HOW TO FIND WHAT CONFIGURATION VALUES WERE USED DURING THE SETUP OF APIC1?

Setting up the APIC:
When the APIC is launched for the first time, the APIC console presents a series of initial setup options. For many options, you can press Enter to choose the default setting that is displayed in brackets. At any point in the setup dialog, you can restart the dialog from the beginning by pressing Ctrl-C.

Starting with APIC release 1.2(2x), during the initial setup the system will prompt you to select IPv4, or IPv6, or dual stack configuration. Choosing dual stack will enable accessing the APIC and ACI fabric out-of-band management interfaces with either IPv4 or IPv6 addresses. While the examples in the table below use IPv4 addresses, you can use whatever IP address configuration options you chose to enable during the initial setup.

Key Parameter Values that are used during the setup script:
- Fabric name
- Number of controllers
- Controller ID
- IP address pool for tunnel endpoint addresses (TEP)
- IP address pool for bridge domain multicast address (GIPO)
- Management interface speed/duplex mode
- VLAN ID for infrastructure network
- IPv4/IPv6 addresses for the out-of-band management
- IPv4/IPv6 addresses of the default gateway
- Strong password check

A common question asked by admin users when restoring an APIC\Fabric to factory defaults or adding an additional APIC to an existing fabric is "*How do I find the configuration settings that I used when I setup APIC1 during the setup script utility?*".

Note: The "**sam.config**" file located on the APIC in the /data directory will list the configuration parameters above. *"Root" access is required to see the entire contents of this directory. You will need to contact the Cisco ACI TAC so that they can assist you in getting temporary access to this file to retrieve the necessary information.*

Another is option is to run a set of commands on the APIC in which you can piece together the values used during the setup of APIC1.

APIC CLI COMMANDS:

FABRIC NAME
```
# Find the Fabric Domain Name configured on each APIC in Cluster
moquery –c infraCont | grep –E "dn|fbDmNm|size"
```

NUMBER OF CONTROLLERS
```
# Find the size of the Cluster
moquery –c infraClusterPol | grep "size"
```

CONTROLLER ID
Find the Controller ID with UUID for each APIC in Cluster
show controller detail | grep –E –B 1 –A 1 "Name"

IP ADDRESS POOL FOR TUNNEL ENDPOINT ADDRESSES (TEP)
Find the TEP Pool(s) and PodId(s) for the Fabric
moquery –c fabricSetupP | grep –E "podId|tepPool"

IP ADDRESS POOL FOR BRIDGE DOMAIN MULTICAST ADDRESS (GIPO)
Find the Multicast Address range pool. Must be a /15 for 128k address
From the infra default value you can determine what the pool address is.
For example, #.#.#.16 = #.#.#.0/15
moquery –c fvBD | grep –E "name|bcastP|dn" | grep –B 2 "infra"

MANAGEMENT INTERFACE SPEED/DUPLEX MODE
Find the management interface speed/duplex mode
BOND1 on the APIC are the 1gb connections for Out–Of–Band Management
Network.
cat /proc/net/bonding/bond1
ethtool eth1–1 | grep "–negotiation"
ethtool eth1–2 | grep "–negotiation"

VLAN ID FOR INFRASTRUCTURE NETWORK
Find the VLAN ID for infrastructure network
BOND0 on the APIC are the 10gb connections to Leaf Node Switches
Bond0 can have VLAN encaps for the "Infrastructure Network" and the "In–
Band Management Network". If you have "In–Band Management" configured then
simply check the vlan–encap used for INB mgmt EPG and remove that VLAN encap
ID from the output below. This will help identify the "Infrastructure
Network" ID used during the APIC setup configuration

Find "In–Band Management Network" vlan–encap
moquery –c mgmtInB | grep "encap"

List all Bond0 Link Encaps and by elimination the "In–Band Management"
vlan–encap you can determine the VLAN ID used for the infrastructure network
ifconfig | grep "bond0."

IPV4/IPV6 ADDRESSES FOR THE OUT-OF-BAND MANAGEMENT
Find IPv4/IPv6 addresses for the out–of–band management
show controller detail id 1 | grep "OOB"

IPV4/IPV6 ADDRESSES OF THE DEFAULT GATEWAY
Find IPv4/IPv6 addresses of the default gateway
netstat –A inet –rn | grep "oobmgmt"
netstat –A inet6 –rn | grep "oobmgmt"

IPV4 ADDRESS FOR THE TEP INFRASTRUCTURE NETWORK
Find the TEP address of the APIC (use the bond0.#### interface for
infrastructure network)
ifconfig –a bond0.4094 | grep "inet"

IPV4 ADDRESS OF THE DEFAULT GATEWAY FOR THE TEP INFRASTRUCTURE NETWORK

```
# Find the infrastructure network default gateway (use the bond0.####
interface for infrastructure network)
netstat -A inet -rn | grep bond0.4094
```

STRONG PASSWORD CHECK

```
# Strong password check configuration settings
moquery -c aaaUserEp | grep "pwdStrengthCheck"
```

OUTPUT EXAMPLES THAT CAN BE COMPARED TO THE "SAM.CONFIG" FILE

FABRIC NAME

```
rtp-f1-p1-apic1# moquery -c infraCont | grep -E "dn|fbDmNm|size"
dn            : topology/pod-1/node-1/av
fbDmNm        : tsi-fab1-rtp
size          : 3
dn            : topology/pod-2/node-2/av
fbDmNm        : tsi-fab1-rtp
size          : 3
dn            : topology/pod-1/node-3/av
fbDmNm        : tsi-fab1-rtp
size          : 3
```

NUMBER OF CONTROLLERS

```
rtp-f1-p1-apic1# moquery -c infraClusterPol | grep "size"
size          : 3
```

CONTROLLER ID

```
rtp-f1-p1-apic1# show controller detail | grep -E -B 1 -A 1 "Name"
ID                    : 1*
Name                  : rtp-f1-p1-apic1
UUID                  : eb9d0b1c-322b-11e6-ac7c-153c2ef5dee4
--
ID                    : 2
Name                  : rtp-f1-p2-apic2
UUID                  : 4ebcd246-3230-11e6-a0a8-8d8b58d1998f
--
ID                    : 3
Name                  : rtp-f1-p1-apic3
UUID                  : 0f3fb24a-3231-11e6-b132-fde02bffdbc5
```

IP ADDRESS POOL FOR TUNNEL ENDPOINT ADDRESSES (TEP)

```
rtp-f1-p1-apic1# moquery -c fabricSetupP | grep -E "podId|tepPool"
podId         : 1
tepPool       : 10.0.0.0/16
podId         : 2
tepPool       : 20.0.0.0/16
```

```
Note: This is a multi-pod setup and Pod2 was added after the initial setup
script.
```

IP ADDRESS POOL FOR BRIDGE DOMAIN MULTICAST ADDRESS (GIPO)
```
rtp-f1-p1-apic1# moquery -c fvBD | grep -E "name|bcastP|dn" | grep -B 2
"infra"
name                    : default
bcastP                  : 225.0.0.16
dn                      : uni/tn-infra/BD-default
```

Note: as mentioned above, the multicast address pool must be a /15 for 128k
addresses. From the infra default value, you can determine what the pool
address is 225.0.0.0/15.

MANAGEMENT INTERFACE SPEED/DUPLEX MODE
```
rtp-f1-p1-apic1# cat /proc/net/bonding/bond1
Ethernet Channel Bonding Driver: v3.7.1 (April 27, 2011)

Bonding Mode: fault-tolerance (active-backup)
Primary Slave: None
Currently Active Slave: eth1-1
MII Status: up
MII Polling Interval (ms): 60
Up Delay (ms): 0
Down Delay (ms): 0

Slave Interface: eth1-1
MII Status: up
Speed: 1000 Mbps
Duplex: full
Link Failure Count: 0
Permanent HW addr: 24:e9:b3:15:a0:ee
Slave queue ID: 0

Slave Interface: eth1-2
MII Status: down
Speed: Unknown
Duplex: Unknown
Link Failure Count: 0
Permanent HW addr: 24:e9:b3:15:a0:ef
Slave queue ID: 0

rtp-f1-p1-apic1# ethtool eth1-1 | grep "-negotiation"
6:      Supports auto-negotiation: Yes
11:     Advertised auto-negotiation: Yes
17:     Auto-negotiation: on

rtp-f1-p1-apic1# ethtool eth1-2 | grep "-negotiation"
6:      Supports auto-negotiation: Yes
11:     Advertised auto-negotiation: Yes
17:     Auto-negotiation: on
```

VLAN ID FOR INFRASTRUCTURE NETWORK
```
rtp-f1-p1-apic1# moquery -c mgmtInB | grep "encap"
encap         : vlan-1100

rtp-f1-p1-apic1# ifconfig | grep "bond0."
bond0     Link encap:Ethernet  HWaddr 90:E2:BA:4B:FC:78
bond0.1100 Link encap:Ethernet  HWaddr 90:E2:BA:4B:FC:78
bond0.4094 Link encap:Ethernet  HWaddr 90:E2:BA:4B:FC:78
```

If you remove the INB encap-vlan "1100" from the list, you can identify the
INFRA VLAN as "4094"

IPV4/IPV6 ADDRESSES FOR THE OUT-OF-BAND MANAGEMENT
```
rtp-f1-p1-apic1# show controller detail id 1 | grep "OOB"
OOB IPv4 Address    : 10.122.254.211
OOB IPv6 Address    : 2002:10:122:254::d3
```


IPV4/IPV6 ADDRESSES OF THE DEFAULT GATEWAY
```
rtp-f1-p1-apic1# netstat -A inet -rn | grep "oobmgmt"
0.0.0.0         10.122.254.1    0.0.0.0         UG          0 oobmgmt
10.122.254.0    0.0.0.0         255.255.255.0   U           0 oobmgmt

rtp-f1-p1-apic1# netstat -A inet6 -rn | grep "oobmgmt"
2002:10:122:254::1/128      ::              U    1024 0 oobmgmt
::/0                        2002:10:122:254::1  UG   1024 0 oobmgmt
2002:10:122:254::1/128      ::              U    1024 0 oobmgmt
2002:10:122:254::/64        ::              U    256  0 oobmgmt
fe80::/64                   ::              U    256  0 oobmgmt
::/0                        2002:10:122:254::1  UG   16   0 oobmgmt
ff02::1/128                 ff02::1         UC   0    0 oobmgmt
ff02::16/128                ff02::16        UC   0    0 oobmgmt
ff02::1:3/128               f02::1:3        UC   0    0 oobmgmt
ff00::/8                    ::              U    256  0 oobmgmt
```


IPV4 ADDRESS FOR THE TEP INFRASTRUCTURE NETWORK
```
rtp-f1-p1-apic1# ifconfig -a bond0.4094 | grep "inet"
      inet addr:10.0.0.1  Bcast:10.0.0.1  Mask:255.255.255.255
      inet6 addr: fe80::92e2:baff:fe4b:fc78/64 Scope:Link
```


**IPV4 ADDRESS OF THE DEFAULT GATEWAY FOR THE TEP INFRASTRUCTURE
NETWORK**
```
rtp-f1-p1-apic1# netstat -A inet -rn | grep bond0.4094
10.0.0.0        10.0.0.30       255.255.0.0     UG      0 0 bond0.4094
10.0.0.30       0.0.0.0         255.255.255.255 UH      0 0 bond0.4094
10.0.104.64     10.0.0.30       255.255.255.255 UGH     0 0 bond0.4094
10.0.104.66     10.0.0.30       255.255.255.255 UGH     0 0 bond0.4094
```


STRONG PASSWORD CHECK
```
rtp-f1-p1-apic1# moquery -c aaaUserEp | grep "pwdStrengthCheck"
pwdStrengthCheck : no
```

EXAMPLE OF A SAM.CONFIG FILE

```
root@apic1:/data# cat sam.config
[main]

oobIp6Addr=2002:10:122:254::d3
oobInterface2=eth1-2
fabricInterface=eth2-1
adminUser=admin
fabricInterface2=eth2-2
infraGateway=10.0.0.30
infraVlan=4094
oobInterfaceMode=auto
oobInterface=eth1-1
adminPasswd=$5$UW1DFhbtySxxFbiz$eEis50ocvfuJ6bHjwDHGDuOCprBPJ8tzn1hJnDAz9z7
firmwareVersion=2.1(1h)
oobIpNetmask=255.255.255.0
podId=1
tepPool=10.0.0.0/16
initClusterSize=3
oobIp6Netmask=
chassisId=eb9d0b1c-322b-11e6-ac7c-153c2ef5dee4
vsslCaCertPath=/securedata/vcacerts/
sslConfigPath=/securedata/ssl/
oobIpAddr=10.122.254.211/24
systemType=appliance
passwdStrength=Y
fabricId=1
switchFabric=A
systemID=1
vsslConfigPath=/securedata/vssl/
sslCaCertPath=/securedata/cacerts/
oobIp6Gateway=2002:10:122:254::1
passwdHint=
enableIPv6=Y
gipoPool=225.0.0.0/15
enableIPv4=Y
systemSerialNumber=FCH1745V13S
systemName=rtp-f1-p1-apic1
ifcIpAddr=10.0.0.1
oobIpGateway=10.122.254.1
fabricDomain=tsi-fab1-rtp
inbandDefaultRouteMetric=8
mgmtVlan=1100
inbandIp6Addr=2001:172:18:242::11
inbandIp6Gateway=2001:172:18:242::1
inbandIpAddr=172.18.242.11/26
inbandIpGateway=172.18.242.1
```

EXAMPLE OF A SAM.CONFIG FILE (cont.)

```
[log]
binaryLog=yes
rateLimit=yes
numRollovers=50
[comments]
ARCH=x86_64
BLDTYPE=final
generator=Auto-generated file from build/config.files/create_sam_config.py
PLATFORM=ifc
[custom]
bootstrapConfigFile=/var/run/mgmt/bootstrap.xml
profilesPath=/data2/profiles
securityDisabled=yes
commitLogPath=/var/run/mgmt/commitlog
svcDevMgrEnabled=yes
debugDumpDbPath=/data/techsupport/debug/db
prtDbPath=/var/run/mgmt/db
fwrepoDirectory=/var/run/mgmt/fwrepos/fwrepo
samcDstAdminPort=12001
sharedMetaFile=sharedmeta
sslOpflexEnabled=yes
samcDstPort=12003
svcChassisEnabled=yes
bioNamespace=jenkins
techsupDirectory=/data/techsupport
portOffset=12007
purgatory=/var/run/mgmt/purgatory
logDirectory=/var/run/mgmt/log
securepurgatory=/securedata/purgatory
samcSrcPort=12004
ifcSafetyPath=/var/run/mgmt/avdb
prtPeerPort=12005
bootscriptFile=/var/run/mgmt/bootscript
securePrtDbPath=/securedata/db
nginxFwRepoLocation=fwrepo
nginxPort=7777
samcSrcAdminPort=12002
sslEngineId=openssl
svcHealthBuckets=60
portServerPort=12006
primaryStatsDbPath=/data2/dbstats
```