

JSNAP

Taking the pain out of Change Validation

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Agenda

- The night of the change!
- Approaching a maintenance window change
- How does JSNAP help?
- Demo

Flying by the seat of your pants..



You think you have it all under control..
5.30AM



Approaching a maintenance change

- Good practices
 - Change control approval/review process
 - Effective monitoring
 - Backup of the running-config and or firmware
 - Capture baseline runtime-state – pre-check
 - Apply the change
 - Capture baseline runtime-state – post-check
 - Compare the pre-checks and post-checks
 - Rollback plan

Comparing pre-checks/post-checks

```
core001_post-check - Sublime Text 2 (UNREGISTERED)
```

```
dhcpcd.conf  core001_pre-check x
```

```
1 arg@core001.lab.pls.wd> show lldp neighbors
2 Local Interface    Parent Interface    Chassis Id          Port info            System Name
3 xe-0/1/1.0         -                  1c:6a:7a:c1:a5:4e   "L3 link between core02 and 2.0 core01" core02.c03.az1.lab.pls.wd
4 xe-0/2/1.0         -                  1c:6a:7a:c1:b7:a2   Ethernet1/3          core01.c02.az1.lab.pls.wd
5 xe-0/0/8.0         -                  54:e0:32:82:f0:00   xe-0/1/0.0          asw011.lab.pls.wd
6 xe-0/0/9.0         -                  54:e0:32:8c:6d:80   xe-0/1/0.0          asw012.pls.lab.wd
7 xe-0/0/10.0        -                  64:64:9b:15:0e:80   xe-0/1/2.0          asw021.lab.pls.wd
8 xe-0/0/11.0        -                  64:64:9b:17:64:00   xe-0/1/2.0          asw022.lab.pls.wd
9 xe-0/0/2.0         -                  a8:d0:e5:b7:96:00   xe-0/1/0.0          bsw021.lab.pls.wd
10 xe-0/0/4.0         -                  b0:a8:6e:07:fc:00   xe-0/1/0.0          bsw011.lab.pls.wd
11 xe-0/0/5.0         -                  b0:a8:6e:07:ff:00   xe-0/1/0.0          bsw012.lab.pls.wd
12 xe-0/0/0.0         -                  b0:a8:6e:08:2c:80   xe-0/1/0.0          bsw031.lab.pls.wd
```

```
core001_post-check x
```

```
1 arg@core001.lab.pls.wd> show lldp neighbors
2 Local Interface    Parent Interface    Chassis Id          Port info            System Name
3 xe-0/1/1.0         -                  1c:6a:7a:c1:a5:4e   "L3 link between core02 and 2.0 core01" core02.c03.az1.lab.pls.wd
4 xe-0/2/1.0         -                  1c:6a:7a:c1:b7:a2   Ethernet1/3          core01.c02.az1.lab.pls.wd
5 xe-0/0/9.0         -                  54:e0:32:8c:6d:80   xe-0/1/0.0          asw012.pls.lab.wd
6 xe-0/0/10.0        -                  64:64:9b:15:0e:80   xe-0/1/2.0          asw021.lab.pls.wd
7 xe-0/0/11.0        -                  64:64:9b:17:64:00   xe-0/1/2.0          asw022.lab.pls.wd
8 xe-0/0/2.0         -                  a8:d0:e5:b7:96:00   xe-0/1/0.0          bsw021.lab.pls.wd
9 xe-0/0/4.0         -                  b0:a8:6e:07:fc:00   xe-0/1/0.0          bsw011.lab.pls.wd
10 xe-0/0/5.0         -                  b0:a8:6e:07:ff:00   xe-0/1/0.0          bsw012.lab.pls.wd
11 xe-0/0/0.0         -                  b0:a8:6e:08:2c:80   xe-0/1/0.0          bsw031.lab.pls.wd
12 xe-0/0/7.0         -                  b0:a8:6e:08:33:80   xe-0/1/2.0          bsw031.lab.pls.wd
```

```
untitled x
```

```
1 --- /tftpboot/core001_post-check
2 +++ /tftpboot/core001_pre-check
3 @@ -2,6 +2,7 @@
4 Local Interface    Parent Interface    Chassis Id          Port info            System Name
5 xe-0/1/1.0         -                  1c:6a:7a:c1:a5:4e   "L3 link between core02 and 2.0 core01" core02.c03.az1.lab.pls.wd
6 xe-0/2/1.0         -                  1c:6a:7a:c1:b7:a2   Ethernet1/3          core01.c02.az1.lab.pls.wd
7 +xe-0/0/8.0        -                  54:e0:32:82:f0:00   xe-0/1/0.0          asw011.lab.pls.wd
8 xe-0/0/9.0         -                  54:e0:32:8c:6d:80   xe-0/1/0.0          asw012.pls.lab.wd
9 xe-0/0/10.0        -                  64:64:9b:15:0e:80   xe-0/1/2.0          asw021.lab.pls.wd
10 xe-0/0/11.0        -                  64:64:9b:17:64:00   xe-0/1/2.0          asw022.lab.pls.wd
11
```

JSNAP and how it helps

- JSNAP (Juniper Snapshot Administrator)
- <https://github.com/Juniper/junos-snapshot-administrator>
- <https://www.juniper.net/support/downloads/?p=jsnap-sw>
- Take a snapshot of your environment run-time states and save it as XML. Parse using SLAX
- Compare PRE and POST XML and generate a human readable report on the differences.

JSNAP components

- SLAX scripts used to manipulate XML outputs produced by Junos.
- JUISE – Allows you to run SLAX scripts and debug on normal host as well as run NETCONF
- Config files – used to define checks that generate snapshots and the tests themselves

JSNAP sample tests

core.conf — juniper-snapshot-administrator/conf

```
1 do {
2   alarm-checks;
3   system-alarm-checks;
4   version-check;
5   version-snapshot-check;
6   ospf-checks-new;
7   vrrp-checks;
8   lldp-neighbor-checks;
9   virtual-chassis;
10  spanning-tree-bridge;
11 }
12
```

```
12
13 lldp-neighbor-checks {
14   command show lldp neighbors;
15   iterate lldp-neighbor-information {
16     id lldp-remote-system-name;
17     list-not-less {
18       info LLDP Neighbor gone AWOL;
19       err " LLDP neighbor %s on local port %s is AWOL", lldp-remote-system-name, lldp-local-interface;
20     }
21     list-not-more {
22       info LLDP Neighbor been added ;
23       err " LLDP neighbor %s on local port %s is added", lldp-remote-system-name, lldp-local-interface;
24     }
25   }
26 }
27
28
29 }
```

JSNAP XML captured state

```
core.conf — juniper-snapshot-administrator/conf • 10.170.29.3_lldp-neighbor-checks_pre-ash.xml × set devices device cfw01.a11.az2.eng
19 <lldp-neighbor-information>
20 <lldp-local-interface>xe-0/0/8.0</lldp-local-interface>
21 <lldp-local-parent-interface-name>-</lldp-local-parent-interface-name>
22 <lldp-remote-chassis-id-subtype>Mac address</lldp-remote-chassis-id-subtype>
23 <lldp-remote-chassis-id>54:e0:32:82:f0:00</lldp-remote-chassis-id>
24 <lldp-remote-port-description>xe-0/1/0.0</lldp-remote-port-description>
25 <lldp-remote-system-name>asw011.lab.pls.wd</lldp-remote-system-name>
26 </lldp-neighbor-information>
27 <lldp-neighbor-information>
28 <lldp-local-interface>xe-0/0/9.0</lldp-local-interface>
29 <lldp-local-parent-interface-name>-</lldp-local-parent-interface-name>
30 <lldp-remote-chassis-id-subtype>Mac address</lldp-remote-chassis-id-subtype>
31 <lldp-remote-chassis-id>54:e0:32:8c:6d:80</lldp-remote-chassis-id>
32 <lldp-remote-port-description>xe-0/1/0.0</lldp-remote-port-description>
33 <lldp-remote-system-name>asw012.pls.lab.wd</lldp-remote-system-name>
34 </lldp-neighbor-information>
35 <lldp-neighbor-information>
```

```
[vagrant@dev4 lab]$ ../jsnap --check PRE-CHECK,POST-CHECK -t lab-dev-sw.txt ../conf/core.conf -s lldp-neighbor-checks
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
>>>
>>> TARGET: core001.lab
>>>
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
-----
CHECKING SECTION: lldp-neighbor-checks
-----
- TEST FAILED: LLDP Neighbor gone missing

LLDP neighbor asw011.lab.pls.wd on local port xe-0/0/8.0 is down

+ TEST PASSED: LLDP Neighbor added
[vagrant@dev4 lab]$
```