

TÀI LIỆU VẬN HÀNH SWITCH NEXUS 9K

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**TÀI LIỆU VẬN HÀNH SWITCH NEXUS 9K**

1. **Hướng dẫn cấu hình các tính năng cơ bản trên switch Nexus 9k**

* **Cấu hình host name:**

**Switch(config)#Hostname [tên thiết bị]**

**Ví dụ:**

**Switch(config)#Hostname VIETTELLAB.4G.SW.GOM.01**

* **Kích hoạt các tính năng cần dùng trên thiết bị**

**#Feature [tính năng cần dùng]**

**Ví dụ:**

**#Feature interface-vlan**

**#Feature LACP**

**#Feature OSPF**

**#Feature VPC**

**#Feature VRRP**

**#Feature SSH**

**#Feature VTP**

* **Cấu hình time out SSH**

**#line console**

**#line vty**

**#exec-timeout 90**

* **Cấu hình tạo account admin**

**username** [tên tài khoản account] **password** [password] role network-admin

* **Cấu hình description trên Interface**

**#Interface interface-type slot/port**

**#Description**

**Ví dụ:**

**Interface ethernet 1/1**

**description "Connect\_VIETTELLAB.4G.OCS03\_enp24s0f0"**

**Interface ethernet 1/2**

**description "Connect\_VIETTELLAB.4G.OCS03\_enp24s0f2"**

* **Cấu hình Vlan**

# **vlan [Vlan ID]**

**Ví dụ:**

**#Vlan 200**

* **Cấu hình LACP port-channel**

**#Feature LACP**

**#interface port-channel *channel-number***

* **Cấu hình trunk**

**#int interface-type slot/port**

**# switchport mode trunk**

* **Cấu hình VRRP**

**Feature VRRP**

**configure terminal**

**interface interface-type slot/port**

**no switchport**

**vrrp number**

**address ip-address**

**no shutdown**

* **Cấu hình định tuyến tĩnh**

**#configure terminal**

**#ip route { ip-prefix | ip-addr ip-mask } {[ next-hop | nh-prefix ] | [ interface next-hop | nh-prefix ]} [ tag tag-value [ pref ]]**

* **Cấu hình OSPF**

**#configure terminal**

**#router ospf instance-tag**

**#(Optional) router-id ip-address**

**#(Optional) show ip ospf instance-tag**

**#(Optional) copy running-config startup-config**

* **Cấu hình VPC**

**switch# configure terminal**

**switch(config)# no feature vpc**

**(Optional) switch# show feature**

**switch# configure terminal**

**switch(config)# vpc domain domain-id**

**(Optional) switch# show vpc brief**

**(Optional) switch# copy running-config startup-config**

1. **Cấu hình chi tiết các hệ thống.**
2. **Mô hình mạng:**



1. **Quy hoạch port, IP, VLAN**

| **Node** | **Bundle Port** | **Interface** | **IP** | **Subnet** | **IP Gateway** | **VLAN** |
| --- | --- | --- | --- | --- | --- | --- |
| **Phân hệ EPC** |  |  |  |  |  |  |
| SGW | DPDK | S1-U | 172.16.1.6 | /29 | 172.16.1.1 | 100 |
| MME | bond0.101 | S1-MME | 172.16.1.14 | /29 | 172.16.1.9 | 101 |
| MME | bond0.102 | SGs | 172.16.1.22 | /29 | 172.16.1.17 | 102 |
| PGW | DPDK | Sgi - IMS | 172.16.1.189 | /29 | 172.16.1.190 | 103 |
| MME | bond0.104 | S6a | 172.16.1.38 | /29 | 172.16.1.33 | 104 |
| PGW | bond0.105 | Gx | 172.16.1.46 | /29 | 172.16.1.41 | 105 |
| PGW | bond0.106 | Gy | 172.16.1.54 | /29 | 172.16.1.49 | 106 |
| PGW | DPDK | Sgi - Internet | 172.16.1.197 | /29 | 172.16.1.198 | 107 |
| SGW | bond0.108 | S11 | 172.16.1.62 | /29 | 172.16.1.57 | 108 |
| MME | bond0.109 | S11 | 172.16.1.70 | /29 | 172.16.1.65 | 109 |
| PGW | bond0.110 | S5 | 172.16.1.78 | /29 | 172.16.1.73 | 110 |
| SGW | bond0.111 | S5 | 172.16.1.86 | /29 | 172.16.1.81 | 111 |
| Internal Control - DP | bond0.112 | internal | 172.16.2.30 | /28 | 172.16.2.17 | 112 |
| Internal netconf | bond0.113 | netconf | 172.16.2.46 | /28 | 172.16.2.33 | 113 |
| **Phân hệ IMS** |  |  |  |  |  |  |
| MGW | bond0.200 | Sgi - IMS | 172.16.2.62 | /28 | 172.16.2.49 | 200 |
| MGW | bond0.201 | Ro/Rx/Cx/Sh/Internal | 172.16.1.102 | /29 | 172.16.1.97 | 201 |
| CSCF/SBC/AS/OAM | bond0.202 | Sgi - IMS | 172.16.1.150 | /29 | 172.16.1.145 | 202 |
| CSCF/SBC/AS/OAM | bond0.203 | Ro/Rx/Cx/Sh/Internal | 172.16.1.158 | /29 | 172.16.1.153 | 203 |
| SMSC | bond0.204 | Sgi - IMS | 172.16.1.166 | /29 | 172.16.1.161 | 204 |
| SMSC | bond0.205 | Ro/Rx/Cx/Sh/Internal | 172.16.1.174 | /29 | 172.16.1.169 | 205 |
| **Phân hệ RAN** |  |  |  |  |  |  |
| eNodeB | bond0.300 | S1-MME | 172.16.1.110 | /29 | 172.16.1.105 | 300 |
| eNodeB | bond0.301 | S1-U | 172.16.1.118 | /29 | 172.16.1.113 | 301 |
| **Phân hệ OCS/PCRF** |  |  |  |  |  |  |
| OCS/PCRF | bond0.400 | Ro/Gy/Gx/Rx | 172.16.1.126 | /29 | 172.16.1.121 | 400 |
| **Phân hệ UDC** |  |  |  |  |  |  |
| HSS | bond0.500 | S6a/Cx | 172.16.1.134 | /29 | 172.16.1.129 | 500 |

1. **Cấu hình chi tiết:**
   1. **Cấu hình trên thiết bị Switch VIETTELLAB.4G.SW.GOM.01**

|  |
| --- |
| **Host name** |
| **Hostname VIETTELLAB.4G.SW.GOM.01** |
| **Enable các feature cần dùng** |
| **Feature interface-vlan**  **Feature LACP**  **Feature OSPF**  **Feature VPC**  **Feature VRRP**  **Feature SSH**  **Feature VTP** |
| **Cấu hình time out SSH**  **line console**  **line vty**  **exec-timeout 90** |
| **Tạo 1 account admin** |
| **username** admin **password** admin role network-admin |
| **Description trên interface** |
| **interface Ethernet1/1**  **description "Connect\_VIETTELLAB.4G.OCS03\_enp24s0f0"**  **channel-group 1 force mode active**  **interface Ethernet1/2**  **description "Connect\_VIETTELLAB.4G.OCS03\_enp24s0f2"**  **interface Ethernet1/3**  **description "Connect\_VIETTELLAB.4G.OCS02\_enp24s0f0"**  **channel-group 2 force mode active**  **interface Ethernet1/4**  **description "Connect\_VIETTELLAB.4G.OCS02\_enp24s0f2"**  **interface Ethernet1/5**  **description "Connect\_VIETTELLAB.4G.OCS01\_enp24s0f0"**  **channel-group 3 force mode active**  **interface Ethernet1/6**  **description "Connect\_VIETTELLAB.4G.OCS01\_enp24s0f2"**  **interface Ethernet1/7**  **description "Connect\_VIETTELLAB.4G.IMS03\_enp24s0f0"**  **channel-group 4 force mode active**  **interface Ethernet1/8**  **description "Connect\_VIETTELLAB.4G.IMS03\_enp24s0f2"**  **interface Ethernet1/9**  **description "Connect\_VIETTELLAB.4G.IMS02\_enp24s0f0"**  **channel-group 5 force mode active**  **interface Ethernet1/10**  **description "Connect\_VIETTELLAB.4G.IMS02\_enp24s0f2"**  **interface Ethernet1/11**  **description "Connect\_VIETTELLAB.4G.IMS01\_enp24s0f0"**  **channel-group 6 force mode active**  **interface Ethernet1/12**  **description "Connect\_VIETTELLAB.4G.IMS01\_enp24s0f2"**  **interface Ethernet1/13**  **description "Connect\_VIETTELLAB.4G.BACKUP\_enp24s0f0"**  **channel-group 7 force mode active**  **interface Ethernet1/14**  **description "Connect\_VIETTELLAB.4G.BACKUP\_enp24s0f2"**  **interface Ethernet1/15**  **description "Connect\_VIETTELLAB.4G.HSS\_enp24s0f0"**  **channel-group 8 force mode active**  **interface Ethernet1/16**  **description "Connect\_VIETTELLAB.4G.HSS\_enp24s0f2"**  **interface Ethernet1/17**  **description "Connect\_VIETTELLAB.4G.EPC03\_enp24s0f0"**  **channel-group 9 force mode active**  **interface Ethernet1/18**  **description "Connect\_VIETTELLAB.4G.EPC03\_enp24s0f2"**  **interface Ethernet1/19**  **description "Connect\_VIETTELLAB.4G.EPC02\_enp24s0f0"**  **channel-group 10 force mode active**  **interface Ethernet1/20**  **description "Connect\_VIETTELLAB.4G.EPC02\_enp24s0f2"**  **interface Ethernet1/21**  **description "Connect\_VIETTELLAB.4G.EPC01\_enp24s0f0"**  **channel-group 11 force mode active**  **interface Ethernet1/22**  **description "Connect\_VIETTELLAB.4G.EPC01\_enp24s0f2"**  **interface Ethernet1/23**  **description "Connect\_VIETTELLAB.4G.OAM\_enp24s0f0"**  **channel-group 12 force mode active**  **interface Ethernet1/24**  **description "Connect\_VIETTELLAB.4G.OAM\_enp24s0f2"**  **interface Ethernet1/25**  **description "Connect\_VIETTELLAB.4G.SW.MNGT.01\_E1/49"** |
| **Cấu hình VLAN** |
| **vlan 50**  **name VLAN\_DCN**  **vlan 66**  **name INTERNET\_SSH**  **vlan 100**  **name EPC\_S1-U**  **vlan 101**  **name EPC\_S1-MME**  **vlan 102**  **name EPC\_SGs**  **vlan 103**  **name EPC\_Sgi-IMS**  **vlan 104**  **name EPC\_S6a**  **vlan 105**  **name EPC\_Gx**  **vlan 106**  **name EPC\_Gy**  **vlan 108**  **name EPC\_SGW\_S11**  **vlan 109**  **name EPC\_MME\_S11**  **vlan 110**  **name EPC\_PGW\_S5**  **vlan 111**  **name EPC\_SGW\_S5**  **vlan 112**  **name EPC\_internal**  **vlan 113**  **name EPC\_netconf**  **vlan 200**  **name IMS\_Sgi-IMS**  **vlan 201**  **name IMS\_Ro/Rx/Cx/Sh/Internal**  **vlan 400**  **name OCS\_Ro/Gy/Gx/Rx**  **vlan 500**  **name UDC\_S6a**  **vlan 501**  **name UDC\_Cx**  **vlan 700**  **name VLAN\_BACKUP\_ROUTE\_INTERNET**  **vlan 800**  **name VLAN\_BACKUP\_ROUTE\_MPBN**  **vlan 900**  **name VLAN\_BACKUP\_ROUTE\_DCN** |
| **Cấu hình interface Vlan.** |
| **interface Vlan10**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 192.168.100.2/29**  **no ipv6 redirects**  **vrrp 10**  **priority 254**  **authentication text VIETTEL**  **address 192.168.100.1**  **no shutdown**  **interface Vlan20**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 192.168.200.2/29**  **no ipv6 redirects**  **vrrp 20**  **priority 254**  **authentication text VIETTEL**  **address 192.168.200.1**  **no shutdown**  **interface Vlan30**  **no shutdown**  **vrf member DCN**  **no ip redirects**  **ip address 192.168.30.2/29**  **no ipv6 redirects**  **vrrp 30**  **priority 254**  **authentication text VIETTEL**  **address 192.168.30.1**  **no shutdown**  **interface Vlan50**  **description VLAN\_DCN**  **no shutdown**  **vrf member DCN**  **no ip redirects**  **ip address 10.70.66.2/26**  **no ipv6 redirects**  **vrrp 50**  **priority 254**  **authentication text VIETTEL**  **address 10.70.66.1**  **no shutdown**  **interface Vlan66**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 10.170.66.2/25**  **no ipv6 redirects**  **vrrp 66**  **priority 254**  **authentication text VIETTEL**  **address 10.170.66.1**  **no shutdown**  **interface Vlan100**  **description EPC\_S1-U**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.1/29**  **no ipv6 redirects**  **interface Vlan101**  **description EPC\_S1-MME**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.10/29**  **no ipv6 redirects**  **vrrp 101**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.9**  **no shutdown**  **interface Vlan102**  **description EPC\_SGs**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.18/29**  **no ipv6 redirects**  **vrrp 102**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.17**  **no shutdown**  **interface Vlan103**  **description EPC\_Sgi-IMS**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.190/29**  **no ipv6 redirects**  **interface Vlan104**  **description EPC\_S6a**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.34/29**  **no ipv6 redirects**  **vrrp 104**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.33**  **no shutdown**  **interface Vlan105**  **description EPC\_Gx**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.42/29**  **no ipv6 redirects**  **vrrp 105**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.41**  **no shutdown**  **interface Vlan106**  **description EPC\_Gy**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.50/29**  **no ipv6 redirects**  **vrrp 106**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.49**  **no shutdown**  **interface Vlan107**  **description EPC\_Sgi-Internet**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 172.16.1.198/29**  **no ipv6 redirects**  **interface Vlan108**  **description EPC\_SGW\_S11**  **no shutdown**  **vrf member EPC**  **no ip redirects**  **ip address 172.16.1.58/29**  **no ipv6 redirects**  **vrrp 108**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.57**  **no shutdown**  **interface Vlan109**  **description EPC\_MME\_S11**  **no shutdown**  **vrf member EPC**  **no ip redirects**  **ip address 172.16.1.66/29**  **no ipv6 redirects**  **vrrp 109**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.65**  **no shutdown**  **interface Vlan110**  **description EPC\_PGW\_S5**  **no shutdown**  **vrf member EPC**  **no ip redirects**  **ip address 172.16.1.74/29**  **no ipv6 redirects**  **vrrp 110**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.73**  **no shutdown**  **interface Vlan111**  **description EPC\_SGW\_S5**  **no shutdown**  **vrf member EPC**  **no ip redirects**  **ip address 172.16.1.82/29**  **no ipv6 redirects**  **vrrp 111**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.81**  **no shutdown**  **interface Vlan112**  **description EPC\_internal**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.2.18/28**  **no ipv6 redirects**  **vrrp 112**  **priority 254**  **authentication text VIETTEL**  **address 172.16.2.17**  **no shutdown**  **interface Vlan113**  **description EPC\_netconf**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.2.34/28**  **no ipv6 redirects**  **vrrp 113**  **priority 254**  **authentication text VIETTEL**  **address 172.16.2.33**  **no shutdown**  **interface Vlan200**  **description IMS\_Sgi-IMS**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.2.50/28**  **no ipv6 redirects**  **vrrp 200**  **priority 254**  **authentication text VIETTEL**  **address 172.16.2.49**  **no shutdown**  **interface Vlan201**  **description IMS\_Ro/Rx/Cx/Sh/Internal**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.98/29**  **no ipv6 redirects**  **vrrp 201**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.97**  **no shutdown**  **interface Vlan202**  **description IMS\_Sgi-IMS**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.146/29**  **no ipv6 redirects**  **vrrp 202**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.145**  **no shutdown**  **interface Vlan203**  **description IMS\_Ro/Rx/Cx/Sh/Internal**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.154/29**  **no ipv6 redirects**  **vrrp 203**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.153**  **no shutdown**  **interface Vlan204**  **description IMS\_Sgi-IMS**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.162/29**  **no ipv6 redirects**  **vrrp 204**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.161**  **no shutdown**  **interface Vlan205**  **description IMS\_Ro/Rx/Cx/Sh/Internal**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.170/29**  **no ipv6 redirects**  **vrrp 205**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.169**  **no shutdown**  **interface Vlan300**  **description RAN\_S1-MME**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.106/29**  **no ipv6 redirects**  **vrrp 210**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.105**  **no shutdown**  **interface Vlan301**  **description RAN\_LTE-Uu**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.114/29**  **no ipv6 redirects**  **vrrp 211**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.113**  **no shutdown**  **interface Vlan400**  **description OCS\_Ro/Gy/Gx/Rx**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.122/29**  **no ipv6 redirects**  **vrrp 212**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.121**  **no shutdown**  **interface Vlan500**  **description UDC\_S6a**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.130/29**  **no ipv6 redirects**  **vrrp 213**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.129**  **no shutdown**  **interface Vlan501**  **description UDC\_Cx**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.138/29**  **no ipv6 redirects**  **vrrp 214**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.137**  **no shutdown**  **interface Vlan600**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 10.170.65.2/27**  **no ipv6 redirects**  **vrrp 60**  **priority 254**  **authentication text VIETTEL**  **address 10.170.65.1**  **no shutdown**  **interface Vlan700**  **description VLAN\_BACKUP\_ROUTE\_INTERNET**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 192.168.7.1/30**  **no ipv6 redirects**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0**  **interface Vlan800**  **description VLAN\_BACKUP\_ROUTE\_MPBN**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 192.168.8.1/30**  **no ipv6 redirects**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0**  **interface Vlan900**  **description VLAN\_BACKUP\_ROUTE\_DCN**  **no shutdown**  **vrf member DCN**  **no ip redirects**  **ip address 192.168.9.1/30**  **no ipv6 redirects**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0** |
| **Cấu hình LACP-Port channel** |
| **interface port-channel1**  **description "Connect\_VIETTELLAB.4G.OCS03"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,400**  **vpc 1**  **interface port-channel2**  **description "Connect\_VIETTELLAB.4G.OCS02"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,400**  **vpc 2**  **interface port-channel3**  **description "Connect\_VIETTELLAB.4G.OCS01"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,400**  **vpc 3**  **interface port-channel4**  **description "Connect\_VIETTELLAB.4G.IMS03"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,200-205**  **vpc 4**  **interface port-channel5**  **description "Connect\_VIETTELLAB.4G.IMS02"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,200-205**  **vpc 5**  **interface port-channel6**  **description "Connect\_VIETTELLAB.4G.IMS01"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,200-205**  **vpc 6**  **interface port-channel8**  **description "Connect\_VIETTELLAB.4G.HSS"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,500**  **vpc 8**  **interface port-channel9**  **description "Connect\_VIETTELLAB.4G.EPC03"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,100-113**  **vpc 9**  **interface port-channel10**  **description "Connect\_VIETTELLAB.4G.EPC02"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,100-113**  **vpc 10**  **interface port-channel11**  **description "Connect\_VIETTELLAB.4G.EPC01"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,100-113**  **vpc 11**  **interface port-channel12**  **description "VIETTELLAB.4G.OAM"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,66,113**  **vpc 12**  **interface port-channel13**  **description "VIETTELLAB.4G.SW.MNGT.01"**  **switchport**  **switchport mode trunk**  **vpc 13**  **interface port-channel100**  **description Keepalive\_VIETTELLAB.4G.SW.GOM.02\_E1/47-48**  **vrf member VPC**  **ip address 192.168.1.1/30**  **interface port-channel101**  **description PeerLink\_VIETTELLAB.4G.SW.GOM.02\_E1/49-50**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 10,20,30,50,66,68,100-113,200-205,300-301,400,500-501,600,700,800,900**  **spanning-tree port type network**  **vpc peer-link** |
| **Cấu hình địa chỉ VRRP** |
| **interface Vlan500**  **description UDC\_S6a**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.130/29**  **no ipv6 redirects**  **vrrp 213**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.129**  **no shutdown**  **interface Vlan501**  **description UDC\_Cx**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.138/29**  **no ipv6 redirects**  **vrrp 214**  **priority 254**  **authentication text VIETTEL**  **address 172.16.1.137**  **no shutdown** |
| **Cấu hình VPC** |
| **feature vpc**  **vpc domain 1**  **peer-switch**  **role priority 1000**  **peer-keepalive destination 192.168.1.2 source 192.168.1.1 vrf VPC**  **delay restore 150**  **peer-gateway**  **auto-recovery reload-delay 360**  **ip arp synchronize**  **interface port-channel1**  **vpc 1**  **interface port-channel2**  **vpc 2**  **interface port-channel3**  **vpc 3**  **interface port-channel4**  **vpc 4**  **interface port-channel5**  **vpc 5**  **interface port-channel6**  **vpc 6**  **interface port-channel8**  **vpc 8**  **interface port-channel9**  **vpc 9**  **interface port-channel10**  **vpc 10**  **interface port-channel11**  **vpc 11**  **interface port-channel12**  **vpc 12**  **interface port-channel13**  **vpc 13**  **interface port-channel101**  **vpc peer-link** |
| **Cấu hình OSPF** |
| **feature ospf**  **router ospf 1**  **vrf DCN**  **router-id 1.1.1.1**  **default-information originate route-map PERMIT\_ALL**  **redistribute direct route-map PERMIT\_ALL**  **redistribute static route-map PERMIT\_ALL**  **vrf INTERNET\_SGi**  **router-id 1.1.1.1**  **default-information originate route-map PERMIT\_ALL**  **redistribute direct route-map PERMIT\_ALL**  **redistribute static route-map PERMIT\_ALL**  **vrf MPBN**  **router-id 1.1.1.1**  **default-information originate route-map PERMIT\_ALL**  **redistribute direct route-map PERMIT\_ALL**  **redistribute static route-map PERMIT\_ALL**  **interface Vlan700**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0**  **interface Vlan800**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0**  **interface Vlan900**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0** |
| **Cấu hình quản trị** |
| **interface mgmt0**  **vrf member management**  **vrf context management**  **ip route 0.0.0.0/0 10.70.66.65** |

* 1. **Cấu hình trên thiết bị Switch VIETTELLAB.4G.SW.GOM.02**

|  |
| --- |
| **Host name** |
| **Hostname VIETTELLAB.4G.SW.GOM.02** |
| **Enable các feature cần dùng** |
| **Feature interface-vlan**  **Feature LACP**  **Feature OSPF**  **Feature VPC**  **Feature VRRP**  **Feature SSH**  **Feature VTP** |
| **Cấu hình time out SSH**  **line console**  **line vty**  **exec-timeout 90** |
| **Tạo 1 account admin** |
| **username** admin **password** admin role network-admin |
| **Description trên interface** |
| **interface Ethernet1/1**  **description "Connect\_VIETTELLAB.4G.OCS03\_enp24s0f1"**  **channel-group 1 force mode active**  **interface Ethernet1/2**  **description "Connect\_VIETTELLAB.4G.OCS03\_enp24s0f3"**  **interface Ethernet1/3**  **description "Connect\_VIETTELLAB.4G.OCS02\_enp24s0f1"**  **channel-group 2 force mode active**  **interface Ethernet1/4**  **description "Connect\_VIETTELLAB.4G.OCS02\_enp24s0f3"**  **interface Ethernet1/5**  **description "Connect\_VIETTELLAB.4G.OCS01\_enp24s0f1"**  **channel-group 3 force mode active**  **interface Ethernet1/6**  **description "Connect\_VIETTELLAB.4G.OCS01\_enp24s0f3"**  **interface Ethernet1/7**  **description "Connect\_VIETTELLAB.4G.IMS03\_enp24s0f1"**  **channel-group 4 force mode active**  **interface Ethernet1/8**  **description "Connect\_VIETTELLAB.4G.IMS03\_enp24s0f3"**  **interface Ethernet1/9**  **description "Connect\_VIETTELLAB.4G.IMS02\_enp24s0f1"**  **channel-group 5 force mode active**  **interface Ethernet1/10**  **description "Connect\_VIETTELLAB.4G.IMS02\_enp24s0f3"**  **interface Ethernet1/11**  **description "Connect\_VIETTELLAB.4G.IMS01\_enp24s0f1"**  **channel-group 6 force mode active**  **interface Ethernet1/12**  **description "Connect\_VIETTELLAB.4G.IMS01\_enp24s0f3"**  **interface Ethernet1/13**  **description "Connect\_VIETTELLAB.4G.BACKUP\_enp24s0f1"**  **channel-group 7 force mode active**  **interface Ethernet1/14**  **description "Connect\_VIETTELLAB.4G.BACKUP\_enp24s0f3"**  **interface Ethernet1/15**  **description "Connect\_VIETTELLAB.4G.HSS\_enp24s0f1"**  **channel-group 8 force mode active**  **interface Ethernet1/16**  **description "Connect\_VIETTELLAB.4G.HSS\_enp24s0f3"**  **interface Ethernet1/17**  **description "Connect\_VIETTELLAB.4G.EPC03\_enp24s0f1"**  **channel-group 9 force mode active**  **interface Ethernet1/18**  **description "Connect\_VIETTELLAB.4G.EPC03\_enp24s0f3"**  **interface Ethernet1/19**  **description "Connect\_VIETTELLAB.4G.EPC02\_enp24s0f1"**  **channel-group 10 force mode active**  **interface Ethernet1/20**  **description "Connect\_VIETTELLAB.4G.EPC02\_enp24s0f3"**  **interface Ethernet1/21**  **description "Connect\_VIETTELLAB.4G.EPC01\_enp24s0f1"**  **channel-group 11 force mode active**  **interface Ethernet1/22**  **description "Connect\_VIETTELLAB.4G.EPC01\_enp24s0f3"**  **interface Ethernet1/23**  **description "Connect\_VIETTELLAB.4G.OAM\_enp24s0f1"**  **channel-group 12 force mode active**  **interface Ethernet1/24**  **description "Connect\_VIETTELLAB.4G.OAM\_enp24s0f3"**    **interface Ethernet1/25**  **description "Connect\_VIETTELLAB.4G.SW.MNGT.01\_E1/50"** |
| **Cấu hình VLAN** |
| **vlan 50**  **name VLAN\_DCN**  **vlan 66**  **name INTERNET**  **vlan 100**  **name EPC\_S1-U**  **vlan 101**  **name EPC\_S1-MME**  **vlan 102**  **name EPC\_SGs**  **vlan 103**  **name EPC\_Sgi-IMS**  **vlan 104**  **name EPC\_S6a**  **vlan 105**  **name EPC\_Gx**  **vlan 106**  **name EPC\_Gy**  **vlan 108**  **name EPC\_SGW\_S11**  **vlan 109**  **name EPC\_MME\_S11**  **vlan 110**  **name EPC\_PGW\_S5**  **vlan 111**  **name EPC\_SGW\_S5**  **vlan 112**  **name EPC\_internal**  **vlan 113**  **name EPC\_netconf**  **vlan 200**  **name IMS\_Sgi-IMS**  **vlan 201**  **name IMS\_Ro/Rx/Cx/Sh/Internal**  **vlan 400**  **name OCS\_Ro/Gy/Gx/Rx**  **vlan 500**  **name UDC\_S6a**  **vlan 501**  **name UDC\_Cx**  **vlan 700**  **name VLAN\_BACKUP\_ROUTE\_INTERNET**  **vlan 800**  **name VLAN\_BACKUP\_ROUTE\_MPBN**  **vlan 900**  **name VLAN\_BACKUP\_ROUTE\_DCN** |
| **Cấu hình interface Vlan.** |
| **interface Vlan10**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 192.168.100.3/29**  **no ipv6 redirects**  **vrrp 10**  **priority 253**  **authentication text VIETTEL**  **address 192.168.100.1**  **no shutdown**  **interface Vlan20**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 192.168.200.3/29**  **no ipv6 redirects**  **vrrp 20**  **priority 253**  **authentication text VIETTEL**  **address 192.168.200.1**  **no shutdown**  **interface Vlan30**  **no shutdown**  **vrf member DCN**  **no ip redirects**  **ip address 192.168.30.3/29**  **no ipv6 redirects**  **vrrp 30**  **priority 253**  **authentication text VIETTEL**  **address 192.168.30.1**  **no shutdown**  **interface Vlan50**  **description VLAN\_DCN**  **no shutdown**  **vrf member DCN**  **no ip redirects**  **ip address 10.70.66.3/26**  **no ipv6 redirects**  **vrrp 50**  **priority 253**  **authentication text VIETTEL**  **address 10.70.66.1**  **no shutdown**  **interface Vlan66**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 10.170.66.3/25**  **no ipv6 redirects**  **vrrp 66**  **priority 253**  **authentication text VIETTEL**  **address 10.170.66.1**  **no shutdown**  **interface Vlan101**  **description EPC\_S1-MME**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.11/29**  **no ipv6 redirects**  **vrrp 101**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.9**  **no shutdown**  **interface Vlan102**  **description EPC\_SGs**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.19/29**  **no ipv6 redirects**  **vrrp 102**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.17**  **no shutdown**  **interface Vlan104**  **description EPC\_S6a**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.35/29**  **no ipv6 redirects**  **vrrp 104**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.33**  **no shutdown**  **interface Vlan105**  **description EPC\_Gx**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.43/29**  **no ipv6 redirects**  **vrrp 105**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.41**  **no shutdown**  **interface Vlan106**  **description EPC\_Gy**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.51/29**  **no ipv6 redirects**  **vrrp 106**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.49**  **no shutdown**  **interface Vlan108**  **description EPC\_SGW\_S11**  **no shutdown**  **vrf member EPC**  **no ip redirects**  **ip address 172.16.1.59/29**  **no ipv6 redirects**  **vrrp 108**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.57**  **no shutdown**  **interface Vlan109**  **description EPC\_MME\_S11**  **no shutdown**  **vrf member EPC**  **no ip redirects**  **ip address 172.16.1.67/29**  **no ipv6 redirects**  **vrrp 109**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.65**  **no shutdown**  **interface Vlan110**  **description EPC\_PGW\_S5**  **no shutdown**  **vrf member EPC**  **no ip redirects**  **ip address 172.16.1.75/29**  **no ipv6 redirects**  **vrrp 110**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.73**  **no shutdown**  **interface Vlan111**  **description EPC\_SGW\_S5**  **no shutdown**  **vrf member EPC**  **no ip redirects**  **ip address 172.16.1.83/29**  **no ipv6 redirects**  **vrrp 111**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.81**  **no shutdown**  **interface Vlan112**  **description EPC\_internal**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.2.19/28**  **no ipv6 redirects**  **vrrp 112**  **priority 253**  **authentication text VIETTEL**  **address 172.16.2.17**  **no shutdown**  **interface Vlan113**  **description EPC\_netconf**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.2.35/28**  **no ipv6 redirects**  **vrrp 113**  **priority 253**  **authentication text VIETTEL**  **address 172.16.2.33**  **no shutdown**  **interface Vlan200**  **description IMS\_Sgi-IMS**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.2.51/28**  **no ipv6 redirects**  **vrrp 200**  **priority 253**  **authentication text VIETTEL**  **address 172.16.2.49**  **no shutdown**  **interface Vlan201**  **description IMS\_Ro/Rx/Cx/Sh/Internal**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.99/29**  **no ipv6 redirects**  **vrrp 201**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.97**  **no shutdown**  **interface Vlan202**  **description IMS\_Sgi-IMS**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.147/29**  **no ipv6 redirects**  **vrrp 202**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.145**  **no shutdown**  **interface Vlan203**  **description IMS\_Ro/Rx/Cx/Sh/Internal**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.155/29**  **no ipv6 redirects**  **vrrp 203**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.153**  **no shutdown**  **interface Vlan204**  **description IMS\_Sgi-IMS**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.163/29**  **no ipv6 redirects**  **vrrp 204**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.161**  **no shutdown**  **interface Vlan205**  **description IMS\_Ro/Rx/Cx/Sh/Internal**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.171/29**  **no ipv6 redirects**  **vrrp 205**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.169**  **no shutdown**  **interface Vlan300**  **description RAN\_S1-MME**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.107/29**  **no ipv6 redirects**  **vrrp 210**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.105**  **no shutdown**  **interface Vlan301**  **description RAN\_LTE-Uu**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.115/29**  **no ipv6 redirects**  **vrrp 211**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.113**  **no shutdown**  **interface Vlan400**  **description OCS\_Ro/Gy/Gx/Rx**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.123/29**  **no ipv6 redirects**  **vrrp 212**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.121**  **no shutdown**  **interface Vlan500**  **description UDC\_S6a**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.131/29**  **no ipv6 redirects**  **vrrp 213**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.129**  **no shutdown**  **interface Vlan501**  **description UDC\_Cx**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.139/29**  **no ipv6 redirects**  **vrrp 214**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.137**  **no shutdown**  **interface Vlan600**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 10.170.65.3/27**  **no ipv6 redirects**  **vrrp 66**  **priority 253**  **authentication text VIETTEL**  **address 10.170.65.1**  **no shutdown**  **interface Vlan700**  **description VLAN\_BACKUP\_ROUTE\_INTERNET**  **no shutdown**  **vrf member INTERNET\_SGi**  **no ip redirects**  **ip address 192.168.7.2/30**  **no ipv6 redirects**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0**  **interface Vlan800**  **description VLAN\_BACKUP\_ROUTE\_MPBN**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 192.168.8.2/30**  **no ipv6 redirects**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0**  **interface Vlan900**  **description VLAN\_BACKUP\_ROUTE\_DCN**  **no shutdown**  **vrf member DCN**  **no ip redirects**  **ip address 192.168.9.2/30**  **no ipv6 redirects**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0** |
| **Cấu hình LACP-Port channel** |
| **interface port-channel1**  **description "Connect\_VIETTELLAB.4G.OCS03"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,400**  **vpc 1**  **interface port-channel2**  **description "Connect\_VIETTELLAB.4G.OCS02"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,400**  **vpc 2**  **interface port-channel3**  **description "Connect\_VIETTELLAB.4G.OCS01"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,400**  **vpc 3**  **interface port-channel4**  **description "Connect\_VIETTELLAB.4G.IMS03"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,200-205**  **vpc 4**  **interface port-channel5**  **description "Connect\_VIETTELLAB.4G.IMS02"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,200-205**  **vpc 5**  **interface port-channel6**  **description "Connect\_VIETTELLAB.4G.IMS01"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,200-205**  **vpc 6**  **interface port-channel7**  **interface port-channel8**  **description "Connect\_VIETTELLAB.4G.HSS"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,500**  **vpc 8**  **interface port-channel9**  **description "Connect\_VIETTELLAB.4G.EPC03"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,100-113**  **vpc 9**  **interface port-channel10**  **description "Connect\_VIETTELLAB.4G.EPC02"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,100-113**  **vpc 10**  **interface port-channel11**  **description "Connect\_VIETTELLAB.4G.EPC01"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,100-113**  **vpc 11**  **interface port-channel12**  **description "VIETTELLAB.4G.OAM"**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 50,66,113**  **vpc 12**  **interface port-channel13**  **description "VIETTELLAB.4G.SW.MNGT.01"**  **switchport**  **switchport mode trunk**  **vpc 13**  **interface port-channel100**  **description Keepalive\_VIETTELLAB.4G.SW.GOM.01\_E1/47-48**  **vrf member VPC**  **ip address 192.168.1.2/30**  **interface port-channel101**  **description PeerLink\_VIETTELLAB.4G.SW.GOM.01\_E1/49-50**  **switchport**  **switchport mode trunk**  **switchport trunk allowed vlan 10,20,30,50,66,68,100-113,200-205,300-301,400,500-501,600,700,800,900**  **spanning-tree port type network**  **vpc peer-link** |
| **Cấu hình địa chỉ VRRP** |
| **interface Vlan500**  **description UDC\_S6a**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.131/29**  **no ipv6 redirects**  **vrrp 213**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.129**  **no shutdown**  **interface Vlan501**  **description UDC\_Cx**  **no shutdown**  **vrf member MPBN**  **no ip redirects**  **ip address 172.16.1.139/29**  **no ipv6 redirects**  **vrrp 214**  **priority 253**  **authentication text VIETTEL**  **address 172.16.1.137**  **no shutdown** |
| **Cấu hình VPC** |
| **feature vpc**  **vpc domain 1**  **peer-switch**  **peer-keepalive destination 192.168.1.1 source 192.168.1.2 vrf VPC**  **delay restore 150**  **peer-gateway**  **auto-recovery reload-delay 360**  **ip arp synchronize**  **interface port-channel1**  **vpc 1**  **interface port-channel2**  **vpc 2**  **interface port-channel3**  **vpc 3**  **interface port-channel4**  **vpc 4**  **interface port-channel5**  **vpc 5**  **interface port-channel6**  **vpc 6**  **interface port-channel8**  **vpc 8**  **interface port-channel9**  **vpc 9**  **interface port-channel10**  **vpc 10**  **interface port-channel11**  **vpc 11**  **interface port-channel12**  **vpc 12**  **interface port-channel13**  **vpc 13**  **interface port-channel101**  **vpc peer-link** |
| **Cấu hình OSPF** |
| **feature ospf**  **router ospf 1**  **vrf DCN**  **router-id 2.2.2.2**  **default-information originate route-map PERMIT\_ALL**  **redistribute direct route-map PERMIT\_ALL**  **redistribute static route-map PERMIT\_ALL**  **vrf INTERNET\_SGi**  **router-id 2.2.2.2**  **default-information originate route-map PERMIT\_ALL**  **redistribute direct route-map PERMIT\_ALL**  **redistribute static route-map PERMIT\_ALL**  **vrf MPBN**  **router-id 2.2.2.2**  **default-information originate route-map PERMIT\_ALL**  **redistribute direct route-map PERMIT\_ALL**  **redistribute static route-map PERMIT\_ALL**  **interface Vlan700**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0**  **interface Vlan800**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0**  **interface Vlan900**  **ip ospf authentication key-chain vht@123456**  **ip ospf authentication-key 3 2e489ab705a0b98f**  **ip ospf message-digest-key 123 md5 3 b915db3eca8a46fc280f901d82567602**  **ip ospf network point-to-point**  **ip router ospf 1 area 0.0.0.0** |
| **Cấu hình quản trị** |
| **interface mgmt0**  **vrf member management**  **vrf context management**  **ip route 0.0.0.0/0 10.70.66.65** |

1. **Hướng dẫn nâng cấp NX-OS, backup cấu hình.**
2. **Hướng dẫn backup cấu hình**

* **Cách 1: Back up the startup configuration to the bootflash**

switch# **copy startup-config bootflash:my-config**

* **Cách 2: back up the startup configuration to the TFTP server**

switch# **copy startup-config tftp://172.16.10.100/my-config**

* **Cách 3: backup file config to USB**

Step 1: Insert USB to port USB on device

Step 2: copy file config to USB

**# copy startup-config usb1: start.config**

**#copy running-config usb1: run.config**

1. **Hướng dẫn nâng cấp NX-OS**

* **Step 1: Thực hiện backup cấu hình trước khi nâng cấp.**

Thực hiện 1 trong 3 cách sau:

* **Cách 1: Back up the startup configuration to the bootflash**

switch# **copy startup-config bootflash:my-config**

* **Cách 2: back up the startup configuration to the TFTP server**

switch# **copy startup-config tftp://172.16.10.100/my-config**

* **Cách 3: backup file config to USB**

Step 1: Insert USB to port USB on device

Step 2: copy file config to USB

**# copy startup-config usb1: start.config**

**#copy running-config usb1: run.config**

* **Step 2: Thực hiện copy file NX-OS to bootflash.**

Cách 1: Copy từ USB to Bootflash:

switch# **copy usb1:*Tên file*  bootflash:*Tên file***

Ví dụ:

switch# **copy usb1:n9000-uk9.5.2.1.N2.2.bin bootflash:n5000-uk9.5.2.1.N2.2.bin**

Cách 2: Copy từ TFTP server to bootflash

switch# **copy TFTP://*Tên file*  bootflash:*Tên file***

* **Step 3: Thực hiện kiểm tra file đã có sẵn trong bộ nhớ Bootflash hay chưa.**

switch# dir bootflash:

* **Step 4: Thực hiện install file kickstart và NX-OS trong bộ nhớ bootflash.**

switch# **install all kickstart bootflash:*Tên file* system bootflash:*Tên file***

Ví dụ:

switch# **install all kickstart bootflash:n9000-uk9-kickstart.7.0.2.N1.1.bin system bootflash:n9000-uk9.7.0.2.N1.1.bin**

* **Step 5: Verify that the switch is running the required software**

switch# **show version**