



Big Cloud Fabric REST API

Preview (beta)

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Beta Preview

While the formal documentation for the REST API is underway, this documentation serves as a preview.

A goal at Big Switch is to ease entry for traditional network operations and automation engineering accustomed to CLI to make the transition to an API driven provisioning and troubleshooting approach. The CLI has a mode to interactively explore the REST API known as “debug rest.” In this mode, all REST API calls made by the CLI will be echoed to the console.

Two modes are available (examples below): “debug rest” (requests shown only) and “debug rest detail” (request and response). This document shows a series of examples using “debug rest” and “debug rest detail” on a minimal configuration to give a feel for the data model exposed by the API.

Please note that the API here is currently in beta. Changes to syntax should be expected as feature naming is finalized, and minor changes to semantics of the data model may occur before final release.

Example: debug rest / show running-config on an empty configuration

```
k-ih-060214# confk-ih-060214(config)# debug rest***** Enabled display rest mode
*****REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/controller/roleREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role done, 0:00:00.006894k-
ih-060214(config)# show runREST-POST: POST
```

http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event {"attribute": [{"value": "show run", "key": "cmd_args"}], "event-type": "cli.command", "session-cookie": "iFCeXmFEwBSunASBYEexkprEP0up6wpo"}REST-POST:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event done
0:00:00.012200REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/local-user?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/local-user?config=true done,
0:00:00.007196REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/os/config/local-node?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/os/config/local-node?config=true done,
0:00:00.018403REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/group?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/group?config=true done,
0:00:00.011107REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/tacacs?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/tacacs?config=true done,
0:00:00.006109

REST-SIMPLE: GET http://127.0.0.1:8080/api/v1/data/controller/core/aaa/accountingREST-SIMPLE: http://127.0.0.1:8080/api/v1/data/controller/core/aaa/accounting done,
0:00:00.008096REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/authorizerREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/authorizer done,
0:00:00.011764REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/authenticatorREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/authenticator done,
0:00:00.011536REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/os/config/global?select=login-banner&config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/os/config/global?select=login-banner&config=true done, 0:00:00.011542 REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/cluster?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/cluster?config=true done,
0:00:00.005690REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/os/config/global?select=virtual-ip-config&config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/os/config/global?select=virtual-ip-config&config=true done, 0:00:00.006401 REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/os/config/global/snmp-config?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/os/config/global/snmp-config?config=true done, 0:00:00.049529 REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/global-setting?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/global-setting?config=true done, 0:00:00.007743 REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/os/config/global/time-config?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/os/config/global/time-config?config=true done, 0:00:00.006159 REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/switch-config?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/switch-config?config=true done,
0:00:00.006741REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/os/config/global/logging-config?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/os/config/global/logging-config?config=true done, 0:00:00.014103 REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/monitor-session?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/monitor-session?config=true done, 0:00:00.007667 REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/port-group?config=trueREST-SIMPLE: http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/port-group?config=true done, 0:00:00.005977REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/tenant?config=trueREST-SIMPLE: http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/tenant?config=true done, 0:00:00.012776REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/image/file?config=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/image/file?config=true done,

```

0:00:00.007062REST-SIMPLE: GET http://127.0.0.1:8080/api/v1/schema/controllerREST-SIMPLE:
http://127.0.0.1:8080/api/v1/schema/controller done, 0:00:00.240284!! Big Cloud Fabric
Appliance 2.0.11-SNAPSHOT (bvs master #1980)! Current Time: 2014-06-02.10:00:08!version
1.0

! ntpntp server 0.bigswitch.pool.ntp.org

! aaaaaa accounting exec default start-stop local

! local local node

hostname k-ih-060214 interface ethernet0

ip 192.168.127.138/24 gateway 192.168.127.1 service apiservice openflowservice secure-api
service secure-web service ssh service sync service syslog service web

! user user admin

full-name 'Default admin'hashed-password
method=PBKDF2WithHmacSHA1,salt=WxBhDfp1U19DZUoepwdZdQ,rounds=10000,pXScqf2RV1B-
2qLp50wAIAFjPlf4SWcX7xZkZUoqiYc

! group group admin

associate user admin

! controller controller

name k-ih-060214-clusterREST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/controller/roleREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role done, 0:00:00.006793

k-ih-060214(config)#

```

Example: show run on a minimal configuration

This configuration is in the samples that follow.

```

k-ih-060214(config)# show run!! Big Cloud Fabric Appliance 2.0.11-SNAPSHOT (bvs master
#1980) ! Current Time: 2014-06-02.10:32:41!version 1.0

! ntpntp server 0.bigswitch.pool.ntp.org

! aaaaaa accounting exec default start-stop local

! local local node

hostname k-ih-060214 interface ethernet0

ip 192.168.127.138/24 gateway 192.168.127.1 service apiservice openflowservice secure-api

```

```

service secure-web service ssh service sync service syslog service web

! user user admin

full-name 'Default admin'hashed-password
method=PBKDF2WithHmacSHA1,salt=WxBhDfp1U19DZUoepwdZdQ,rounds=10000,pXScqf2RV1B-
2qLp50wAIAFjPlf4SWcX7xZkZUoqiYc

! group group admin

associate user admin

! controller controller

name k-ih-060214-cluster

! switch switch leaf1-1

fabric-role leaf leaf-group leaf-group1 mac 00:00:00:02:00:01 interface leaf0a-eth10
interface leaf0a-eth11 interface leaf0a-eth8 interface leaf0a-eth9

switch leaf1-2 fabric-role leaf leaf-group leaf-group1 mac 00:00:00:02:00:02 interface
leaf0b-eth10 interface leaf0b-eth11 interface leaf0b-eth8 interface leaf0b-eth9

switch leaf2-1 fabric-role leaf leaf-group leaf-group2 mac 00:00:00:02:00:03 interface
leaf1a-eth8 interface leaf1a-eth9

switch leaf2-2 fabric-role leaf leaf-group leaf-group2 mac 00:00:00:02:00:04 interface
leaf1b-eth8 interface leaf1b-eth9

switch spine1 fabric-role spinemac 00:00:00:01:00:01

switch spine2 fabric-role spinemac 00:00:00:01:00:02

! port-group port-group pg-bm0

member switch leaf1-1 member switch leaf1-2

port-group pg-bm1 member switch leaf1-1 member switch leaf1-2

port-group pg-bm2 member switch leaf1-1 member switch leaf1-2

port-group pg-bm3 member switch leaf1-1 member switch leaf1-2

port-group pg-bm4

member switch leaf2-1 interface leaf1a-eth8 member switch leaf2-2 interface leaf1b-eth8

port-group pg-bm5member switch leaf2-1 interface leaf1a-eth9 member switch leaf2-2
interface leaf1b-eth9

! tenant tenant coke

logical-routerroute 11.0.0.0/24 next-hop tenant system interface segment web

ip address 10.0.0.254/24 interface tenant system

segment webmember port-group pg-bm0 vlan untagged member port-group pg-bm1 vlan untagged

k-ih-060214(config)#

```

Example: debug rest detail / show tenant

```
k-ih-060214(config)# show tenant cokeREST-POST: POST
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event {"attribute":
[{"value": "show tenant coke", "key": "cmd_args"}], "event-type":
"cli.command", "session-cookie": "iFCeXMfEwBSunASBYEexkprEP0up6wpo"}REST-POST:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event done
0:00:00.005562REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/info/endpoint-
manager/tenant%5Bname%3D%22coke%22%5DREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/info/endpoint-
manager/tenant%5Bname%3D%22coke%22%5D 0:00:00.008201 reply "[ {

    "endpoint-count" : 0,
    "name" : "coke",
    "port-count" : 2,
    "segment-count" : 1
} ]"# Tenant Name Total Segments Total endpoints Total ports-|-----|-----
-----|-----|-----|1coke 1 0 2REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/controller/roleREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role
0:00:00.004744 reply "[ "active" ]"

k-ih-060214(config)# !show tenant coke gives the view summary. Show run tenant
coke gives the running config underneath this tenantk-ih-060214(config)# k-ih-
060214(config)# show run tenant cokeREST-POST: POST
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event {"attribute":
[{"value": "show run tenant coke", "key": "cmd_args"}], "event-type":
"cli.command", "session-cookie": "iFCeXMfEwBSunASBYEexkprEP0up6wpo"}

REST-POST: http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event
done 0:00:00.005345REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/tenant?select=nam
eREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/tenant?select=nam
e 0:00:00.005618 reply "[ {

    "name" : "coke"
} ]"
REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/tenant%5Bname%3D%
22coke%22%5D?config=true REST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/tenant%5Bname%3D%
22coke%22%5D?config=true 0:00:00.005869 reply "[ {

    "logical-router" : {
        "routes" : [ {
"dest-ip-subnet" : "11.0.0.0/24", "next-hop" : {

            "tenant-name" : "system"
        }
    } ],
    "segment-interface" : [ {
        "active" : true,
```

```

        "dhcp-relay" : {
"dhcp-relay-enable" : false },

"ip-subnet" : {"ip-cidr" : "10.0.0.254/24", "private" : false
},

        "segment" : "web"
    } ],
    "tenant-interfaces" : [ {
        "active" : true,
        "tenant-name" : "system"
    } ] },

    "name" : "coke",
    "segment" : [ {
"internal-vlan" : 2,"name" : "web", "port-group-membership-rule" : [ {

        "port-group" : "pg-bm0",
        "vlan" : -1
    }, {
        "port-group" : "pg-bm1",
        "vlan" : -1 } ]
    } ] } ]"

! tenant
tenant coke
logical-router route 11.0.0.0/24 next-hop tenant system interface segment web

        ip address 10.0.0.254/24
        interface tenant system
segment web member port-group pg-bm0 vlan untagged member port-group pg-bm1 vlan
untagged

REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/controller/roleREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role
0:00:00.005543 reply "[ "active" ]" k-ih-060214(config)#

```

Example: debug rest detail / show segment

```

k-ih-060214(config)# tenant coke; show segment webREST-POST: POST
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event {"attribute":
[{"value": "tenant coke", "key": "cmd_args"}], "event-type": "cli.command",
"session-cookie": "iFCeXMfEwBSunASBYEexkprEP0up6wpo"}REST-POST:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event done
0:00:00.008335REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/tenant%5Bname%3D%
22coke%22%5D?select=name&single=trueREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/tenant%5Bname%3D%
22coke%22%5D?select=name&single=true 0:00:00.005892 reply "{
    "name" : "coke"
}"
REST-SIMPLE: GET

```

```

http://127.0.0.1:8080/api/v1/data/controller/core/controller/roleREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role
0:00:00.005498 reply "[ "active" ]"REST-POST: POST
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event {"attribute":
[{"value": "show segment web", "key": "cmd_args"}], "event-type":
"cli.command", "session-cookie": "iFCeXMfEwBSunASBYEexkprEP0up6wpo"}REST-POST:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event done
0:00:00.004552REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/info/endpoint-
manager/segment%5Bname%3D%22web%22%5DREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/info/endpoint-
manager/segment%5Bname%3D%22web%22%5D 0:00:00.005752 reply "{ {

"active-endpoint-count" : 0, "endpoint-count" : 0, "internal-vlan" : 2,"name" :
"web",

    "port-count" : 2,
    "qos-label" : 0,
    "tenant" : "coke"
} ]"# Tenant Segment Internal VLAN QoS Label Total endpoints Active endpoints
Total ports -|-----|-----|-----|-----|-----|-----|-----
-----|-----| 1cokeweb2 00 0 2

k-ih-060214(config-tenant)#

```

Example: configure vCenter

```

Cont-16# debug rest detail

***** Enabled display rest mode *****

REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role

REST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role
0:00:00.001792 reply "[ "active" ]"

Cont-16# conf t

REST-POST: POST
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event
{"attribute": [{"value": "configure t", "key": "cmd_args"}], "event-
type": "cli.command", "session-cookie":
"z8jQHA0X0_6Jc1_EpDl3o0CsWbBBZ97P"}

REST-POST:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event done
0:00:00.002521

REST-SIMPLE: GET

```

```

http://127.0.0.1:8080/api/v1/data/controller/core/controller/role

REST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role
0:00:00.001805 reply "[ "active" ]"

Cont-16(config)# vcenter Test

REST-POST: POST
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event
{"attribute": [{"value": "vcenter Test", "key": "cmd_args"}], "event-
type": "cli.command", "session-cookie":
"z8jQHA0X0_6Jc1_EpDl3o0CsWbBBZ97P"}

REST-POST:
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event done
0:00:00.002562

REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/vendor/vmwar
e/vcenter%5Bname%3D%22Test%22%5D?select=name&single=true

REST-SIMPLE: FAILED
http://127.0.0.1:8080/api/v1/data/controller/applications/vendor/vmwar
e/vcenter%5Bname%3D%22Test%22%5D?select=name&single=true
0:00:00.029062: "HTTP Error 404: Not Found"

REST-POST: PUT
http://127.0.0.1:8080/api/v1/data/controller/applications/vendor/vmwar
e/vcenter%5Bname%3D%22Test%22%5D {"name": "Test"}

REST-POST:
http://127.0.0.1:8080/api/v1/data/controller/applications/vendor/vmwar
e/vcenter%5Bname%3D%22Test%22%5D done 0:00:00.022446

REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role

REST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role
0:00:00.002895 reply "[ "active" ]"

Cont-16(config-vcenter)#

```

Example: debug rest detail / show switch

```

k-ih-060214(config)# show switch allREST-POST: POST
http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event {"attribute":
[{"value": "show switch all", "key": "cmd_args"}], "event-type": "cli.command",
"session-cookie": "iFCeXMfEwBSunASBYEexkprEP0up6wpo"}

REST-POST: http://127.0.0.1:8080/api/v1/data/controller/core/aaa/audit-event
done 0:00:00.005320REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/info/fabric/switc
hREST-SIMPLE:

```



```
http://127.0.0.1:8080/api/v1/data/controller/applications/bvs/info/fabric/switc
h 0:00:00.007629 reply "[ {
```

```
"connected" : false,"dpid" : "00:00:00:00:00:02:00:01", "fabric-connection-
state" : "not_connected", "fabric-role" : "leaf", "lACP-interface-offset" : 0,
"lACP-system-mac" : "5c:16:c7:02:00:01", "leaf-group" : "leaf-group1","name" :
"leaf1-1","shutdown" : false
```

```
}, {"connected" : false,"dpid" : "00:00:00:00:00:02:00:02", "fabric-connection-
state" : "not_connected", "fabric-role" : "leaf", "lACP-interface-offset" :
100, "lACP-system-mac" : "5c:16:c7:02:00:01", "leaf-group" : "leaf-
group1","name" : "leaf1-2","shutdown" : false
```

```
}, {"connected" : false,"dpid" : "00:00:00:00:00:02:00:03", "fabric-connection-
state" : "not_connected", "fabric-role" : "leaf", "lACP-interface-offset" : 0,
"lACP-system-mac" : "5c:16:c7:02:00:02", "leaf-group" : "leaf-group2","name" :
"leaf2-1","shutdown" : false
```

```
}, {"connected" : false,"dpid" : "00:00:00:00:00:02:00:04", "fabric-connection-
state" : "not_connected", "fabric-role" : "leaf", "lACP-interface-offset" :
100, "lACP-system-mac" : "5c:16:c7:02:00:02", "leaf-group" : "leaf-
group2","name" : "leaf2-2","shutdown" : false
```

```
}, {"connected" : false,"dpid" : "00:00:00:00:00:01:00:01", "fabric-connection-
state" : "not_connected", "fabric-role" : "spine","leaf-group" : "", "name" :
"spine1","shutdown" : false
```

```
}, {"connected" : false,"dpid" : "00:00:00:00:00:01:00:02", "fabric-connection-
state" : "not_connected", "fabric-role" : "spine","leaf-group" : "", "name" :
"spine2","shutdown" : false
```

```
} ]"# Switch Name Switch MAC Address Connection State Fabric Role Leaf Group -
|-----|-----|-----|-----|-----|
```

```
1 leaf1-12 leaf1-23 leaf2-14 leaf2-25 spine16 spine2REST-SIMPLE: GET
http://127.0.0.1:8080/api/v1/data/controller/core/controller/roleREST-SIMPLE:
http://127.0.0.1:8080/api/v1/data/controller/core/controller/role
0:00:00.004774 reply "[ "active" ]" k-ih-060214(config)#
```
