Set up your ASA r2 system

ASA r2

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Set up your ASA r2 system

Set up an ONTAP cluster on your ASA r2 storage system

ONTAP System Manager guides you through a quick and easy workflow to set up an ONTAP ASA r2 cluster.

During cluster setup, your default data storage virtual machine (VM) is created. Optionally, you can enable the Domain Name System (DNS) to resolve host names, set your cluster to use the Network Time Protocol (NTP) for time synchronization and enable encryption of data at rest.

In certain cases, you might need to use the ONTAP command line interface (CLI) to set up your cluster. You should use the CLI, for example, if your security protocols do not allow you to connect a laptop to your management switches, or if you are using a non-windows operating system.

Before you begin

Gather the following information:

- Cluster management IP address

  The cluster management IP address is a unique IPv4 address for the cluster management interface used by the cluster administrator to access the admin storage VM and manage the cluster. You can obtain this IP address from the administrator responsible for assigning IP addresses in your organization.

- Network subnet mask

  During cluster setup, ONTAP recommends a set of network interfaces appropriate for your configuration. You can adjust the recommendation if necessary.

- Network gateway IP address
- Partner node IP address
- DNS domain names
- DNS name server IP addresses
- NTP server IP addresses
- Data subnet mask

Steps

1. Discover your cluster network
   a. Connect your laptop to the management switch and access the network computers and devices.
   b. Open File Explorer.
   c. Select **Network**; then right-click and select **Refresh**.
   d. Select either ONTAP icon; then accept any certificates displayed on your screen.

      System Manager opens.

2. Under **Password**, create a strong password for the admin account.

   The password must be at least eight characters long and must contain at least one letter and one number.

3. Reenter the password to confirm and then select **Continue**.
4. Under **Network addresses**, enter a storage system name or accept the default name.

   If you change the default storage system name, the new name must begin with a letter and must be fewer than 44 characters. You can use a period (.), hyphen (-) or underscore (_) in the name.

5. Enter the cluster management IP address, subnet mask, gateway IP address and the IP address of the partner node; then select **Continue**.
6. Under **Network services**, select the desired options to **Use the Domain Name System (DNS) for resolving host names** and to **Use the Network Time Protocol (NTP) to keep times synchronized**.

   If you choose to use the DNS, enter the DNS domain and name servers. If you choose to use NTP, enter the NTP servers; then select **Continue**.

7. Under **Encryption**, enter a passphrase for the Onboard Key Manager (OKM).

   Encryption of data at rest using an Onboard Key Manager (OKM) is selected by default. If you want to use an external key manager, update the selections.

   Optionally, you can configure your cluster for encryption after cluster setup is complete.

8. Select **Initialize**.

   When setup is complete, you are redirected to the cluster's management IP address.

9. Under **Network**, select **Configure protocols**.

To configure IP (iSCSI and NVMe/TCP), do this…	To configure FC and NVMe/FC, do this…
a. Select **IP**; then select **Configure IP interfaces**. b. Select **Add a subnet**. c. Enter a name for the subnet, then enter the subnet IP addresses. d. Enter the subnet mask, and optionally enter a gateway; then select **Add**. e. Select the subnet you just created; then select **Save**. f. Select **Save**.	a. Select **FC**; then select **Configure FC interfaces** and/or **Configure NVMe/FC interfaces**. b. Select the FC and/or NVMe/FC ports; then select **Save**.

10. Optionally, download and run ActiveIQ Config Advisor to confirm your configuration.

    ActiveIQ Config Advisor is a tool for NetApp systems that checks for common configuration errors.

What's next?

You are ready to set up data access from your SAN clients to your ASA r2 system.

SAN host configuration with ASA r2 systems

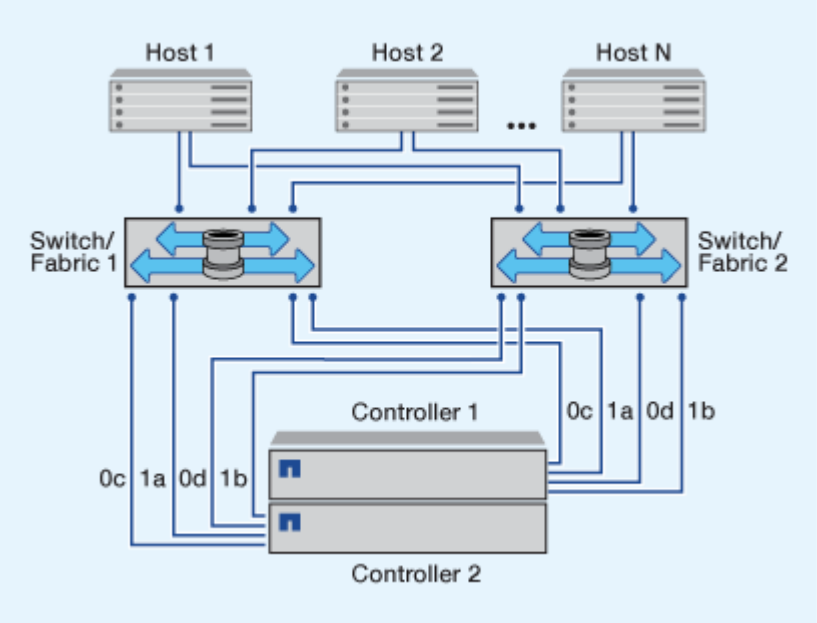
ASA r2 systems follow the same recommendations and guidelines for SAN host

configuration as all other ONTAP systems.

It is recommended that you use two or more switches to connect your storage system to one or more SAN hosts. For iSCSI configurations, the network topology connecting your hosts, switches and storage system is referred to as a *network*. For FC and FC-NVMe configurations, this same network topology is referred to as a *fabric*.

Multi-network ot multi-fabric configurations (those using two or more switches) are recommended because they provide redundancy at both the switch and storage layer. This redundancy makes your storage system more fault tolerant and provides support for nondisruptive operations.

The following illustration is an example of an FC configuration with multiple hosts using two fabrics to access a single HA pair. The FC target port numbers (0c, 0d, 1a, 1b) are also examples. The actual port numbers vary depending on your system model and whether you are using expansion adapters.



Learn more about SAN configuration for iSCSI hosts. Learn more about SAN configuration for FC and FC/NVMe hosts.

Zoning recommendation for FC hosts

You should configure your FC hosts to use zoning. ASA r2 systems follow the same FC host zoning recommendations and guidelines as all other ONTAP systems.

A zone is a logical grouping of one or more ports within a fabric. For devices to be able to discover each other, establish sessions with one another, and communicate, both ports need to have a common zone membership.

Learn more about FC/FC-NVMe zoning.

Enable data access from SAN hosts to your ASA r2 storage system

To set up data access, you should ensure that the critical parameters and settings on your SAN client for proper operation with ONTAP are configured correctly. If you are providing storage for your VMware environment, you should install OTV 10.3 to simply

the management of your ASA r2 storage.

Set up data access from SAN hosts

The configuration necessary to set up data access to your ASA r2 system from your SAN hosts varies depending on the host operating system and the protocol. Correct configuration is important for best performance and successful failover.

See the ONTAP SAN host documentation for VMware vSphere SCSI clients, VMware vSphere NVMe clients and other SAN clients to properly configure your hosts to connect to your ASA r2 system.

Migrate VMware virtual machines

If you need to migrate your VM workload from an ASA storage system to an ASA r2 storage system, NetApp recommends that you use VMware vSphere vMotion to perform a live, non-disruptive migration of your data.

ASA r2 storage units are thin provisioned by default. When migrating your VM workload, virtual disks (VMDKs) should also be thin provisioned.

Related information

- Learn more about the advantanges of using ONTAP for vSphere.
- Learn about VMware Live Site Recovery with ONTAP.
- Learn about continuous availability solutions for vSphere environments.
- Learn more about how to set up Broadcom VMware ESXi iSCSI MPIO with ONTAP SAN ASA storage systems.

Migrate data from a third-party storage system

Beginning with ONTAP 9.17.1, you can use Foreign LUN Import (FLI) to migrate data from a LUN on a third-party storage system to an ASA r2 system. Using FLI for your data migration can help you mitigate the risk of data loss and downtime during the migration process.

FLI supports both online and offline migrations. In an online migration, the client system stays online while data is copied from the third-party storage system to the ONTAP storage system. Online migrations are supported by Windows, Linux, and ESXi host operating systems. In an offline migration, the client system is taken offline, the LUN data is copied from the third-party storage system to the ONTAP storage system, and then the client system is brought back online.

- Learn how to perform an FLI offline migration.
- Learn how to perform an FLI online migrations.

Configure your ASA r2 system as a storage provider in your VMware environment

You can use ONTAP tools for VMware to easily enable your ASA r2 system as a storage provider in your VMware environment.

ONTAP tools for VMware vSphere is a set of tools that work in conjunction with VMware vCenter Server Virtual Appliance (vCSA) for easy management of virtual machines on your VMware ESXi hosts.

ASA r2 systems are supported by ONTAP tools for VMware vSphere 10.3 and later.

Learn how to Deploy ONTAP tools for VMware and then use it to do the following:

- Add vCenter Server instances
- Configure your ESXi host settings
- Discover your ASA r2 storage system and hosts

What's next?

You are ready to provision storage to enable your SAN hosts to read and write data to storage units.

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