Cat 6500 & WiSM – questions

1. Upgrade IOS of Cat6500 in order to support the WiSM blade

2. Configure the Service Interfaces of both controllers of the WiSM blade (use VLAN 11 = 10.11.11.x/24)
Use the following methods to achieve your goal and eventually configure the interfaces statically:

- Dynamic (it does not matter what IP address WLC1 and WLC2 will get)
- Dynamic with exclusions (WLC1 = 10.11.11.10, WLC2 = 10.11.11.11)
- Dynamic with MAC reservations (WLC1 = 10.11.11.20, WLC2 = 10.11.11.21)
- Static (WLC1 = 10.11.11.30, WLC2 = 10.11.11.31)

3. Access WLC1 and WLC2 without using telnet, SSH or a console connection.

4. Configure AutoLAG and explain why we cannot use normal LAG between Cat6500 and the WiSM blade. Make sure Layer 3 traffic is trusted. Also explain how we can trust Layer 2 traffic.

5. Configure load balancing for load balancing based on best practices

6. Create a Management VLAN for the WiSM blade on the Cat 6500 (VLAN 21 = 10.11.21.x/24) and do an initial configuration on WLC1 & WLC2.
Use the following IP addresses:
SVI interface = 10.11.21.254/24
WLC1 management interface = 10.11.21.10/24
WLC1 AP-manager interface = 10.11.21.11/24
WLC1 management interface = 10.11.21.20/24
WLC1 AP-manager interface = 10.11.21.21/24
Configure these IP addresses with the initial config setup on both WLC's.
Make sure how to change this IP address after the initial config is done

7. Make sure that the traffic that is coming from WLC1 and WLC2 is arriving in a untagged form but stills travels trough the Management VLAN (21)

8. Reset the WiSM blade independently from the Cat6500 switch

Cat 6500 & WiSM – solutions

1. Upgrade IOS of Cat6500 in order to support the WiSM blade

Configuration:

First we check what the current IOS version is on the Cat 65XX:

```
Router#sh ver
Cisco Internetwork Operating System Software
IOS (tm) s72033_rp Software (s72033_rp-PK9SV-M), Version 12.2(17d)SXB11a, RELEASE
SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2006 by cisco Systems, Inc.
Compiled Thu 13-Apr-06 04:50 by kehsiao
Image text-base: 0x40020FBC, data-base: 0x41F18000

ROM: System Bootstrap, Version 12.2(17r)SX5, RELEASE SOFTWARE (fc1)
BOOTLDR: s72033_rp Software (s72033_rp-PK9SV-M), Version 12.2(17d)SXB11a, RELEASE
SOFTWARE (fc1)

Router uptime is 1 day, 10 hours, 53 minutes
Time since Router switched to active is 1 day, 10 hours, 52 minutes
System returned to ROM by reload at 21:40:23 UTC Thu Feb 24 2011 (SP by reload)
System image file is "sup-bootflash:s72033-pk9sv-mz.122-17d.SXB11a.bin"

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cisco WS-C6506-E (R7000) processor (revision 1.1) with 458752K/65536K bytes of memory.
Processor board ID SAL1052CJQA
SR71000 CPU at 600Mhz, Implementation 0x504, Rev 1.2, 512KB L2 Cache
Last reset from power-on
X.25 software, Version 3.0.0.
Bridging software.
1 Virtual Ethernet/IEEE 802.3  interface(s)
48 FastEthernet/IEEE 802.3 interface(s)
2 Gigabit Ethernet/IEEE 802.3 interface(s)
1917K bytes of non-volatile configuration memory.
8192K bytes of packet buffer memory.

65536K bytes of Flash internal SIMM (Sector size 512K).
Configuration register is 0x2102
```

We see that the IOS version is currently on the Catalyst 6506 is *"Version 12.2(17d)SXB11a"*
This version is not supporting the WiSM blade at all.

We can verify that with checking the status of the WiSM blade.

```
Router#show module all
Mod Ports Card Type                                Model              Serial No.
--- ----- ---------------------------------------- ------------------ -----------
  1   10  unknown FRU type (major = 0x6003, mino WS-SVC-WISM-1-K9    SAD1335006F
  3   48  48 port 10/100 mb RJ45                  WS-X6348-RJ-45     SAD04160M5C
  6    2  Supervisor Engine 720 (Active)          WS-SUP720-3B       SAL134959DR

Mod MAC addresses                       Hw    Fw           Sw           Status
--- ----------------------------------- ------ ------------ ------------ -------
  1  0025.8438.23bc to 0025.8438.23cb   2.3   Unknown      Unknown      PwrDown
  3  00b0.8e82.26a4 to 00b0.8e82.26d3   2.3   5.4(2)       8.3(0.110)TE Ok
  6  0024.1499.80a8 to 0024.1499.80ab   5.9   8.5(3)       12.2(17d)SXB Ok

Mod Sub-Module                  Model              Serial       Hw     Status
--- --------------------------- ------------------ ------------ ------- -------
  1 Centralized Forwarding Card WS-SVC-WISM-1-K9-D SAD133500DJ   2.1    PwrDown
  6 Policy Feature Card 3       WS-F6K-PFC3B       SAL13495HZM  2.6    Ok
  6 MSFC3 Daughterboard         WS-SUP720          SAL13495F89  4.0    Ok

Mod Online Diag Status
--- -------------------
  1 Unknown
  3 Pass
  6 Pass
Router#
```

```
Router#show module 1
Mod Ports Card Type                                Model              Serial No.
--- ----- ---------------------------------------- ------------------ -----------
  1   10  unknown FRU type (major = 0x6003, mino WS-SVC-WISM-1-K9    SAD1335006F

Mod MAC addresses                       Hw    Fw           Sw           Status
--- ----------------------------------- ------ ------------ ------------ -------
  1  0025.8438.23bc to 0025.8438.23cb   2.3   Unknown      Unknown      PwrDown

Mod Sub-Module                  Model              Serial       Hw     Status
--- --------------------------- ------------------ ------------ ------- -------
  1 Centralized Forwarding Card WS-SVC-WISM-1-K9-D SAD133500DJ   2.1    PwrDown

Mod Online Diag Status
--- -------------------
  1 Unknown
Router#
```

As you can see the WiSM module is located in the first slot and is currently Powered Down.

Let's see what happens if we try to power it up:

```
Router(config)#power enable module 1

1d10h: %C6KPWR-SP-4-UNSUPPORTED: unsupported module in slot 1, power not allowed:
Unknown Card Type.
```

When the IOS is not the correct IOS it will generate this message when trying to power the module up.

So the only thing that is left is that we need to download a new version IOS from CCO.
To save some time there was a newer version on Disk0: on the Catalyst 6500.

```
Router#show file systems
File Systems:

     Size(b)     Free(b)      Type  Flags  Prefixes
* 1024409600   796688384      disk     rw   disk0:
           -           -      disk     rw   disk1:
    65536000    23403936     flash     rw   sup-bootflash:
    41931210           0    opaque     ro   sup-microcode:
           0   222362496    opaque     wo   sup-image:
      129004      127908     nvram     rw   const_nvram:
     1964024     1960900     nvram     rw   nvram:
           -           -    opaque     rw   null:
           -           -    opaque     rw   system:
           -           -   network     rw   tftp:
    65536000    65536000     flash     rw   bootflash:
           -           -   network     rw   rcp:
           -           -   network     rw   ftp:
```

```
Router#dir disk0:
Directory of disk0:/

    1  -rw-        6562   May 4 2010 20:29:58 +00:00  start.cfg
    2  -rw-        7322   May 5 2010 19:10:20 +00:00  runcfg.txt
    3  -rw-        3599  Oct 18 2010 20:50:08 +00:00  wismconfig
    4  -rw-   128322284  Jan 28 2010 15:41:50 +00:00  s72033-adventerprisek9_wan-
vz.122-33.SXH6.bin

1024409600 bytes total (796688384 bytes free)
Router#
```

The IOS version we need is “s72033-adventerprisek9_wan-vz.122-33.SXH6.bin”

Make sure the Catalyst 6500 will boot next time with the new IOS:

```
Router(config)#boot system disk0:s72033-adventerprisek9_wan-vz.122-33.SXH6.bin
```

```
Router#sh run | i boot
boot system disk0:s72033-adventerprisek9_wan-vz.122-33.SXH6.bin
Router#
```

```
Router#reload
Proceed with reload? [confirm]

1d11h: %SYS-5-RELOAD: Reload requested by console.
1d11h: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor

***
*** --- SHUTDOWN NOW ---
***

1d11h: %SYS-SP-5-RELOAD: Reload requested
1d11h: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor

System Bootstrap, Version 8.5(3)
Copyright (c) 1994-2008 by cisco Systems, Inc.
Cat6k-Sup720/SP processor with 524288 Kbytes of main memory

Autoboot executing command: "boot disk0:s72033-adventerprisek9_wan-vz.122-33.SXH6.bin"
Loading image, please wait ...

Self extracting the image... [OK]
Self decompressing the image :
################################################################################
################################################################################
################################################################################
########################################## [OK]
```

```
running startup....

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           cisco Systems, Inc.
           170 West Tasman Drive
           San Jose, California 95134-1706

Cisco IOS Software, s72033_sp Software (s72033_sp-ADVENTERPRISEK9_WAN-VM), Version
12.2(33)SXH6, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2009 by Cisco Systems, Inc.
Compiled Thu 15-Oct-09 01:54 by prod_rel_team
Image text-base: 0x01020150, data-base: 0x01021000

00:00:32: %SYS-3-LOGGER_FLUSHING: System pausing to ensure console debugging output.

00:00:32: %PFREDUN-6-ACTIVE: Initializing as ACTIVE processor for this switch

00:00:33: %SYS-3-LOGGER_FLUSHING: System pausing to ensure console debugging output.

00:00:32: %SYS-3-LOGGER_FLUSHED: System was paused for 00:00:00 to ensure console
debugging output.

Firmware compiled 12-Oct-09 11:00 by integ Build [100]

00:00:33: %OIR-6-CONSOLE: Changing console ownership to route processor

System Bootstrap, Version 12.2(17r)SX5, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2006 by cisco Systems, Inc.
Cat6k-Sup720/RP platform with 524288 Kbytes of main memory

Download Start
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Download Completed! Booting the image.
Self decompressing the image :
######################################################################################
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######################################################################################
######################################################################################
######################################################################################
######################################################################################
################################################################################# [OK]
running startup....

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12.2(33)SXH6, RELEASE SOFTWARE (fc1)
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Compiled Thu 15-Oct-09 01:01 by prod_rel_team
Image text-base: 0x01020150, data-base: 0x01021000


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cisco WS-C6506-E (R7000) processor (revision 1.1) with 516096K/8192K bytes of memory.
Processor board ID SAL1052CJQA
SR71000 CPU at 600Mhz, Implementation 1284, Rev 1.2, 512KB L2 Cache
Last reset from s/w reset
1 Virtual Ethernet interface
48 FastEthernet interfaces
12 Gigabit Ethernet interfaces
1917K bytes of non-volatile configuration memory.

65536K bytes of Flash internal SIMM (Sector size 512K).
SETUP: new interface GigabitEthernet1/1 placed in "shutdown" state
SETUP: new interface GigabitEthernet1/2 placed in "shutdown" state
SETUP: new interface GigabitEthernet1/3 placed in "shutdown" state
SETUP: new interface GigabitEthernet1/4 placed in "shutdown" state
SETUP: new interface GigabitEthernet1/5 placed in "shutdown" state
SETUP: new interface GigabitEthernet1/6 placed in "shutdown" state
SETUP: new interface GigabitEthernet1/7 placed in "shutdown" state
SETUP: new interface GigabitEthernet1/8 placed in "shutdown" state

Press RETURN to get started!

00:00:50: curr is 0x0

00:00:50: RP: Currently running ROMMON from S (Gold) region
00:00:58: %SYS-5-CONFIG_I: Configured from memory by console
00:01:02: %SYS-5-RESTART: System restarted --
Cisco IOS Software, s72033_rp Software (s72033_rp-ADVENTERPRISEK9_WAN-VM), Version
12.2(33)SXH6, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
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Compiled Thu 15-Oct-09 01:01 by prod_rel_team
00:00:33: %SYS-3-LOGGER_FLUSHED: System was paused for 00:00:00 to ensure console
debugging output.
00:02:19: SP: SP: Currently running ROMMON from S (Gold) region
00:02:29: %SW_VLAN-SP-6-VTP_DOMAIN_NAME_CHG: VTP domain name changed to wism.
00:02:32: %OIR-SP-6-INSPS: Power supply inserted in slot 1
00:02:32: %C6KPWR-SP-4-PSOK: power supply 1 turned on.
00:02:32: %SYS-SP-5-RESTART: System restarted --
Cisco IOS Software, s72033_sp Software (s72033_sp-ADVENTERPRISEK9_WAN-VM), Version
12.2(33)SXH6, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
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```

```
00:02:33: %SYS-SP-6-BOOTTIME: Time taken to reboot after reload =  280 seconds

00:02:40: %FABRIC-SP-5-CLEAR_BLOCK: Clear block option is off for the fabric in slot
6.
00:02:40: %FABRIC-SP-5-FABRIC_MODULE_ACTIVE: The Switch Fabric Module in slot 6 became
active.

00:02:42: %DIAG-SP-6-RUN_MINIMUM: Module 6: Running Minimal Diagnostics...
00:02:53: %DIAG-SP-6-DIAG_OK: Module 6: Passed Online Diagnostics
00:02:53: %OIR-SP-6-INSCARD: Card inserted in slot 6, interfaces are now online

00:03:28: %DIAG-SP-6-RUN_MINIMUM: Module 3: Running Minimal Diagnostics...
00:02:08: %MFIB_CONST_RP-6-REPLICATION_MODE_CHANGE: Replication Mode Change Detected.
Current system replication mode is Ingress
00:03:39: %DIAG-SP-6-DIAG_OK: Module 3: Passed Online Diagnostics
00:03:40: %OIR-SP-6-INSCARD: Card inserted in slot 3, interfaces are now online
00:00:09: DaughterBoard (Centralized Forwarding Card)

Firmware compiled 12-Oct-09 11:00 by integ Build [100]
00:00:12: %SYS-CFC1-5-RESTART: System restarted --
Cisco IOS Software, c6lc2 Software (c6lc2-SP-VM), Version 12.2(33)SXH6, RELEASE
SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
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Compiled Thu 15-Oct-09 01:38 by prod_rel_team
Feb 26 08:51:34.689: CFC1: Currently running ROMMON from S (Gold) region

00:03:55: %DIAG-SP-6-RUN_MINIMUM: Module 1: Running Minimal Diagnostics...
00:02:28: %MLS_RATE-4-DISABLING: The global switching mode is now 'truncated'.
Disabling the Layer2 Rate Limiters.
00:04:00: %DIAG-SP-6-DIAG_OK: Module 1: Passed Online Diagnostics
00:04:00: %OIR-SP-6-INSCARD: Card inserted in slot 1, interfaces are now online
```

Now that the Catalyst 6500 is rebooted and slot 1 is online we can do some additional checks:

```
Router#show module
Mod Ports Card Type                                Model              Serial No.
--- ----- ---------------------------------------- ------------------ -----------
  1   10  WiSM WLAN Service Module                 WS-SVC-WISM-1-K9   SAD1335006F
  3   48  48 port 10/100 mb RJ45                   WS-X6348-RJ-45     SAD04160M5C
  6    2  Supervisor Engine 720 (Active)           WS-SUP720-3B       SAL134959DR

Mod MAC addresses                       Hw    Fw           Sw           Status
--- ----------------------------------- ------ ------------ ------------ -------
  1  0025.8438.23bc to 0025.8438.23cb   2.3   12.2(14r)S5  12.2(33)SXH6 Ok
  3  00b0.8e82.26a4 to 00b0.8e82.26d3   2.3   5.4(2)       8.7(0.22)BUB Ok
  6  0024.1499.80a8 to 0024.1499.80ab   5.9   8.5(3)       12.2(33)SXH6 Ok

Mod  Sub-Module                  Model               Serial       Hw     Status
---- --------------------------- ------------------- ----------- ------- -------
  1  Centralized Forwarding Card WS-SVC-WISM-1-K9-D  SAD133500DJ  2.1    Ok
  6  Policy Feature Card 3       WS-F6K-PFC3B        SAL13495HZM  2.6    Ok
  6  MSFC3 Daughterboard         WS-SUP720           SAL13495F89  4.0    Ok

Mod  Online Diag Status
---- -------------------
  1  Pass
  3  Pass
  6  Pass
Router#
```

2. Configure the Service Interfaces of both controllers of the WiSM blade (use VLAN 11 = 10.11.11.x/24)
Use the following methods to achieve your goal and eventually configure the interfaces statically:

- 1) Dynamic (it does not matter what IP address WLC1 and WLC2 will get)
- 2) Dynamic with exclusions (WLC1 = 10.11.11.10, WLC2 = 10.11.11.11)
- 3) Dynamic with MAC reservations (WLC1 = 10.11.11.20, WLC2 = 10.11.11.21)
- 4) Static (WLC1 = 10.11.11.30, WLC2 = 10.11.11.31)

First we need to create the service interface VLAN.
We check what VLANS are there at the moment:

```
CAT6500#show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi1/1, Gi1/2, Gi1/3, Gi1/4
                                                Gi1/5, Gi1/6, Gi1/7, Gi1/8
                                                Gi1/9, Gi1/10
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0
```

Now we create the service VLAN:

```
CAT6500#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
CAT6500(config)#vlan  11
CAT6500(config-vlan)#name WISMSERVICE
CAT6500(config-vlan)#exit
% Applying VLAN changes may take few minutes.  Please wait...

CAT6500(config)#exit

00:04:44: %SYS-5-CONFIG_I: Configured from console by console
```

And verify it it's created:

```
CAT6500#sh vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi1/1, Gi1/2, Gi1/3, Gi1/4
                                                Gi1/5, Gi1/6, Gi1/7, Gi1/8
                                                Gi1/9, Gi1/10
11   WISMSERVICE                      active
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
11   enet  100011     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
```

```
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0
```

Enable the service interface on the WiSM:

```
CAT6500#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
CAT6500(config)#wism service-vlan 11
```

Check the IP addresses on the service VLAN and the port status:

```
CAT6500#show wism status

Service Vlan : 11, Service IP Subnet : Not Configured
      WLAN
Slot  Controller  Service IP       Management IP    SW Version  Status
----+-----------+----------------+----------------+-----------+--------------
1     1           0.0.0.0          0.0.0.0                      Service Port Down
1     2           0.0.0.0          0.0.0.0                      Service Port Down
```

Create SVI for the service interfaces on the Cat 6500:

```
CAT6500(config)#int vlan 11
CAT6500(config-if)#ip address 10.11.11.254 255.255.255.0
CAT6500(config-if)#no shut
```

Verify if the service interfaces are up:

```
CAT6500#show wism status

Service Vlan : 11, Service IP Subnet : 10.11.11.254/255.255.255.0
      WLAN
Slot  Controller  Service IP       Management IP    SW Version  Status
----+-----------+----------------+----------------+-----------+--------------
1     1           0.0.0.0          0.0.0.0                      Service Port Up
1     2           0.0.0.0          0.0.0.0                      Service Port Up
```

1) Dynamic (it does not matter what IP address WLC1 and WLC2 will get)

First we create a DHCP pool:

```
CAT6500(config)#ip dhcp pool WiSM
CAT6500(config-dhcp)#name WISMSERVICE
CAT6500(config-dhcp)#network 10.11.11.0 /24
CAT6500(config-dhcp)#default-router 10.11.11.254
```

Check the IP addresses of the service interfaces again:

```
CAT6500#show wism status

Service Vlan : 11, Service IP Subnet : 10.11.11.254/255.255.255.0
      WLAN
Slot  Controller  Service IP       Management IP    SW Version  Status
----+-----------+----------------+----------------+-----------+--------------
1     1           10.11.11.1       169.254.1.1      4.2.207.0   Oper-Up
1     2           10.11.11.2       169.254.1.1      4.2.207.0   Oper-Up

CAT6500#
00:19:23: %WiSM-5-STATE: Controller 1 in slot 1 is Oper-Up
00:19:23: %WiSM-5-STATE: Controller 2 in slot 1 is Oper-Up
CAT6500#
```

2) Dynamic with exclusions (WLC1 = 10.11.11.10, WLC2 = 10.11.11.11)

The DHCP scope is already created so we only include exclusions:

```
CAT6500(config)#ip dhcp excluded-address 10.11.11.1 10.11.11.9
CAT6500(config)#ip dhcp excluded-address 10.11.11.12 10.11.11.254

CAT6500#hw-module  module 1 reset
Proceed with reload of module?[confirm]
% reset issued for module 1
CAT6500#
00:24:58: %C6KPWR-SP-4-DISABLED: power to module in slot 1 set off (Reset)
```

Check the IP addresses again after the reload:

```
CAT6500#show wism status

Service Vlan : 11, Service IP Subnet : 10.11.11.254/255.255.255.0
      WLAN
Slot  Controller  Service IP       Management IP   SW Version  Status
----+-----------+----------------+---------------+-----------+--------------
1     1           10.11.11.10       169.254.1.1      4.2.207.0   Oper-Up
1     2           10.11.11.11       169.254.1.1      4.2.207.0   Oper-Up
```

3) Dynamic with MAC reservations (WLC1 = 10.11.11.20, WLC2 = 10.11.11.21)

In order to know what the MAC addresses are of the WLC service interfaces. So we do the initial config of the WLC's first:

```
Welcome to the Cisco Wizard Configuration Tool
Use the '-' character to backup
System Name [Cisco_0a:45:ab]: WLC1
Enter Administrative User Name (24 characters max): admin
Enter Administrative Password (24 characters max): *****
Re-enter Administrative Password                : *****

Service Interface IP Address Configuration [none][DHCP]:

Management Interface IP Address: 10.11.21.10
Management Interface Netmask: 255.255.255.0
Management Interface Default Router: 10.11.21.254
Management Interface VLAN Identifier (0 = untagged): 21
Management Interface DHCP Server IP Address: 10.11.21.254

AP Transport Mode [layer2][LAYER3]:
AP Manager Interface IP Address: 10.11.21.11

AP-Manager is on Management subnet, using same values
AP Manager Interface DHCP Server (10.11.21.254):

Virtual Gateway IP Address: 1.1.1.1

Mobility/RF Group Name: WiSM-WLC1

Enable Symmetric Mobility Tunneling [yes][NO]:

Network Name (SSID): WiSM-WLC1
Allow Static IP Addresses [YES][no]:

Configure a RADIUS Server now? [YES][no]: no
Warning! The default WLAN security policy requires a RADIUS server.
Please see documentation for more details.

Enter Country Code list (enter 'help' for a list of countries) [US]:

Enable 802.11b Network [YES][no]:
Enable 802.11a Network [YES][no]:
Enable 802.11g Network [YES][no]:
```

```
Enable Auto-RF [YES][no]:

Configure a NTP server now? [YES][no]: no
Configure the system time now? [YES][no]: no

Warning! No AP will come up unless the time is set.
Please see documentation for more details.

Configuration correct? If yes, system will save it and reset. [yes][NO]: yes

Configuration saved!
Resetting system with new configuration...


Configuration saved!
Resetting system with new configuration...


Bootloader 3.2.202.0 (Nov 13 2007 - 19:35:12)

Motorola PowerPC ProcessorID=00000000 Rev. PVR=80200020
       CPU: 999 MHz
       CCB: 333 MHz
       DDR: 166 MHz
       LBC: 41 MHz
L1 D-cache 32KB, L1 I-cache 32KB enabled.
I2C:   ready
DTT:   1 is 44 C
DRAM:  DDR module detected, total size:512MB.
512 MB
8540 in PCI Host Mode.
8540 is the PCI Arbiter.

Memory Test PASS

FLASH:
  Flash Bank 0: portsize = 2, size = 8 MB in 142 Sectors
 8 MB
L2 cache enabled: 256KB
Card Id: 1537
Card Revision Id: 1
Card CPU Id: 1287
Number of MAC Addresses: 32
Number of Slots Supported: 4
Serial Number: FAM133500DJ
Manufacturers ID: 30464
Board Maintenance Level: 00
In:    serial
Out:   serial
Err:   serial




                     .o88b. d888888b .d8888.  .o88b.  .d88b.
                    d8P  Y8   `88'   88'  YP d8P  Y8 .8P  Y8.
                    8P         88    `8bo.   8P      88    88
                    8b         88      `Y8b. 8b      88    88
                    Y8b  d8   .88.   db   8D Y8b  d8 `8b  d8'
                     `Y88P' Y888888P `8888Y'  `Y88P'  `Y88P'
                   Model SVC-WiSM   S/N: FAM133500DJ
Net:   TSEC ETHERNET
IDE:   Bus 0: OK
  Device 0: Model: STI Flash 8.0.0 Firm: 01/17/07 Ser#: STI1MN5609222094102
            Type: Removable Hard Disk
            Capacity: 488.7 MB = 0.4 GB (1000944 x 512)
  Device 1: not available

Booting Primary Image...
Press <ESC> now for additional boot options...
Detecting Hardware . . .


XML config selected
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```

```
Software Copyright Cisco Systems, Inc. All rights reserved.

Cisco AireOS Version 4.2.207.0
Initializing OS Services: ok
Initializing Serial Services: ok
Initializing Internal Interfaces: ok
Initializing Network Services: ok
Starting ARP Services: ok
Starting Trap Manager: ok
Starting Network Interface Management Services: ok
Starting System Services: ok
Starting FIPS Features: Not enabled
Starting Fast Path Hardware Acceleration: ok
Starting Switching Services: ok
Starting QoS Services: ok
Starting Policy Manager: ok
Starting Data Transport Link Layer: ok
Starting Access Control List Services: ok
Starting System Interfaces: ok
Starting Client Troubleshooting Service: ok
Starting Management Frame Protection: ok
Starting LWAPP: ok
Starting Certificate Database: ok
Starting VPN Services: ok
Starting Security Services: ok
Starting Policy Manager: ok
Starting Authentication Engine: ok
Starting Mobility Management: ok
Starting Virtual AP Services: ok
Starting AireWave Director: ok
Starting Network Time Services: ok
Starting Cisco Discovery Protocol: ok
Starting Broadcast Services: ok
Starting Logging Services: ok
Starting DHCP Server: ok
Starting IDS Signature Manager: ok
Starting RFID Tag Tracking: ok
Starting WLAN Control Protocol (WCP): ok
Starting Mesh Services:  ok
Starting TSM: ok
Starting LOCP: ok
Starting CIDS Services: ok
Starting Ethernet-over-IP: ok
Starting Management Services:
   Web Server: ok
   CLI: ok
   Secure Web: ok

(WiSM-slot1-1)

Enter User Name (or 'Recover-Config' this one-time only to reset configuration to
factory defaults)

User:
```


Check out the MAC address of WLC1:

```
(WiSM-slot1-1) show interface  detailed  service-port

Interface Name................................. service-port
MAC Address.................................... 00:26:cb:0a:45:a2
IP Address..................................... 0.0.0.0
DHCP Option 82................................. Disabled
DHCP Protocol.................................. Enabled
AP Manager..................................... No
Guest Interface................................ No
```

Initial config of WLC2:

```
Welcome to the Cisco Wizard Configuration Tool
Use the '-' character to backup
System Name [Cisco_0b:77:eb]: WLC2
Enter Administrative User Name (24 characters max): admin
Enter Administrative Password (24 characters max): *****
Re-enter Administrative Password                : *****

Service Interface IP Address Configuration [none][DHCP]:

Management Interface IP Address: 10.11.21.20
Management Interface Netmask: 255.255.255.0
Management Interface Default Router: 10.11.21.254
Management Interface VLAN Identifier (0 = untagged): 21
Management Interface DHCP Server IP Address: 10.11.21.254

AP Transport Mode [layer2][LAYER3]:
AP Manager Interface IP Address: 10.11.21.21

AP-Manager is on Management subnet, using same values
AP Manager Interface DHCP Server (10.11.21.254):

Virtual Gateway IP Address: 1.1.1.1

Mobility/RF Group Name: WiSM-WLC2

Enable Symmetric Mobility Tunneling [yes][NO]:

Network Name (SSID): WiSM-WLC2
Allow Static IP Addresses [YES][no]:

Configure a RADIUS Server now? [YES][no]: no
Warning! The default WLAN security policy requires a RADIUS server.
Please see documentation for more details.

Enter Country Code list (enter 'help' for a list of countries) [US]:

Enable 802.11b Network [YES][no]:
Enable 802.11a Network [YES][no]:
Enable 802.11g Network [YES][no]:
Enable Auto-RF [YES][no]:

Configure a NTP server now? [YES][no]: no
Configure the system time now? [YES][no]: no

Warning! No AP will come up unless the time is set.
Please see documentation for more details.

Configuration correct? If yes, system will save it and reset. [yes][NO]: yes

Configuration saved!
Resetting system with new configuration...


Configuration saved!
Resetting system with new configuration...


Bootloader 3.2.202.0 (Nov 13 2007 - 19:35:12)

Motorola PowerPC ProcessorID=00000000 Rev. PVR=80200020
        CPU: 999 MHz
        CCB: 333 MHz
        DDR: 166 MHz
        LBC: 41 MHz
L1 D-cache 32KB, L1 I-cache 32KB enabled.
I2C:   ready
DTT:   1 is 39 C
DRAM:  DDR module detected, total size:512MB.
512 MB
8540 in PCI Host Mode.
8540 is the PCI Arbiter.

Memory Test PASS
```

```
FLASH:
  Flash Bank 0: portsize = 2, size = 8 MB in 142 Sectors
 8 MB
L2 cache enabled: 256KB
Card Id: 1537
Card Revision Id: 1
Card CPU Id: 1287
Number of MAC Addresses: 32
Number of Slots Supported: 4
Serial Number: FAS133500DJ
Manufacturers ID: 30464
Board Maintenance Level: 00
In:    serial
Out:   serial
Err:   serial




                     .o88b. d888888b .d8888.  .o88b. .d88b.
                    d8P  Y8   `88'   88'  YP d8P  Y8 .8P  Y8.
                    8P         88    `8bo.   8P      88    88
                    8b         88      `Y8b. 8b      88    88
                    Y8b  d8   .88.   db   8D Y8b  d8 `8b  d8'
                     `Y88P' Y888888P `8888Y'  `Y88P'  `Y88P'
                   Model SVC-WiSM   S/N: FAS133500DJ
Net:   TSEC ETHERNET
IDE:   Bus 0: OK
  Device 0: Model: STI Flash 8.0.0 Firm: 01/17/07 Ser#: STI1Mm7309222093820
            Type: Removable Hard Disk
            Capacity: 488.7 MB = 0.4 GB (1000944 x 512)
  Device 1: not available

Booting Primary Image...
Press <ESC> now for additional boot options...
Detecting Hardware . . .


XML config selected
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Cisco AireOS Version 4.2.207.0
Initializing OS Services: ok
Initializing Serial Services: ok
Initializing Internal Interfaces: ok
Initializing Network Services: ok
Starting ARP Services: ok
Starting Trap Manager: ok
Starting Network Interface Management Services: ok
Starting System Services: ok
Starting FIPS Features: Not enabled
Starting Fast Path Hardware Acceleration: ok
Starting Switching Services: ok
Starting QoS Services: ok
Starting Policy Manager: ok
Starting Data Transport Link Layer: ok
Starting Access Control List Services: ok
Starting System Interfaces: ok
Starting Client Troubleshooting Service: ok
Starting Management Frame Protection: ok
Starting LWAPP: ok
Starting Certificate Database: ok
Starting VPN Services: ok
Starting Security Services: ok
Starting Policy Manager: ok
Starting Authentication Engine: ok
Starting Mobility Management: ok
Starting Virtual AP Services: ok
Starting AireWave Director: ok
Starting Network Time Services: ok
Starting Cisco Discovery Protocol: ok
Starting Broadcast Services: ok
Starting Logging Services: ok
```

```
Starting DHCP Server: ok
Starting IDS Signature Manager: ok
Starting RFID Tag Tracking: ok
Starting WLAN Control Protocol (WCP): ok
Starting Mesh Services:  ok
Starting TSM: ok
Starting LOCP: ok
Starting CIDS Services: ok
Starting Ethernet-over-IP: ok
Starting Management Services:
   Web Server: ok
   CLI: ok
   Secure Web: ok

(WiSM-slot1-2)

Enter User Name (or 'Recover-Config' this one-time only to reset configuration to
factory defaults)

User:  admin
Password:*****
```

Check out the MAC address of WLC2:

```
(WiSM-slot1-2) >show interface detailed  service-port

Interface Name................................. service-port
MAC Address.................................... 00:26:cb:0b:77:e2
IP Address..................................... 0.0.0.0
DHCP Option 82................................. Disabled
DHCP Protocol.................................. Enabled
AP Manager..................................... No
Guest Interface................................ No
```

Delete the DHCP scope we just created and create 2 new scopes (for each WLC):

```
CAT6500(config)#ip dhcp pool WLC1
CAT6500(dhcp-config)#host 10.11.11.20 255.255.255.0
CAT6500(dhcp-config)#hardware-address 0026.cb0a.45a2
CAT6500(dhcp-config)#exit
CAT6500(config)#ip dhcp pool WLC2
CAT6500(dhcp-config)#host 10.11.11.21 255.255.255.0
CAT6500(dhcp-config)#hardware-address 0026.cb0b.77e2

00:44:06: %WiSM-5-STATE: Controller 1 in slot 1 is Oper-Up

00:44:21: %WiSM-5-STATE: Controller 2 in slot 1 is Oper-Up
```

Check the IP addresses again of the service interfaces:

```
CAT6500#show wism status

Service Vlan : 11, Service IP Subnet : 10.11.11.254/255.255.255.0
      WLAN
Slot  Controller  Service IP       Management IP    SW Version  Status
----+-----------+---------------+----------------+-----------+---------------
1     1           10.11.11.20      10.11.21.10      4.2.207.0   Oper-Up
1     2           10.11.11.21      10.11.21.20      4.2.207.0   Oper-Up
```

4) Static (WLC1 = 10.11.11.30, WLC2 = 10.11.11.31

Disable all the DHCP pools:

```
CAT6500(config)#no ip dhcp pool WLC1
CAT6500(config)#no ip dhcp pool WLC2
```

Set the interfaces in the controller to static and set the IP address manual:

```
(WiSM-slot1-1) >config interface address service-port  10.11.11.30 255.255.255.0
The DHCP protocol for the service port must be disabled before configuring the IP addr

(WiSM-slot1-1) >config interface dhcp service-port disable

(WiSM-slot1-1) >config interface address service-port  10.11.11.30 255.255.255.0
```

Verify it:

```
(WiSM-slot1-1) >show interface summary

Interface Name                   Port Vlan Id  IP Address      Type    Ap Mgr Guest
-------------------------------- ---- -------- --------------- ------- ------ -----
ap-manager                       LAG  21       10.11.21.11     Static  Yes    No
management                       LAG  21       10.11.21.10     Static  No     No
service-port                     N/A  N/A      10.11.11.30     Static  No     No
virtual                          N/A  N/A      1.1.1.1         Static  No     No
```

Do the same for WLC2:

```
(WiSM-slot1-2) >config interface address  service-port  10.11.11.31 255.255.255.0
The DHCP protocol for the service port must be disabled before configuring the IP addr

(WiSM-slot1-2) >config interface  dhcp service-port disable


(WiSM-slot1-2) >config interface address  service-port  10.11.11.31 255.255.255.0

(WiSM-slot1-2) >show interface summary

Interface Name                   Port Vlan Id  IP Address      Type    Ap Mgr Guest
-------------------------------- ---- -------- --------------- ------- ------ -----
ap-manager                       LAG  21       10.11.21.21     Static  Yes    No
management                       LAG  21       10.11.21.20     Static  No     No
service-port                     N/A  N/A      10.11.11.31     Static  No     No
virtual                          N/A  N/A      1.1.1.1         Static  No     No
```

3. Access WLC1 and WLC2 without using telnet, SSH or a console connection.

```
CAT6500#session slot  1 processor 1
The default escape character is Ctrl-^, then x.
You can also type 'exit' at the remote prompt to end the session
Trying 10.11.11.30 ... Open

(WiSM-slot1-1)
User:
```

```
CAT6500#session slot  1 processor 2
The default escape character is Ctrl-^, then x.
You can also type 'exit' at the remote prompt to end the session
Trying 10.11.11.31 ... Open
```

```
(WiSM-slot1-2)
User:
```

```
CAT6500#show session
Conn Host                Address             Byte  Idle Conn Name
   1 10.11.11.30         10.11.11.30            0     0 10.11.11.30
*  2 10.11.11.31         10.11.11.31            0     0 10.11.11.31

CAT6500#
```

```
CAT6500#disc 1
Closing connection to 10.11.11.30 [confirm]

CAT6500#disc 2
Closing connection to 10.11.11.31 [confirm]
```

```
CAT6500#show sessions
% No connections open
CAT6500#
```

4. Configure AutoLAG and explain why we cannot use normal LAG between Cat6500 and the WiSM blade. Make sure Layer 3 traffic is trusted. Also explain how we can trust Layer 2 traffic.

Create the management VLAN:

```
CAT6500#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
CAT6500(config)#vlan 21
CAT6500(config-vlan)#name WISMMANAGEMENT
CAT6500(config-vlan)#exit
% Applying VLAN changes may take few minutes.  Please wait...
```

Verify if the VLAN is created:

```
CAT6500#sh vl
00:53:56: %SYS-5-CONFIG_I: Configured from console by consolean

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi1/1, Gi1/2, Gi1/3, Gi1/4
                                                Gi1/5, Gi1/6, Gi1/7, Gi1/8
11   WISMSERVICE                      active    Gi1/9, Gi1/10
21   WISMMANAGEMENT                   active
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
11   enet  100011     1500  -      -      -        -    -        0      0
21   enet  100021     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0

Remote SPAN VLANs
------------------------------------------------------------------------------


Primary Secondary Type              Ports
------- --------- ----------------- ------------------------------------------
```

Create the SVI on the Catalyst 6500:

```
CAT6500#
```

```
CAT6500(config)#int vlan 21
CAT6500(config-if)#ip add
CAT6500(config-if)#ip address 10.11.21.254 255.255.255.0
CAT6500(config-if)#no shut
```

Do a quick ping test and see if you can ping the WLC IP addresses:

```
CAT6500#ping 10.11.21.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.11.21.10, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
CAT6500#
```

Check how the interfaces look like before we configure AutoLAG:

```
CAT6500#show int status

Port         Name               Status       Vlan       Duplex  Speed Type
Gi1/1                           connected    1            full   1000 unknown (4)
Gi1/2                           connected    1            full   1000 unknown (4)
Gi1/3                           connected    1            full   1000 unknown (4)
Gi1/4                           connected    1            full   1000 unknown (4)
Gi1/5                           connected    1            full   1000 unknown (4)
Gi1/6                           connected    1            full   1000 unknown (4)
Gi1/7                           connected    1            full   1000 unknown (4)
Gi1/8                           connected    1            full   1000 unknown (4)
Gi1/9                           connected    11           full   1000 unknown (4)
Gi1/10                          connected    11           full   1000 unknown (4)
```

```
CAT6500#sh ip int brie
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet1/1     unassigned      YES unset  up                    up
GigabitEthernet1/2     unassigned      YES unset  up                    up
GigabitEthernet1/3     unassigned      YES unset  up                    up
GigabitEthernet1/4     unassigned      YES unset  up                    up
GigabitEthernet1/5     unassigned      YES unset  up                    up
GigabitEthernet1/6     unassigned      YES unset  up                    up
GigabitEthernet1/7     unassigned      YES unset  up                    up
GigabitEthernet1/8     unassigned      YES unset  up                    up
GigabitEthernet1/9     unassigned      YES unset  up                    up
GigabitEthernet1/10    unassigned      YES unset  up                    up
```

```
CAT6500#show etherchannel summary
Flags:  D - down        P - bundled in port-channel
        I - stand-alone s - suspended
        H - Hot-standby (LACP only)
        R - Layer3      S - Layer2
        U - in use      N - not in use, no aggregation
        f - failed to allocate aggregator

        M - not in use, no aggregation due to minimum links not met
        m - not in use, port not aggregated due to minimum links not met
        u - unsuitable for bundling
        d - default port

        w - waiting to be aggregated
Number of channel-groups in use: 2
Number of aggregators:           2

Group  Port-channel  Protocol    Ports
------+-------------+-----------+-----------------------------------------------
401    Po401(SD)        -
402    Po402(SD)        -
```

Configure AutoLag:

```
CAT6500#

CAT6500(config)#wism  module 1 controller  1  allowed-vlan 11,21
```

```
CAT6500(config)#wism module 1  controller 1 qos-trust  dscp
CAT6500(config)#port-channel load-balance  src-dst-ip

CAT6500(config)#wism  module 1 controller  2  allowed-vlan 11,21
CAT6500(config)#wism module 1  controller 2 qos-trust  dscp
```

Check the interface status again:

```
CAT6500#show int status

Port         Name               Status       Vlan       Duplex  Speed Type
Gi1/1                           connected    trunk        full   1000 unknown (4)
Gi1/2                           connected    trunk        full   1000 unknown (4)
Gi1/3                           connected    trunk        full   1000 unknown (4)
Gi1/4                           connected    trunk        full   1000 unknown (4)
Gi1/5                           connected    trunk        full   1000 unknown (4)
Gi1/6                           connected    trunk        full   1000 unknown (4)
Gi1/7                           connected    trunk        full   1000 unknown (4)
Gi1/8                           connected    trunk        full   1000 unknown (4)
Gi1/9                           connected    11           full   1000 unknown (4)
Gi1/10                          connected    11           full   1000 unknown (4)
```

```
CAT6500#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet1/1     unassigned      YES unset  up                    up
GigabitEthernet1/2     unassigned      YES unset  up                    up
GigabitEthernet1/3     unassigned      YES unset  up                    up
GigabitEthernet1/4     unassigned      YES unset  up                    up
GigabitEthernet1/5     unassigned      YES unset  up                    up
GigabitEthernet1/6     unassigned      YES unset  up                    up
GigabitEthernet1/7     unassigned      YES unset  up                    up
GigabitEthernet1/8     unassigned      YES unset  up                    up
GigabitEthernet1/9     unassigned      YES unset  up                    up
GigabitEthernet1/10    unassigned      YES unset  up                    up
```

```
CAT6500#show etherchannel  summary
Flags:  D - down        P - bundled in port-channel
        I - stand-alone s - suspended
        H - Hot-standby (LACP only)
        R - Layer3      S - Layer2
        U - in use      N - not in use, no aggregation
        f - failed to allocate aggregator

        M - not in use, no aggregation due to minimum links not met
        m - not in use, port not aggregated due to minimum links not met
        u - unsuitable for bundling
        d - default port

        w - waiting to be aggregated
Number of channel-groups in use: 2
Number of aggregators:           2

Group  Port-channel  Protocol    Ports
------+-------------+-----------+-----------------------------------------------
401    Po401(SU)         -        Gi1/1(P)        Gi1/2(P)        Gi1/3(P)
                                  Gi1/4(P)
402    Po402(SU)         -        Gi1/5(P)        Gi1/6(P)        Gi1/7(P)
                                  Gi1/8(P)
```

Check if ping is now working:

```
CAT6500#ping 10.11.21.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.11.21.10, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/8 ms
```

5. Configure load balancing for load balancing based on best practices

```
CAT6500(config)#port-channel load-balance  src-dst-ip
```

6. Create a Management VLAN for the WiSM blade on the Cat 6500 (VLAN 21 = 10.11.21.x/24) and do an initial configuration on WLC1 & WLC2.
Use the following IP addresses:
SVI interface = 10.11.21.254/24
WLC1 management interface = 10.11.21.10/24
WLC1 AP-manager interface = 10.11.21.11/24
WLC1 management interface = 10.11.21.20/24
WLC1 AP-manager interface = 10.11.21.21/24
Configure these IP addresses with the initial config setup on both WLC's.
Make sure how to change this IP address after the initial config is done

Initial configure the WLC1:

```
Welcome to the Cisco Wizard Configuration Tool
Use the '-' character to backup
System Name [Cisco_0a:45:ab]: WLC1
Enter Administrative User Name (24 characters max): admin
Enter Administrative Password (24 characters max): *****
Re-enter Administrative Password                  : *****

Service Interface IP Address Configuration [none][DHCP]:

Management Interface IP Address: 10.11.21.10
Management Interface Netmask: 255.255.255.0
Management Interface Default Router: 10.11.21.254
Management Interface VLAN Identifier (0 = untagged): 21
Management Interface DHCP Server IP Address: 10.11.21.254

AP Transport Mode [layer2][LAYER3]:
AP Manager Interface IP Address: 10.11.21.11

AP-Manager is on Management subnet, using same values
AP Manager Interface DHCP Server (10.11.21.254):

Virtual Gateway IP Address: 1.1.1.1

Mobility/RF Group Name: WiSM-WLC1

Enable Symmetric Mobility Tunneling [yes][NO]:

Network Name (SSID): WiSM-WLC1
Allow Static IP Addresses [YES][no]:

Configure a RADIUS Server now? [YES][no]: no
Warning! The default WLAN security policy requires a RADIUS server.
Please see documentation for more details.

Enter Country Code list (enter 'help' for a list of countries) [US]:

Enable 802.11b Network [YES][no]:
Enable 802.11a Network [YES][no]:
Enable 802.11g Network [YES][no]:
Enable Auto-RF [YES][no]:

Configure a NTP server now? [YES][no]: no
Configure the system time now? [YES][no]: no

Warning! No AP will come up unless the time is set.
Please see documentation for more details.

Configuration correct? If yes, system will save it and reset. [yes][NO]: yes

Configuration saved!
Resetting system with new configuration...
```

Initial configure the WLC2:

```
Welcome to the Cisco Wizard Configuration Tool
```

```
Use the '-' character to backup
System Name [Cisco_0b:77:eb]: WLC2
Enter Administrative User Name (24 characters max): admin
Enter Administrative Password (24 characters max): *****
Re-enter Administrative Password                : *****

Service Interface IP Address Configuration [none][DHCP]:

Management Interface IP Address: 10.11.21.20
Management Interface Netmask: 255.255.255.0
Management Interface Default Router: 10.11.21.254
Management Interface VLAN Identifier (0 = untagged): 21
Management Interface DHCP Server IP Address: 10.11.21.254

AP Transport Mode [layer2][LAYER3]:
AP Manager Interface IP Address: 10.11.21.21

AP-Manager is on Management subnet, using same values
AP Manager Interface DHCP Server (10.11.21.254):

Virtual Gateway IP Address: 1.1.1.1

Mobility/RF Group Name: WiSM-WLC2

Enable Symmetric Mobility Tunneling [yes][NO]:

Network Name (SSID): WiSM-WLC2
Allow Static IP Addresses [YES][no]:

Configure a RADIUS Server now? [YES][no]: no
Warning! The default WLAN security policy requires a RADIUS server.
Please see documentation for more details.

Enter Country Code list (enter 'help' for a list of countries) [US]:

Enable 802.11b Network [YES][no]:
Enable 802.11a Network [YES][no]:
Enable 802.11g Network [YES][no]:
Enable Auto-RF [YES][no]:

Configure a NTP server now? [YES][no]: no
Configure the system time now? [YES][no]: no

Warning! No AP will come up unless the time is set.
Please see documentation for more details.

Configuration correct? If yes, system will save it and reset. [yes][NO]: yes

Configuration saved!
Resetting system with new configuration...
```


7. Make sure that the traffic that is coming from WLC1 and WLC2 is arriving in a untagged form but stills travels trough the Management VLAN (21)

```
CAT6500(config)#wism  module 1 controller 1 native-vlan 21
CAT6500(config)#wism  module 1 controller 2 native-vlan 21
```

8. Reset the WiSM blade independently from the Cat6500 switch

We can reset an independent blade with the following command:

```
Router#hw-module module 1 reset
Proceed with reload of module?[confirm]
% reset issued for module 1

00:18:00: %C6KPWR-SP-4-DISABLED: power to module in slot 1 set off (Reset)
00:00:09: DaughterBoard (Centralized Forwarding Card)

Firmware compiled 12-Oct-09 11:00 by integ Build [100]
00:00:12: %SYS-CFC1-5-RESTART: System restarted --
Cisco IOS Software, c6lc2 Software (c6lc2-SP-VM), Version 12.2(33)SXH6, RELEASE
SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2009 by Cisco Systems, Inc.
Compiled Thu 15-Oct-09 01:38 by prod_rel_team
Feb 26 09:07:08.681: CFC1: Currently running ROMMON from S (Gold) region
00:19:30: %DIAG-SP-6-RUN_MINIMUM: Module 1: Running Minimal Diagnostics...
00:18:04: %MLS_RATE-4-DISABLING: The global switching mode is now 'truncated'.
Disabling the Layer2 Rate Limiters.
00:19:35: %DIAG-SP-6-DIAG_OK: Module 1: Passed Online Diagnostics
00:19:36: %OIR-SP-6-INSCARD: Card inserted in slot 1, interfaces are now online
Router#
```