



Pre-Packaged POAP Template

Introduction

There are three POAP network device templates pre-packaged and available by default in DCNM:

- Default Leaf Template
- Default Spine Template
- Default Border Leaf Template

Default Leaf Template

```
##template properties
name = Base_Leaf_Template;
description = This file specifies the template configuration for leaf
switch;
userDefined = false;
supportedPlatforms = N7K, N6K;
templateType = POAP;
published = true;
##
##template variables
@(IsSwitchName=true, UseDNSReverseLookup=true, IsMandatory=true,
Description="The host name of the switch")
string SWITCH_NAME;

@(IsManagementIP=true, IsMandatory=true, IsVPCPeerLinkSrc=true,
Description="Management IP address used by DCNM to monitor this
device")
ipV4Address MGMT_IP;

@(IsMandatory=true, Description="Management Prefix")
```

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```
integer MGMT_PREFIX;

@(IsMandatory=true, Description="Default Gateway IP address")
ipV4Address DEFAULT_GATEWAY;

@(IsMandatory=true, Description="Plain text or 5 encrypted")
string ADMIN_PASSWORD;

@(IsMandatory=true, IsSwitchRole=true, Description="The role of the
switch. e.g. leaf, spine")
string SWITCH_ROLE {
    defaultValue=leaf;
};

@(IsMandatory=true, IsFabricPort=true, Description="The comma and dash
separated list of fabric ports")
interfaceRange FABRIC_INTERFACES;

@(IsMandatory=true, IsHostPort=true, Description="The comma and dash
separated list of host ports")
interfaceRange HOST_INTERFACES;

@(IsMandatory=true, Description="Backbone VLAN ID")
integer BACKBONE_VLAN;

@(IsMandatory=true, Description="Backbone IP address/prefix")
string BACKBONE_IP;

@(IsMandatory=true, Description="Backbone IPv6 address/prefix")
string BACKBONE_IPV6;

@(IsMandatory=true)
string BGP_ROUTER_IP;

@(IsMandatory=true)
string BGP_RR_IP;

@(IsMandatory=true, Description="IP Address of the Auto-config LDAP
Server")
```

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```

ipV4Address LDAP_SERVER_IP;

@(IsMandatory=true, Description="IP Address of the XMPP Server")
ipV4Address XMPP_SERVER_IP;

@(IsMandatory=true, Description="FQDN of the XMPP Server")
string XMPP_SERVER;

@(IsMandatory=true, Description="Space separated XMPP Spine Group
Names")
string XMPP_GROUPS;

@(IsMandatory=true, Description="Password")
string XMPP_PASSWORD;

@(IsMandatory=true, Description="True if VPC should be configured")
boolean ENABLE_VPC;

@(IsVPCDomainID=true)
integer VPC_DOMAIN_ID;

@(IsVPCPeerLinkDst=true)
ipV4Address VPC_PEER_DST;

@(IsVPCPeerLinkPortChannel=true, IsVPCPort=true)
integer VPC_PEER_LINK_PORT_CHANNEL_NUMBER;

@(IsVPCPeerLinkPort=true)
interfaceRange VPC_PEER_LINK_IF_NAMES;

@(IsVPC=true)
struct VPC {
    @(IsVPCID=true, IsVPCPortChannel=true)
    integer ID;
    @(IsVPCPort=true)
    interface IF_NAME;
} VPC_ARRAY[];
##

```

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```
##template content
license grace-period
hostname $$SWITCH_NAME$$

install feature-set fabric
feature-set fabric
feature fabric forwarding

install feature-set fabricpath
feature-set fabricpath

!#Cable Management
feature lldp
feature cable-management
fabric connectivity tier 1

feature bgp
feature interface-vlan
feature vn-segment-vlan-based
feature dhcp
feature evb
feature pim
if( $$ENABLE_VPC$$ == "true") {
feature vpc
}

!#feature SPoM
feature fabric access

!### Vinci Multicast Forwarding (NGMVPN)
feature fabric multicast

!### Vinci passive PIM
ip multicast fabric-forwarding

fabric forwarding identifier 1
fabric forwarding anycast-gateway-mac 2020.0000.00AA
```

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```
fabric forwarding switch-role leaf

username admin password $$ADMIN_PASSWORD$$ role network-admin
no password strength-check
ip domain-lookup

!### Configure IP host for SPoM XMPP server below
ip host $$XMPP_SERVER$$ $$XMPP_SERVER_IP$$

!### Configure SPoM XMPP Server below
fabric access server $$XMPP_SERVER$$ vrf management password
$$XMPP_PASSWORD$$

!### Subscribe this device to this XMPP group
fabric access group $$XMPP_GROUPS$$

fabric database profile-map global
    ethernet-tag encapsulation dot1q default dynamic
    ethernet-tag encapsulation vni default dynamic
    vdp vni default dynamic

!### Configure fabric database location
!### db-table "ou=segments,dc=cisco,dc=com"
!### is a variable that should match the table
!### name that is populated in the LDAP database.
fabric database type asset
    server protocol ldap ip $$LDAP_SERVER_IP$$
    db-table ou=segments,dc=cisco,dc=com key-type 1

!### Enable global mobility-domain only when you
!### are going to use (vlan, mobility_domain) to search ADBM database
!### fabric database mobility-domain %mobility_domain

route-map FABRIC-RMAP-REDIST-HOST deny 10
    match interface Vlan $$BACKBONE_VLAN$$
route-map FABRIC-RMAP-REDIST-HOST permit 20
    match ip address HOSTS
```

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```

route-map FABRIC-RMAP-REDIST-V6HOST deny 10
  match interface Vlan $$BACKBONE_VLAN$$
route-map FABRIC-RMAP-REDIST-V6HOST permit 20
  match ip address V6HOSTS

ip dhcp snooping
service dhcp
ip dhcp relay
ip dhcp relay information option
ip dhcp relay information option vpn

interface Vlan $$BACKBONE_VLAN$$
  no shutdown
  ip address $$BACKBONE_IP$$
  ipv6 address $$BACKBONE_IPV6$$
  fabric forwarding control-segment

foreach FABRIC_INTERFACE in $$FABRIC_INTERFACES$$ {
interface @FABRIC_INTERFACE
  no shutdown
  switchport
  switchport mode fabricpath
  fabricpath isis hello-interval 100
  fabricpath isis retransmit-interval 10
  fabricpath isis retransmit-throttle-interval 200
}

foreach HOST_INTERFACE in $$HOST_INTERFACES$$ {
interface @HOST_INTERFACE
  switchport
  switchport mode trunk
  no shutdown
}

route-map ALL-PATHS permit 10
  set path-selection all advertise

vlan $$BACKBONE_VLAN$$

```

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```
mode fabricpath

router bgp 100
  router-id $$BGP_ROUTER_IP$$
  address-family ipv4 unicast
    redistribute hmm route-map FABRIC-RMAP-REDIST-HOST
    maximum-paths ibgp 2
    additional-paths receive
    additional-paths selection route-map ALL-PATHS
  address-family ipv6 unicast
    redistribute hmm route-map FABRIC-RMAP-REDIST-V6HOST
    maximum-paths ibgp 2
    additional-paths receive
    additional-paths selection route-map ALL-PATHS
  address-family vpnv4 unicast
    additional-paths receive
  address-family vpnv6 unicast
    additional-paths receive
  address-family ipv4 mvpn
    additional-paths receive
  address-family ipv6 mvpn
    additional-paths receive

neighbor $$BGP_RR_IP$$ remote-as 100
  address-family ipv4 unicast
    send-community both
  address-family ipv6 unicast
    send-community both
  address-family vpnv4 unicast
    send-community extended
  address-family vpnv6 unicast
    send-community extended
  address-family ipv4 mvpn
    send-community both
  address-family ipv6 mvpn
    send-community both

vrf context management
```

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```

ip route 0.0.0.0/0 $$DEFAULT_GATEWAY$$

interface mgmt0
  vrf member management
  no cdp enable
  ip address $$MGMT_IP$$/$$MGMT_PREFIX$$

system fabric dynamic-vlans 2500-3500

!###l3vm uses bootflash:platform.inf for the core vlans.
!###Please refer to CSCuj12763 for additional details
system fabric core-vlans 2500-2999

line console
  exec-timeout 0
line vty

if( $$ENABLE_VPC$$ == "true") {
vpc domain $$VPC_DOMAIN_ID$$
  peer-keepalive destination $$VPC_PEER_DST$$ source $$MGMT_IP$$ vrf
management
  delay restore 150
  auto-recovery
  fabricpath switch-id 200
  ip arp synchronize
  ipv6 nd synchronize

interface port-channel$$VPC_PEER_LINK_PORT_CHANNEL_NUMBER$$
  description "vpc-peer-link"
  switchport mode fabricpath
  spanning-tree port type network
  vpc peer-link
  fabricpath isis metric 200

foreach VPC_PEER_LINK_IF_NAME in $$VPC_PEER_LINK_IF_NAMES$$ {

interface @VPC_PEER_LINK_IF_NAME
  switchport mode fabricpath

```


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```
channel-group $$VPC_PEER_LINK_PORT_CHANNEL_NUMBER$$
}

foreach VPC in $$VPC_ARRAY$${

interface port-channel@VPC.ID
    switchport mode trunk
    vpc @VPC.ID

interface @VPC.IF_NAME
    switchport mode trunk
    channel-group @VPC.ID
}
}

!### Sample config for setting interface
!### address e.g. for connecting to
!### 101.101.101.91 ldap server

!interface Ethernet 1/18
! no switchport
! ip address 101.101.101.22/24
! no shutdown

configure profile vrf_tenant_profile
    vlan $id
        mode fabricpath
        vn-segment $segment
    interface vlan $id
        vrf member $vrfname
        ip address $$BACKBONE_IP$$
        ipv6 address $$BACKBONE_IPV6$$
        no shut
    exit

configure profile vrf-common
    vrf context $vrfName
        vni $include_l3_segid
```

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```
rd auto
address-family ipv4 unicast
  route-target both auto
router bgp $asn
  vrf $vrfName
    address-family ipv4 unicast
      redistribute hmm route-map FABRIC-RMAP-REDIST-HOST
      maximum-paths ibgp 2
exit

config profile GoldProfile
  interface vlan $vlanId
    vrf member $vrfName
    ip address $gatewayIpAddress/$netMaskLength
    ip dhcp relay address $dhcpServerAddr use-vrf default
    fabric forwarding mode proxy-gateway
    no ip redirects
    no shutdown
  vlan $vlanId
    vn-segment $segmentId
  include profile vrf-common
end

configure profile vrf-common-v6
  vrf context $vrfName
  vni $include_l3_segid
  rd auto
  address-family ipv6 unicast
    route-target both auto
  router bgp $asn
  vrf $vrfName
    address-family ipv6 unicast
      redistribute hmm route-map FABRIC-RMAP-REDIST-V6HOST
      maximum-paths ibgp 2
exit

config profile GoldProfile-v6
  interface vlan $vlanId
```

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```
vrf member $vrfName
ipv6 address $gatewayIpv6Address/$prefixLength
fabric forwarding mode proxy-gateway
no shutdown
vlan $vlanId
  vn-segment $segmentId
include profile vrf-common-v6
end

configure profile vrf-common-v4nv6
  vrf context $vrfName
    vni $include_l3_segid
    rd auto
    address-family ipv4 unicast
      route-target both auto
    address-family ipv6 unicast
      route-target both auto
    router bgp $asn
    vrf $vrfName
      address-family ipv4 unicast
        redistribute hmm route-map FABRIC-RMAP-REDIST-HOST
        maximum-paths ibgp 2
      address-family ipv6 unicast
        redistribute hmm route-map FABRIC-RMAP-REDIST-V6HOST
        maximum-paths ibgp 2
  exit

config profile GoldProfile-v4nv6
  interface vlan $vlanId
    vrf member $vrfName
    ip address $gatewayIpAddress/$netMaskLength
    ipv6 address $gatewayIpv6Address/$prefixLength
    ip dhcp relay address $dhcpServerAddr use-vrf default
    fabric forwarding mode proxy-gateway
    no ip redirects
    no shutdown
  vlan $vlanId
    vn-segment $segmentId
```

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```

include profile vrf-common-v4nv6
end
##

```

Default Spine Template

```

##template properties
name = Base_Spine_Template;
description = This file specifies the template configuration for spine
switch;
userDefined = false;
supportedPlatforms = N7K, N6K;
templateType = POAP;
published = true;
##

##template variables
@(IsSwitchName=true, UseDNSReverseLookup=true, IsMandatory=true,
Description="The host name of the switch")
string SWITCH_NAME;

@(IsManagementIP=true, IsMandatory=true, Description="Management IP
address used by DCNM to monitor this device")
ipV4Address MGMT_IP;

@(IsMandatory=true, Description="Management Prefix")
integer MGMT_PREFIX;

@(IsMandatory=true, Description="Default Gateway IP address")
ipV4Address DEFAULT_GATEWAY;

@(IsMandatory=true, Description="Plain text or 5 encrypted")
string ADMIN_PASSWORD;

@(IsMandatory=true, IsSwitchRole=true, Description="The role of the
switch. e.g. leaf, spine")
string SWITCH_ROLE {
    defaultValue=spine;
};

```

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```

@(IsMandatory=true, IsFabricPort=true, Description="The comma and dash
separated list of fabric ports")
interfaceRange FABRIC_INTERFACES;

@(IsMandatory=true, Description="Backbone VLAN ID")
integer BACKBONE_VLAN;

@(IsMandatory=true, Description="Backbone IP address")
ipV4Address BACKBONE_IP;

@(IsMandatory=true, Description="Backbone Prefix")
integer BACKBONE_PREFIX;

@(IsMandatory=true, Description="IP Address of the XMPP Server")
ipV4Address XMPP_SERVER_IP;

@(IsMandatory=true, Description="FQDN of the XMPP Server")
string XMPP_SERVER;

@(IsMandatory=true, Description="Space separated XMPP Spine Group
Names")
string XMPP_GROUPS;

@(IsMandatory=true)
string XMPP_PASSWORD;
##

##template content
license grace-period
hostname $$SWITCH_NAME$$

!### Traditional Forwarding
install feature-set fabricpath
feature-set fabricpath
feature interface-vlan

!### Enhanced Forwarding

```

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```

install feature-set fabric
feature-set fabric
feature fabric forwarding

!### Cable Management
feature lldp
feature cable-management
fabric connectivity tier 2

feature interface-vlan

!#feature SPoM
feature fabric access

fabric forwarding identifier 1
fabric forwarding switch-role spine

username admin password $$ADMIN_PASSWORD$$ role network-admin
no password strength-check
ip domain-lookup
!### Configure IP host for SPoM XMPP server below
ip host $$XMPP_SERVER$$ $$XMPP_SERVER_IP$$

!### Configure SPoM XMPP Server below
fabric access server $$XMPP_SERVER$$ vrf management password
$$XMPP_PASSWORD$$

!### Subscribe this device to this XMPP group
fabric access group $$XMPP_GROUPS$$

interface Vlan $$BACKBONE_VLAN$$
    no shutdown
    ip address $$BACKBONE_IP$$/$$BACKBONE_PREFIX$$
    fabric forwarding control-segment

foreach FABRIC_INTERFACE in $$FABRIC_INTERFACES$$ {
interface @FABRIC_INTERFACE
    switchport

```

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```
switchport mode fabricpath
no shutdown
fabricpath isis hello-interval 100
fabricpath isis retransmit-interval 10
fabricpath isis retransmit-throttle-interval 200
}

vlan $$BACKBONE_VLAN$$
  mode fabricpath

vrf context management
  ip route 0.0.0.0/0 $$DEFAULT_GATEWAY$$

interface mgmt0
  vrf member management
  no cdp enable
  ip address $$MGMT_IP$$/$$MGMT_PREFIX$$

line console
  exec-timeout 0
line vty
##
```

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