Enable NAS storage

ONTAP 9

NetApp
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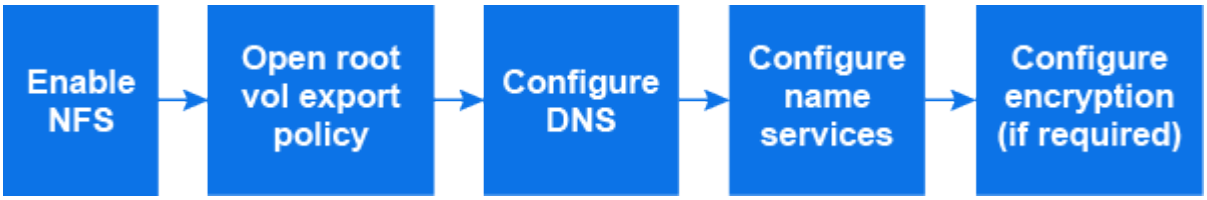
Enable NAS storage for Linux servers using NFS

Create or modify storage VMs to enable NFS servers for serving data to Linux clients.

Enable a new or existing storage VM for the NFS protocol using this procedure.



Before you begin

Ensure that you have noted the configuration details for any networking, authentication, or security services required in your environment.

Steps

1. Enable NFS on a storage VM.
   - For new storage VMs: Click **Storage > Storage VMs**, click **Add**, enter a storage VM name, and in the **SMB/CIFS, NFS, S3** tab, select **Enable NFS**.
     i. Confirm the default language.
     ii. Add network interfaces.
     iii. Update storage VM administrator account information (optional).
   - For existing storage VMs: click **Storage > Storage VMs**, select a storage VM, click **Settings**, and then click ⚙ under **NFS**.
2. Open the export policy of the storage VM root volume:
   a. Click **Storage > Volumes**, select the root volume of the storage VM (which by default is *volume-name* _root), and then click on the policy that is displayed under **Export Policy**.
   b. Click **Add** to add a rule.
      - Client specification = `0.0.0.0/0`
      - Access protocols = NFS
      - Access details = UNIX Read-Only
3. Configure DNS for host-name resolution: click **Storage > Storage VMs**, select the storage VM, click **Settings**, and then click ⚙ under **DNS**.
4. Configure name services as required.
   a. Click **Storage > Storage VMs**, select the storage VM, click **Settings**, and then click for ⚙ LDAP or NIS.
   b. Click ✎ in the Name Services Switch tile to include any changes.
5. Configure encryption if required:

Configure TLS for NFS clients

> NFS over TLS is available in ONTAP 9.15.1 as a public preview. As a preview offering, NFS over TLS is not supported for production workloads in ONTAP 9.15.1.

Steps

a. Refer to the requirements for NFS over TLS before you begin.

b. Click **Storage > Storage VMs**, select the storage VM, and then click **Settings**.

c. In the **NFS** tile, click **NFS over TLS settings**.

d. In the **NFS over TLS settings** area, select an NFS network interface for which you want to enable TLS.

e. Click the ⋮ for that interface.

f. Click **Enable**.

g. In the **Network interface TLS configuration** dialog, include a certificate for use with TLS by selecting one of the following options:

   - **Installed certificate**: Choose a previously installed certificate from the drop-down list.
   - **New certificate**: Choose a common name for the certificate.
   - **External CA-signed certificate**: Follow the instructions to paste the contents of your certificate and private key into the boxes.

h. Click **Save**.

Configure Kerberos

Steps

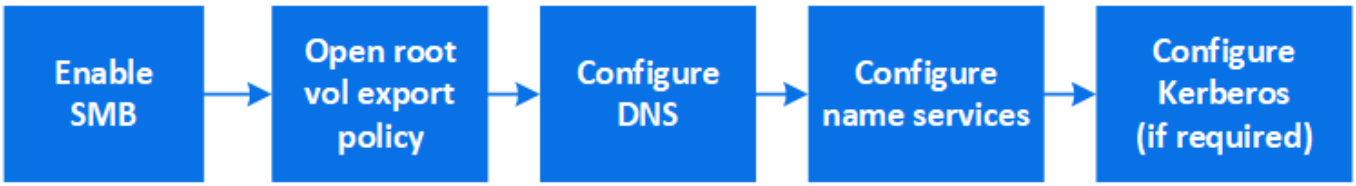
a. Click **Storage > Storage VMs**, select the storage VM, and then click **Settings**.

b. Click → in the Kerberos tile and then click **Add**.

Enable NAS storage for Windows servers using SMB

Create or modify storage VMs to enable SMB servers for serving data to Windows clients.

This procedure enables a new or existing storage VM for the SMB protocol. It is assumed that configuration details are available for any networking, authentication, or security services required in your environment.



Steps

1. Enable SMB on a storage VM.

   a. For new storage VMs: click **Storage > Storage VMs**, click **Add**, enter a storage VM name, and in the **SMB/CIFS, NFS, S3** tab, select **Enable SMB/CIFS**.

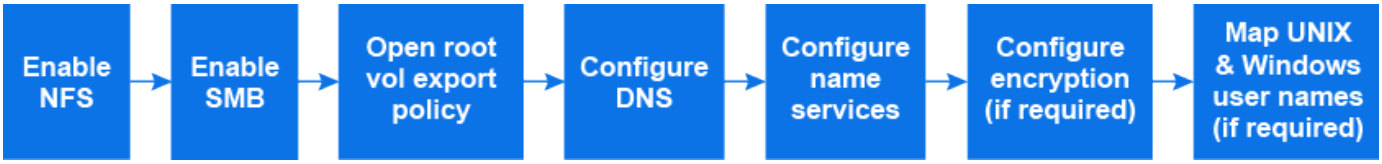
      - Enter the following information:

        - Administrator name and password
        - Server name
        - Active directory domain
    - Confirm the Organizational Unit.
    - Confirm the DNS values.
    - Confirm the default language.
    - Add network interfaces.
    - Update storage VM administrator account information (optional).
  b. For existing storage VMs:: click **Storage > Storage VMs**, select a storage VM, click **Settings**, and then click ⚙ under **SMB**.
2. Open the export policy of the storage VM root volume:
  a. Click **Storage > Volumes**, select the root volume of the storage VM (which by default is *volume-name_root*), and then click on the policy that is displayed under **Export Policy**.
  b. Click **Add** to add a rule.
    - Client specification = `0.0.0.0/0`
    - Access protocols = SMB
    - Access details = NTFS Read-Only
3. Configure DNS for host-name resolution:
  a. Click **Storage > Storage VMs**, select the storage VM, click **Settings**, and then click ⚙ under **DNS**.
  b. Switch to the DNS server and map the SMB server.
    - Create forward (A - Address record) and reverse (PTR - Pointer record) lookup entries to map the SMB server name to the IP address of the data network interface.
    - If you use NetBIOS aliases, create an alias canonical name (CNAME resource record) lookup entry to map each alias to the IP address of the SMB server's data network interface.
4. Configure name services as required
  a. Click **Storage > Storage VMs**, select the storage VM, click **Settings**, and then click ⚙ under **LDAP** or **NIS**.
  b. Include any changes in the name services switch file: click ✎ under **Name Services Switch**.
5. Configure Kerberos if required:
  a. Click **Storage > Storage VMs**, select the storage VM, and then click **Settings**.
  b. Click → under **Kerberos** and then click **Add**.

Enable NAS storage for both Windows and Linux using both NFS and SMB

Create or modify storage VMs to enable NFS and SMB servers to serve data to Linux and Windows clients.

Enable a new or existing storage VM to serve both NFS and SMB protocols using this procedure.



Before you begin

Ensure that you have noted the configuration details for any networking, authentication, or security services required in your environment.

Steps

1. Enable NFS and SMB on a storage VM.
   a. For new storage VMs: click **Storage > Storage VMs**, click **Add**, enter a storage VM name, and in the **SMB/CIFS, NFS, S3** tab, select **Enable SMB/CIFS** and **Enable NFS**.
   b. Enter the following information:
      - Administrator name and password
      - Server name
      - Active directory domain
   c. Confirm the Organizational Unit.
   d. Confirm the DNS values.
   e. Confirm the default language.
   f. Add network interfaces.
   g. Update storage VM administrator account information (optional).
   h. For existing storage VMs: click **Storage > Storage VMs**, select a storage VM, and then click **Settings**. Complete the following sub-steps if NFS or SMB is not already enabled.
      - Click ⚙ under **NFS**.
      - Click ⚙ under **SMB**.
2. Open the export policy of the storage VM root volume:
   a. Click **Storage > Volumes**, select the root volume of the storage VM (which by default is *volume-name_root*), and then click on the policy that is displayed under **Export Policy**.
   b. Click **Add** to add a rule.
      - Client specification = `0.0.0.0/0`
      - Access protocols = NFS
      - Access details = NFS Read-Only
3. Configure DNS for host-name resolution:
   a. Click **Storage > Storage VMs**, select the storage VM, click **Settings**, and then click ⚙ under **DNS**.
   b. When DNS configuration is complete, switch to the DNS server and map the SMB server.
      - Create forward (A - Address record) and reverse (PTR - Pointer record) lookup entries to map the SMB server name to the IP address of the data network interface.
      - If you use NetBIOS aliases, create an alias canonical name (CNAME resource record) lookup entry to map each alias to the IP address of the SMB server's data network interface.
4. Configure name services as required:

a. Click **Storage > Storage VMs**, select the storage VM, click **Settings**, and then click ⚙ for LDAP or NIS.

b. Include any changes in the name services switch file: click ✎ under **Name Services Switch**.

5. Configure authentication and encryption if required:

Configure TLS for NFS clients

> NFS over TLS is available in ONTAP 9.15.1 as a public preview. As a preview offering, NFS over TLS is not supported for production workloads in ONTAP 9.15.1.

Steps

a. Refer to the requirements for NFS over TLS before you begin.

b. Click **Storage > Storage VMs**, select the storage VM, and then click **Settings**.

c. In the **NFS** tile, click **NFS over TLS settings**.

d. In the **NFS over TLS settings** area, select an NFS network interface for which you want to enable TLS.

e. Click the ⋮ for that interface.

f. Click **Enable**.

g. In the **Network interface TLS configuration** dialog, include a certificate for use with TLS by selecting one of the following options:

- **Installed certificate**: Choose a previously installed certificate from the drop-down list.
- **New certificate**: Choose a common name for the certificate.
- **External CA-signed certificate**: Follow the instructions to paste the contents of your certificate and private key into the boxes.

h. Click **Save**.

Configure Kerberos

Steps

a. Click **Storage > Storage VMs**, select the storage VM, and then click **Settings**.

b. Click → in the Kerberos tile and then click **Add**.

6. Map UNIX and Windows user names if required: click → under **Name Mapping** and then click **Add**.

   You should do this only if your site has Windows and UNIX user accounts that do not map implicitly, which is when the lowercase version of each Windows user name matches the UNIX user name. You can map user names using LDAP, NIS, or local users. If you have two sets of users that do not match, you should configure name mapping.