

H3C S6850 & S9850 & S9820-64H Puppet Configuration Examples

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Introduction

This document provides Puppet configuration examples.

Puppet is an open-source configuration management tool. It provides the Puppet language. You can use the Puppet language to create configuration manifests and save them to a server. You can then use the server for centralized configuration enforcement and management.

Prerequisites

The configuration examples in this document were created and verified in a lab environment, and all the devices were started with the factory default configuration. When you are working on a live network, make sure you understand the potential impact of every command on your network.

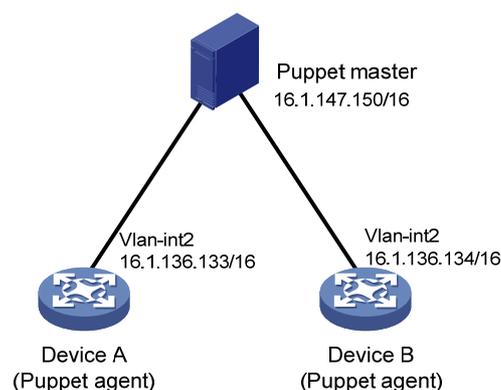
This document assumes that you have basic knowledge of Puppet.

Example: Configuring Puppet

Network configuration

As shown in [Figure 1](#), Puppet agents Device A and Device B are connected to the Puppet master. Use Puppet to create VLAN 100 on each Puppet agent.

Figure 1 Network diagram



Applicable hardware and software versions

The following matrix shows the hardware and software versions to which this configuration example is applicable:

Hardware	Software version
S6850 switch series S9850 switch series	Release 6555P01
S9820-64H switch	Release 6555P01

Procedures

Configuring the Puppet master

1. Assign an IP address to the Puppet master. (Details not shown.)
2. Install Puppet on the Puppet master.

```
$ sudo apt-get install puppetmaster
```
3. Verify that Puppet configuration file **puppet.conf** is created in directory **/etc/puppet**.
If the file does not exist, execute the following command to create the file:

```
$ sudo puppet master -genconfig > puppet.conf
```
4. Add files provided by H3C:
Copy the type and provider library files to directory **/etc/puppet/modules/custom/lib/puppet**.
If conflicts exist, overwrite the existing files. (Details not shown.)
Create directory **manifests/nodes** in directory **/etc/puppet/**.

```
$ sudo mkdir -p /etc/puppet/manifests/nodes
```


Copy H3C file **puppet.master.com.pp** to directory **/etc/puppet/manifests/nodes/**. (Details not shown.)
5. Configure file **site.pp**:
Go to directory **/etc/puppet/manifests/** and create file **site.pp** in the directory.

```
$ cd ..  
$ sudo touch site.pp
```


Edit file **site.pp**.

```
node '16.1.136.133'{  
  netdev_device{'device':  
    ensure => undo_shutdown,  
    username => 'test',  
    password => 'test',  
    ipaddr => '16.1.136.133',  
  }  
  include custom  
}  
  
node '16.1.136.134'{  
  netdev_device{'device':  
    ensure => undo_shutdown,  
    username => 'test',  
    password => 'test',  
    ipaddr => '16.1.136.134',  
  }  
  include custom  
}
```
6. Configure file **init.pp**:
Create directory **modules/custom/manifests** in directory **/etc/puppet/** to store configuration manifests.

```
$ sudo mkdir -p /etc/puppet/modules/custom/manifests
```


Create configuration manifest **init.pp** in directory **/etc/puppet/modules/custom/manifests**.

```
$ sudo touch init.pp
```


Edit file **init.pp**.

```
class custom{
```

```

netdev_vlan{'vlan100':
  ensure => undo_shutdown,
  id => 100,
  require => Netdev_device['device'],
}
}

```

Configuring Puppet agent Device A

1. Assign an IP address to Device A. (Details not shown.)

```

<DeviceA> system-view
[DeviceA] interface vlan-interface 2
[DeviceA-Vlan-interface2] ip address 16.1.136.133 255.255.0.0
[DeviceA-Vlan-interface2] quit

```

2. Configure the device as the NETCONF over SSH server:

Generate RSA key pairs. Leave the key pair to use the default key pair name.

```
[DeviceA] public-key local create rsa
```

Enable NETCONF over SSH.

```
[DeviceA] netconf ssh server enable
```

Enable scheme authentication for NETCONF over SSH users.

```

[DeviceA] line vty 0 63
[DeviceA-line-vty0-63] authentication-mode scheme
[DeviceA-line-vty0-63] user-role network-admin
[DeviceA-line-vty0-63] quit

```

Create device management user **test**. Set the password to **test**, and assign the SSH service and network-admin user role to the user.

```

[DeviceA] local-user test class manage
[DeviceA-luser-manage-test] password simple test
[DeviceA-luser-manage-test] service-type ssh
[DeviceA-luser-manage-test] authorization-attribute user-role network-admin
[DeviceA-luser-manage-test] quit

```

3. Configure the device as an NTP client to synchronize its system time to the system time on the Puppet master:

Enable the NTP service

```
[DeviceA] ntp-service enable
```

Configure the device to use NTP to obtain the UTC time.

```
[DeviceA] clock protocol ntp
```

Configure the device to operate in NTP broadcast client mode and use VLAN-interface 2 to receive NTP broadcast packets.

```

[DeviceA] interface vlan-interface 2
[DeviceA-Vlan-interface2] ntp-service broadcast-client
[DeviceA-Vlan-interface2] quit

```

4. Start Puppet on the device.

```

[DeviceA] third-part-process start name puppet arg agent --certname=16.1.136.133
--server=16.1.147.150

```

The device will act as a Puppet client to request a certificate from the Puppet master.

Configuring Puppet agent Device B

The steps are similar to the steps for Device A

Using the Puppet master to issue certificates to the Puppet clients

Use the `puppet cert list` command to display devices that require a certificate. (Details not shown.)

Sign a certificate for Device A.

```
$ sudo puppet cert sign 16.1.136.133
```

After Device A obtains a certificate, it obtains a configuration manifest from the Puppet master and run the manifest.

Sign a certificate for Device B. (Details not shown.)

Verifying the configuration

Display device configuration information. VLAN 100 is created. (Details not shown.)

Configuration files

- Puppet master:
The type and provider library files and the `puppet.master.com.pp` file are provided by H3C.
- Device A

```
#
clock protocol ntp
#
interface Vlan-interface2
 ip address 16.1.136.133 255.255.0.0
 ntp-service broadcast-client
#
ntp-service enable
#
line vty 0 63
 authentication-mode scheme
 user-role network-admin
 user-role network-operator
 idle-timeout 0 0
#
local-user test class manage
 password hash $h$6$x0kIJnaHZkFFa3Ga$H4yMQnG96xjHiTID+6UPyJrTLXru6RJaGqrCKpxmo20
 KUVWujeoTcDEovLt6LzKIUyN7J3i5Tq2rOQPdj2Nrww==
 service-type ssh
 authorization-attribute user-role network-admin
 authorization-attribute user-role network-operator
#
netconf ssh server enable
#
```

Related documentation

- *H3C S6850 & S9850 Switch Series Network Management and Monitoring Configuration Guide-Release 655x*
- *H3C S6850 & S9850 Switch Series Network Management and Monitoring Command Reference-Release 655x*
- *H3C S9820-64H Switch Network Management and Monitoring Configuration Guide-Release 655x*
- *H3C S9820-64H Switch Network Management and Monitoring Command Reference-Release 655x*