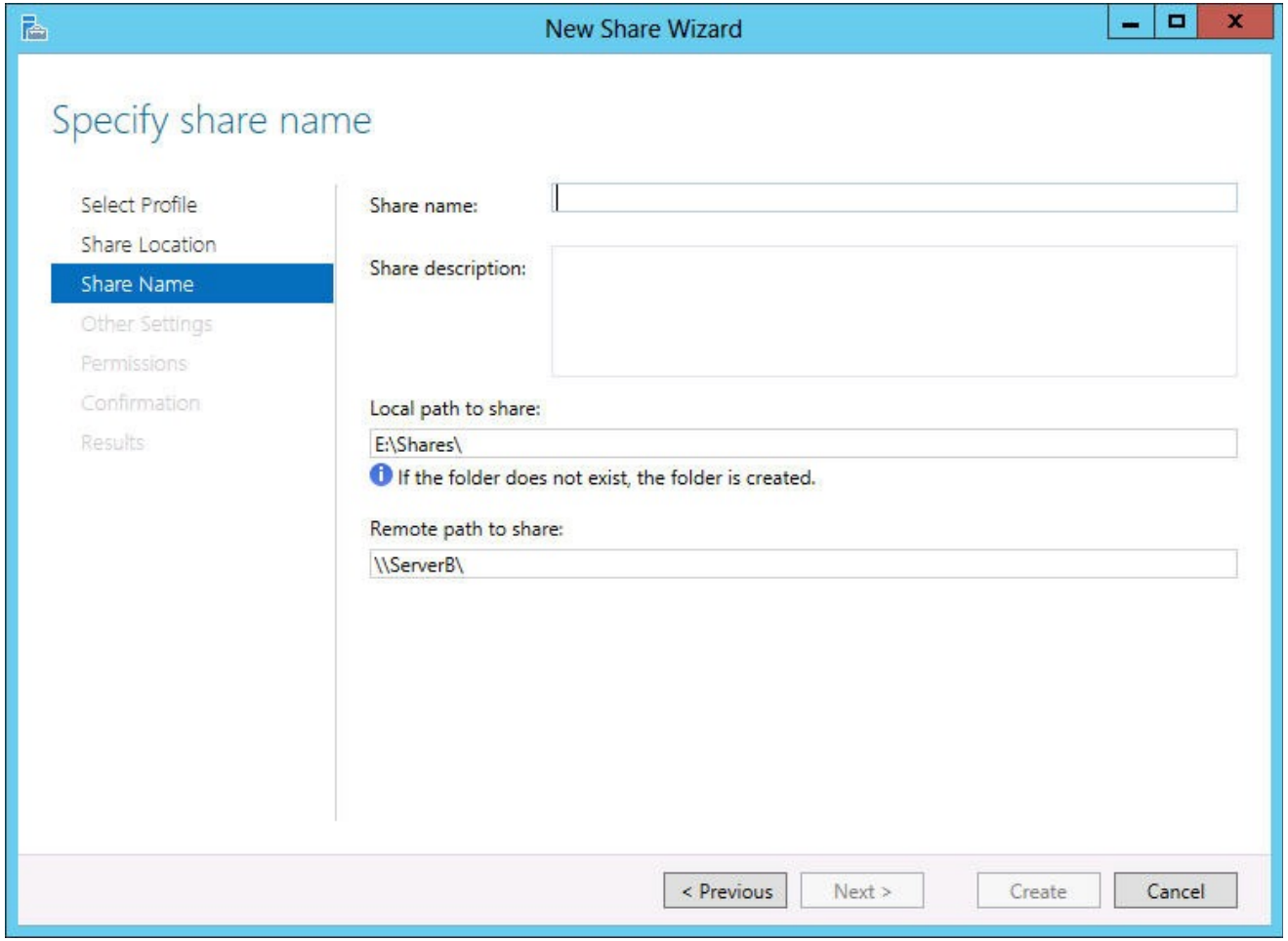
The Select the profile for this share page in the New Share Wizard

Create a Folder Share



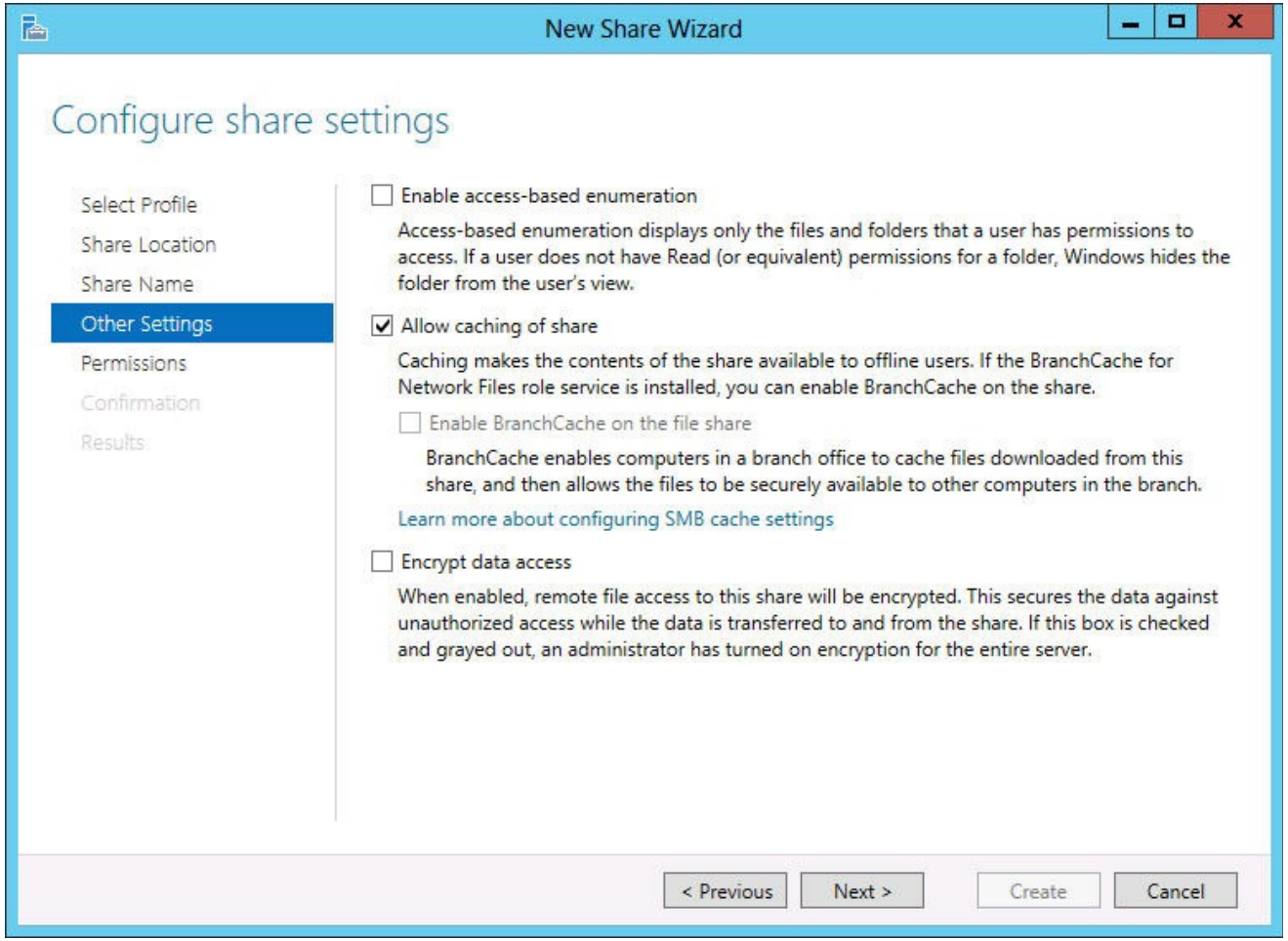
The Select the server and path for this share page of the New Share Wizard

Create a Folder Share



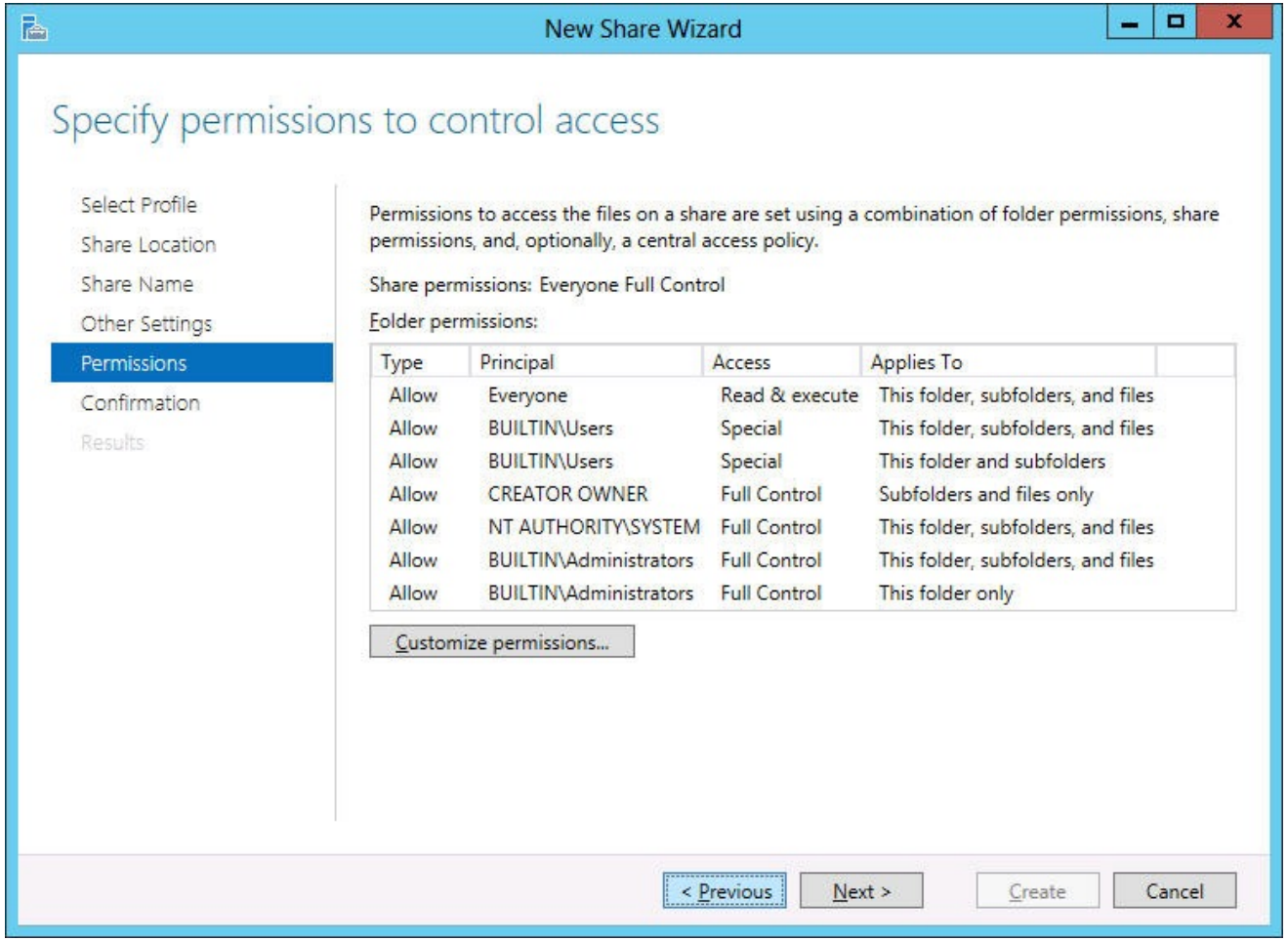
The Specify share name page of the New Share Wizard

Create a Folder Share



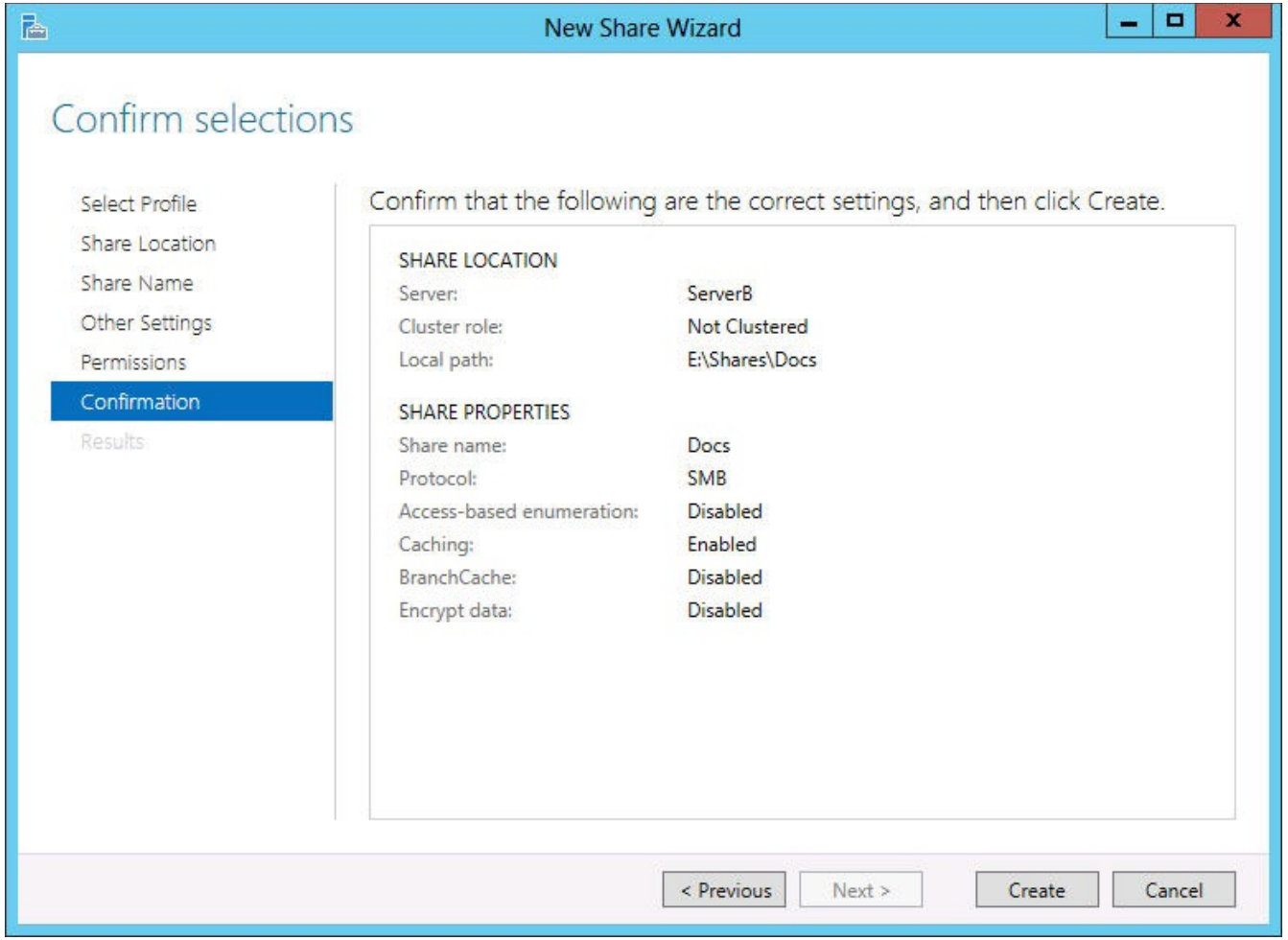
The Configure share settings page of the New Share Wizard

Create a Folder Share



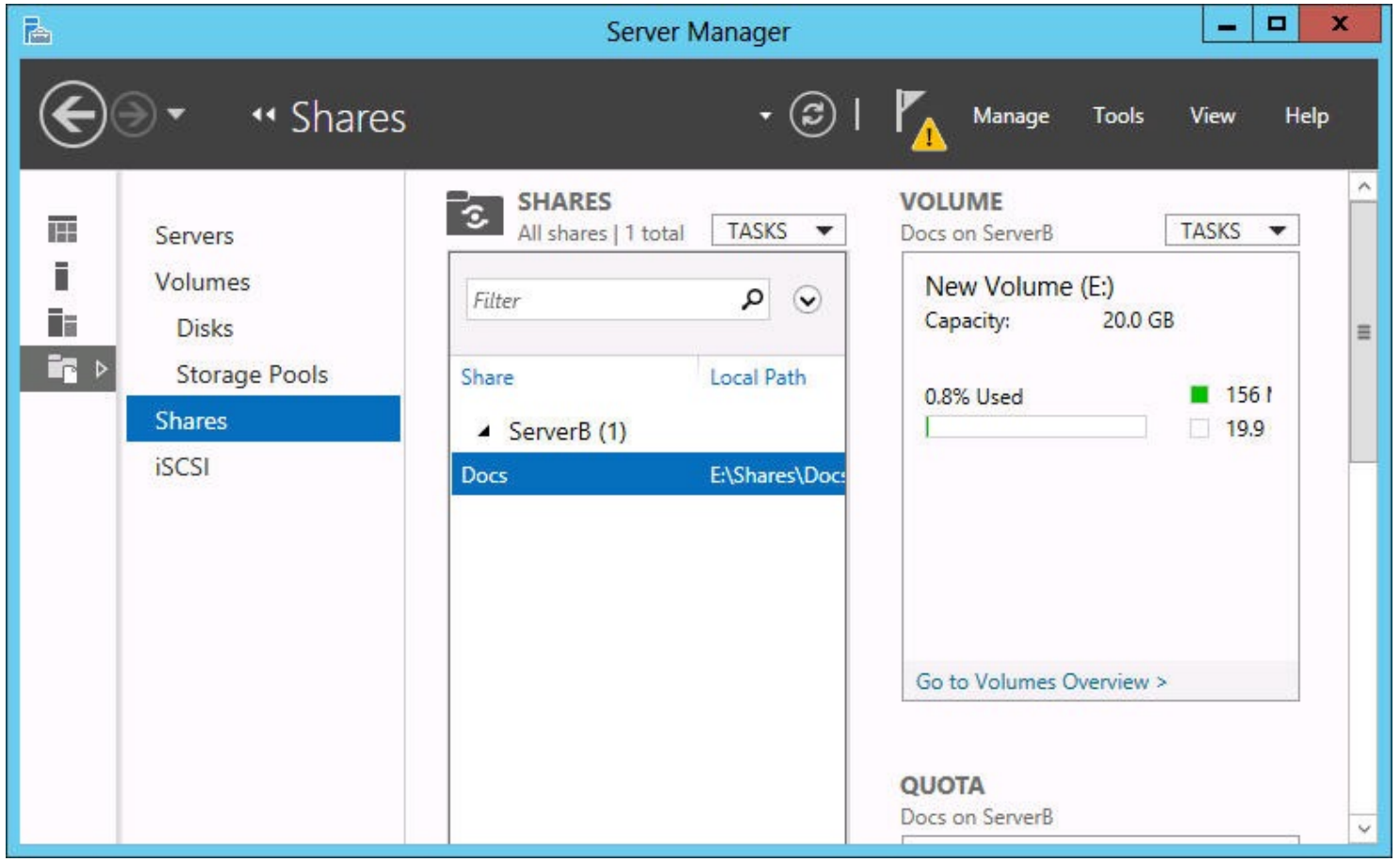
The Specify permissions to control access page of the New Share Wizard

Create a Folder Share



The Confirm selections page of the New Share Wizard

Create a Folder Share



The new share on the Shares homepage in Server Manager

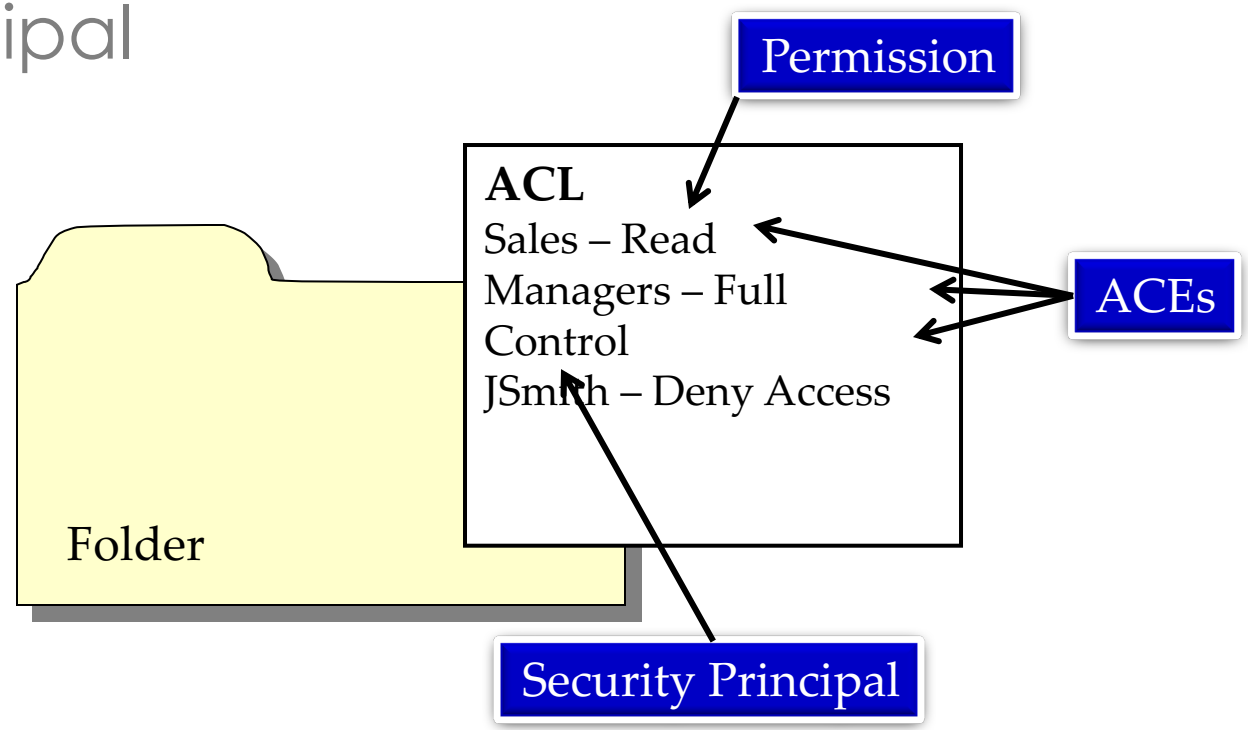
Assigning Permissions

The four permissions systems:

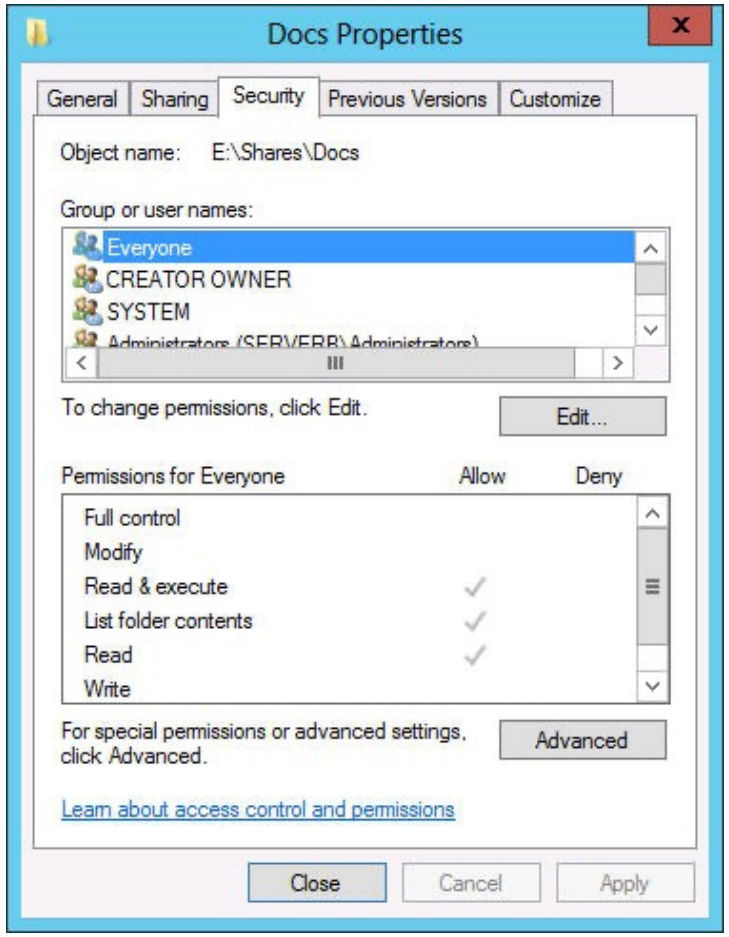
- **Share permissions:** Control access to folders over a network.
- **NTFS permissions:** Control access to the files and folders stored on disk volumes formatted with the NTFS file system.
- **Registry permissions:** Control access to specific parts of the Windows registry.
- **Active Directory permissions:** Control access to specific parts of an Active Directory Domain Services (AD DS) hierarchy.

Windows Permissions Architecture

- Access Control List (ACL)
- Access Control Entries (ACEs)
- Security principal



Windows Permissions



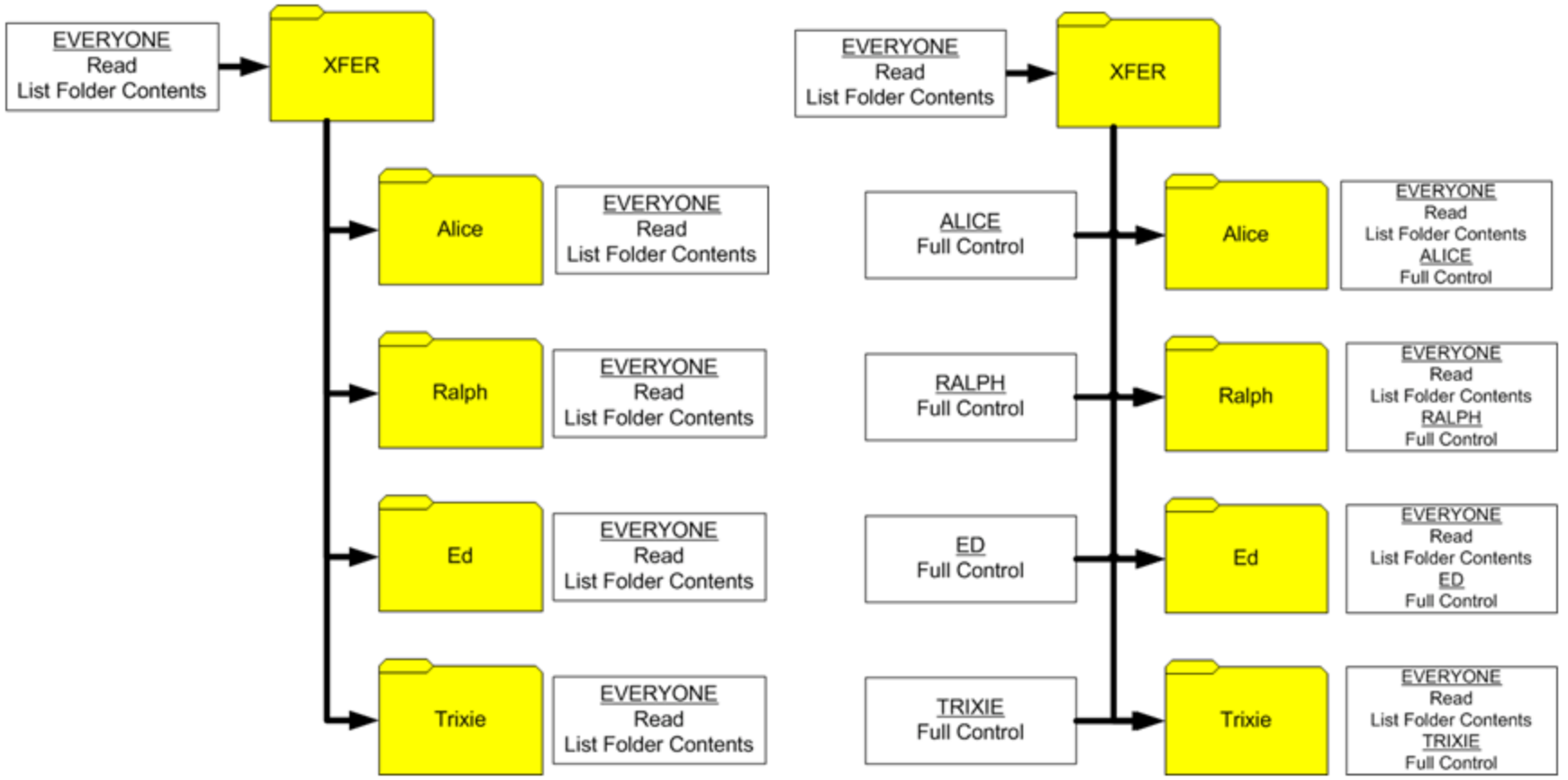
The Security tab of a Properties sheet

Allowing and Denying Permissions

- **Additive**
  - Start with no permissions and then grant Allow permissions (preferred method).
- **Subtractive**
  - Start by granting Allow permissions and then grant Deny permissions.

Inheriting Permissions

Permissions run downward through a hierarchy

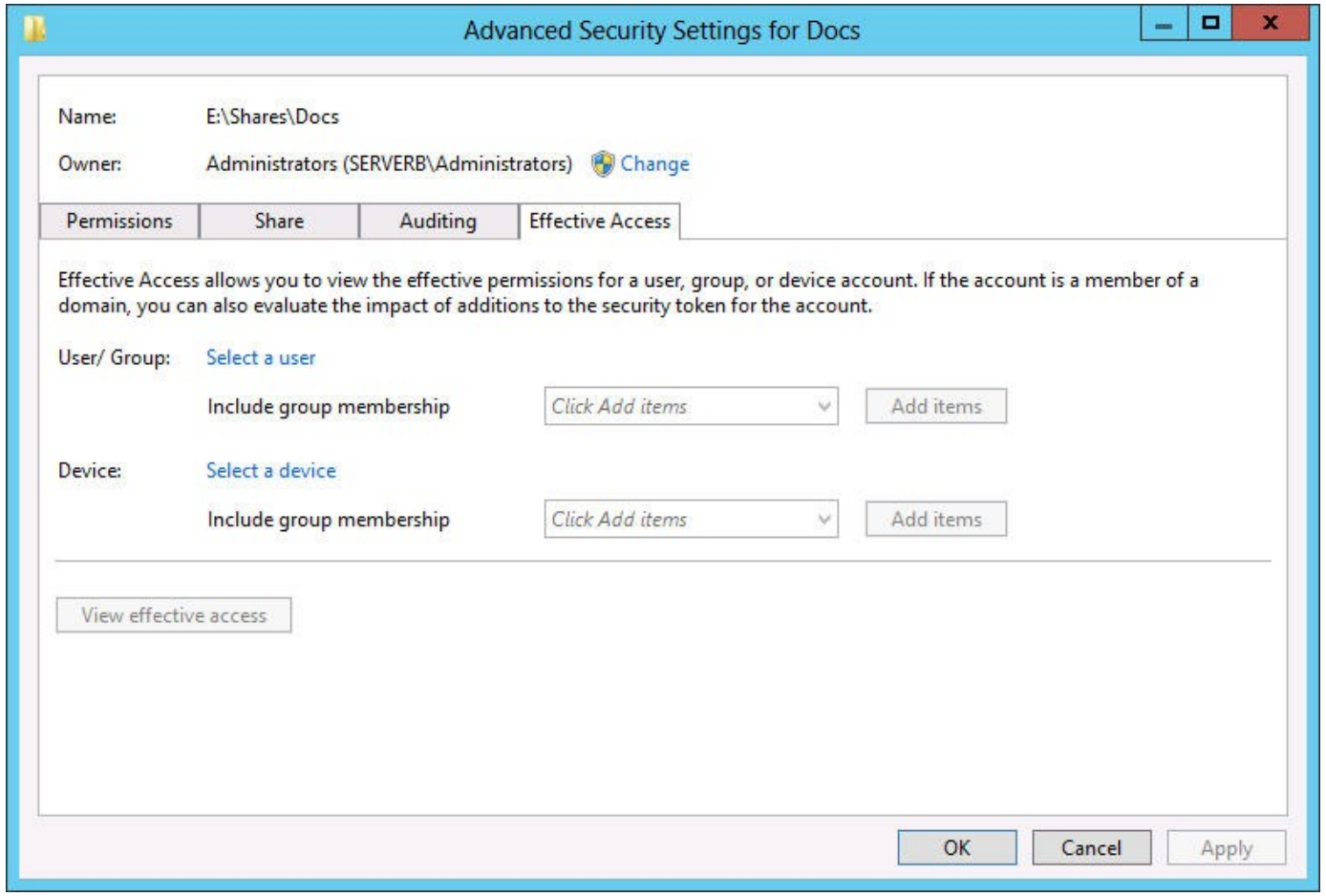


Effective Access

The combination of Allow permissions and Deny permissions that a security principal receives for a system element:

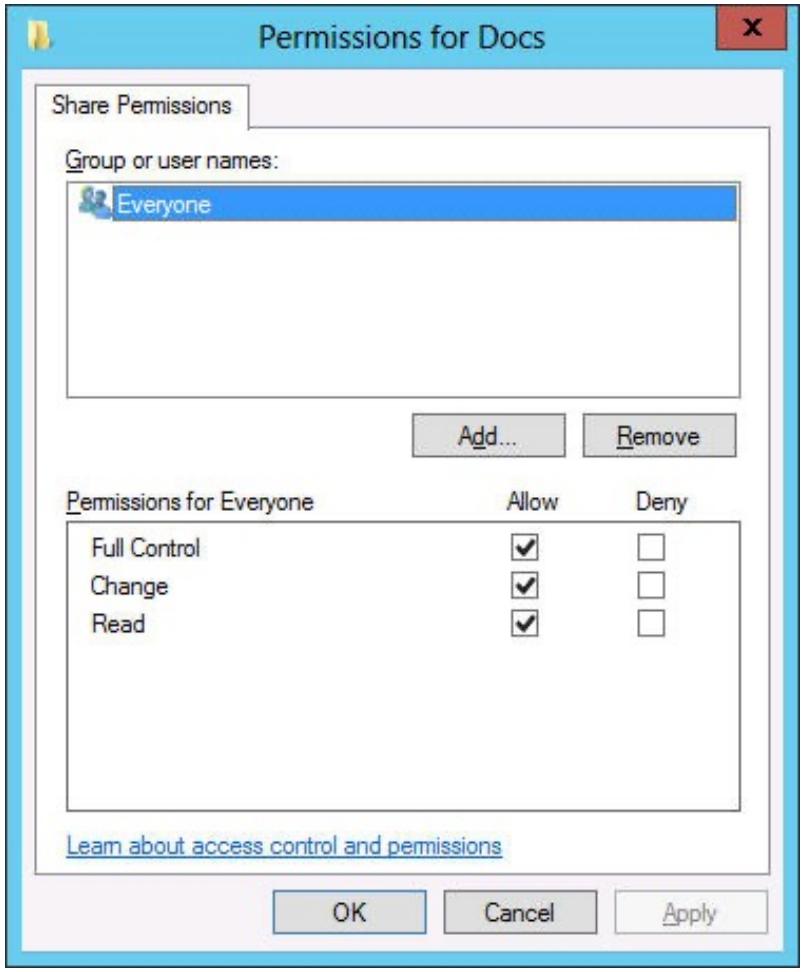
- Allow permissions are cumulative.
- Deny permissions override Allow permissions.
- Explicit permissions take precedence over inherited permissions.

Effective Access



The Effective Access tab of the Advanced Security Settings dialog box

Setting Share Permissions

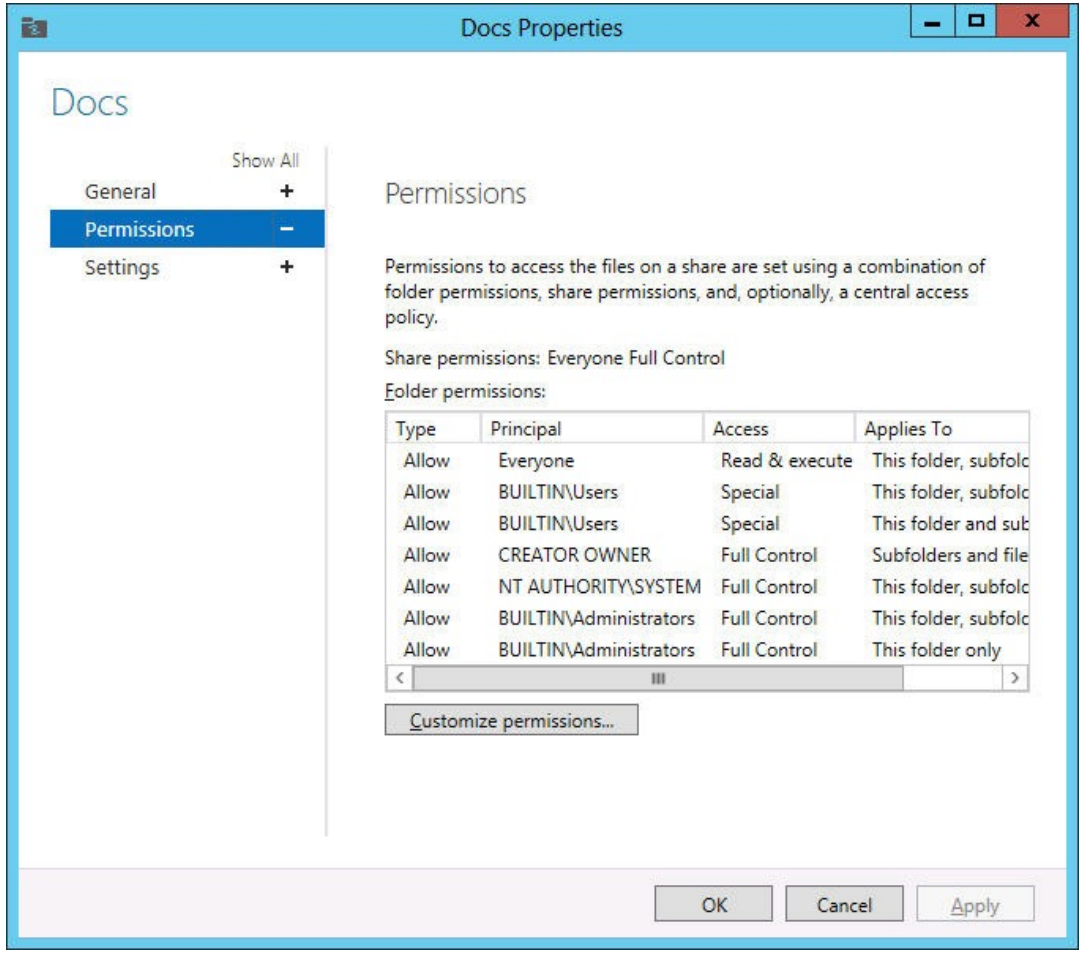


The Share Permissions tab for a shared folder

Share Permissions

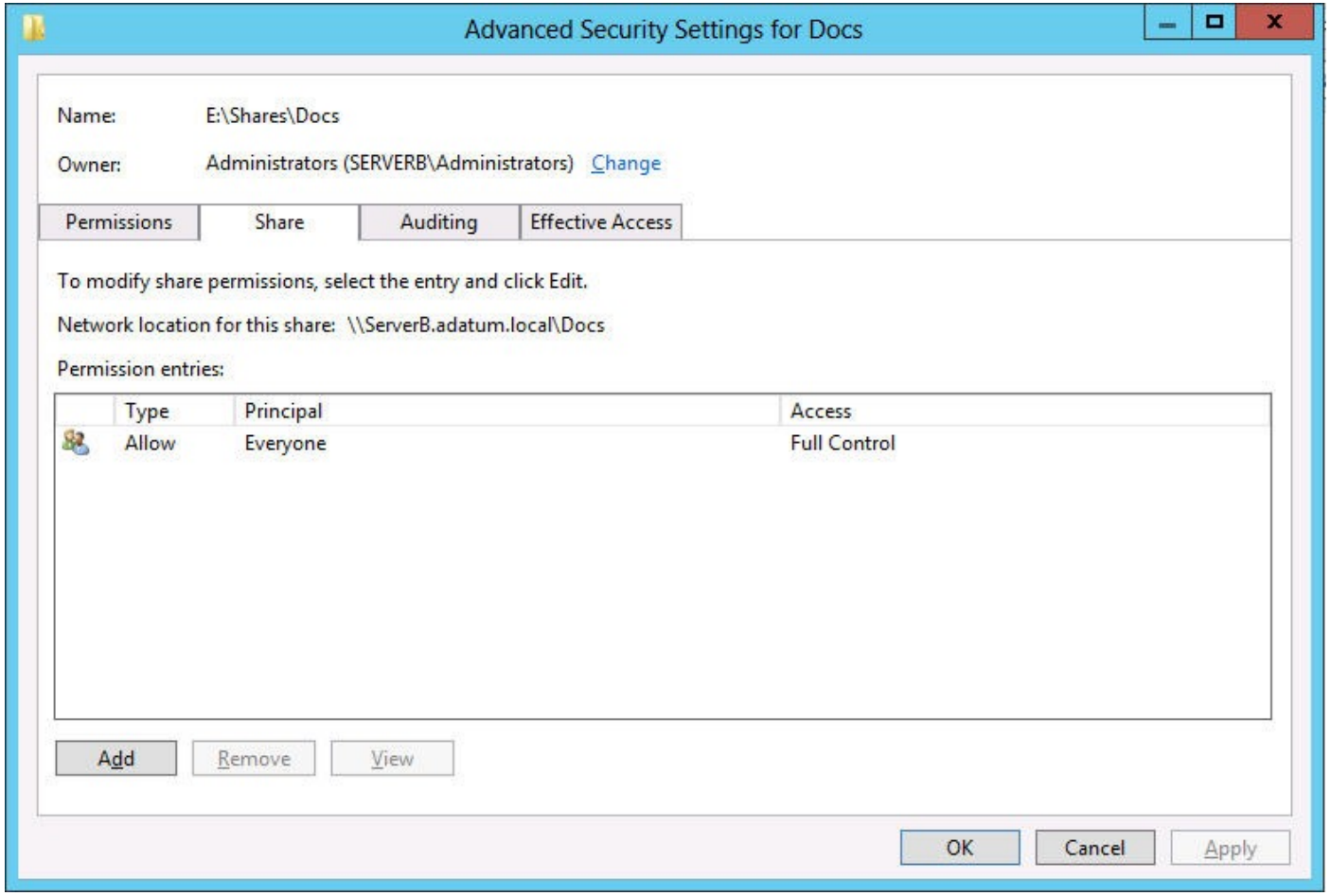
Share permission	***Allows or denies security principals the ability to:***
Full Control	Change file permissions. Take ownership of files. Perform all tasks allowed by the Change permission.
Change	Create folders. Add files to folders. Change data in files. Append data to files. Change file attributes. Delete folders and files. Perform all actions permitted by the Read permission.
Read	Display folder names, filenames, file data, and attributes. Execute program files. Access other folders within the shared folder.

Set Share Permissions



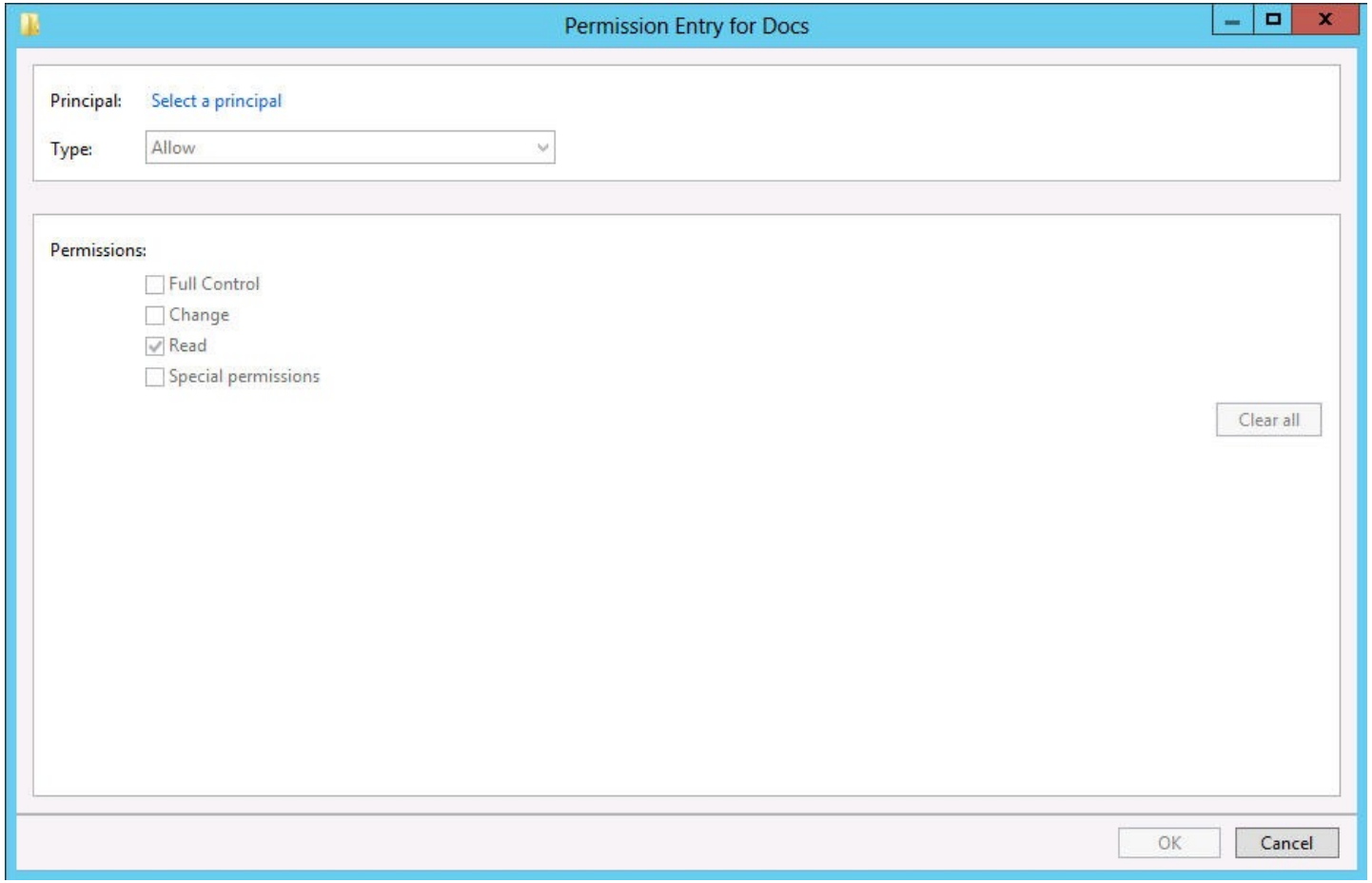
The Permissions page of a share's Properties sheet in Server Manager

Set Share Permissions



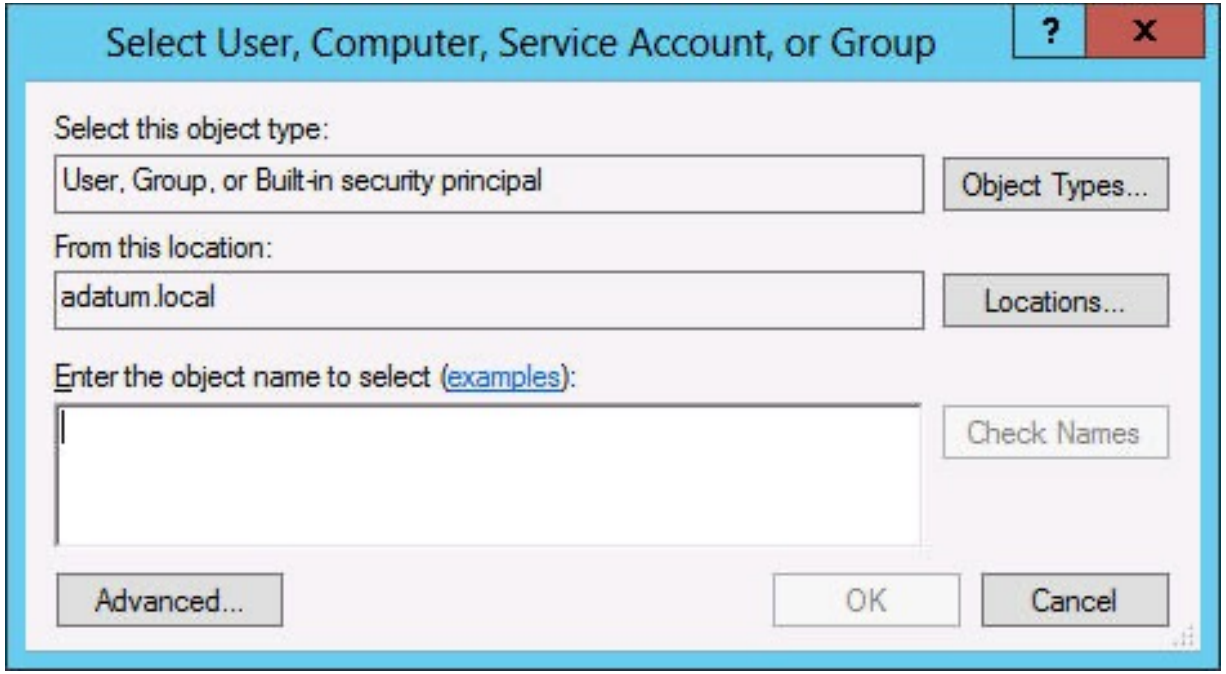
The Share tab of the Advanced Security Settings dialog box for a share in Server Manager

Set Share Permissions



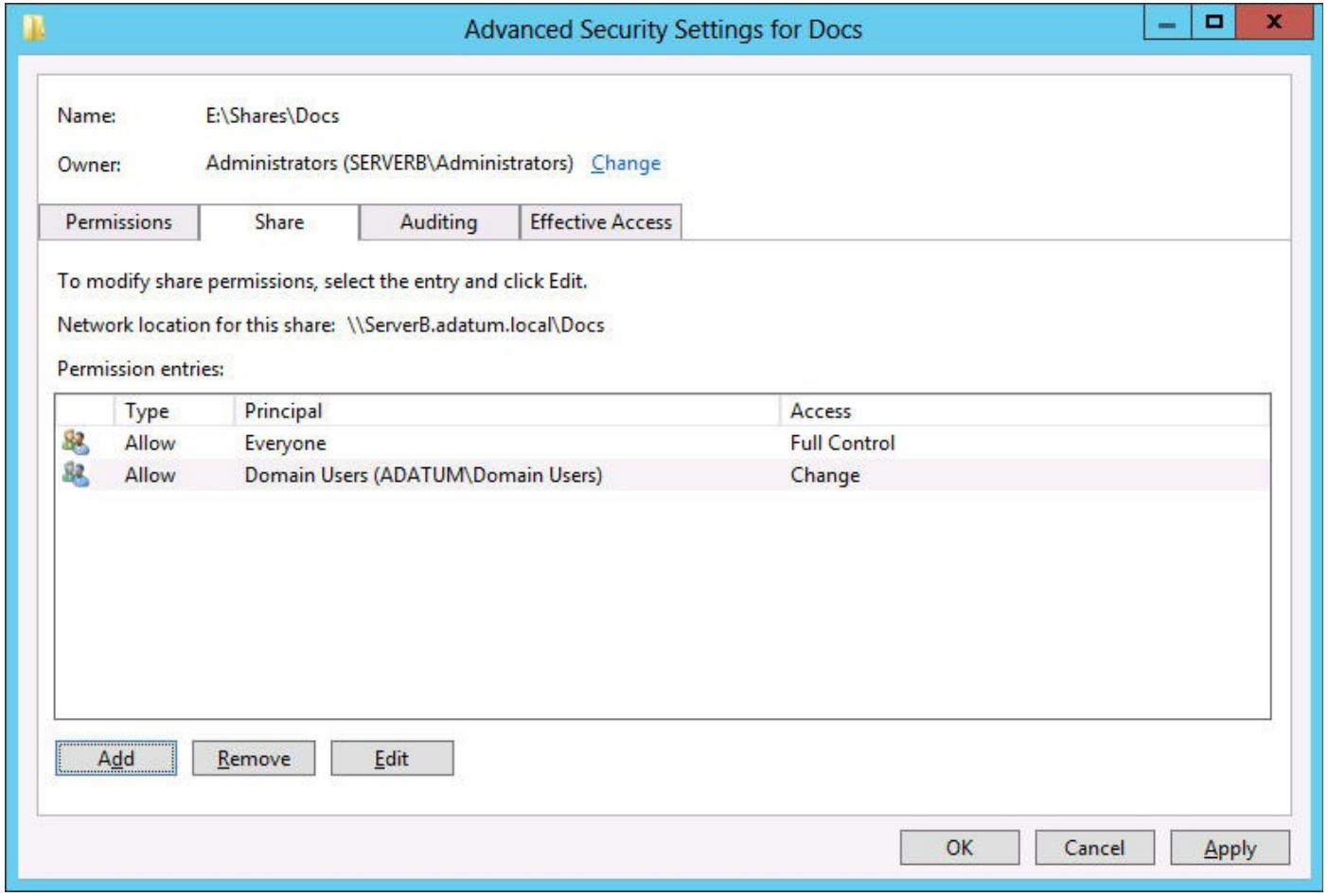
A Permission Entry dialog box for a share in Server Manager

Set Share Permissions



The Select User, Computer, Service Account, or Group dialog box

Set Share Permission



A new share permission entry in a share's access control list

NTFS Authorization

- NTFS and ReFS support permissions.
- Every file and folder on an NTFS or ReFS drive has an ACL with ACEs, each of which contains a security principal and their permissions.
- Security Principals are users and groups identified by Windows using **security identifiers (SIDs).**
- During **authorization**, when a user accesses a file/folder, the system compares the user's SIDs to those stored in the element's ACEs to determine that user's access.

NTFS Basic Permissions—Full Control

Folder

- Modify the folder permissions.
- Take ownership of the folder.
- Delete subfolders and files contained in the folder.
- Perform all actions associated with all other NTFS folder permissions.

File

- Modify the file permissions.
- Take ownership of the file.
- Perform all actions associated with all other NTFS file permissions.

NTFS Basic Permissions—Modify

Folder

- Delete the folder.
- Perform all actions associated with the Write and the Read & Execute permissions.

File

- Modify the file.
- Delete the file.
- Perform all actions associated with the Write and the Read & Execute permissions.

NTFS Basic Permissions—Read

Folder

- See the files and subfolders contained in the folder.
- View the ownership, permissions, and attributes of the folder.

File

- Read the contents of the file.
- View the ownership, permissions, and attributes of the file.

NTFS Basic Permissions—Write

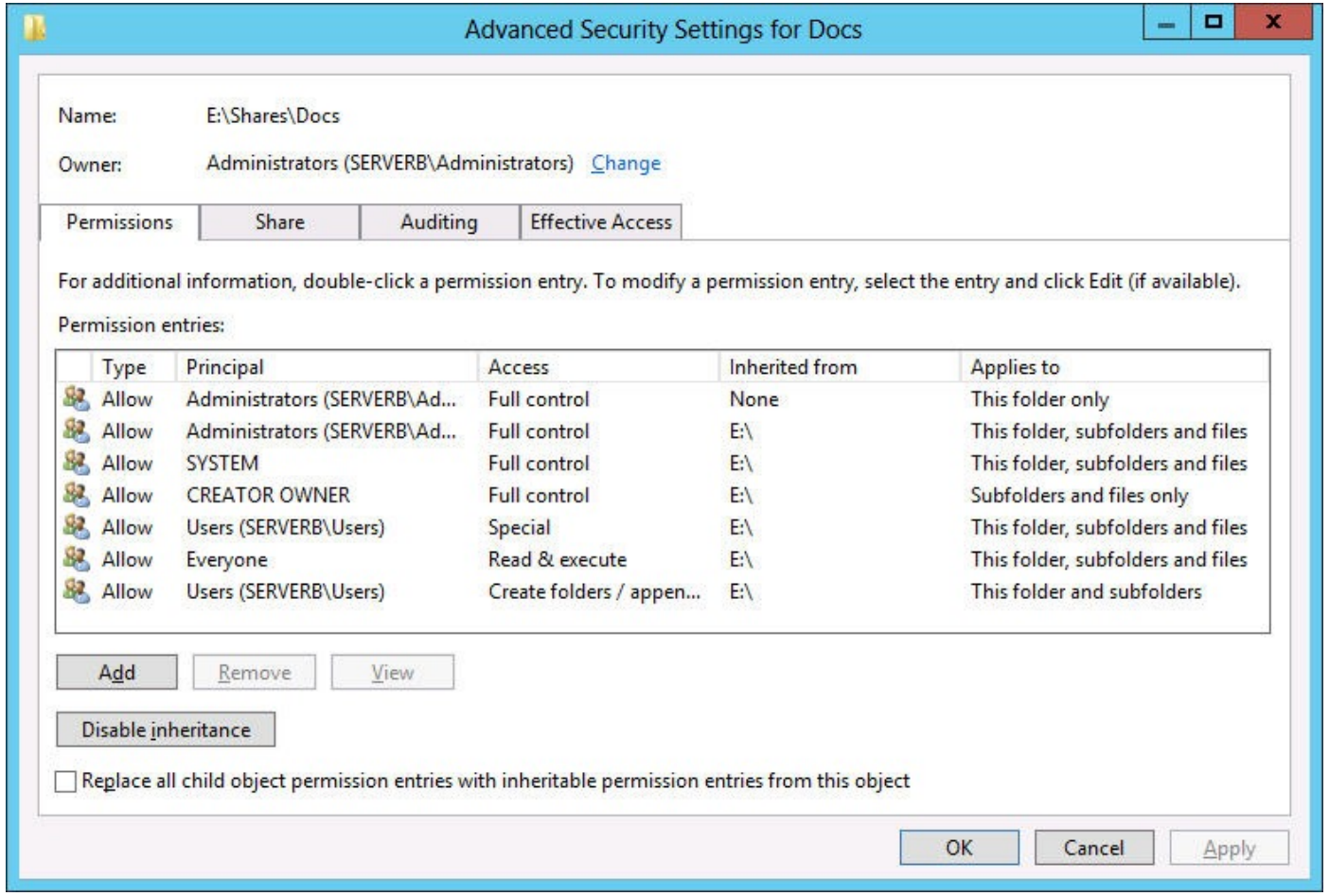
Folder

- Create new files and subfolders inside the folder.
- Modify the folder attributes.
- View the ownership and permissions of the folder.

File

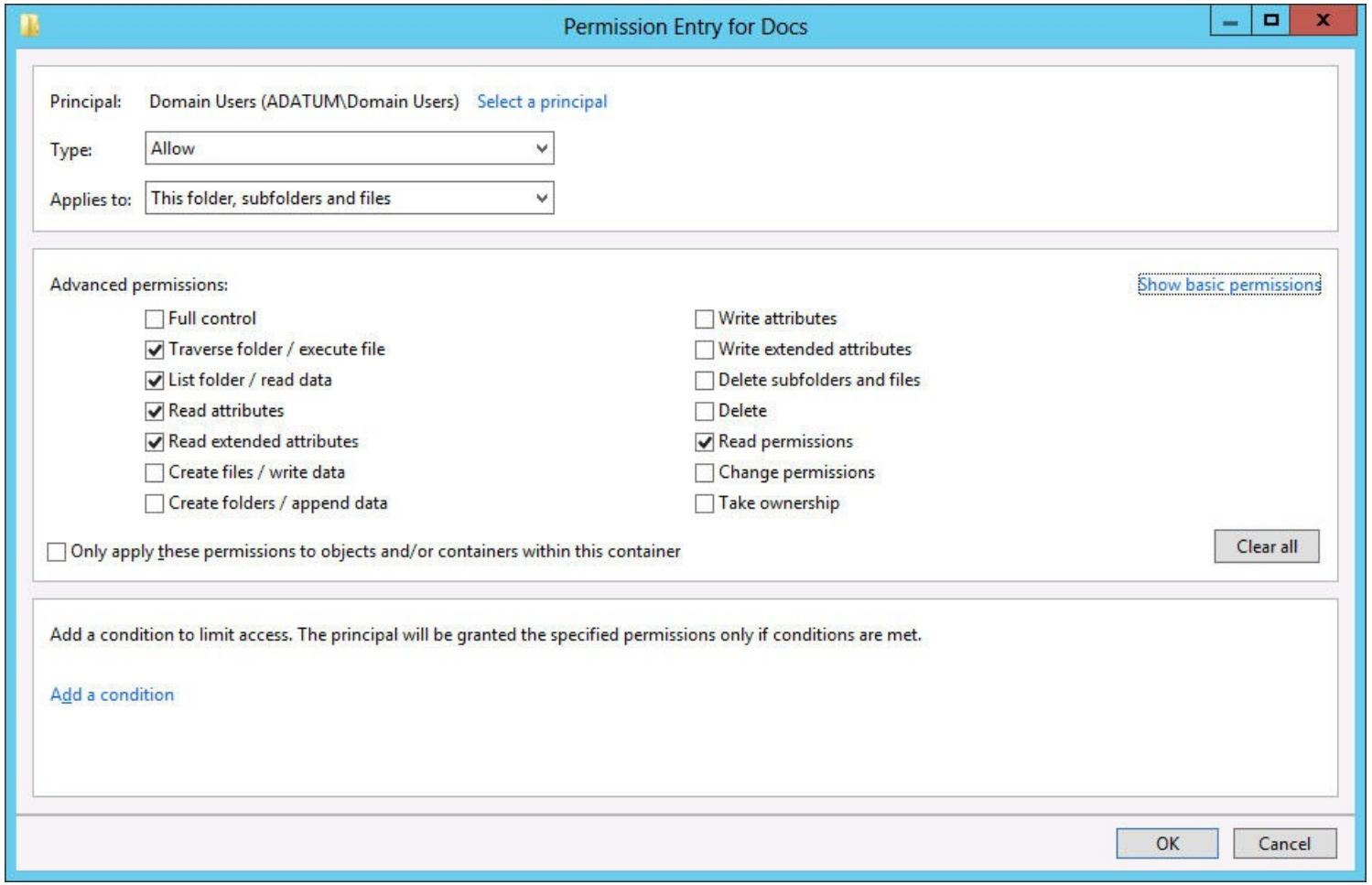
- Overwrite the file.
- Modify the file attributes.
- View the ownership and permissions of the file.

Assign Basic NTFS Permissions



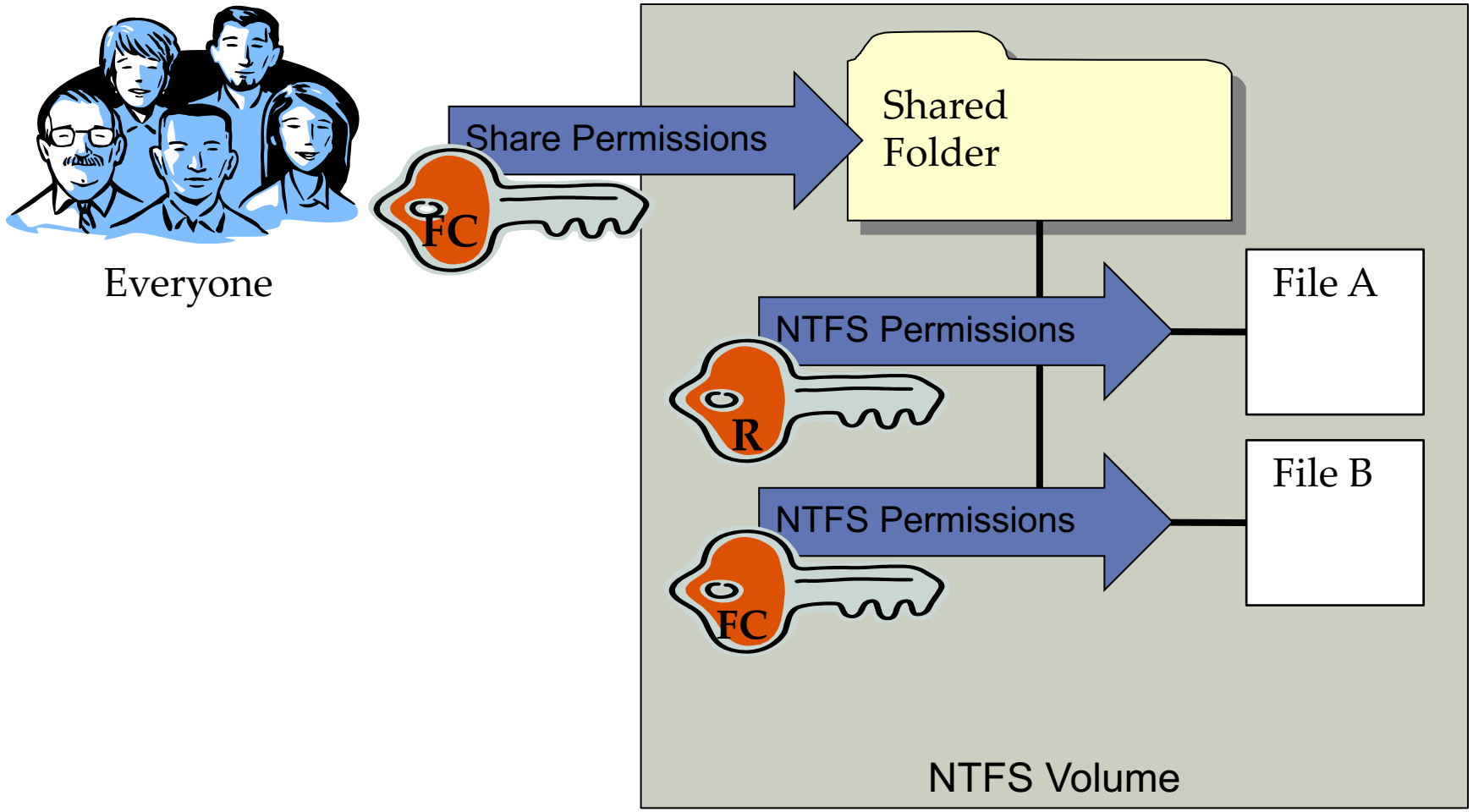
The Advanced Security Settings dialog box for a share in Server Manager

Assigning Advanced NTFS Permissions



The Permission Entry dialog box displaying Advanced Permissions

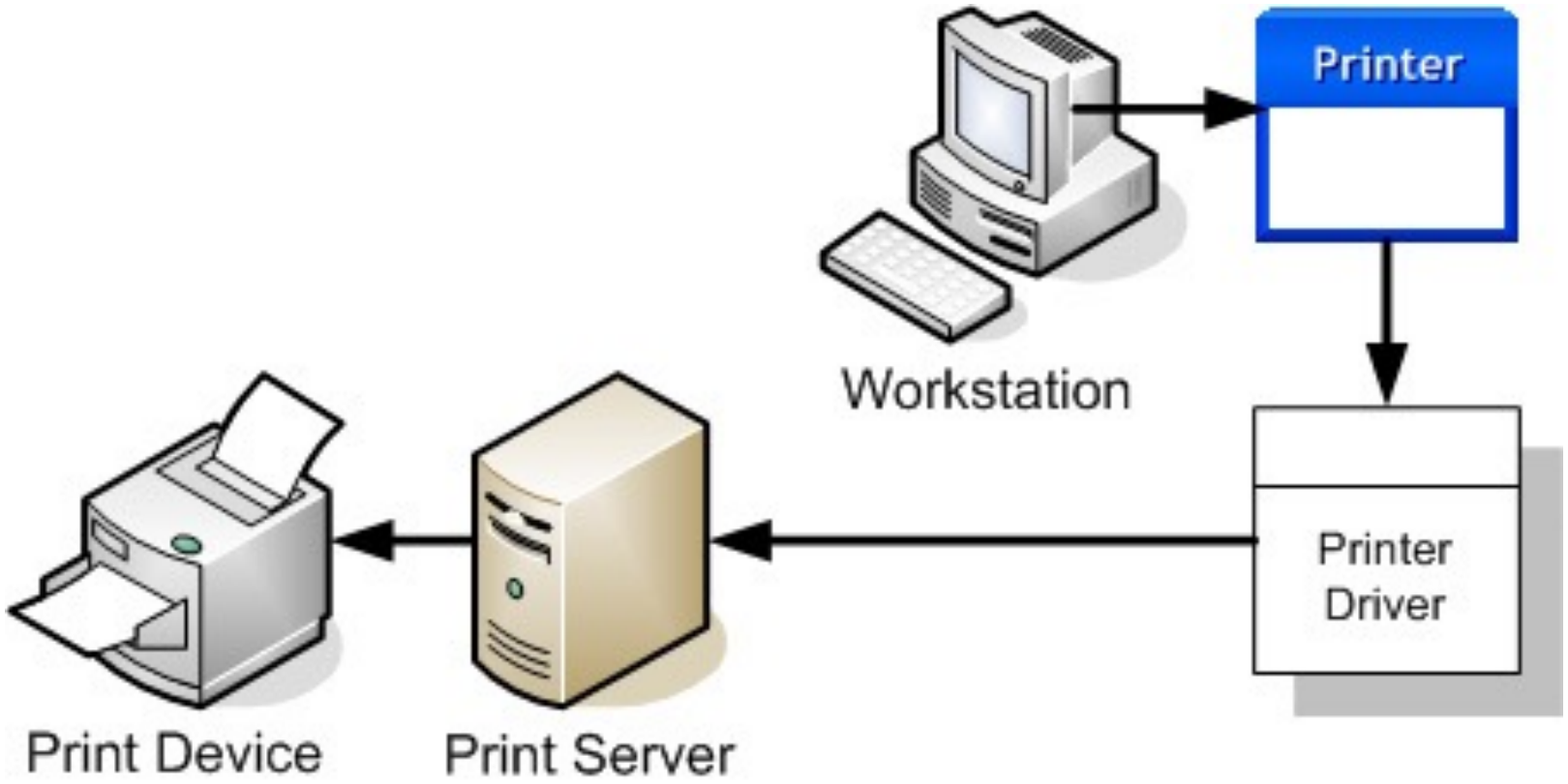
Combining Share and NTFS Permissions



Windows Print Architecture

- **Print device**: The actual hardware that produces hard-copy documents on paper or other print media.
- **Printer**: The software interface through which a computer communicates with a print device.
- **Print server**: A computer (or standalone device) that receives print jobs from clients and sends them to print devices that are either locally attached or connected to the network.
- **Printer driver**: A device driver that converts the print jobs generated by applications into an appropriate string of commands for a specific print device.

Windows Printing



The Windows Print Architecture

Windows Printing

To install a printer in Windows:

- Select the print device's specific manufacturer and model.
- Specify the port (or other interface) the computer will use to access the print device.
- Supply a printer driver specifically created for that print device.

Sharing a Printer

If a computer is to support heavy printer use, the following hardware upgrades might be needed:

- Additional system memory
- Additional disk space (for queued print jobs)
- Make the computer a dedicated print server

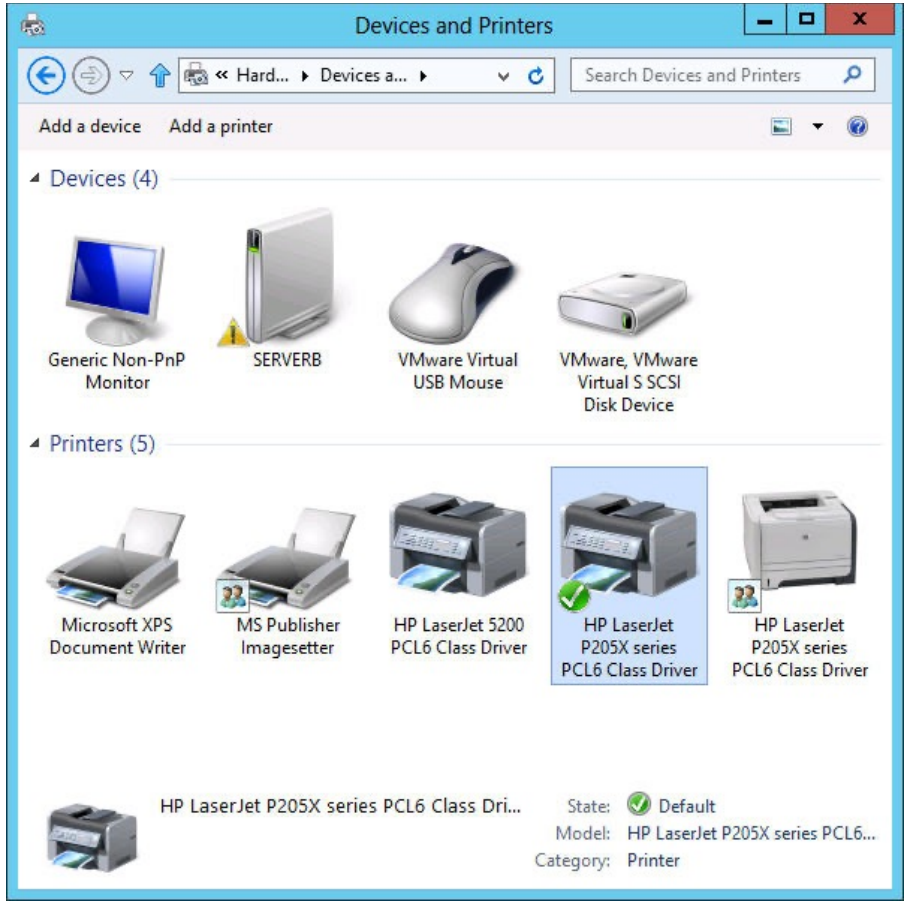
Sharing a Printer

A printer can be shared during the installation or any time after.

To install a printer:

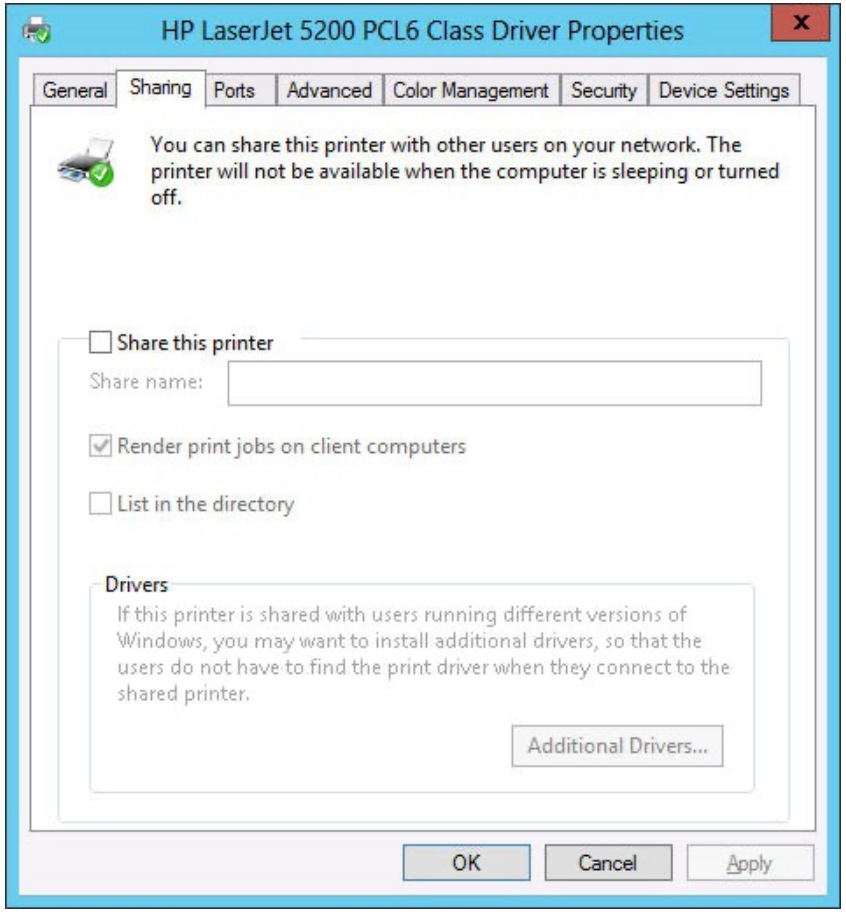
- **USB**: Upon connection and power up, a driver will automatically be installed, unless Windows does not have a driver.
- **Network-attached printers**: An installation program supplied with the device will locate, install, and configure.

Share a Printer



The Devices and Printers window

Share a Printer

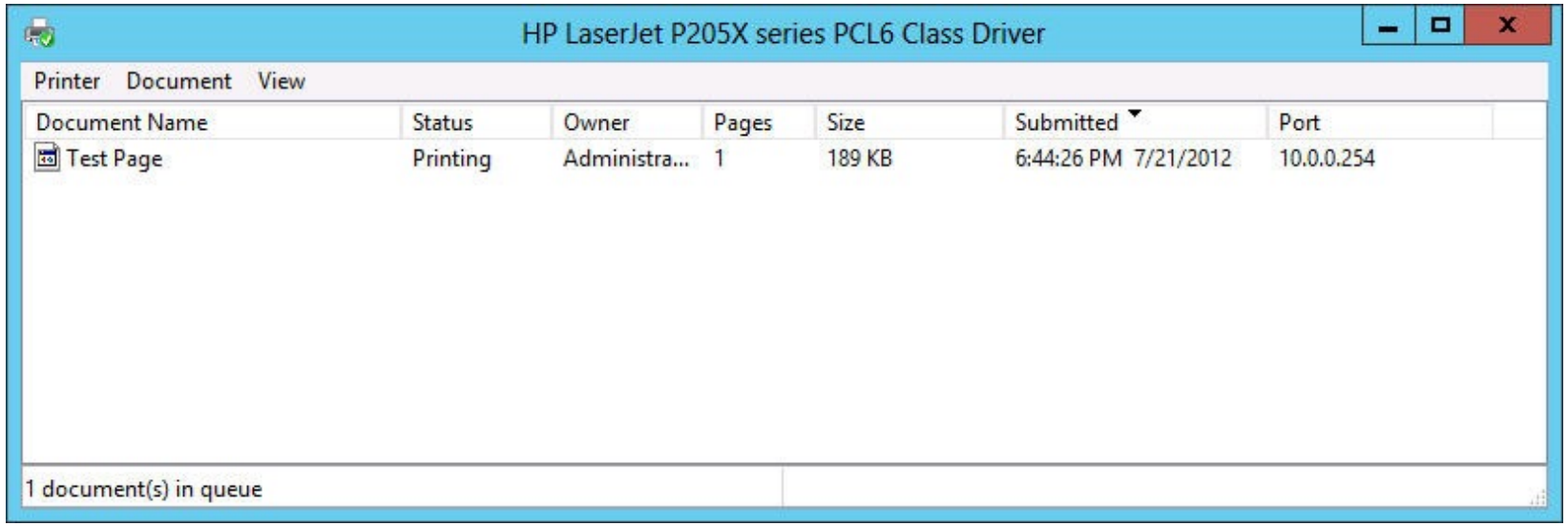


The Sharing tab of a printer's Properties sheet

Managing Documents

- By default everyone can print and manage their own documents
- Allow Manage Documents permission allows users to manager other user's documents
- Managing refers to:
  - Pausing
  - Resuming
  - Restarting
  - Canceling

Manage Documents

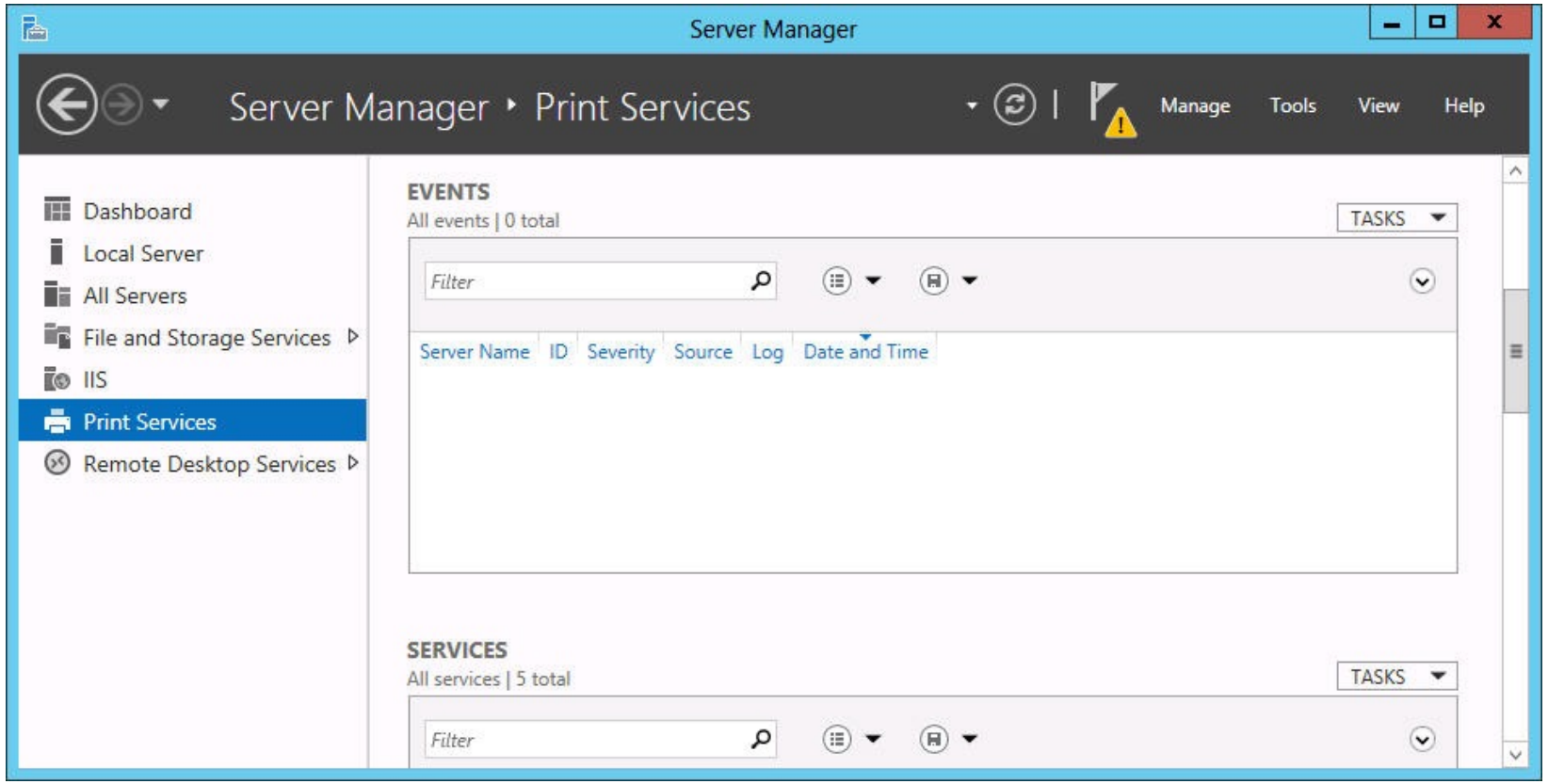


A Windows Server 2012 print queue window

The Print and Document Services Role

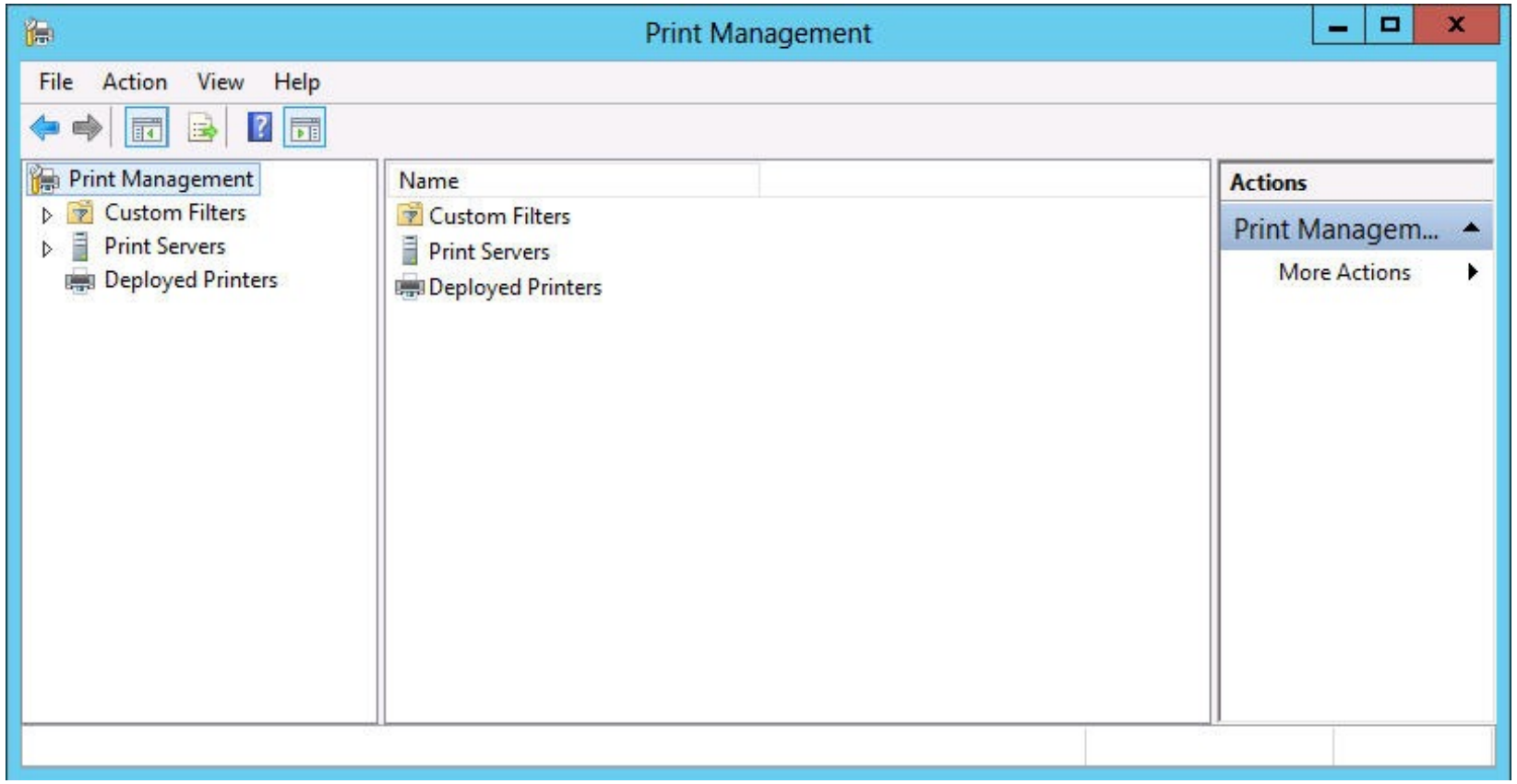
- The Windows Server 2025 default installation configuration makes available all printer sharing and management capabilities discussed in the previous sections.
- For administrators involved with enterprise network printing, installing the Print and Document Services role on the computer provides additional tools that are particularly useful.

The Print and Document Services Role



The Print Services node in Server Manager

Using the Print Management Console



The Print Management console