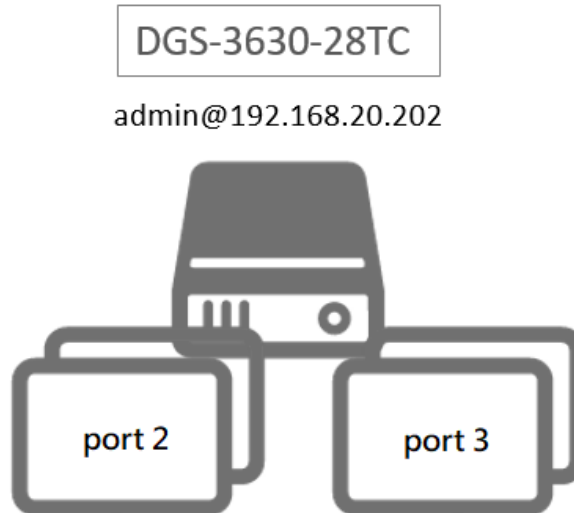


## 1. 測試內容：

測試 L2 Group Entry with type “SELECT” 是否正確運行。

## 2. 測試環境架構：



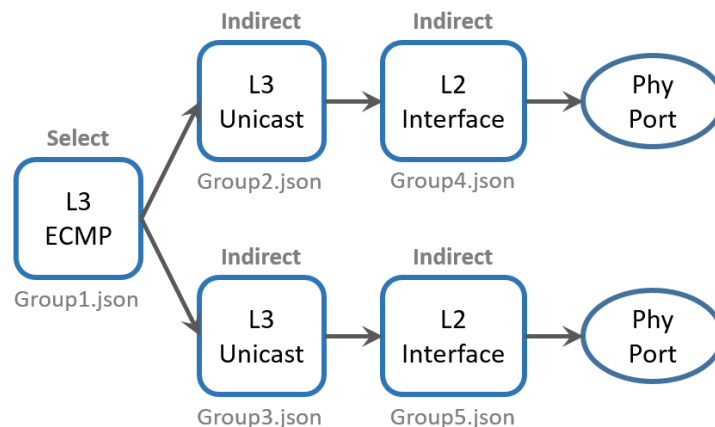
## 3. 測試環境組態：

- SDN controller: ONOS 1.15.1
- Switch: DGS-3630
- Apps:

```
onos> apps -a -s
* 27 org.onosproject.drivers          1.15.1.SNAPSHOT Default Drivers
* 44 org.onosproject.hostprovider     1.15.1.SNAPSHOT Host Location Provider
* 45 org.onosproject.lldpprovider     1.15.1.SNAPSHOT LLDP Link Provider
* 46 org.onosproject.optical-model    1.15.1.SNAPSHOT Optical Network Model
* 47 org.onosproject.openflow-base   1.15.1.SNAPSHOT OpenFlow Base Provider
* 48 org.onosproject.openflow         1.15.1.SNAPSHOT OpenFlow Provider Suite
* 60 org.onosproject.proxyarp         1.15.1.SNAPSHOT Proxy ARP/NDP
* 64 org.onosproject.mobility         1.15.1.SNAPSHOT Host Mobility
```

## 4. 使用之 JSON 文件：

- 根據 Appendix – OpenFlow Object Details.pdf，建立 SELECT group 需要使用下列五項 group entries：



■ L2 interface 1 (group4.json)

```
{
  "type": "INDIRECT",
  "appCookie": "0x10002",
  "groupId": "65538",
  "buckets": [
    {
      "treatment": {
        "instructions": [
          {
            "type": "OUTPUT",
            "port": "2"
          }
        ]
      }
    }
  ]
}
```

■ L2 interface 2 (group5.json)

```
{
  "type": "INDIRECT",
  "appCookie": "0x10003",
  "groupId": "65539",
  "buckets": [
    {
      "treatment": {
        "instructions": [
          {
            "type": "OUTPUT",
            "port": "3"
          }
        ]
      }
    }
  ]
}
```

■ L3 Unicast 1 (group2.json)

```
{
  "type": "INDIRECT",
  "appCookie": "0x20010002",
  "groupId": "536936450",
  "buckets": [
    {
      "treatment": {
        "instructions": [
          {
            "type": "GROUP",
            "groupId": "65538"
          }
        ]
      }
    }
  ]
}
```

■ L3 Unicast 2 (group3.json)

```
{
  "type": "INDIRECT",
  "appCookie": "0x20010003",
  "groupId": "536936451",
  "buckets": [
    {
      "treatment": {
        "instructions": [
          {

```

```

        "type": "GROUP",
        "groupId": "65539"
    }
  ]
}
}
]
}

```

#### ■ L3 ECMP (group1. json)

```

{
  "type": "SELECT",
  "appCookie": "0x70010000",
  "groupId": "1879113728",
  "buckets": [
    {
      "treatment": {
        "instructions": [
          {
            "type": "GROUP",
            "groupId": "536936450"
          }
        ]
      },
      "weight": "1"
    },
    {
      "treatment": {
        "instructions": [
          {
            "type": "GROUP",
            "groupId": "536936451"
          }
        ]
      },
      "weight": "1"
    }
  ]
}

```

## 5. 測試步驟：

- 使用以下指令倒序安裝 group rules：

```
for i in {5..1}; do curl -user onos:rocks -X POST -H "Content-type: application/json" -d @group$i.json http://localhost:8181/onos/v1/groups/of:000078321bdf7600; done
```

- 查看 ONOS GUI Group view

GROUP ID	APP ID	STATE	TYPE	PACKETS	BYTES
0x10002	org.onosproject.rest	ADDED	Indirect	0	0
0x10003	org.onosproject.rest	ADDED	Indirect	0	0
0x20010002	org.onosproject.rest	PENDING_ADD_RETRY	Indirect	0	0
0x20010003	org.onosproject.rest	PENDING_ADD_RETRY	Indirect	0	0
0x70010000	org.onosproject.rest	PENDING_ADD_RETRY	Select	0	0

- 透過 switch CLI 查看 switch CLI

```

Switch#show openflow group-desc

===
GroupId=65538, Hex=0x00010002 (L2 Interface, ChainId=1, Port=2)
Type=Indirect, Reference count=0
Create time=2015-08-15 16:02:51
Bucket=1: Output=2

===
GroupId=65539, Hex=0x00010003 (L2 Interface, ChainId=1, Port=3)
Type=Indirect, Reference count=0
Create time=2015-08-15 16:02:51
Bucket=1: Output=3

Total:2

```

可以發現 SELECT group (L3 ECMP)，以及它串接的 L3 Unicast 都沒有成功安裝。

## 6. 測試結果：

L2 Group Entry with type “SELECT” 無法正確運行。