

> fvctl

Command-line tool for  
Flowvisor administration



## > fvctl Overview

- fvctl is the cli interface to Flowvisor
- Allows you to read, modify, and set flowvisor configurations
- > man fvctl

# Usage

- `fvctl --passwd-file=/etc/flowvisor/fvpasswd  
command [args...]`
- `fvctl command [args...]`

# Flowvisor Constructs

- Slices
  - software controller
    - ip-address
    - port
  - ex: NOX, Beacon, Floodlight
- FlowSpace
  - Flow-based slice policy rules/actions

## > fvctl createSlice

- Specifies a controller/slice
  - fvctl createSlice <slicename> <controller\_url>  
<email>
  - fvctl createSlice FinanceDept tcp:155.55.5.5:6633  
bob@finance.example.edu

## > fvctl getSliceInfo

- Dumps information about the slice
  - controller\_port=6633
  - controller\_hostname=140.221.223.153
  - creator=fvadmin
  - contact\_email=bob@example.edu

## > fvctl changeSlice

- Edit a slice attributes:
  - controller\_port=6633
  - controller\_hostname=140.221.223.153
  - creator=fvadmin
  - contact\_email=you@example.edu
- Examples:
  - fvctl changeSlice <slicename> <key> <value>
  - fvctl changeSlice iCAIR controller\_port 6644

## > fvctl listSlices

- lists the slices that have been created
  - Slice 0: iCAIR
  - Slice 1: CPQD
  - Slice 2: Clemson
  - Slice 3: I2-NOX
  - Slice 4: IU-LB\_of-noc
  - Slice 5: IU-100G
  - Slice 6: SARA
  - Slice 7: ESNet
  - Slice 8: fvadmin

## > fvctl deleteSlice

- Delete a slice, and the slice's corresponding flowspace
  - fvctl deleteSlice ESNNet

## > flowSpace

- Flow packet match fields
  - **in\_port**=port\_no
  - **dl\_vlan**=vlan
  - **dl\_src/dl\_dst**=mac
  - **nw\_src/nw\_dst**=ip[/netmask]
  - **nw\_proto**=proto
  - **nw\_tos**=tos/dscp
  - **tp\_src/tp\_dst**=port

# > dpid

- Unique DPID
  - 00:00:00:23:10:35:ce:a5
  - HP VLAN:MAC-ADDRESS
    - VLAN 10 - 00:0a:2c:27:d7:76:ea:80
    - VLAN 20 - 00:14:2c:27:d7:76:ea:80
    - VLAN 30 - 00:1e:2c:27:d7:76:ea:80
    - VLAN 40 - 00:28:2c:27:d7:76:ea:80
- Wildcard DPID
  - ff:ff:ff:ff:ff:ff:ff or “any” or “all”

## > slice actions

- Comma-separated list of slices with control permissions over matching flowspace
- Permissions
  - Delegate=1
  - Read=2
  - Write=4
- Slice:IU-LB=4,Monitor=2

# > fvctl addFlowSpace

- Insert a flowspace rule
  - fvctl addFlowSpace <dpid> <priority> <match>  
<actions>
  - fvctl addFlowSpace 00:c8:08:17:f4:4b:82:00 100  
in\_port=22 Slice:ESNet=4

# > fvctl listFlowSpace

- Dumps a list of the FlowSpace rules, matching:
  - listFlowsSpace
    - rule #: <dpid>,<ruleMatch>,<actionList>,<id>,<priority>
      - dpid=[00:00:00:00:00:00:00:13]
      - ruleMatch=[OFMatch[in\_port=53,dl\_src=8c:7c:ff:0d:e7:02]]
      - actionsList=[Slice:IU-100G=4]
      - id=[62973]
      - priority=[50]

# > complete list of fvctl commands

- listSlices
- createSlice <slicename>  
<controller\_url> <email>
- changeSlice <slicename> <key>  
<value>
- deleteSlice <slicename>
- changePasswd <slicename>
- getSliceInfo <slicename>
- getSliceStats <slicename>
- getSwitchStats <dpid>
- getSwitchFlowDB <dpid>
- getSliceRewriteDB <slicename>  
<dpid>
- listFlowSpace
- removeFlowSpace <id>
- addFlowSpace <dpid> <priority>  
<match> <actions>
- changeFlowSpace <id> <dpid>  
<priority> <match> <actions>
- listDevices
- getDeviceInfo <dpid>
- getLinks
- ping <msg>
- getConfig <configEntry>
- setConfig <configEntry> <value>
- registerCallback <URL>  
<methodName> <cookie>
- registerTopologyEventCallback  
<URL> <methodName> <eventType>
- deregisterTopologyEventCallback  
<method> <eventType>
- unregisterCallback