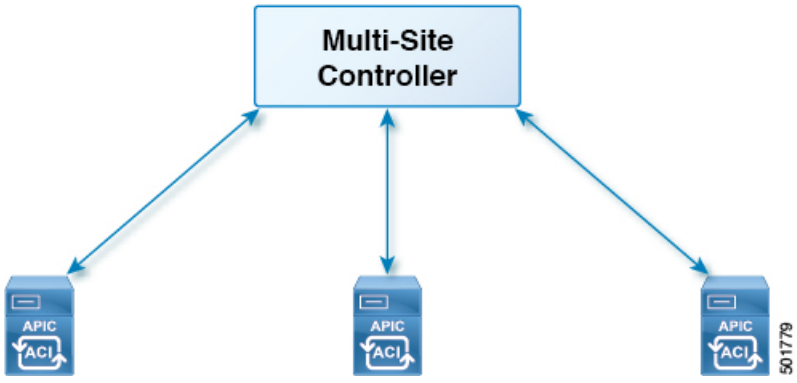
Troubleshooting Tools

This chapter contains the following sections:

Consistency Checker Overview

The Consistency Checker verifies deployments after the initial deploy operation, and integrates the results of this tool within the Cisco ACI Multi-Site user interface. This feature verifies cross mappings. Only usable on a template that has been deployed, that is stretched across at least two sites and contains at least one of the following policies:

- EPG
- VRF
- BD
- External EPG



Verifying a Template that has Been Deployed Across Sites

This section describes how to verify a template that has been deployed across sites.

Before you begin

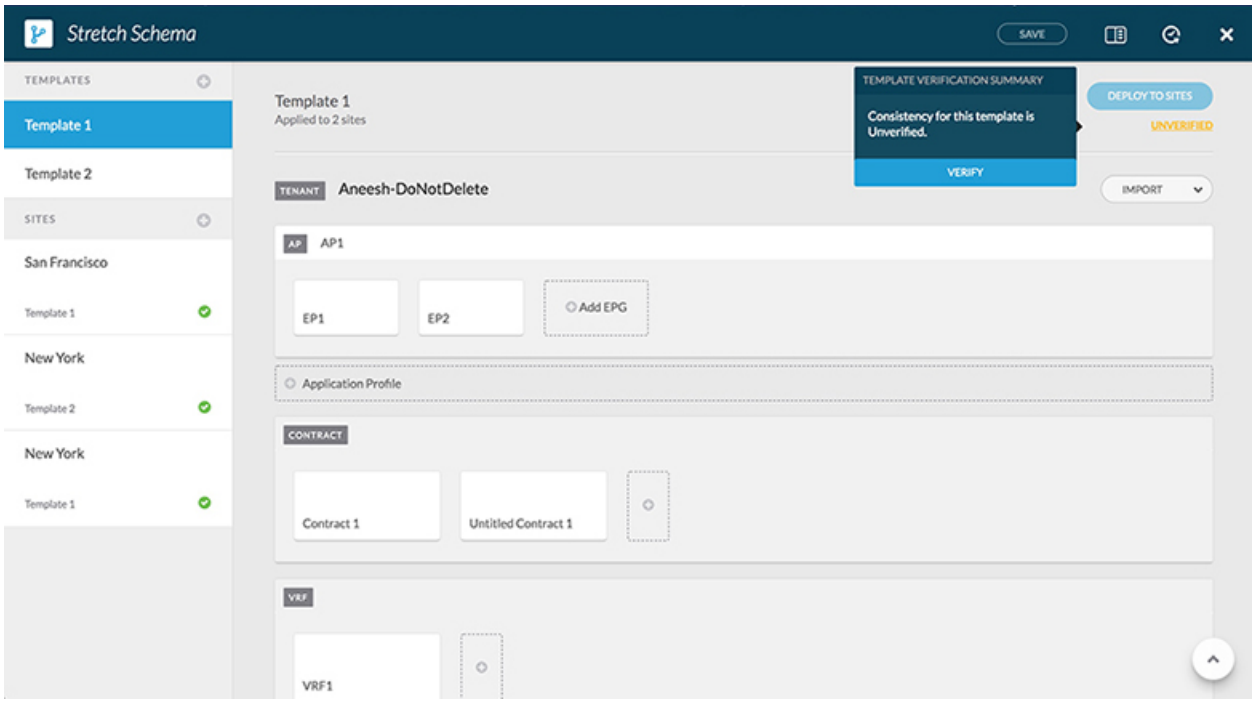
- The template that has been depolyed across at least two stretched sites and contains at least one of the following policies:
  - EPG
  - VRF
  - BD
  - External EPG

Step 1 Log in to the Multi-Site GUI.

Step 2 In the **Main Menu**, click **Schemas**, and on the Schema List page, choose the appropriate *schema_name*.

Step 3 Click on a deployed template.

Step 4 In the top right corner, click on **unverified**.



Step 5 In the **TEMPLATE VERIFICATION SUMMARY** dialog box, click **VERIFY**.

A popup message appears:

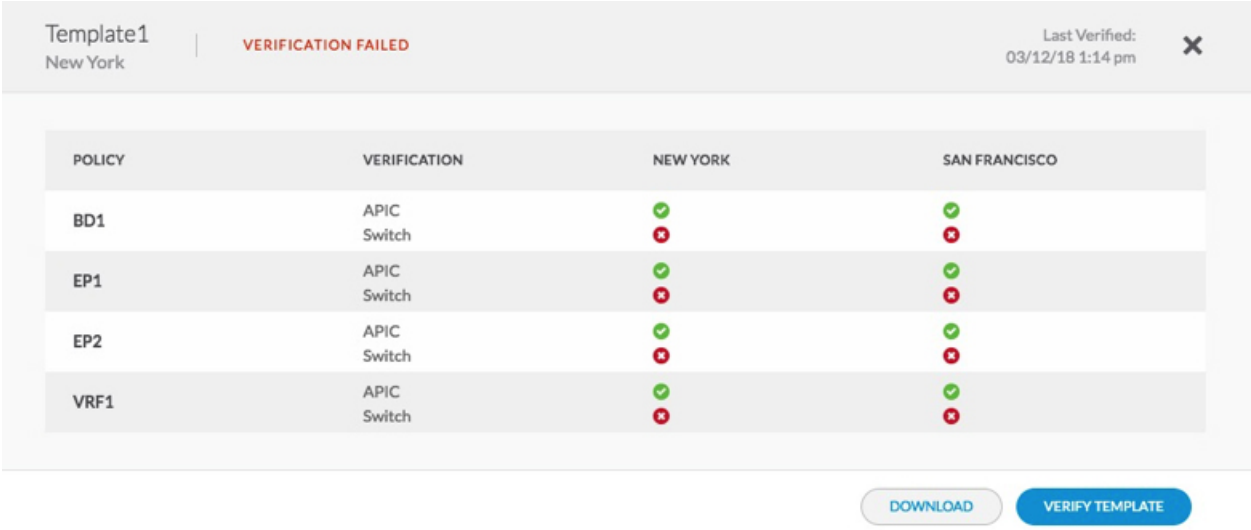
Consistency verification has been successfully triggered.

Step 6 The verification status will either be:

- **VERIFICATION SUCCESSFUL**—No action is needed.
- **VERIFICATION FAILED**—Action is needed.

a) If the verification failed, click **VERIFICATION FAILED**.
b) In the **TEMPLATE VERIFICATION SUMMARY** dialog box, for the site(s) that did fail, click on the pencil icon for a more detailed report of the template.

Example:



Hover over the red **x** for the description of the issue. The issue can either be **Not Found** (unable to locate) or **Mismatch** (misconfigured).

c) You can either click **DOWNLOAD** or **VERIFY TEMPLATE**.
- **DOWNLOAD**—Provides you the report for only the current site.
- **VERIFY TEMPLATE**—Provides you the verified template across all sites.

Setting Up a Scheduled Verification for Every Deployed Template

This section describes how to set up a scheduled verification for every deployed template on a per tenant basis.

Step 1 Log in to the Multi-Site GUI.

Step 2 In the **Main Menu**, click **Tenant**, and on the Tenant List page, click **Set Schedule** for the appropriate *tenant_name*.

Step 3 In the **Consistency Checker Scheduler Settings**, uncheck the **Disabler Schedule**, select the time and frequency.

a) Click **OK**.

Troubleshooting an Error

This section describes how to troubleshoot an error.

Step 1 Log in to the Multi-Site GUI.

Step 2 In the **Dashboard**, in the **SCHEMA HEALTH** section, in the view by field, click on the schema verification icon.

The small squares in a site represents the templates within the schema.

At a first glance, you can see what has passed, failed, or is unverified.

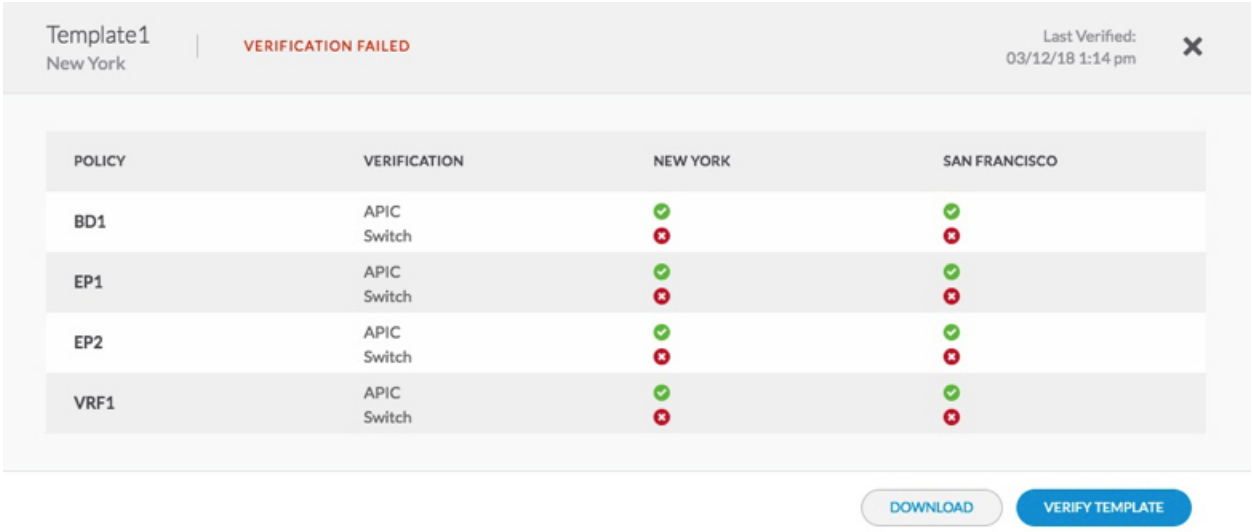
- **PASSED**—is in green.
- **FAILED**—is in red.
- **UNVERIFIED**—is in yellow.

Step 3 Expand the schema that contains a site in red to show the templates.

Step 4 If you hover over the red sites, it displays **FAILED**.

Step 5 You can click on the FAILED site and it will bring up a more detailed report.

Example:

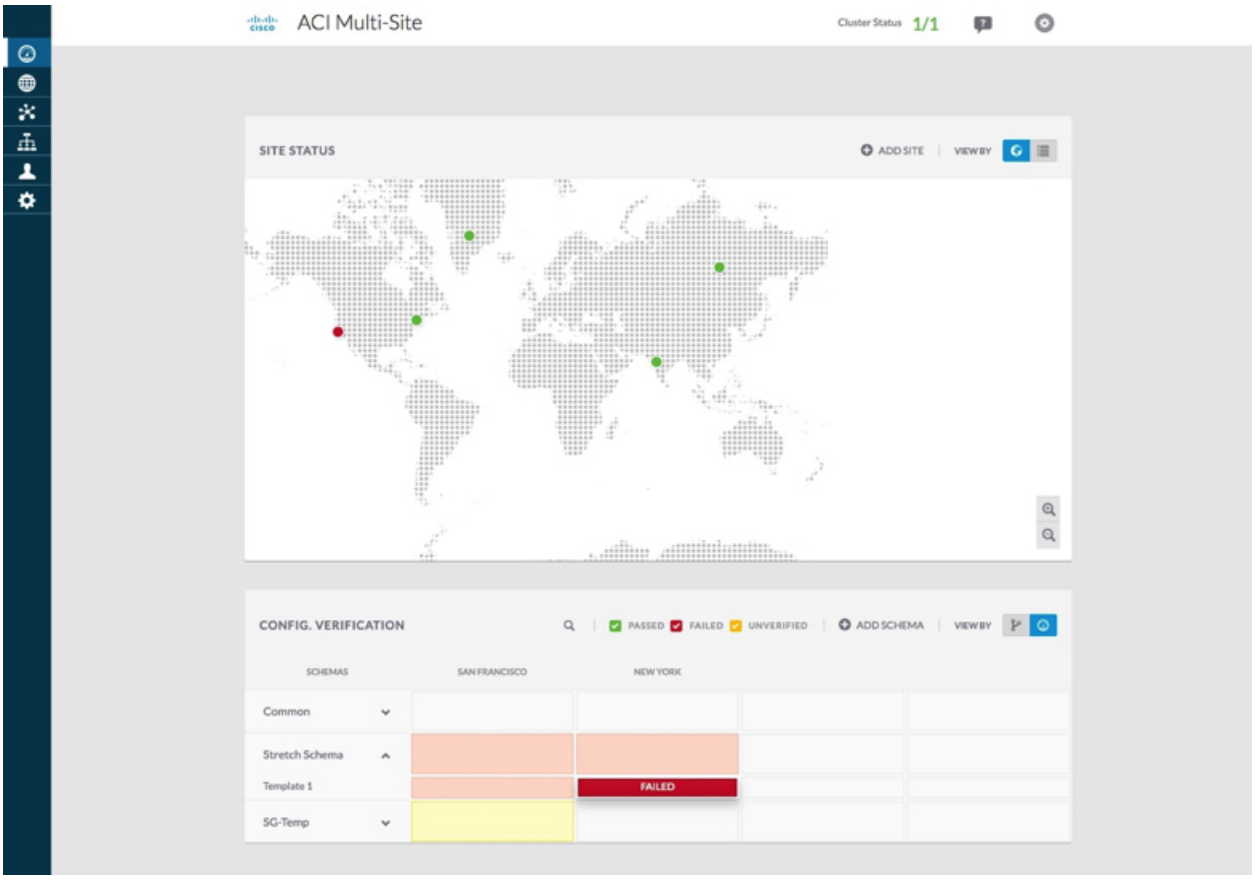


If you hover over the red **x** for the description of the issue. The issue can either be **Not Found** (unable to locate) or **Mismatch** (misconfigured).

a) You can either click **DOWNLOAD** or **VERIFY TEMPLATE**.

- **DOWNLOAD**—Provides you the report for only the current site.
- **VERIFY TEMPLATE**—Provides you the verified template across all sites.

Step 6 You can also see which templates passed, failed or are unverified.



Step 7 (Optional) You can verify the entire schema, click on the **…** and choose **Verify Schema**.

Step 8 (Optional) You can search by EPG, BD, VRF, or External EPG to find out which schema contains this policy.

Generating Troubleshooting Report and Logs

This section describes how to generate a troubleshooting report and infrastructure logs file for all the schemas, sites, tenants, and users that are managed by Cisco ACI Multi-Site Orchestrator.

Step 1 Log in to your Multi-Site Orchestrator GUI.

Step 2 In the top right corner, click the **Options** icon and select **System Logs**.

Step 3 Check the logs you want to download.

Check the **Database Backup** to download a backup of the Orchestrator database.

Check the **Server Logs** to download the Orchestrator logs.

Step 4 Click **DOWNLOAD**.

An archive of the selected items will be downloaded to your system. The report contains the following information:

- All schemas in JSON format

- All sites definitions in JSON format
- All tenants definitions in JSON format
- All users definitions in JSON format
- All logs of the containers in the `infra_logs.txt` file

Gathering Docker Container Information

You can log in to one of the Orchestrator VMs and gather information about the Docker services and its logs for specific containers. A number of useful Docker commands is available from the following cheat sheet: https://www.docker.com/sites/default/files/Docker_CheatSheet_08.09.2016_0.pdf.

Inspecting the Health of Docker Containers

To inspect the health of Docker services, you can use the `docker service ls` command. The output of the command lists the current health status of each service. All services should have all containers replicated as displayed in the `REPLICAS` column. If any one of them is down, there may be issues that need to be addressed.

```
# docker service ls
ID                  NAME                        MODE                REPLICAS  [...]
ve5m9lwb1qc4        msc_auditservice            replicated          1/1       [...]
bl0op2eli7bp        msc_authyldapservice        replicated          1/1       [...]
uxc6pgzficls        msc_authytacacsservice      replicated          1/1       [...]
qcws6ta7abwo        msc_backupservice           global              3/3       [...]
r4p3opyf5dkm        msc_cloudsecservice         replicated          1/1       [...]
xrm0c9vof3r8        msc_consistencyservice      replicated          1/1       [...]
le4gy9kov7ey        msc_endpointservice         replicated          1/1       [...]
micd93h5gj97        msc_executionengine         replicated          1/1       [...]
6wxh4mgnnfi9        msc_jobschedulerservice     replicated          1/1       [...]
lrj1764xw91g        msc_kong                    global              3/3       [...]
n351htjnks75        msc_kongdb                  replicated          1/1       [...]
xcikdpx9o3i6        msc_mongodb1                replicated          1/1       [...]
u9b9ihxxnztn        msc_mongodb2                replicated          1/1       [...]
m0byoou6zuv5        msc_mongodb3                replicated          1/1       [...]
logqawe8k3cg        msc_platformservice         global              3/3       [...]
m3sxof6odn74        msc_schemaservice           global              3/3       [...]
3wd4zrqf6kbk        msc_siteservice             global              3/3       [...]
ourza0yho7ei        msc_syncengine              global              3/3       [...]
ojb8jkkrawqr        msc_ui                      global              3/3       [...]
zm94hzmzzelg        msc_userservice             global              3/3       [...]
```

Getting Container IDs

You can get the list of all running container IDs using the `docker ps` command.

```
# docker ps
CONTAINER ID    IMAGE                          COMMAND                  [...]
05f75d088dd1    msc-ui:2.1.2g                  "/nginx.sh"              [...]
0ec142fc639e    msc-authyldap:v.4.0.6          "/app/authyldap.bin"     [...]
b08d78533b3b    msc-cloudsecservice:2.1.2g     "bin/cloudsecservice"    [...]
685f54b70a0d    msc-executionengine:2.1.2g     "bin/executionengine"    [...]
0c719107adce    msc-schemaservice:2.1.2g       "bin/schemaservice"      [...]
f2e3d144738c    msc-userservice:2.1.2g         "bin/userservice"        [...]
edd0d4604e27    msc-syncengine:2.1.2g          "bin/syncengine"         [...]
```

```
001616674a00    msc-siteservice:2.1.2g       "bin/siteservice"        [...]
7b30c61f8aa7    msc-platformservice:2.1.2g   "bin/platformservice"    [...]
d02923992d77    msc-backupservice:2.1.2g     "bin/backupservice"      [...]
9de72d291aaa    msc-kong:2.1.2g              "/docker-entrypoint.…"   [...]
6135f9de5dd2    msc-mongo:3.6                "sh -c 'sleep 3 && e…"   [...]
```

You can get the running container ID for a specific service using the `docker ps | grep <service-name>` command.

```
# docker ps | grep executionengine

685f54b70a0d    msc-executionengine:2.1.2g   "bin/executionengine"    [...]
```

To get all container IDs for a service, including the ones that are exited, you can use the `docker ps -a | grep <service-name>` command.

```
# docker ps -a | grep executionengine

685f54b70a0d    msc-executionengine:2.1.2g   "bin/executionengine"    Up 2 weeks (healthy)
3870d8031491    msc-executionengine:2.1.2g   "bin/executionengine"    Exited (143) 2 weeks
 ago
```

Viewing Container Logs

Use the `docker logs <container-id>` command to view the logs for a container. The logs for a container could be large as there are many files to be transferred, so consider your network speed when you run the command.

The sample location of the log files for a container is `/var/lib/docker/containers/<container>` There can be multiple `<container>-json.log` files.

```
# cd /var/lib/docker/containers
# ls -al
total 140
drwx------. 47 root root 4096 Jul  9 14:25 .
drwx--x--x. 14 root root 4096 May  7 08:31 ..
drwx------.  4 root root 4096 Jun 24 09:58
051cf8e374dd9a3a550ba07a2145b92c6065eb1071060abee12743c579e5472e
drwx------.  4 root root 4096 Jul 11 12:20
0eb27524421c2ca0934cec67feb52c53c0e7ec19232fe9c096e9f8de37221ac3
[...]
# cd 051cf8e374dd9a3a550ba07a2145b92c6065eb1071060abee12743c579e5472e/
# ls -al
total 48
drwx------.  4 root root 4096 Jun 24 09:58 .
drwx------. 47 root root 4096 Jul  9 14:25 ..
-rw-r-----.  1 root root 4572 Jun 24 09:58
051cf8e374dd9a3a550ba07a2145b92c6065eb1071060abee12743c579e5472e-json.log
drwx------.  2 root root    6 Jun 24 09:58 checkpoints
-rw-------.  1 root root 4324 Jun 24 09:58 config.v2.json
-rw-r--r--.  1 root root 1200 Jun 24 09:58 hostconfig.json
-rw-r--r--.  1 root root   13 Jun 24 09:58 hostname
-rw-r--r--.  1 root root  173 Jun 24 09:58 hosts
drwx------.  3 root root   16 Jun 24 09:58 mounts
-rw-r--r--.  1 root root   38 Jun 24 09:58 resolv.conf
-rw-r--r--.  1 root root   71 Jun 24 09:58 resolv.conf.hash
```

Viewing Docker Networks

You can view the list of networks used by Docker using the `docker network list` command.

```
# docker network list
NETWORK ID          NAME                DRIVER              SCOPE
```

```
c0ab476dfb0a        bridge              bridge              local
79f5e2d63623        docker_gwbridge     bridge              local
dee475371fcb        host                host                local
99t2hdts7et0        ingress             overlay             swarm
588qhaj3mrj1        msc_msc             overlay             swarm
a68901087366        none                null                local
```

Generating the API Call Logs

You can access the Multi-Site Orchestrator API call logs through the Infra Logs in a Troubleshooting Report. For information on generating troubleshooting, see Generating Troubleshooting Report and Logs, on page 5.

You can also access the API call logs Multi-Site with the following steps:

Step 1 Locate the worker node that has the `msc-executionengine` service running, as in the following example:

Example:

```
[root@worker1 ~]# docker ps
CONTAINER ID  IMAGE                          COMMAND                  CREATED      STATUS
  PORTS      NAMES
1538a9289381  msc-kong:latest                "/docker-entrypoin..."  2 weeks ago  Up 2 weeks
  7946/tcp,  msc_kong.1.ksdw45p0qhb6c08i3c8i4ketc

  8000-8001/tcp, 8443/tcp
cc693965f502  msc-executionengine:latest  "bin/executionengine"   2 weeks ago  Up 2 weeks (healthy)
  9030/tcp   msc_executionengine.1.nv4j5uj5786yj621wjxsxvgxl
00f627c6804c  msc-platformservice:latest  "bin/platformservice"   2 weeks ago  Up 2 weeks (healthy)
  9050/tcp   msc_platformservice.1.fw58jr62dfcme4noh67am0s73
```

In this case, on `cc693965f502` the image is `msc-executionengine:latest`, find the `-json.log`, that contains the API calls from Multi-Site to the APIC controllers.

Step 2 Enter the command in the following example:

Example:

```
# cd /var/lib/docker/containers/cc693965f5027f291d3af4a6f2706b19f4ccdf6610de3f7ccd32e1139e31e712
# ls
cc693965f5027f291d3af4a6f2706b19f4ccdf6610de3f7ccd32e1139e31e712-json.log checkpoints config.v2.json
 hostconfig.json hostname
hosts resolv.conf resolv.conf.hash shm

# less \
cc693965f5027f291d3af4a6f2706b19f4ccdf6610de3f7ccd32e1139e31e712-json.log | grep intersite
{"log":" \u003cfvBD name=\"internal\" arpFlood=\"yes\" intersiteBumTrafficAllow=\"yes\"
unkMacUcastAct=\"proxy\"
intersiteL2Stretch=\"yes\"\u003e\n","stream":"stdout","time":"2017-07-25T08:41:51.241428676Z"}
{"log":" \"intersiteBumTrafficAllow\" :
true,\n","stream":"stdout","time":"2017-07-27T07:17:55.418934202Z"}
{"log":" \"intersiteBumTrafficAllow\" :
true,\n","stream":"stdout","time":"2017-07-29T10:46:15.077426434Z"}
{"log":" \u003cfvBD name=\"internal\" arpFlood=\"yes\" intersiteBumTrafficAllow=\"yes\"
unkMacUcastAct=\"proxy\"
intersiteL2Stretch=\"yes\"\u003e\n","stream":"stdout","time":"2017-07-29T10:46:15.334099333Z"}
{"log":" \"intersiteBumTrafficAllow\" :
true,\n","stream":"stdout","time":"2017-07-29T11:57:09.361401249Z"}
{"log":" \"intersiteBumTrafficAllow\" :
true,\n","stream":"stdout","time":"2017-07-29T11:58:05.491624285Z"}
```

```
{"log":" \u003cfvBD name=\"internal\" arpFlood=\"yes\" intersiteBumTrafficAllow=\"yes\"
unkMacUcastAct=\"flood\"
intersiteL2Stretch=\"yes\"\u003e\n","stream":"stdout","time":"2017-07-29T11:58:05.673341176Z"}
{"log":" \u003cfvBD name=\"internal\" arpFlood=\"yes\" intersiteBumTrafficAllow=\"yes\"
unkMacUcastAct=\"flood\"
intersiteL2Stretch=\"yes\"\u003e\n","stream":"stdout","time":"2017-07-29T11:58:05.680167766Z"}
{"log":" \"intersiteBumTrafficAllow\" :
true,\n","stream":"stdout","time":"2017-07-29T11:58:44.826160838Z"}
{"log":" \u003cfvBD name=\"internal\" arpFlood=\"yes\" intersiteBumTrafficAllow=\"yes\"
unkMacUcastAct=\"proxy\"
intersiteL2Stretch=\"yes\"\u003e\n","stream":"stdout","time":"2017-07-29T11:58:45.008739316Z"}
{"log":" \u003cfvBD name=\"internal\" arpFlood=\"yes\" intersiteBumTrafficAllow=\"yes\"
unkMacUcastAct=\"proxy\"
intersiteL2Stretch=\"yes\"\u003e\n","stream":"stdout","time":"2017-07-29T11:58:45.008812862Z"}
```


Reading the Execution Log

The execution log provides three different kinds of log information:

- Websocket refresh information that is printed out every 5 minutes.

```
2017-07-11 18:02:45,541 [debug] execution.serice.monitor.WSAPicActor - WebSocket
connection open
2017-07-11 18:02:45,542 [debug] execution.serice.monitor.WSAPicActor - Client 3 intialized
2017-07-11 18:02:45,551 [debug] execution.serice.monitor.WSAPicActor - WSAPicActor
stashing message Monitor Policy(WSMonitorQuery(/api/class/fvRsNodeAtt,?subscript
2017-07-11 18:02:45,551 [debug] execution.serice.monitor.WSAPicActor - WSAPicActor
stashing message RefreshClientTokenFailed()
2017-07-11 18:02:45,551 [debug] execution.serice.monitor.WSAPicActor - WSAPicActor
stashing message RefreshClientToken()
2017-07-11 18:02:45,551 [debug] execution.serice.monitor.WSAPicActor - WSAPicActor
stashing message RefreshClientToken()
2017-07-11 18:02:50,042 [debug] execution.serice.monitor.WSAPicActor - Websocket
connection open
2017-07-11 18:02:50,042 [debug] execution.serice.monitor.WSAPicActor - Client 3 intialized
2017-07-11 18:02:50,043 [debug] execution.serice.monitor.WSAPicActor - Initiate WS
subscription for WSMonitorQuery(/api/class/fvRsNodeAtt,?subscript-yes&page-s
2017-07-11 18:02:50,047 [debug] execution.serice.monitor.WSAPicActor - WSAPicActor
stashing message RefreshClientToken()
2017-07-11 18:02:50,047 [debug] execution.serice.monitor.WSAPicActor - WSAPicActor
stashing message RefreshClientToken()
2017-07-11 18:02:50,180 [debug] execution.serice.monitor.WSAPicActor - WSAPicActor
stashing message akka.actor.LightArrayRevolerScheduler$TaskHolder@13d740ff
2017-07-11 18:02:55,221 [debug] execution.serice.monitor.WSAPicActor - Websocket
connection open
2017-07-11 18:02:55,222 [debug] execution.serice.monitor.WSAPicActor - Client 3 intialized
2017-07-11 18:02:55,233 [debug] execution.serice.monitor.WSAPicActor - Token Refreshed
2017-07-11 18:02:55,323 [debug] execution.serice.monitor.WSAPicActor - Token Refreshed
```

- The schema to push and the plan being generated.
- Websocket monitoring VNID for cross VNID programming.

Note the following signs of errors:

- Log lines starting with a red error.
- Stacktrace for exceptions.

Verifying Policy Resolution on APIC Sites

In this task, use a REST API MO query on local APIC sites or switches to view the policies resolved on an APIC, for a site managed by Cisco ACI Multi-Site.

For diagrams of the managed objects (MO) relationships, see the *Cisco APIC Management Information Model Reference* (MIM). For example, in the MIM, see the diagram for `fv:FabricExtConnP`.

Step 1 To view details for the logical MOs under the Fabric External Connection Profile (fabricExtConnP), log on to the APIC CLI and enter the following MO query:

Example:

```
admin@apic1:~> moquery -c fvFabricExtConnP -x "query-target=subtree"
| egrep "#|dn"
# fv.IntersiteMcastConnP
dn: uni/tn-infra/fabricExtConnP-1/intersiteMcastConnP
# fv.IntersitePeeringP
dn: uni/tn-infra/fabricExtConnP-1/ispeeringP
# fv.IntersiteConnP
dn: uni/tn-infra/fabricExtConnP-1/podConnP-1/intersiteConnP-[5.5.5.1/32]
# fv.Ip
dn: uni/tn-infra/fabricExtConnP-1/podConnP-1/ip-[5.5.5.4/32]
# fv.PodConnP
dn: uni/tn-infra/fabricExtConnP-1/podConnP-1
# fv.IntersiteConnP
dn: uni/tn-infra/fabricExtConnP-1/siteConnP-6/intersiteConnP-[6.6.6.1/32]
# fv.IntersiteMcastConnP
dn : uni/tn-infra/fabricExtConnP-1/siteConnP-6/intersiteMcastConnP
# fv.SiteConnP
dn: uni/tn-infra/fabricExtConnP-1/siteConnP-6
# l3ext.FabricExtRoutingP
dn: uni/tn-infra/fabricExtConnP-1/fabricExtRoutingP-default
# fv.FabricExtConnP
dn: uni/tn-infra/fabricExtConnP-1
```

Step 2 To view the logical MOs for the L3Out used for Multi-Site connections, log on to the APIC CLI and enter an MO query, such as the following:

Example:

```
admin@apic1:~> moquery -c l3extOut -x "query-target=subtree" | egrep
"#|dn.*intersite" | grep -B 1 dn
# bgp.ExtP
dn: uni/tn-infra/out-intersite/bgpExtP
# fv.RsCustQosPol
dn: uni/tn-infra/out-intersite/instP-intersiteInstP/rscustQosPol
# l3ext.InstP
dn: uni/tn-infra/out-intersite/instP-intersiteInstP
# bgp.AsP
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/infraPeerP-[6.6.6.3]/as
# bgp.RsPeerPfxPol
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/infraPeerP-[6.6.6.3]/rspeerPfxPol
# bgp.InfraPeerP
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/infraPeerP-[6.6.6.3]
# l3ext.RsEgressQosDppPol
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/lifp-port-1-1/rsegressQosDppPol
# l3ext.RsIngressQosDppPol
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/lifp-port-1-1/rsingressQosDppPol
# l3ext.RsNdIfPol
```

```
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/lifp-port-1-1/rsNdIfPol
# l3ext.RsPathL3OutAtt
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/lifp-port-1-1/rspathL3OutAtt-
[topology/pod-1/paths-501/pathep-[eth1/1]]
# ospf.RsIfPol
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/lifp-port-1-1/ospfIfP/rsIfPol
# ospf.IfP
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/lifp-port-1-1/ospfIfP
# l3ext.LIfP
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/lifp-port-1-1
# l3ext.InfraNodeP
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/rsnodeL3OutAtt-
[topology/pod-1/node-501]/infranodep
# l3ext.IntersiteLoopBackIfP
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/rsnodeL3OutAtt-
[topology/pod-1/node-501]/sitelbp-[5.5.5.3]
# l3ext.RsNodeL3OutAtt
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile/rsnodeL3OutAtt-
[topology/pod-1/node-501]
# l3ext.LNodeP
dn: uni/tn-infra/out-intersite/lnodep-node-501-profile
# l3ext.RsEctx
dn: uni/tn-infra/out-intersite/rsectx
# l3ext.RsL3DomAtt
dn: uni/tn-infra/out-intersite/rsl3DomAtt
# ospf.ExtP
dn: uni/tn-infra/out-intersite/ospfExtP
# l3ext.Out
dn: uni/tn-infra/out-intersite--
# l3ext.ConfigOutDef
dn: uni/tn-infra/out-intersite/instP-intersiteInstP/configOutDef
```

Step 3 To view the resolved MOs for an APIC local site, log on to the APIC CLI and enter an MO query such as the following:

Example:

```
admin@apic1:~> moquery -c fvSite -x "query-target=subtree" | egrep "#|dn"
# fv.RemoteBdDef
dn: resPolCont/sitecont/site-6/remotebddef-[uni/tn-msite-tenant-welkin/BD-internal]
# fv.RemoteCtxDef
dn: resPolCont/sitecont/site-6/remotectxdef-[uni/tn-msite-tenant-welkin/ctx-dev]
# fv.RemoteEPgDef
dn: resPolCont/sitecont/site-6/remoteepgdef-[uni/tn-msite-tenant-welkin/ap-Ebiz/epg-data]
# fv.RemoteEPgDef
dn: resPolCont/sitecont/site-6/remoteepgdef-[uni/tn-msite-tenant-welkin/ap-Ebiz/epg-web]
# fv.Site
dn: resPolCont/sitecont/site-6
# fv.LocalBdDef
dn: resPolCont/sitecont/site-5/localbddef-[uni/tn-msite-tenant-welkin/BD-internal]
# fv.LocalCtxDef
dn: resPolCont/sitecont/site-5/localctxdef-[uni/tn-msite-tenant-welkin/ctx-dev]
# fv.LocalEPgDef
dn: resPolCont/sitecont/site-5/localepgdef-[uni/tn-msite-tenant-welkin/ap-Ebiz/epg-web]
# fv.LocalEPgDef
dn: resPolCont/sitecont/site-5/localepgdef-[uni/tn-msite-tenant-welkin/ap-Ebiz/epg-data]
# fv.Site
dn: resPolCont/sitecont/site-5
```

Step 4 To view the concrete MOs on a switch for a Multi-Site site, log on to the switch and enter an MO query such as the following:

Example:

```
spine501# moquery -c dci.LocalSite -x "query-target=subtree" | egrep "#|dn"
# l2.RtToLocalBdSubstitute       //(site5 vrf 2195456 -> bd 15794150 is translated to
```

```
site6 vrf 2326528 -> bd 16449430)
dn: sys/inst-overlay-1/localSite-5/localCtxSubstitute-[vxlan-2195456]/localBdSubstitute-
[vxlan-15794150]/rttoLocalBdSubstitute-[sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-
[vxlan-2326528]/remoteBdSubstitute-[vxlan-16449430]]
# l2.LocalBdSubstitute
dn: sys/inst-overlay-1/localSite-5/localCtxSubstitute-[vxlan-2195456]/localBdSubstitute-
[vxlan-15794150]
# l2.RtToLocalPcTagSubstitute    //(site5 vrf 2195456 -> pcTag 49154 is translated to
site6 vrf 2326528 - > pcTag 32770)
dn: sys/inst-overlay-1/localSite-5/localCtxSubstitute-[vxlan-2195456]/localPcTagSubstitute-
49154/rttoLocalPcTagSubstitute-[sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-
[vxlan-2326528]/remotePcTagSubstitute-32770]
# l2.LocalPcTagSubstitute
dn: sys/inst-overlay-1/localSite-5/localCtxSubstitute-[vxlan-2195456]/localPcTagSubstitute-
49154# l2.RtToLocalPcTagSubstitute    //(site5 vrf 2195456 -> pcTag 16387 is translated to site6
vrf 2326528 - > pcTag 16386)
dn: sys/inst-overlay-1/localSite-5/localCtxSubstitute-[vxlan-2195456]/localPcTagSubstitute-
16387/rttoLocalPcTagSubstitute-[sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-
[vxlan-2326528]/remotePcTagSubstitute-16386]
# l2.LocalPcTagSubstitute
dn: sys/inst-overlay-1/localSite-5/localCtxSubstitute-[vxlan-2195456]/localPcTagSubstitute-
16387# l3.RtToLocalCtxSubstitute      //(site5 vrf 2195456  is translated to site6 vrf 2326528)
dn: sys/inst-overlay-1/localSite-5/localCtxSubstitute-[vxlan-2195456]/rttoLocalCtxSubstitute-
[sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]]
# l3.LocalCtxSubstitute
dn: sys/inst-overlay-1/localSite-5/localCtxSubstitute-[vxlan-2195456]
# dci.LocalSite
dn: sys/inst-overlay-1/localSite-5
```

What to look for: The output displays the data translated between sites. In this example, the original data on the sites was as follows:

- site5 vrf msite-tenant-welkin:dev -> vxlan 2195456, bd internal -> vxlan 15794150, epg web: access-encap 200 → pcTag 49154, access-encap 201 → pcTag 16387
- site6 vrf msite-tenant-welkin:dev -> vxlan 2326528, bd internal -> vxlan 16449430, epg web: access-encap 200 ->pcTag 32770,access-encap 201 ->pcTag 16386

Step 5 To verify the concrete MOs for a remote site, enter an MO query such as the following:

Example:

```
spine501# moquery -c dci.RemoteSite -x "query-target=subtree"
| egrep "#|dn"
# dci.AnycastExtn
dn: sys/inst-overlay-1/remoteSite-6/anycastExtn-[6.6.6.1/32]
// attribute is_unicast is Yes, Unicast ETEP
# dci.AnycastExtn
dn: sys/inst-overlay-1/remoteSite-6/anycastExtn-[6.6.6.2/32]
// attribute is_unicast is No, Multicast ETEP
# l2.RsToLocalBdSubstitute
dn: sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]/remoteBdSubstitute-
[vxlan-16449430]/rsToLocalBdSubstitute
# l2.RemoteBdSubstitute
dn: sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]/remoteBdSubstitute-
[vxlan-16449430]
# l2.RsToLocalPcTagSubstitute
dn: sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]/remotePcTagSubstitute-
32770/rsToLocalPcTagSubstitute
# l2.RemotePcTagSubstitute
dn: sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]/remotePcTagSubstitute-
32770# l2.RsToLocalPcTagSubstitute
dn: sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]/remotePcTagSubstitute-
```

```
16386/rsToLocalPcTagSubstitute
# l2.RemotePcTagSubstitute
dn: sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]/remotePcTagSubstitute-
16386# l3.RsToLocalCtxSubstitute
dn: sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]/rsToLocalCtxSubstitute
# l3.RemoteCtxSubstitute
dn: sys/inst-overlay-1/remoteSite-6/remoteCtxSubstitute-[vxlan-2326528]
# dci.RemoteSite
dn: sys/inst-overlay-1/remoteSite-6
```