7.5.3 File Permission Facts

Be aware of the following when managing file system permissions:

- On a Windows system, access to files is controlled through two sets of permissions:
  - Share permissions control access through a network connection with the file server. If files are accessed locally, share permissions do not control access.
  - NTFS permissions control both local and network access.
- Share and NTFS permissions use a discretionary access control list (DACL) for controlling access. The access list identifies the users or groups and their associated permissions to files or folders.
- Share permissions have three levels of permissions:
  - Reader (read only)
  - Contributor (read and write)
  - Owner or Co-owner (full control, or all permissions)

  NTFS permissions have dozens of permissions that offer much more granular control over what actions are allowed.
- NTFS permissions can be set only on volumes formatted with NTFS.
- Both share and NTFS permissions include Allow or Deny permissions. Deny permissions override Allow permissions.
- Share permissions are set on a shared folder only; NTFS permissions can be set on drives, folders and files.
- Both share and NTFS permissions must be configured to allow access through the share. If a user is allowed share access but no NTFS permissions are set for the user or a group to which the user belongs, no access will be allowed.
- Effective permissions to shared folders are the *more restrictive* of either share or NTFS permissions. A user's effective permissions cannot be greater than the share permissions assigned to the user or a group to which the user belongs. For this reason, a common strategy for combining NTFS permissions is to:
  - Assign Co-owner share permissions to Everyone.
  - Use NTFS permissions to control access. Use the principle of least privilege by assigning NTFS permissions only to necessary groups and by assigning only the necessary permissions to those groups.

  Even though Everyone has share permissions, only the users or groups with NTFS permissions will have access.
- Permissions for folders and files can be inherited. On Windows systems, the Advanced Security settings identify when permission inheritance is in effect.
- Whenever possible, assign permissions to groups, rather than users. Users receive the permissions assigned to their groups.