One Touch Provisioning of a VSF stack

With Aruba CX Mobile App
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## Revision History

The following table lists the revisions of this document:

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<tr>
<td>1.0</td>
<td>February 2020</td>
<td>Initial Release</td>
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<tr>
<td>1.1</td>
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<td>Extract of the CX Mobile App Lab</td>
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**Lab Objective**

In this lab you’ll use the CX Mobile App to provision a VSF stack of 3x 6300 and import the VSF stack virtual node into NetEdit.

One of the main lab objective is to give the audience the necessary information to be able to duplicate this lab in their own professional/personal environment.

**Lab Infrastructure**

**Lab Overview**

The aggregation switch can be any switch able to aggregate two downlinks with LACP. IP connectivity must be set-up between the NetEdit server and the in-band management IP address of the newly provisioned VSF stack.

It is assumed that a NetEdit server (2.0) is already in place. This lab does not cover NetEdit set-up.

Connect to NetEdit Web-UI: open a browser on your PC station and use https to connect to the NetEdit server.

Login using an administrator account (like admin).

**Create a TECHNICIAN user for CX mobile app**

- On the left menu select the 6th option from the top and go to the Users page
• Then, go to the Action menu (top-right) and select Add. Enter the user name and select TECHNICIAN role, click ADD USER.

On the success pop-up find the temporary password for the new user, and copy it.

The new user will use this temporary password for the first login, and a change password pop-up will appear. Logout and re-login as the new user with the temporary password and change the password (your choice). This user has no rights on NetEdit except the ability to on-board new switches through the CX Mobile App. Then Logout.

Set-up network discovery credentials
Connect back with an administrator account and go the settings:
Create credentials set for REST, SNMP and SSH by clicking “+”

Fill the credential name with `lab`, and set username / password for REST and SSH. Define community for SNMPv2.
Then click on Managed Subnets and configure the Credentials Set used for the given Subnet to manage.

Click OK.

Now the switches falling under the configured subnets will be managed with the credentials associated to these subnets. TACACS user can be used for username (however not in this lab as there is no TACACS server in this lab).

**6300s**

Any combination of 6300 model can be used. Example: 1x JL668A (6300F), 1x JL666A (6300F), 1x JL669A (6300M)
The VSF stack can mix different type of 6300F/M switches, which is fully supported.

The uplink interconnection to the aggregation switch can be regular copper ports of simplicity of this lab. It is assumed that the Aggregation Switch is already configured with LAG for downlinks to the VSF stack (2 links here).

**CX Mobile App and VSF Stacking Automation Lab**
You will use the CX Mobile App to provision a VSF stack of 3x 6300 and to import the said VSF stack into NetEdit.

Use your iPad or iPhone with CX Mobile App installed:
The phone/tablet must have Bluetooth enabled to communicate with the 6300. The phone/tablet must also have Wi-Fi enabled in order to automatically upload the 6300 VSF stack into NetEdit. This part is optional, so Wi-Fi, as such, is not mandatory if the equipment discovery is performed later in NetEdit and not uploaded from the CX Mobile App.

Here is an example of equipment interconnection for VSF links and uplinks:

![Equipment interconnection diagram]

There is no loop between the 6300 as MSTP is enabled by default. Similarly there is no loop on uplinks as the Aggregation switch is configured with LACP.
Verify that each 6300 has its USB Bluetooth dongle plugged into the USB port, like on the picture:

Reminder: This Bluetooth adapter comes with the switch in the shipping box.

Bluetooth Pairing of the VSF Master
Identify the Serial Number of the switch you want to be the VSF master, say for instance the top one of the physical stack: 6300-1. Extract the orange Pull-out tab and look for the serial-number:

This serial number is useful to recognize on which device you need to pair your mobile phone / tablet with.
To restart Bluetooth Devices discovery, disable/enable Bluetooth on the mobile device/iPad in "Settings".

Identify 6300-SN with SN being the serial number previously identified on the orange pull-out tab and hit the device to connect to it. It should appear as "Connected".

Minimize “Settings”.

**CX Mobile App**

Start the CX Mobile app:

You’ll be prompted by a first pop-up which is to set the very first admin password on CX: use admin / aruba
Then you should see detection of the switch, green dots for established API connection, loading dashboard and then switch information:

You can use the Locator LED “flashing” to verify that you are connected on the proper 6300.

Then, start the “Initial Config” workflow to set-up the new factory-reset switch.

A new pop-up provides choice between **Standalone** and **Stack**.

**Create VSX Stack**
Select **Start stack setup** as the One Touch Provisioning method for VSF stacking.

A stack topology window appears with stack discovery.

Use the LED button to identify the physical switch assigned to the VSF member id.
The VSF member id can be changed. This option is available by tapping the selected switch. By entering the "Member Details" screen of a given member you will also be able to review the VSF link details with associated physical ports.

Here, it is shown than the switch 2 is renumbered to be VSF member 4. This is for illustration purpose. Let’s stick to 1, 2, 3 as member ID.

In the same new pop-up screen it is recommended to set the VSF secondary member, in order to have a backup operational commander of the VSF stack in case of the primary master fails. Usually, uplinks are connected at least on VSF master and VSF secondary. When you tick Secondary Member, the selected switch will get “2S” orange ID. Master is “1M”.
Once the desired VSF parameters are set, tap on "Configure Members".

The process will configure and reboot each joining members: member 2 and member 3. Then Master is configured, and Master has to wait for other members to complete their boot. Master will then verify the VSF topology, the VSF member information.
Once all VSF members are up and verified, the VSF stack set-up is marked as successful.

At this stage the VSF stack is created and a single virtual node can be provisioned into the network.

Let’s continue by hitting “Configure Stack”

**Configure VSF virtual Switch**

A new screen asks for NetEdit IP address and credentials. Use the TECHNICIAN account that has been created before. Again, this account has no rights on NetEdit operation or administration. This is purely to onboard devices in NetEdit.
This step could be skipped if you would not want the TECHNICIAN to on-board switches in NetEdit, which can be done later by network discovery in NetEdit. It may also be skipped if there is no Wi-Fi access to the NetEdit server. In the lab, we proceed with this automatic on-boarding.

Fill the NetEdit information and tap Login. Then you get prompted for which Template to use:

Most of the time, access switches are connected with 2 uplinks to an aggregation layer with a dedicated in-band management VLAN. Consequently, select “LAG” template, and fill the information (below is an example, tune for your own lab):

- hostname: 6300-A
- admin password is: aruba
Hands-On Lab Guide
Automated the CX edge

- Select “use_vlan” as the in-band management VLAN is tagged in this lab (and in most cases in normal operation)
- VLAN: 9
- Mgmt_ip: depending on your subnet
- Mask: 24 (or depends on your subnet)
- Physical_interface1: 1/1/1
- Physical_interface2: 2/1/1
- Gateway: your_default_gateway

Click Next to validate template:

At this stage the CX Mobile App pushed a candidate configuration to the shadow SystemStateDataBase of the switch through a “dry-run” API, which has no impact on the running configuration. The AOS-CX switch validated the configuration and provides back to the CX Mobile App a json configuration file that is ready to be “deployed” to the running SystemStateDataBase of the switch, which will change the running configuration when deployed.

Meanwhile please note the green dots for NetEdit connection, which means that during deployment the switch will be imported into NetEdit. You may scroll down to verify the full validated candidate configuration.

Tap Deploy.
As the result of these steps, the technician has a full proof that the new Switch is properly configured (Validating Device Configuration) and imported in NetEdit (Validating Device Import) so that there is no doubt that the network administrator will be able to access the newly provisioned switch from NetEdit. This is a very robust One Touch Provisioning mechanism that prevents any further follow-up communication between network technician and network administrator.

**Note:** If you would have skipped the NetEdit import part, you would see only the Configuration steps of the switch:

By hitting done you're back to summary page:
The technician task is **almost completed**. The running configuration is not yet save in the startup-configuration. Depending on the operational process for recovery, you may or not save the configuration.

To **save the configuration**, tap on Configs (bottom of the screen) and tap on the runner (top of the screen):

Then Tap on the “Copy Running to Startup” icon:

You are prompted for confirmation
Click Yes, then you’ll see a green check mark:

This complete the technician tasks for on-boarding and configuration save. At this stage if the equipment are powered-off then the provisioning is not lost when equipment are resuming from power failure.

Other operational tasks on CX Mobile App
You can practice other possibilities in the CX Mobile App that would be useful for maintenance or follow-up.
PoE Details

Proof of Imported devices in NetEdit

Device list can be exported to dropbox or sent by email.

Devices Configuration Mobile Repository
You can import all switches configuration in the mobile device to build a mobile repository: Click on top-right download arrow:
The configuration now appears in the Configs list:

After selecting a Configuration file, you can share it (dropbox or email) by tapping on the share button:
You have the possibility to installed new templates on the CX Mobile App (by downloading them from Cloud storage).

You have also the possibility to upload a configuration to the Bluetooth connected device:
Console Access

For troubleshooting, Tap on the bottom screen Console button:

You can type and send CLI command to the switch. Here before some show run and other config commands or after show vsf

Manual Config Menu

You can play with manual Config menu (if time permits), for instance to enable/disable interfaces.
Laptop SSH access to Switch over Bluetooth

For reference, it is possible to access the switch console with SSH over Bluetooth, by pairing your laptop and use "Connect using: Access point"

This will create a new Ethernet adapter on the laptop with DHCP address delivered by the switch:
This gives the capability for a network administrator to use Bluetooth dongle for console access and do deep troubleshooting with a regular laptop (with regular keyboard usage).

SSH on the Switch console over Bluetooth by using any SSH tool on the following fixed IP address: **192.168.99.1**

**Newly Provisioned VSF stack in NetEdit**

Let's experience the network administrator view of the result of the new provisioning. The new VSF stack should appear as a single logical switch in NetEdit.

From this point the new switch is fully manageable through NetEdit.
You may see its uplinks interconnection to the aggregation layer (here an example):

Right click on device and select Device Details

And Click on action to see hardware information for instance.
Factory-Reset, Logout and Disconnect Bluetooth

Once you complete this lab, please factory-reset the 6300 VSF stack:

Use the CX Mobile App console, and send the following command: `erase all zeroize`

For reference, it is possible to logout from the switch (factory reset does it before you can disconnect)

THIS IS THE END OF THIS LAB.