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Introduction

This document lists 2 methods to successfully setup the 1532's with daisy chaining and allow ethernet bridging of a remote switch's traffic to flow through to the core network.

Prerequisites

Controller running 8.0.120.0 and up.

Minimum of 2 1532 outdoor AP's(Access Point). You can use any other model of AP as the wired root, but for daisy chaining you have to use 2 1532's, of course.

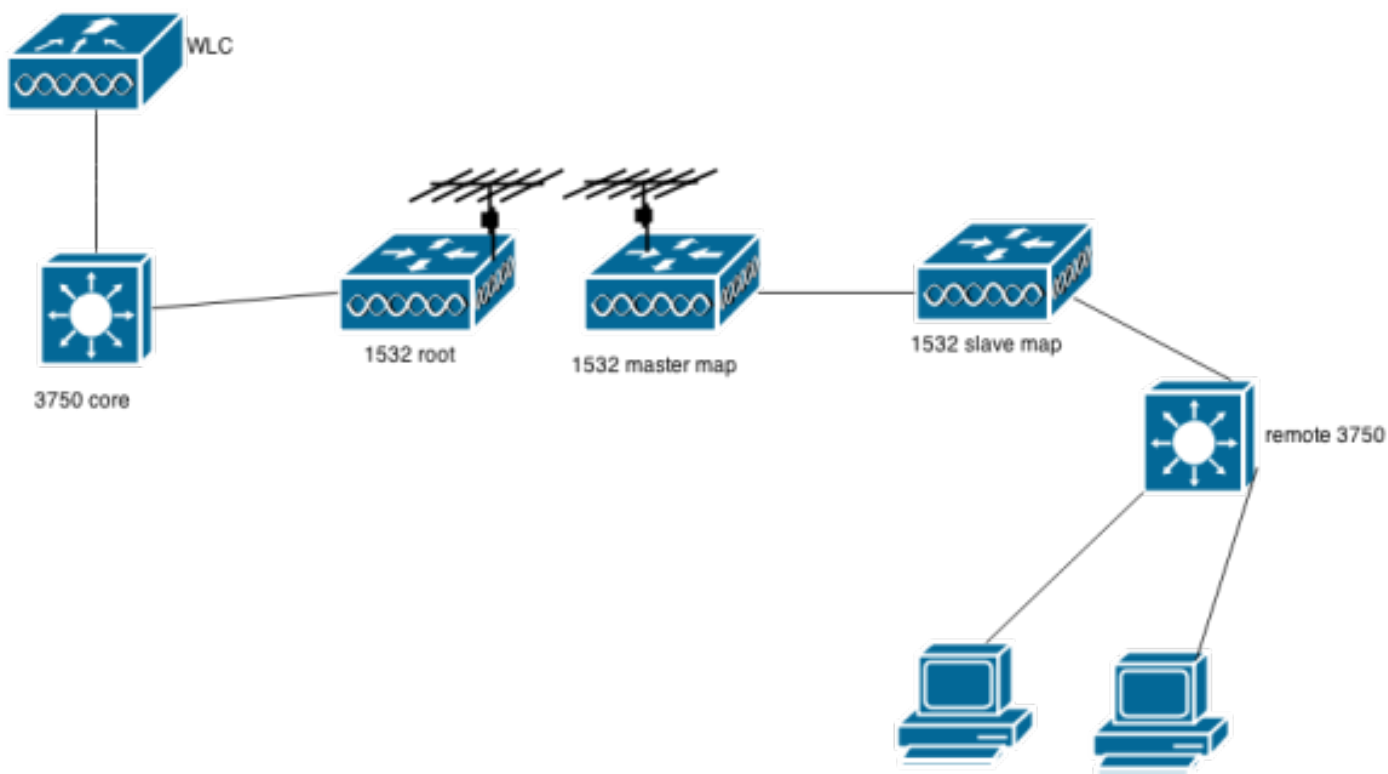
Before starting any of this configuration, please make sure that the remote switch is not connected to the Slave RAP(Root Access Point) until the configuration on the mesh network is complete and verified to be correct. If you do not do this, there is a high probability that spanning tree will take down the entire mesh network that is connected to the RAP. It will block the root ap switch port and drop all the children connected to it. This can create a whole new set of issues due to the re-convergence of the mesh network. Potentially causing an extended outage and a lot of frustration.

Components Used

- 2504 Wireless LAN Controller
- 2702 as the wired RAP
- 2 1532's to daisy chain
- 2 switches (3750's in my lab), one core, one remote.
- 2 vlans.
- 1107 is native and what the AP's connect to the controller on.
- 12 is remote wired client vlan.

Configuration

Network Diagram



Configuration 1

Easiest method first.

Enable Vlan transparent on the controller. With this enabled it will pass the native and also pass the tagged vlan's from the remote side without having to define them on the Rap/Map gig interfaces. More on this in the next example.

Mesh

General

Range (RootAP to MeshAP)	<input type="text" value="12000"/>	feet
IDS(Rogue and Signature Detection)	<input type="checkbox"/>	Enabled
Backhaul Client Access	<input type="checkbox"/>	Enabled
Mesh DCA Channels 1	<input type="checkbox"/>	Enabled
Global Public Safety	<input type="checkbox"/>	Enabled

Ethernet Bridging

VLAN Transparent	<input checked="" type="checkbox"/>	Enabled
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Wired Root AP mesh configuration

General Credentials Interfaces High Availability Inventory Mesh Advanced

AP Role

Bridge Type

Bridge Group Name

Strict Matching BGN

Ethernet Bridging

Preferred Parent

Backhaul Interface

Bridge Data Rate (Mbps)

Ethernet Link Status

Heater Status

Internal Temperature

VLAN Support

Native VLAN ID

Ethernet Bridging

Interface Name	Oper Status	Mode	Vlan ID
GigabitEthernet0	Up	Access	0
GigabitEthernet1	Down	Access	0

Mesh Access Point(MAP) configuration

First Mesh AP of the daisy chain. This is considered the Master of the chain. It uses its 5Ghz radio to connect to the wired Rap. Note that daisy chaining is enabled on this AP.

General Credentials Interfaces High Availability Inventory Mesh Advanced

AP Role

Bridge Type

Bridge Group Name

Strict Matching BGN

Ethernet Bridging Daisy Chaining

Preferred Parent

Backhaul Interface

Bridge Data Rate (Mbps)

Ethernet Link Status

VLAN Support

Native VLAN ID

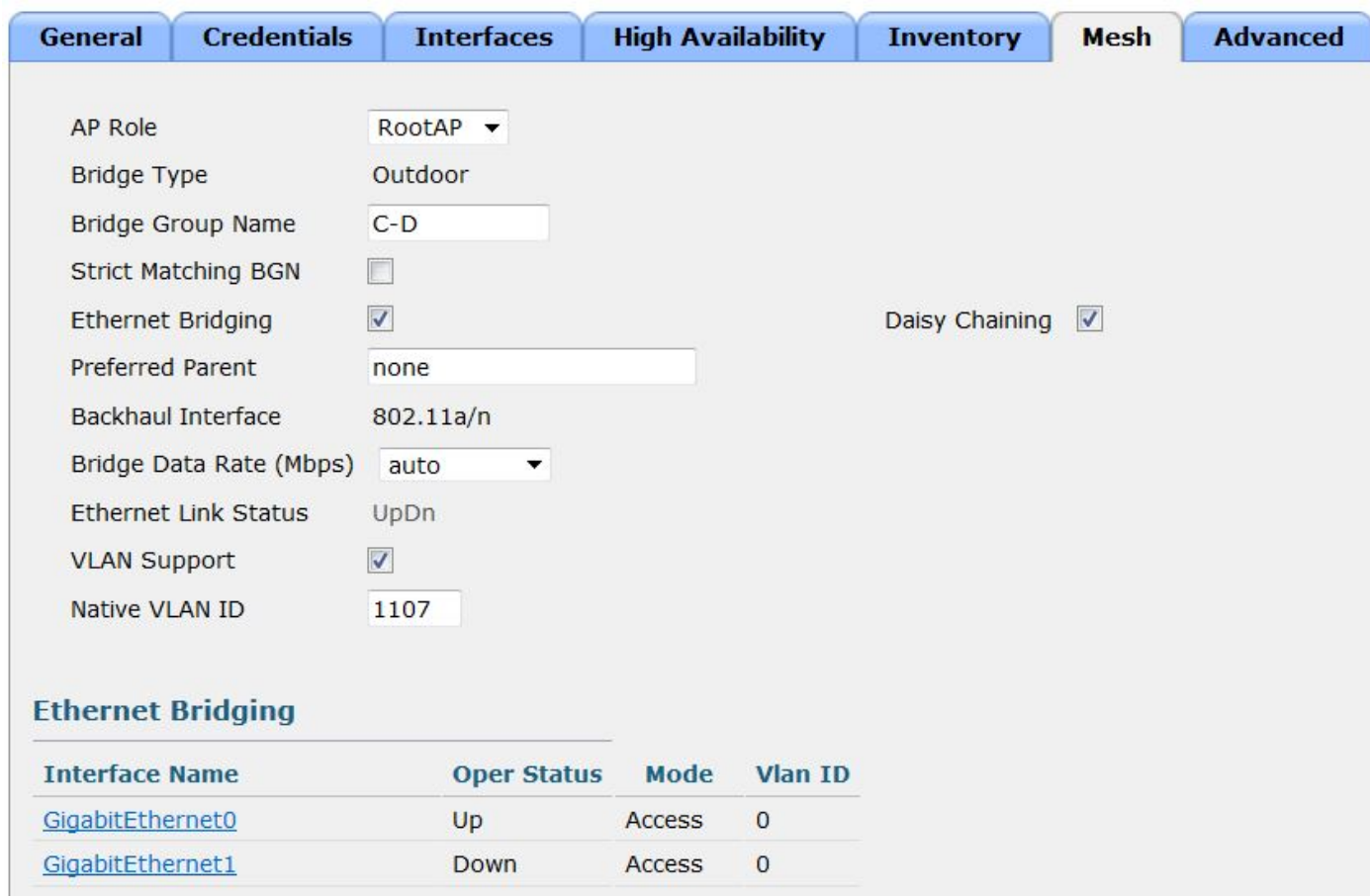
Ethernet Bridging

Interface Name	Oper Status	Mode	Vlan ID
GigabitEthernet0	Down	Access	0
GigabitEthernet1	Up	Access	0

Slave AP-- Daisy Chain Configuration

Slave AP of the daisy chain. Notice that it is configured as a Rap and not a Map. This AP will use its POE in port to connect to the Lan port on the master Map AP. Note that daisy chain is enabled on this AP. The traffic from this AP's lan port as well as its 2.4Ghz and 5Ghz radio will be sent to the master AP via the ethernet cable and then transmitted out the master AP's 5Ghz radio to the Rap at the core. you then connect the Lan port on this AP to the remote switch.

Since this AP is configured as a Rap you can also change its 5Ghz radio to a different channel than the core root AP. This way you can have channel separation to additional downstream Map's from this slave AP.



The screenshot displays the configuration page for a Slave AP. The 'General' tab is selected, showing the following settings:

- AP Role: RootAP
- Bridge Type: Outdoor
- Bridge Group Name: C-D
- Strict Matching BGN:
- Ethernet Bridging:
- Preferred Parent: none
- Backhaul Interface: 802.11a/n
- Bridge Data Rate (Mbps): auto
- Ethernet Link Status: UpDn
- VLAN Support:
- Native VLAN ID: 1107
- Daisy Chaining:

Ethernet Bridging

Interface Name	Oper Status	Mode	Vlan ID
GigabitEthernet0	Up	Access	0
GigabitEthernet1	Down	Access	0

Configuration 2

More complex, but gives a bit more flexibility with allowing or not allowing vlans at the gig interfaces of the mesh ap's.

Vlan transparent is disabled for this configuration.

Please note that for this configuration to work you have to have vlan support enabled on all the ap's that are part of this bridge group or that will be connecting to each other over the mesh.

You also have to define the native vlan as well as the allowed vlan's on all the interfaces of the AP's along the mesh path.

Screen shots to hopefully make this point clear.

Wired Root AP configuration

[General](#)
[Credentials](#)
[Interfaces](#)
[High Availability](#)
[Inventory](#)
[Mesh](#)
[Advanced](#)

AP Role:

Bridge Type:

Bridge Group Name:

Strict Matching BGN:

Ethernet Bridging:

Preferred Parent:

Backhaul Interface:

Ethernet Link Status:

VLAN Support:

Native VLAN ID:

Ethernet Bridging

Interface Name	Oper Status	Mode	Vlan ID
GigabitEthernet0	Up	Access	0

Ethernet Bridging

Interface Name	Oper Status	Mode	Vlan ID
GigabitEthernet0	Up	Trunk	1107
GigabitEthernet1	Down	Access	0

Interface Name:

Mode:

Native VLAN Id:

Allowed VLAN Id:

Configured VLANs:

 Allowed VLANs:

Master MAP AP configuration

AP Role	MeshAP ▼	
Bridge Type	Outdoor	
Bridge Group Name	C-D	
Strict Matching BGN	<input type="checkbox"/>	
Ethernet Bridging	<input checked="" type="checkbox"/>	Daisy Chaining <input checked="" type="checkbox"/>
Preferred Parent	none	
Backhaul Interface	802.11a/n	
Bridge Data Rate (Mbps)	auto ▼	
Ethernet Link Status	DnUp	
VLAN Support	<input checked="" type="checkbox"/>	
Native VLAN ID	1	

Ethernet Bridging

Interface Name	Oper Status	Mode	Vlan ID
GigabitEthernet0	Down	Access	0
GigabitEthernet1	Up	Trunk	1107

Interface Name	GigabitEthernet1		
Mode	Trunk ▼		
Native VLAN Id	1107		
Allowed VLAN Id	0	<input type="button" value="Add"/>	
Configured VLANs			
Allowed VLANs			
12	<input checked="" type="checkbox"/>		

Slave RAP connected to the Master AP and the remote switch.

AP Role	RootAP ▼	
Bridge Type	Outdoor	
Bridge Group Name	C-D	
Strict Matching BGN	<input type="checkbox"/>	
Ethernet Bridging	<input checked="" type="checkbox"/>	Daisy Chaining <input checked="" type="checkbox"/>
Preferred Parent	none	
Backhaul Interface	802.11a/n	
Bridge Data Rate (Mbps)	auto ▼	
Ethernet Link Status	UpDn	
VLAN Support	<input checked="" type="checkbox"/>	
Native VLAN ID	1107	

Ethernet Bridging

Interface Name	Oper Status	Mode	Vlan ID
GigabitEthernet0	Up	Access	0
GigabitEthernet1	Up	Trunk	1107

Interface Name GigabitEthernet1

Mode Trunk ▼

Native VLAN Id 1107

Allowed VLAN Id 0 Add

Configured VLANs

Allowed VLANs

12

Core switch port configuration for the Root AP

```
interface GigabitEthernet1/0/21
switchport trunk encapsulation dot1q
switchport trunk native vlan 1107
switchport trunk allowed vlan 12,1107
switchport mode trunk
```

Remote switch port configuration that is connected to the Lan port of the Slave Rap.

```
interface GigabitEthernet1/0/5
switchport trunk encapsulation dot1q
switchport trunk native vlan 1107
switchport trunk allowed vlan 12,1107
switchport mode trunk
```

I defined SVI's on the remote switch for both vlan's so that I could easily do pings to verify connectivity.

Verify

You should be able to ping both directions for the defined vlan's. Clients on the remote switch should get dhcp addresses if configured or static addresses.

On the remote switch you should see the mac addresses of the various nodes being learned on the remote switch port.

```
Jeff_3750#2#show mac address int gi1/0/5
```

Mac Address Table

```
-----
```

Vlan	Mac Address	Type	Ports
----	-----	-----	----
1107	3cce.73d9.52e0	DYNAMIC	Gi1/0/5
1107	78da.6e59.a6be	DYNAMIC	Gi1/0/5
1107	78da.6e59.a6d0	DYNAMIC	Gi1/0/5
1107	aca0.164b.b295	DYNAMIC	Gi1/0/5
1107	aca0.164b.b2c6	DYNAMIC	Gi1/0/5
1107	d0d0.fd2e.2a02	DYNAMIC	Gi1/0/5
1107	f40f.1bad.1820	DYNAMIC	Gi1/0/5
12	aca0.164b.b2c9	DYNAMIC	Gi1/0/5

Total Mac Addresses for this criterion: 8

Troubleshoot

There are several mesh forwarding debugs that help understand if packets are being forwarded from the Slave Rap.

```
1532slaverap#show mesh forwarding interfaces
GigabitEthernet0: GigabitEthernet0(state is OPEN)
Node 78da.6e59.a6be
GigabitEthernet1: GigabitEthernet1(state is OPEN)
Virtual-Dot11Radio0: Virtual-Dot11Radio0(state is AUTHENTICATION)
Node 0024.f7ae.020f
```