Network Services Hub

Setup Guide

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This sample setup guide is created for portfolio purposes.

Overview of Network Services Hub

Network Services Hub is a virtualization platform for hosting and managing virtual network services in a data center environment. It supports the complete lifecycle of these services, including deployment, configuration, and operation.

Network Services Hub provides a centralized management layer that runs on industry-standard infrastructure. By using an open, hypervisor-based architecture, Network Services Hub enables organizations to move from proprietary hardware appliances to a flexible, software-defined model.

To support different operational workflows, Network Services Hub offers multiple management interfaces, including a web interface, a command-line interface, and a REST API.

Setup Prerequisites

Before you begin:

- Ensure that the Network Services Hub appliance is installed, powered on, and connected to the network as described in the *Network Services Hub Hardware Installation Guide*.
- Have the following information available:
  - Hostname
  - Management IP address
  - Netmask for the management interface
  - Default gateway IP address
  - Domain name
  - DNS server IP address (optional)
  - Initial password for the administrator account
  - Physical network interface or port channel to be used for the management interface
  - Two physical network interfaces if using a port channel for the management interface
  - (Optional) VLAN ID for the management interface or port channel

Set Up Network Services Hub

1. Power on the Network Services Hub appliance.
2. Log in using the default administrator credentials:
   - Username: admin
   - Password: admin
3. Choose how the management interface will be configured:
   - To use a port channel as the management interface, enter `yes` and continue to Step 4. Using a port channel provides redundancy and ensures management connectivity if one physical interface becomes unavailable.
   - To use a single physical interface as the management interface, enter `no` and continue to Step 5.
4. If using a port channel, provide the following information:
   a. Enter a name for the port channel.
   b. Enter the name of the first physical interface.
   c. Enter the name of the second physical interface.

   Note

   Both physical interfaces must operate at the same speed.

   d. Specify the load-balancing mode:
      - Active-Backup: One physical interface operates as the active member and carries all traffic, while the second physical interface remains in standby mode. The standby physical interface takes over traffic only if the active physical interface fails. This mode provides high availability without load distribution.
      - Balance-SLB: Load balancing is performed across the physical interface members of the port channel based on the source and destination MAC addresses. This mode provides simple load distribution without requiring additional configuration.
      - Balance-TCP: Load balancing is performed across the physical interface members of the port channel based on Layer 2, Layer 3, and Layer 4 information, such as destination MAC address, IP address, and TCP port.

   e. (Optional) Enter a VLAN ID for the port channel. Valid values range from 1 to 4094.
5. If using a single physical interface, specify the network interface to be used for management traffic.

   Note

   It is recommended to use a 1-Gb Ethernet interface for management traffic and reserve higher-bandwidth interfaces for hosted services.
6. Specify the mode for the management interface:
   - **Shared mode**: The management interface carries the management traffic and may also be used by hosted services.
   - **Dedicated mode**: The management interface is reserved exclusively for the management traffic and cannot be used by hosted services.
7. Enter `yes` to confirm and save the selected mode.
8. Set and confirm a new password for the administrator account.
9. Enter the hostname for the Network Services Hub.

10. Enter the IP address for the management interface.
11. Enter the netmask for the management interface.
12. Enter the default gateway IP address.
13. Specify whether to configure a DNS server:
    - Enter `yes` and provide the DNS server IP address, or
    - Enter `no` to skip DNS configuration.
14. Enter the domain name; for example, `example.com`.
15. Enter `yes` to save the settings.

The configuration is saved, and the Network Services Hub appliance is set up. You can now use the command-line interface. To access the web interface or REST APIs in a production environment, you must install an SSL certificate. For lab or proof-of-concept deployments, you can continue using the default certificate.

Generate and Install an SSL Certificate

Network Services Hub includes a default self-signed certificate for temporary use. For production environments, generate a Certificate Signing Request (CSR) and install a certificate issued by a trusted Certificate Authority (CA).

Generate a Certificate Signing Request

1. Log in to the command-line interface.
2. Generate a CSR by entering the following command:
   ```
   nsh# certificate request --hash sha256 --key-size 2048
   ```
3. When prompted, provide the following information:
   - Country
   - State or province
   - City
   - Organization
   - Email address
   - Common name (fully qualified domain name)

   Note
   Common name must match the Network Services Hub hostname and domain name; for example, `myhost.example.com`.

The following files are generated in the **certificates** directory:

- `<hostname>.csr`: Certificate signing request
- `<hostname>.key`: Private key file

Note
By default, the private key is not protected by a passphrase to allow Network Services Hub to start automatically. If a passphrase is applied, you need to enter it each time Network Services Hub starts.

Install the SSL Certificate

1. Submit the CSR file to a Certificate Authority to obtain a signed SSL certificate.

2. Copy the certificate file and any required certificate chain files to the Network Services Hub using a secure file transfer method, such as `scp`.
3. Install the certificate by entering the following command:
   `nsh# certificate install`
4. When prompted, provide the following details:
   - Hostname
   - Private key filename
   - Certificate filename
   - Certificate chain filename (if applicable)

   The SSL certificate is installed.

Verify the Certificate Installation

1. In a web browser, go to:
   `https://hostname` or `https://management-ip-address`
2. Log in using the administrator credentials.
3. Verify that the web browser indicates a secure connection.
4. Click the lock icon in the address bar to review the certificate details.