## PART 1: BASIC CONFIGURATION

<table>
<thead>
<tr>
<th>BASIC CONFIGURATION</th>
<th>IOS</th>
<th>JUNOS</th>
<th>AOS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Save configuration</strong></td>
<td># copy running-config startup-config // OR // # write mem</td>
<td># commit</td>
<td># copy running-config startup-config // OR // # write mem</td>
</tr>
<tr>
<td><strong>Set admin credentials</strong></td>
<td># username admin privilege 15 password 0 &lt;password&gt;</td>
<td># set system root-authentication plain-text-password &lt;password&gt;</td>
<td># mgmt-user admin root # &lt;password&gt;</td>
</tr>
<tr>
<td><strong>Default gateway</strong></td>
<td># ip default-gateway &lt;ip-address&gt;</td>
<td># set routing-options static route 0.0.0.0/0 next-hop &lt;next-hop&gt;</td>
<td># ip-profile # default-gateway &lt;next-hop&gt;</td>
</tr>
<tr>
<td><strong>Set hostname</strong></td>
<td># hostname &lt;hostname&gt;</td>
<td># set system host-name &lt;hostname&gt;</td>
<td># hostname &lt;hostname&gt;</td>
</tr>
<tr>
<td><strong>NTP servers</strong></td>
<td># ntp server &lt;ip-address&gt; (( key &lt;key&gt; ))</td>
<td># set system ntp server &lt;ip-address&gt; (( key &lt;key&gt; ))</td>
<td># ntp server &lt;ip-address&gt; (( key &lt;key&gt; ))</td>
</tr>
<tr>
<td><strong>Timezone/DST (ex: EST -5)</strong></td>
<td># clock timezone &lt;tz-abbrev&gt; &lt;hour-offset&gt;</td>
<td># set system time-zone &lt;time-zone-name&gt;</td>
<td># clock timezone &lt;tz-abbrev&gt; &lt;hour-offset&gt;</td>
</tr>
<tr>
<td></td>
<td># clock summer-time &lt;tz-dst-abbrev&gt; recurring &lt;start-week-number&gt; &lt;start-day&gt; &lt;start-month&gt; &lt;start-time&gt; &lt;end-week-number&gt; &lt;end-day&gt; &lt;end-month&gt; &lt;end-time&gt; &lt;minute-offset&gt;</td>
<td># set system time-zone America/New_York</td>
<td># clock summer-time EDT recurring 2 sunday march 02:00 first sunday november 02:00 -4</td>
</tr>
</tbody>
</table>

**Examples:**
- clock summer-time EDT recurring 2 sunday march 02:00 first sunday november 02:00 240
- set system time-zone America/New_York
- clock summer-time EDT recurring 2 sunday march 02:00 first sunday november 02:00 -4

**KEY:** // COMMENTS // (( optional )) <user-input> # newline

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**Mobility Access Switch**

**Cheat sheet for Juniper + Cisco engineers**

**Tim Cappalli**

@tcappy0707
tcappalli@integrationpartners.com

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**integrationpartners**

BE CERTAIN
<table>
<thead>
<tr>
<th>Feature</th>
<th>Command 1</th>
<th>Command 2</th>
<th>Command 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable spanning-tree</td>
<td># spanning-tree vlan &lt;vlan-id&gt;</td>
<td># set protocols &lt;rstp, mstp, vstp&gt;</td>
<td># spanning-tree &lt;pvst, mstp&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disable spanning-tree</td>
<td># no spanning-tree vlan &lt;vlan-id&gt;</td>
<td># set protocols &lt;rstp, mstp, vstp&gt; disable</td>
<td># spanning-tree &lt;pvst, mstp&gt; no mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VLAN CONFIGURATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create VLAN</td>
<td># vlan &lt;id&gt;</td>
<td># set vlans &lt;name&gt; vlan-id &lt;vlan-id&gt;</td>
<td># vlan &lt;id&gt;</td>
</tr>
<tr>
<td></td>
<td># name &lt;name&gt;</td>
<td></td>
<td># description &lt;description&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROUTED INTERFACES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create RVI/SVI (L3 VLAN interface)</td>
<td># interface vlan &lt;vlan-id&gt;</td>
<td># set vlans &lt;vlan-name&gt; l3-interface vlan.&lt;vlan-id&gt;</td>
<td># interface vlan &lt;vlan-id&gt;</td>
</tr>
<tr>
<td></td>
<td># ip address &lt;w.x.y.z&gt; &lt;mask w.x.y.z&gt;</td>
<td># set interfaces vlan unit &lt;vlan-id&gt; family inet address &lt;w.x.y.z/mask&gt;</td>
<td># ip address &lt;w.x.y.z&gt; &lt;mask w.x.y.z&gt;</td>
</tr>
<tr>
<td></td>
<td># ipv6 address &lt;address/prefix&gt;</td>
<td># set interfaces vlan unit &lt;vlan-id&gt; family inet6 address &lt;address/prefix&gt;</td>
<td># ipv6 address &lt;address/prefix&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### DHCP/BOOTP Relay (helper address)

- `# interface vlan <vlan-id>`
- `# ip helper-address <server-ip>`

- `# set forwarding-options helpers bootp interface vlan.<vlan-id> server <server-ip>`

- `//create DHCP relay profile//`
- `# interface-profile dhcp-relay-profile <name>`
- `//apply DHCP relay profile to VLAN interface//`
- `# interface vlan <vlan-id>`
- `# dhcp-relay-profile <name>`

#### Examples

- `interface vlan 10`
  - `ip helper-address 10.100.60.80`
  - `set forwarding-options helpers bootp interface vlan.2051 server 10.100.60.80`

### INTERFACE CONFIGURATION

#### Access Port

- `# interface <PHY> <port>`
- `# switchport-mode access`
- `# switchport access vlan <vlan-d>`

- `# set interfaces <interface> unit 0 family ethernet-switching port-mode access`
- `# set interfaces <interface> unit 0 family ethernet-switching vlan members <access-vlan-name>`

- `//create interface profile//`
- `# interface-profile switching-profile <name>`
- `# access-vlan 254`
- `# switchport-mode access`

- `//apply profile to switchport//`
- `# interface gigabitEthernet <switch/slot/port>`
- `# switching-profile <name>`

- `interface TenGigabitEthernet 1/1/1`
  - `switchport-mode access`
  - `switchport access vlan 254`

- `# set interfaces ge-0/0/5 unit 0 family ethernet-switching port-mode access`
- `# set interfaces ge-0/0/5 unit 0 family ethernet-switching vlan members WIRELESS_2051`

- `interface-profile switching-profile VLAN254-ACCESS`
  - `access-vlan 254`
  - `switchport-mode access`

- `interface gigabitEthernet 0/0/0`
  - `switching-profile VLAN254-ACCESS`
### Trunk Port (802.1Q)

- `interface <PHY> <port>`
- `switchport trunk encapsulation dot1q`
- `switchport mode trunk`
- `switchport trunk allowed vlan <vlan-range>`

- `# set interfaces <interface> unit 0 family ethernet-switching port-mode trunk`
- `# set interfaces <interface> unit 0 family ethernet-switching vlan members [ <vlan-name> <vlan-name> ]`

- //create interface profile//
- `# interface-profile switching-profile <name>`
- `# switchport-mode access`
- `# trunk allowed vlan <vlan-range>`

### Port-channel/LAG (802.3ad)

- **trunk or access config/profile from above**

#### LACP

- `# interface port-channel <pc-number>`
- `# switchport mode <access,trunk>`**

- `// ADDING PORTS TO PORT-CHANNEL //`
- `# interface <PHY> <port>`
- `# channel-group <pc-number> mode <on,active,passive>`

- `// LAG CONFIGURATION //`
- `# set interfaces ae<number> aggregated-ether-options minimum-links <number-of-links>`
- `# set interfaces ae<number> aggregated-ether-options lacp <active,passive>`
- `# set interfaces ae<number> aggregated-ether-options lacp periodic <fast,slow>`

- `// ADDING PORTS TO LAG //`
- `# set interfaces <interface> ether-options 802.3ad ae<number>`

- `// PORT-CHANNEL CONFIGURATION //`
- `# interface port-channel <pc-number>`
- `# switchport <access,trunk>`
- `# enet-link-profile pc_default`

- `// ADDING PORTS TO PORT-CHANNEL //`
- `# interface gigabitEthernet <switch/slot/port>`
- `# lacp-profile <lacp-profile-name>`

- `interface-profile lacp-profile "CORE" group-id 1 mode active`
- `interface port-channel 1 switching-profile "CORE-TRUNK" enet-link-profile pc_default`
- `interface gigabitEthernet "0/1/1" lacp-profile "CORE"`
## ROUTING

### Add Static Route

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code># ip route &lt;destination-network&gt; &lt;network mask&gt; &lt;next-hop-ip/next-hop-interface&gt; (&lt;metric&gt;)</code></td>
<td>Add static route</td>
</tr>
<tr>
<td><code># set routing-options static route &lt;destination-network/mask&gt; next-hop &lt;next-hop-ip&gt; (&lt;metric&gt;)</code></td>
<td>Set routing options for static route</td>
</tr>
</tbody>
</table>

### Basic OSPF

- Advertise routed links
- Advertise loopback (router-id)
- Redistribute local L3 interfaces in OSPF (advertise them)

**stops OSPF LSAs from being sent out this interface thus preventing OSPF adjacencies from being formed**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code># router ospf &lt;instance&gt;</code></td>
<td>Route OSPF, where <code>&lt;instance&gt;</code> is the OSPF instance number</td>
</tr>
<tr>
<td><code># router-id &lt;ip-address&gt;</code></td>
<td>Set OSPF router ID, <code>&lt;ip-address&gt;</code> is the IP address</td>
</tr>
<tr>
<td><code># passive-interface &lt;user-vlan-id&gt;</code></td>
<td>Disable OSPF on this interface, <code>&lt;user-vlan-id&gt;</code> is the VLAN ID</td>
</tr>
<tr>
<td><code># interface vlan &lt;id&gt;</code></td>
<td>Configure VLAN, <code>&lt;id&gt;</code> is the VLAN ID</td>
</tr>
<tr>
<td><code># ip ospf &lt;instance&gt; area &lt;area&gt;</code></td>
<td>Set OSPF area, <code>&lt;instance&gt;</code> is the OSPF instance number, <code>&lt;area&gt;</code> is the area name</td>
</tr>
<tr>
<td><code># redistribute vlan &lt;local-vlan-range&gt;</code></td>
<td>Redistribute VLANs, <code>&lt;local-vlan-range&gt;</code> is the VLAN range</td>
</tr>
<tr>
<td><code># set protocols ospf area &lt;area&gt; interface &lt;interface&gt;</code></td>
<td>Set OSPF protocols for this interface, <code>&lt;area&gt;</code> is the area name, <code>&lt;interface&gt;</code> is the interface name</td>
</tr>
<tr>
<td><code># set policy-options policy-statement &lt;policy-name&gt; term connected from protocol direct</code></td>
<td>Set policy options for connected protocol, <code>&lt;policy-name&gt;</code> is the policy name</td>
</tr>
<tr>
<td><code># set policy-options policy-statement &lt;policy-name&gt; term connected then accept</code></td>
<td>Set policy options for connected protocol, <code>&lt;policy-name&gt;</code> is the policy name</td>
</tr>
<tr>
<td><code># set protocols ospf export &lt;policy-name&gt;</code></td>
<td>Export OSPF protocol, <code>&lt;policy-name&gt;</code> is the policy name</td>
</tr>
</tbody>
</table>

### Examples

```
router ospf 3022
  router-id 10.50.1.1
  passive-interface Vlan10
  passive-interface Vlan20
  passive-interface Vlan30
  interface vlan 10
    ip ospf 3022 area 0
  interface vlan 20
    ip ospf 3022 area 0
  interface Loopback0
    ip ospf 3022 area 0
  interface Port-channel1
    ip ospf 3022 area 0
```

```
router ospf
  router-id 10.60.1.1
  area 0.0.0.60
  redistribute vlan 10,20,30,100,200

interface-profile ospf-profile "AREA60-OSPF-PROFILE"
  area 0.0.0.60

interface loopback "0"
  ospf-profile "AREA60-OSPF-PROFILE"
  ip address 10.60.1.1

interface vlan "254"
  description "TO-CORE"
  ospf-profile "AREA60-OSPF-PROFILE"
```