LAB GUIDE

MVRP Fundamenta



Enterprise company

IMPORTANT! THIS GUIDE ASSUMES THAT THE AOS-CX OVA HAS BEEN INSTALLED AND WORKS IN GNS3 OR EVE-NG. PLEASE REFER TO GNS3/EVE-NG INITIAL SETUP LABS IF REQUIRED.

https://www.eve-ng.net/index.php/documentation/howtos/howto-add-aruba-cx-switch/

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TABLE OF CONTENTS

Lab Objective				<u></u>											
Lab Overview	• •	• •	9/1	••	• • •	• • •	• •	• •	•		• •	• •	• • •	• •	1
Lab Network Layout	•			• •	• • •			•••				•••	•••		2
Part I Lab Tasks			• •	• •				• •	•			• •			2
Task 1 - Lab setup			• •	• •	• • •		• •	• •	•	• • •	• • •	• •	• • •	• • •	2
Task 2 - Configure MVRP and Native VLA	AN on	Sw	itch	Aa	nd C										3
Task 3 - Configure MVRP and Native VLA	N on	Sw	itch	D	• • •	• • •	• •	• •	•	•	• •	• •	• • •	• •	5
Part II Lab Tasks															6
Task 4 – Part II Lab setup								• •	•			• •	• • •	• •	
Task 5 - Configure MVRP and STP								•••				•••	• • •		8
Task 6 - Check configurations and output	t														9
Task 6 – Basic connectivity test											• •	• •	• • •	• •	10
Appendix - Complete Configurations															12

2-5

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Lab Objective

At the end of this lab you will be able to implement the basic configuration of MVRP (Multiple VLAN Registration Protocol) and show how MVRP propagates local VLAN information to other Aruba CX switches.

The use case for MVRP is to simplify VLAN configuration and deployment in Layer 2 networks. MVRP provides a mechanism of dynamically propagating VLAN information from a source switch to other switches in the Layer 2 LAN.

For further details on MVRP please refer to the latest Aruba documentation located on https://asp.arubanetworks.com/

Lab Overview

This lab set up is as shown in Figure 1 and Figure 2. This will allow you to observe the propagation of dynamic VLANs

This lab is split into two parts:

Part I we will show MVRP in a simple scenario

Part II we see MVRP in an MSTP environment and how it works in conjunction with MSTP, as well as coexistence with static vlans

Note: MVRP is not supported with RPVST.

Lab Network Layout



Figure 1. Part I Lab topology Only Use Switch A, C and D

Part I Lab Tasks

Task 1 - Lab setup

For this lab refer to Figure 1 for topology Part I only uses Switch A, Switch C and Switch D

- Open each switch console and log in with user "admin" and no password
- Change all hostnames as shown in the topology:

```
configure
hostname <device host name>
```

• On Switch A, C and D bring up required ports:

```
int 1/1/2-1/1/3
no routing
no shutdown
```

```
use <code>``exit"</code> to go back a level
```

Validate LLDP neighbors appear as expected on each switch. Here we show SwitchA output only.

show lldp neighbor-info

If all switches have been configured as shown in

Figure 1 you should see Switch C and D through Switch A as shown below using LLDP.

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						Lab Guide
			• • • • • • • • • • • • •			MVRP
					0	
Switch A					• • · ·	
5#10011 11				• • • • • • • • • • •		
Switch At at	ow lldp neighbor-i	ofo				
SWICCHA# SI	iow iiup neigiboi - ii	.110				
			\ .			
LLDP Neight	oor Information					
						6
				· • • • • • • • • • • • •	,	
Total Neigł	nbor Entries	: 2				
metel Meder	abou Butuios Doloto			• • • • • • • • • • • •	• • • • • • • • • •	
IOLAI NEIGI	DOL FULLIES Deleted	1 · 0	0 0 0 0		•••••	
Total Neigh	bor Entries Dropped	1 : O		,	,	
10001 110191	mor incres propped				,	
Total Neigh	nbor Entries Aged-Ou	ut : 0	•			
	CHAGGIG_TD			• • • • • • • • • • • • • • • • • • •	L SVS_NA	о о о о о о о о о о о о о о о о о о о
LOCAL FORT	CIIA5515-1D	FORT	FORT-DESC	0 0 0 0 0 0 0 10 10		
1/1/2	08:00:09:83:49:9f	1/1/2	1/1/2	120	0 Switch	е,
1/1/2	08.00.08.28.47.52	1/1/3	1/1/2	1 20	0 Switch	
1/1/3	00.00.00.00.48.17.52	1/1/3	1/1/3	120		

Task 2 - Configure MVRP and Native VLAN on Switch A and C

- On Switch A enable MVRP globally with native VLAN on trunks
- On Switch C enable MVRP globally with native VLAN and define a VLAN 10

Switch A

```
int 1/1/2-1/1/3
vlan trunk native 1
mvrp
vlan trunk native 1
exit
mvrp
```

Switch C

```
int 1/1/2
vlan trunk native 1
mvrp
exit
vlan 10
exit
mvrp
```

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						• • • • • • • •			•							
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					• •				• •							
					• •				• •							
	Now	/ observe tl	he state on Swite	ch A	• •				• •							
•	1101			01173				• • • • • •	• • •							
					· •											
Switc	hA# sh	low vlan														
VLAN	Name				Status	Reason		Type	I	nterf	aces					
1		ד דר דיד דיד 1				olr		defaul	+ 1	11/2	1/1/2					
T	DEFAU		-		up	OK		deraul	.L I	/1/2-	. 1 / 1 / 3					
10	VLAN1	.0			up	ok		dynami	. <mark>c</mark> 1	/1/2						
					-											
Above	it can	he seen V	/I AN 10 is dynar	nically n	resent on	Switch C										
710070	, it our		E/ III TO IS Gynai	meany p		Ownen O										
Switc	hA# sh	low mvrp c	onfig													
a 5 !							•									
Conti	gurati	on and St	atus - MVRP													 • •
Globa	1 MVRF	status :	Enabled													
01000		beacab	Lilabica													
								•								
Port		Status	Registration	Join	Leave	LeaveAll	Periodic									
			m		m.!	m /	m /									
			Туре	Timer	Timer	Timer	Timer			•						
												· · •				
													-			
	1/1/2	Enabled	normal	20	300	1000	100								2.0.0	
	1/1/2	Decelo I c -1	·· · · · · · · · · · · · · · · · · · ·	2.0	200	1000	100									
	1/1/3	⊾nap⊥ed	normaı	∠0	300	1000 T	T00									

Above it is seen that MVRP is enabled on Switch A with default timers

SwitchA# sh o	ow mvi	rp state								
Configuration and Status - MVRP state										
Port	VLAN	Registrar	Applicant	Forbid						
		State	State	Mode						
1/1/2	1	IN	QA	No						
1/1/2	10	IN	vo	No						
1/1/3	1	MT	AA	No						
1/1/3	10	MT	АА	No						

- On Switch A we see the MVRP register and applicant state. Interface 1/1/2 is IN (Registered) and 1/1/3 is MT (empty-Unregistered)
- Applicant states on 1/1/2 for VLAN 1 is QA(Quite Active), VLAN 10 is VO (Very Anxious Observer)
- Register and Applicant states on 1/1/3 are MT and AA (Anxious Active)

Note: Register and Applicant states are as defined in IEEE Std 802.1Q 2011.

The MVRP "applicant state" can vary as this is continuously checked/refreshed and may be slightly different from the outputs shown above.

					Lab Guide
		· • • •	• •	- · · · · · · · · · · · · · · · · · · ·	MVRP
		0 0 0 0	· · · · · · · · · · · · · · · · · · ·	0 0	4
ask	3 - Configure MVRP a	nd Native VLA	on Switch D		e • L
•	On Switch D enable MVRP	globally with native	VLAN and define	a VLAN 20	0 0 L 0 0 L
Sī	witchD(config)#		• •	0 0	
ir	nt 1/1/3			0 0	0 0 0 0 0 0 x
v	lan trunk native 1		0 0	0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
mv	vrp		\ 0 0 0 0 0 0 0 0 0	• •	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ez	kit		· · · · · · · · · · · · · · · · · · ·	0 0	
v	lan 20		• • • • • • •	0 0	0 0
ez	kit		0		
mv	vrp			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<td< th=""></td<>
itc	hD# show vlan				
				× • • • • •	
JAN	Name	Status	Reason	Туре	Interfaces
	DEFAULT VLAN 1	αιι	ok	default	1/1/2-1/1/3
		T-			
)	VLAN10	au	ok	dynamic	1/1/3
the	VLAN10 VLAN20 above output the Dynamic VL	սթ սթ AN 10 present on S	ok ok Switch D	<mark>dynamic</mark> static	1/1/3 1/1/2-1/1/3
) the n Sw vitc	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan	սթ սթ AN 10 present on S ′LAN 10 and 20 are o	ok ok witch D observed	<mark>dynamic</mark> static	1/1/3 1/1/2-1/1/3
) the n Sw vitc: 	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan	up up AN 10 present on S 'LAN 10 and 20 are Status	ok ok Switch D observed Reason	dynamic static 	1/1/3 1/1/2-1/1/3 Interfaces
)) n the m Sw witc: LAN	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan Name DEFAULT_VLAN_1	up up AN 10 present on S /LAN 10 and 20 are Status up	ok ok switch D observed Reason ok	dynamic static Type default	1/1/3 1/1/2-1/1/3 Interfaces 1/1/2-1/1/3
n Sw ritc	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan Name DEFAULT_VLAN_1 VLAN10	up up AN 10 present on S 'LAN 10 and 20 are Status up up	ok ok witch D observed Reason ok ok	dynamic static Type default dynamic	1/1/3 1/1/2-1/1/3 Interfaces 1/1/2-1/1/3 1/1/2
) the n Sw vitc: 	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan Name DEFAULT_VLAN_1 VLAN10 VLAN20	up up AN 10 present on S 'LAN 10 and 20 are Status up up up	ok ok witch D observed Reason ok ok ok	dynamic static Type default dynamic dynamic	1/1/3 1/1/2-1/1/3 Interfaces 1/1/2-1/1/3 1/1/2 1/1/3
0 0 n the Dn Sw witc: LAN 0 0 Dn Sw witc:	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan 	up up AN 10 present on S (LAN 10 and 20 are Status up up up up	ok ok witch D observed Reason ok ok ok ok	dynamic static Type default dynamic dynamic Switch D	1/1/3 1/1/2-1/1/3 Interfaces 1/1/2-1/1/3 1/1/2 1/1/3
0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan Name DEFAULT_VLAN_1 VLAN10 VLAN20 vitch C below the Dynamic VL hC#show vlan Name	up up AN 10 present on S /LAN 10 and 20 are Status up up up AN 20 is present, th Status	ok ok witch D observed Reason ok ok ok at was defined in Reason	dynamic static Type default dynamic dynamic Switch D	1/1/3 1/1/2-1/1/3 Interfaces 1/1/2-1/1/3 1/1/2 1/1/3 Interfaces
) i the n Sw witc: LAN 0 0 N Sw witc: LAN	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan Name DEFAULT_VLAN_1 VLAN10 VLAN20 vitch C below the Dynamic VL hC#show vlan Name DEFAULT_VLAN_1	up up AN 10 present on S /LAN 10 and 20 are Status up up up up up up up up	ok ok witch D observed Reason ok ok ok at was defined in Reason	dynamic static Type default dynamic dynamic Switch D Type default	1/1/3 1/1/2-1/1/3 Interfaces 1/1/2-1/1/3 1/1/2 1/1/3 Interfaces 1/1/2-1/1/3
) the n Sw ritc: _AN 	VLAN10 VLAN20 above output the Dynamic VL vitch A below both Dynamic V hA# show vlan Name DEFAULT_VLAN_1 VLAN10 VLAN20 vitch C below the Dynamic VL hC#show vlan Name DEFAULT_VLAN_1 VLAN10 VLAN10 VLAN10 VLAN10 VLAN20	up up AN 10 present on S (LAN 10 and 20 are Status up up up up up up up up up up	ok ok witch D observed Reason ok ok ok ok at was defined in Reason Reason	dynamic static Type default dynamic dynamic Switch D Type Type default static	1/1/3 1/1/2-1/1/3 Interfaces 1/1/2-1/1/3 1/1/2 1/1/3 Interfaces 1/1/2-1/1/3 1/1/2



Figure 2 Part II Lab topology

In Part II we configure MVRP deployment in two MSTI

The assumption is made Part I has already been completed. This is a prerequisite for Part II .

MSTI is set up as detailed below

- VLAN 10 assigned to MSTI 1
- VLAN 20 assigned to MSTI 2

All other VLANs assigned to the default MSTI 0 make C Root, not shown in Figure 3



Figure 3 MSTI Topology

		-ab Guide MVRP
Task 4 – Part II Lab setup	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
First clear some of the VLAN Configurations, and ena	able all the relevant ports, as well as add Switch D as shown in	
Figure 2		
A prerequisite to follow Part II lab steps below, the as	ssumption is Part I lab has been completed already.	
• On Switch B add a hostname and bring up requ	uired ports:	
configure hostname <device host="" name=""></device>		0 0
int 1/1/1-1/1/3 no routing no shutdown		0 0
use "exit" to go back a level		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
• On Switch A bring up required ports:	· · · · · · · · · · · · · · · · · · ·	0 0
int 1/1/1 no routing no shutdown		0 0
use "exit" to go back a level		

- On Switch C bring up required ports and remove the VLAN 10

int 1/1/3 no routing no shutdown

use "exit" to go back a level

no vlan 10

• On Switch D bring up required ports and remove the VLAN 20

int 1/1/2
no routing
 no shutdown

use "exit" to go back a level

no vlan 20

• Validate LLDP neighbors appear as expected on each Switch A and B as shown below

SwitchA# show lldp neighbor-info

LLDP Neighbor Information

Total	Neighbor	Entries		:	3
Total	Neighbor	Entries	Deleted	:	0
Total	Neighbor	Entries	Dropped	:	0
Total	Neighbor	Entries	Aged-Out	:	0

LOCAL-PORT	CHASSIS-ID	PORT-ID	PORT-DESC	TTL	SYS-NAME
1/1/1	08:00:09:6b:63:2b	1/1/1	1/1/1	120	SwitchB
1/1/2	08:00:09:a7:87:32	1/1/2	1/1/2	120	SwitchC
1/1/3	08:00:09:b2:17:10	1/1/3	1/1/3	120	SwitchD

		Lab Guide
		MVRP
SwitchB# show lldp neighbor-info	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
LLDP Neighbor Information		
Total Neighbor Entries : 3		
Total Neighbor Entries Deleted : 0		
Total Neighbor Entries Dropped : 0		
Total Neighbor Entries Aged-Out : 0		
LOCAL-DORT CHASSIS-ID DORT-ID		
LOCAL FORT CHADDED ID FORT ID	I GIGI DEBC	
	1 /1 /1	
1/1/1 08:00:09:fd:8C:a2 1/1/1	1/1/1	120 SwitchA
1/1/2 08:00:09:b2:17:10 1/1/2	1/1/2	120 SwitchD
1/1/3 08:00:09:a7:87:32 1/1/3	1/1/3	120 SwitchC
Tool F Configure MV/DD and CTD		• • • • • • • • • • • • • • • • • • • •
Task 5 - Conligure WIVRP and STP		
 On Switch A add VLAN 10. Configure ST 	P making Switch A Root for instan	ce 1 VI AN 10 and Secondary Root for
	starfage 1/1/1 with M//DD	
Instance 2, VLAN 20 and a add trunk to in	nterrace 1/1/1 with MVRP	• • • • • • • • • • • • • • • • • • • •
		••••••••••••••
SwitchA(config)#		` 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
vlan 10		
Do you wish to convert it to static VLAN (w/n)?	
Do you wish to convert it to static virkiv (y/11/.	
<i>Y</i>		* • • • • • • • • • • • • • • • • • • •
exit		* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
spanning-tree		
spanning-tree config-name spl		
spanning-tree config-revision 1		
spanning-tree instance 1 vlan 10		
spanning-tree instance 2 ylan 20		
apanning_tree_instance_2_vian_20		
spanning-tree instance i priority 0		
spanning-tree instance 2 priority 1		
int 1/1/1		
vlan trunk native 1		

• On Switch B add VLAN 20 ,Configure STP making Switch B Root for Instance 2, VLAN 20, and Secondary Root for Instance 1, VLAN 10, and add trunk to all interfaces with MVRP

```
SwitchB(config)#
vlan 20
exit
spanning-tree
spanning-tree config-name spl
spanning-tree config-revision 1
spanning-tree instance 1 vlan 10
spanning-tree instance 2 vlan 20
spanning-tree instance 2 priority 0
spanning-tree instance 1 priority 1
interface 1/1/1-1/1/3
    no shutdown
    no routing
    vlan trunk native 1
   mvrp
exit
mvrp
```

- On Switch C ,remove VLAN 10, add STP making C Root for other VLANS , and add a trunk to interface 1/1/3 with MVRP
 - We also statically add VLAN 20 overriding dynamic allocation for this VLAN (Enables to observe differences in MVRP outputs later)

```
SwitchC(config)#
no vlan 10
vlan 20
exit
spanning-tree
spanning-tree priority 0
spanning-tree config-name sp1
```

mvrp exit

					• • • • • • • • • •	• • • • • • • •	•			
					· · · · · · · · · · · ·	• • • • • • • •	•			
					• • • • • • • • • • •	• • • • • • • •	•		Lab Guide	
							•		MVRP	
				0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	• • • • • • • • • • • • • • • •	• •			
spanning-tre	ee config-rev	vision 1					• •			
spanning-tre	ee instance 1	vlan 10			• • • • • • • • • • • •	• • • • • • • • • • • • • • •	0 0 L			
spanning-tre	ee instance 2 /1/3	vian 20		• • • •		• • • • • • •	• • • (
vlan tri	ink native 1					 	••••			
mvrp										
-										
				• •	• • • • • • • • • •	• • • • • • •	• • • • • • •			
 On S 	witch D Config	ure STP and a	dd trunl	k to interfac	es 1/1/2 with MV	'RP	• • • • • • • • •			
Switch abD (aonf	Fig)#			•	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	• • • • • • • • • • • • • • • •	• • • • • • • •	• • • · ·		
spanning-tre	L I G) #				• • • • • • • • • •	• • • • • • •	• • • • • • •	• • • • • •		
spanning-tre	ee confiq-nam	ne spl								
spanning-tre	ee config-rev	vision 1			• • • • • • • •	• • • • • • •	• • • • • • •	• • • • • • •		
spanning-tre	ee instance 1	vlan 10								
spanning-tre	ee instance 2	2 vlan 20				• • • • • • • •	• • • • • • • •	• • • • • • •	· • • • • • • • • •	• • • • •
interface 1/	/1/2									
Vian tru	ink native i				• • • •			• • • • • • •	· • • • • • • • • •	
MAT D					• •					
					•	• • • • • • • •	· · · · · · · ·	• • • • • • •	· • • • • • • • • •	
Task 6 – C	beck confid	nurations ar	tuo br	nut						
		garationio ai		.pur			• • • • • • • • •	• • • • • • •	· • • • • • • • • •	• • • • •
 Check 	k the STP topo	ology from Swite	ch D							
(o It can be s	een from the ou	utput be	elow that :		٠	• • • • • • • •	• • • • • • •	· • • • • • • • • •	• • • • •
(MST1 map 	ped to VLAN 1	0 with I	Root port or	n interface 1/1/3					
(o MST2 map	, ped to VLAN 2	0 with I	Root port or	n interface 1/1/2				· • • • • • • • • •	• • • • •
SwitchD# show	spanning-tree	mst 1							• • • • • • • • • •	
									~ • • • • •	
#### MST1										
Vlans mapped:	10									
Vlans mapped: Bridge	10 Address:08:0	0:09:ee:11:82	Prio	rity:32768						
Vlans mapped: Bridge Root	10 Address:08:0 Address:08:0 Port:1/1/3,	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Ren	Prio Prio m Hops:	rity:32768 rity:0 19						
Vlans mapped: Bridge Root	10 Address:08:0 Address:08:0 Port:1/1/3,	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Ren	Prio Prio m Hops:	rity:32768 rity:0 19						
Vlans mapped: Bridge Root Port	10 Address:08:0 Address:08:0 Port:1/1/3, Role	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Ren State (Prio Prio m Hops: Cost	rity:32768 rity:0 19 Priority	Туре	BPDU-Tx	BPDU-Rx	TCN-Tx	TCN-Rx	
Vlans mapped: Bridge Root Port 1/1/2 1/1/2	10 Address:08:0 Address:08:0 Port:1/1/3, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State Blocking	Prio Prio m Hops: Cost 20000	rity:32768 rity:0 19 Priority 128	Type 	BPDU-Tx 9	BPDU-Rx 3767 3765	TCN-Tx 	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 1/1/2 1/1/3	10 Address:08:0 Address:08:0 Port:1/1/3, Role - Alternate Root	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State Blocking 2 Forwarding 2	Prio Prio m Hops: 20000 20000	rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 1/1/2 1/1/3 Topology chan	10 Address:08:0 Address:08:0 Port:1/1/3, Role - Alternate Root ge flag	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State Blocking 2 Forwarding 2 : True	Prio Prio m Hops: Cost 20000 20000	rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 1/1/2 1/1/3 Topology chan Number of top Last topology	10 Address:08:0 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon	Prio Prio m Hops: Cost 20000 20000	rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 1/1/2 1/1/3 Topology chan Number of top Last topology	10 Address:08:0 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon	Prio Prio M Hops: 20000 20000 nds ago	rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
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Vlans mapped: Bridge Root Port 1/1/2 1/1/3 Topology chan Number of top Last topology SwitchD# show	10 Address:08:0 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Ren State (Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2	Prio Prio M Hops: Cost 20000 20000	rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3765 3765	TCN-Tx 	TCN-Rx 5 4	
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Vlans mapped: Bridge Root Port 1/1/2 1/1/3 Topology chan Number of top Last topology SwitchD# show #### MST2 Vlans mapped: Drider	10 Address:08:0 Address:08:0 Port:1/1/3, Role - Alternate Root ge flag ology changes change occurr spanning-tree	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2	Prio Prio N Hops: Cost 20000 20000 nds ago	rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 1/1/2 1/1/3 Topology chan Number of top Last topology SwitchD# show #### MST2 Vlans mapped: Bridge Root	10 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Address:08:0	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 . True . 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e	Prio Prio N Hops: Cost 20000 20000 nds ago Prio Prio	rity:32768 rity:0 19 Priority 128 128 rity:32768 rity:0	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 1/1/2 1/1/3 Topology chan Number of top Last topology SwitchD# show #### MST2 Vlans mapped: Bridge Root	10 Address:08:0 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Address:08:0 Port:1/1/2,	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer	Prio Prio n Hops: Cost 20000 20000 nds ago Prio Prio n Hops:	rity:32768 rity:0 19 Priority 128 128 128 rity:32768 rity:0 19	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Address:08:0 Port:1/1/2, Polo	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer	Prio Prio Cost 20000 20000 nds ago Prio Prio Prio	rity:32768 rity:0 19 Priority 128 128 128 rity:32768 rity:0 19	Туре Р2Р Р2Р	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State 0	Prio Prio N Hops: 20000 20000 nds ago Prio Prio N Hops: Cost	rity:32768 rity:0 19 Priority 128 128 128 rity:32768 rity:0 19 Priority	Туре 929 929 929	BPDU-Tx 9 10	BPDU-Rx 3767 3765	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State C Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State C Forwarding 2	Prio Prio n Hops: 20000 20000 nds ago Prio Prio n Hops: Cost 20000	rity:32768 rity:0 19 Priority 128 128 128 rity:32768 rity:0 19 Priority 	Туре Р2Р Р2Р Р2Р	BPDU-Tx 9 10 BPDU-Tx 9	BPDU-Rx 3767 3765 BPDU-Rx 3770	TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Address:08:0 Port:1/1/2, Role Root Alternate	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State 0 Forwarding 2 Blocking 2	Prio Prio N Hops: 20000 20000 nds ago Prio n Hops: Cost 20000 20000 20000	rity:32768 rity:0 19 Priority 128 128 128 rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р Р2Р	BPDU-Tx 9 10 BPDU-Tx 9 10	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767	TCN-Tx 4 1 TCN-Tx 4 1	TCN-Rx 5 4 TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Address:08:0 Port:1/1/2, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State 0 Forwarding 2 Blocking 2 : True	Prio Prio N Hops: Cost 20000 20000 nds ago Prio Prio N Hops: Cost 20000 20000	rity:32768 rity:0 19 Priority 128 128 128 rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р Р2Р	BPDU-Tx 9 10 BPDU-Tx 9 10	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767	TCN-Tx 4 1 TCN-Tx 4 1	TCN-Rx 5 4	
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Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Address:08:0 Port:1/1/2, Role Root Alternate ge flag ology changes change occurr	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Ren State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Ren State 0 Forwarding 2 Blocking 2 : True : 1 ed : 7531 secon	Prio Prio 2000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000	rity:32768 rity:0 19 Priority 128 128 128 rity:32768 rity:0 19 Priority 128 128	Туре Р2Р Р2Р Р2Р	BPDU-Tx 9 10 BPDU-Tx 9 10	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767	TCN-Tx 4 1 TCN-Tx 4 1	TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State 0 Forwarding 2 Blocking 2 : True : 1 ed : 7531 secon utbat bath VII A	Prio Prio Prio 20000 20000 20000 20000 20000 Prio Prio Prio 20000 20000 20000 20000	rity: 32768 rity: 0 19 Priority 128 128 128 rity: 32768 rity: 0 19 Priority 128 128	Туре Р2Р Р2Р Р2Р Р2Р Р2Р Р2Р Р2Р	BPDU-Tx 9 10 BPDU-Tx 9 10	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767	TCN-Tx 4 1 TCN-Tx 4 1	TCN-Rx 5 4 TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State C Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State C Forwarding 2 Blocking 2 : True : 1 ed : 7531 secon w that both VLA	Prio Prio 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000	rity: 32768 rity: 0 19 Priority 128 128 128 rity: 0 19 Priority 128 128 128	Type P2P P2P P2P P2P	BPDU-Tx 9 10 BPDU-Tx 9 10 d on Switch	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767 D aligned t	TCN-Tx 4 1 TCN-Tx 4 1	TCN-Rx 5 4 TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Ren State C Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Ren State C Forwarding 2 Blocking 2 : True : 1 ed : 7531 secon w that both VLA	Prio Prio 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000 20000	rity: 32768 rity: 0 19 Priority 128 128 128 rity: 0 19 Priority 128 128 128	Type P2P P2P P2P P2P	BPDU-Tx 9 10 BPDU-Tx 9 10 d on Switch	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767 D aligned to	TCN-Tx 4 1 TCN-Tx 4 1 0 STP inter	TCN-Rx 5 4 TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Address:08:0 Port:1/1/3, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Ren State C Blocking 2 Forwarding 2 : True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Ren State C Forwarding 2 Blocking 2 : True : 1 ed : 7531 secon w that both VLA	Prio Prio 20000 20000 20000 20000 20000 20000 20000 Prio Prio Prio 20000 20000 20000 20000 20000 20000	rity:32768 rity:0 19 Priority 128 128 128 rity:0 19 Priority 128 128 nd 20 are c	Type P2P P2P P2P	BPDU-Tx 9 10 BPDU-Tx 9 10 d on Switch	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767 D aligned to	TCN-Tx 4 1 TCN-Tx 4 1 0 STP inter	TCN-Rx 5 4 TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Port:1/1/2, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State 0 Blocking 2 Forwarding 2 i True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State 0 Forwarding 2 Blocking 2 : True : 1 ed : 7531 secon w that both VLA	Prio Prio 20000 20000 ands ago Prio n Hops: 20000 20000 20000 20000 20000 Ands ago	rity: 32768 rity: 0 19 Priority 128 128 128 rity: 32768 rity: 0 19 Priority 128 128 nd 20 are c	Type P2P P2P P2P	BPDU-Tx 9 10 BPDU-Tx - 9 10 d on Switch	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767 D aligned t	TCN-Tx 4 1 TCN-Tx 4 1 0 STP inter	TCN-Rx - - - - - - - - - - - - -	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Port:1/1/2, Role 	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State C Blocking 2 Forwarding 2 i True 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State C Forwarding 2 i True i 1 ed : 7531 secon w that both VLA	Prio Prio Notes in Prio Prio Prio Prio Prio Prio Prio N Hops: 20000 20000 N N 10 a	rity: 32768 rity: 0 19 Priority 128 128 128 Priority: 0 19 Priority 128 128 nd 20 are c	Type P2P P2P P2P	BPDU-Tx 9 10 BPDU-Tx 9 10 d on Switch	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767 D aligned t	TCN-Tx 4 1 TCN-Tx 4 1 0 STP inter	TCN-Rx 5 4 TCN-Rx 5 4	
Vlans mapped: Bridge Root Port 	10 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Port:1/1/2, Role Root Alternate ge flag ology changes change occurr be seen below cted	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State C Blocking 2 Forwarding 2 i True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State C Forwarding 2 i True : 1 ed : 7531 secon w that both VLA	Prio Prio 20000 20000 20000 ands ago Prio Prio Prio 20000 20000 ands ago 20000 ands ago 20000 20000	rity: 32768 rity: 0 19 Priority 128 128 128 Priority: 0 19 Priority 128 128 nd 20 are c	Type P2P P2P P2P P2P	BPDU-Tx 9 10 BPDU-Tx 9 10 d on Switch	BPDU-Rx 3767 3765 BPDU-Rx 3770 3767 D aligned t	TCN-Tx 4 1 TCN-Tx 4 1 o STP inter faces	TCN-Rx 5 4 TCN-Rx 5 4	
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Vlans mapped: Bridge Root Port 	10 Address:08:0 Port:1/1/3, Role Alternate Root ge flag ology changes change occurr spanning-tree 20 Address:08:0 Port:1/1/2, Role Root Alternate ge flag ology changes change occurr be seen below cted pw vlan	0:09:ee:11:82 0:09:8a:14:fa Cost:20000, Rer State C Blocking 2 Forwarding 2 i True : 3 ed : 7526 secon mst 2 0:09:ee:11:82 0:09:12:8e:9e Cost:20000, Rer State C Forwarding 2 i True : 1 ed : 7531 secon w that both VLA	Prio Prio Prio 20000 20000 20000 ands ago Prio Prio Prio 20000 20000 ands ago 20000 ands ago 20000 N 10 a	rity: 32768 rity: 0 19 Priority 128 128 128 Priority: 0 19 Priority 128 128 nd 20 are c atus Rea: ok	Type P2P P2P P2P P2P	BPDU-Tx 9 10 BPDU-Tx 9 10 d on Switch	BPDU-Rx 3767 3765 BPDU-Rx 3770 3770 3767 D aligned t Inter1 t 1/1/2- c 1/1/3	TCN-Tx 4 1 TCN-Tx 4 1 o STP inter faces -1/1/3	TCN-Rx 5 4 TCN-Rx 	

• Now check the MVRP state

SwitchD#show mvrp state

SwitchD#

Config Port	guration VL	and Status - AN Registrar	MVRP state Applicant	e Forbid	0 0	0 0	Lab Guide MVRP
1/1/2 1/1/2 1/1/2 1/1/3 1/1/3 1/1/3	1 10 20 1 10 20 11 20 11 can be 1/1/2. T	IN MT IN MT IN MT e observed ab his follows the	QA VP VO AA VO QA ove Switch I STP topolog	NO NO NO NO NO NO Dhas IN I	Register for N	/LAN 10 on interface 1/1/3 and for VLAN 20 s in vo (Very Anxious Observer)	on interface
• Switc	Now ob hC#show v	serve the VLA	Ns and MVR	P State and	d VLANS on	Switch C	0 0
VLAN	Name			Status	s Reason	Type Interfaces	<u></u>
1 10 20	DEFAULT_ VLAN10 VLAN20	vlan_1		up up up	ok ok ok	default 1/1/2-1/1/3 dynamic 1/1/2 static 1/1/2-1/1/3	

- It can be seen we now only have a single dynamic VLAN 10 as we statically defined VLAN 20 on Switch C earlier
- Below it is seen the Register IN for both VLAN 10 and 20 in the MVRP State. However VLAN 20 is in QA (Quietly Active) State. As VLAN 20 was locally defined is on Switch C we only see VLAN 10 as Dynamically learned

SwitchC#show mvrp state

Configuratio	on and	d Status -	MVRP state	2
Port	VLAN	Registrar	Applicant	Forbid
		State	State	Mode
1/1/2	1	IN	QA	No
1/1/2	10	IN	VO	No
1/1/2	20	MT	QA	No
1/1/3	1	IN	QA	No
1/1/3	10	MT	AA	No
1/1/3	20	IN	QA	No

NOTE: The MVRP "applicant state" can vary as this is continuously checked/refreshed and may be slightly different from the outputs shown above

Task 6 - Basic connectivity test

Note: When VLANs are added to SVI or access ports, dynamic VLANs cannot co-exists on the local switch.

- Now we will observe some basic Layer 3 connectivity from Switch D to Switch C on Vlan 20
- Add VLAN interface 20 to Switch C with an IPV4 address

```
SwitchC#
configure
int vlan 20
ip address 1.1.1.1/30
```

on Switch D add VLAN interface 20, and then add an IPV4 address

```
SwitchD#
configure
interface vlan 20
Ignoring the operation on dynamic VLAN(s) 20.
```

- You will see the above message, you cannot add a VLAN interface or an access port VLAN to a dynamic defined VLAN, MVRP is only supported on trunk ports on Aruba CX.
- To use a dynamic VLAN locally you need to convert it to a static VLAN

Lab Guide **MVRP** When you convert a Dynamic VLAN to a static VLAN you will be asked if you wish to do this. • SwitchD# configure vlan 20 VLAN 20 is a Dynamic VLAN. Do you wish to convert it to static VLAN (y/n)? y Exit interface vlan 20 ip address 1.1.1.2/30 It should now be possible to ping between SVI interfaces on VLAN 20 which will traverse the Core ٠ SwitchD# ping 1.1.1.1 PING 1.1.1.1 (1.1.1.1) 100(128) bytes of data. 108 bytes from 1.1.1.1: icmp_seq=1 ttl=64 time=56.6 ms 108 bytes from 1.1.1.1: icmp_seq=2 ttl=64 time=11.0 ms 108 bytes from 1.1.1.1: icmp_seq=3 ttl=64 time=14.3 ms 108 bytes from 1.1.1.1: icmp_seq=4 ttl=64 time=16.6 ms 108 bytes from 1.1.1.1: icmp_seq=5 ttl=64 time=9.87 ms Part II of lab is now completed



Appendix – Complete Configurations

- If you face issues during your lab, you can verify your configs with the configs listed in this section
- If configs are the same, try powering off/powering on the switches to reboot them

Part I Configurations

Switch A

```
hostname SwitchA
mvrp
!
ssh server vrf mgmt
vlan 1
interface mgmt
    no shutdown
    ip dhcp
interface 1/1/2
   no shutdown
    no routing
    vlan trunk native 1
    vlan trunk allowed all
    mvrp
interface 1/1/3
    no shutdown
    no routing
    vlan trunk native 1
    vlan trunk allowed all
    mvrp
https-server vrf mgmt
```

Switch C

```
hostname SwitchC
mvrp
!
ssh server vrf mgmt
vlan 1,10
interface mgmt
    no shutdown
    ip dhcp
interface 1/1/2
    no shutdown
    no routing
    vlan trunk native 1
    vlan trunk allowed all
    mvrp
!
```

https-server vrf mgmt

Switch D

```
hostname SwitchD
led locator on
mvrp
!
ssh server vrf mgmt
vlan 1,20
interface mgmt
    no shutdown
    ip dhcp
interface 1/1/3
    no shutdown
    no routing
    vlan trunk native 1
    vlan trunk allowed all
    mvrp
https-server vrf mgmt
```

	Lab Guide
	MVRP
	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$\circ \circ $
Part II Configurations	
Switch A	
hadthama Switchl	
	· · · · · · · · · · · · · · · · · · ·
morp	
!	
ssh server vrf mgmt	
vlan 1,10	
spanning-tree	· · · · · · · · · · · · · · · · · · ·
spanning-tree config-name spl	
spanning-tree config-revision 1	
spanning-tree instance 1 vlan 10	
spanning-tree instance 1 priority 0	
spanning-tree instance 2 vlan 20	
spanning-tree instance 2 priority 1	
interface mgmt	
no shutdown	
in dhen	
interface 1/1/1	
no shutdown	
no snucdown	
no routing	
vian trunk native i	
Vian trunk allowed all	
mvrp	
interface 1/1/2	
no shutdown	
no routing	
vlan trunk native 1	~ • • • • • • • • • • • • • •
vlan trunk allowed all	
mvrp	
interface 1/1/3	

```
Switch B
```

!

mvrp

no shutdown no routing

https-server vrf mgmt

vlan trunk native 1 vlan trunk allowed all

```
hostname SwitchB
mvrp
!
!
ssh server vrf mgmt
vlan 1,20
spanning-tree
spanning-tree config-name sp1
spanning-tree config-revision 1
spanning-tree instance 1 vlan 10
spanning-tree instance 1 priority 1
spanning-tree instance 2 vlan 20
spanning-tree instance 2 priority 0
interface mgmt
    no shutdown
    ip dhcp
interface 1/1/1
   no shutdown
    no routing
    vlan trunk native 1
    vlan trunk allowed all
   mvrp
interface 1/1/2
   no shutdown
    no routing
    vlan trunk native 1
    vlan trunk allowed all
   mvrp
interface 1/1/3
    no shutdown
    no routing
    vlan trunk native 1
    vlan trunk allowed all
```

		Lab Guide
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MVRP
mvrp	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
!		
https-server vri mgmt		
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Switch C		
	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
hostnome Switcha	• • • • • • • • • • • • • • • • • • •	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
mvrp		
!	· • • • • • • • • • • • • • • • • • • •	
!		
ssh server vrf mgmt	· · · · · · · · · · · · · · · · · · ·	
vlan 1,20		
spanning-tree		
spanning-tree priority 0		
spanning-tree config-name spl		
spanning-tree config-revision 1		
spanning-tree instance 1 vlan 10		
spanning-tree instance 2 ylan 20		
interface mont		
no shutdown		
in dhan		
$\frac{1}{1} p \operatorname{diff}_{2} p$		
interface 1/1/2		
no shutdown		
no routing		• • • • • • • • • • • • • • • •
vlan trunk native 1		
vlan trunk allowed all		
mvrp		
interface 1/1/3		
no shutdown	5 B C	
no routing		
vlan trunk native 1		
vlan trunk allowed all		
WITTO		
III V I I I I I I I I I I I I I I I I I		

```
Switch D
```

https-server vrf mgmt

1

```
hostname SwitchD
mvrp
!
!
ssh server vrf mgmt
vlan 1
spanning-tree
spanning-tree config-name spl
spanning-tree config-revision 1
spanning-tree instance 1 vlan 10
spanning-tree instance 2 vlan 20
interface mgmt
    no shutdown
    ip dhcp
interface 1/1/2
    no shutdown
    no routing
    vlan trunk native 1
    vlan trunk allowed all
   .
mvrp
interface 1/1/3
    no shutdown
    no routing
    vlan trunk native 1
vlan trunk allowed all
    mvrp
interface 1/1/9
   no routing
    vlan access 1
!
!
https-server vrf mgmt
```



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