

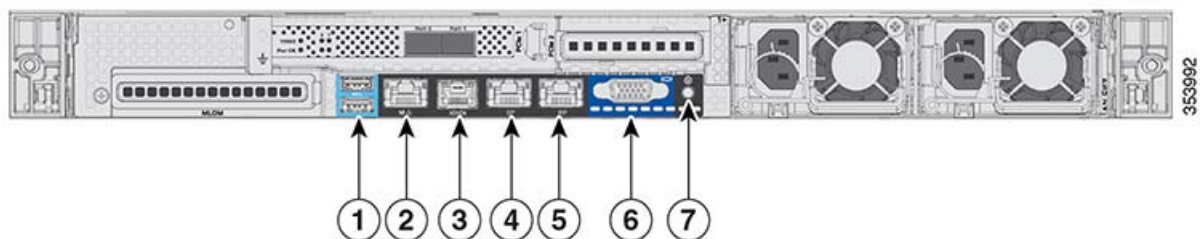


Cisco 5520 and 8540 Wireless Controller Troubleshooting Guide

Overview of Cisco 5520 Wireless Controller

The Cisco 5520 Wireless Controller provides centralized control, management, and troubleshooting for high-scale deployments in service provider and large campus deployments. It offers flexibility to support multiple deployment modes in the same controller: for example, centralized mode for campus, Cisco FlexConnect mode for lean branches managed over the WAN, and mesh (bridge) mode for deployments where full Ethernet cabling is unavailable. As a component of the Cisco Unified Wireless Network, this controller provides real-time communications between Cisco Aironet access points, the Cisco Prime Infrastructure, and the Cisco Mobility Services Engine, and is interoperable with other Cisco controllers.

Cisco 5520 Wireless Controller Rear Panel View

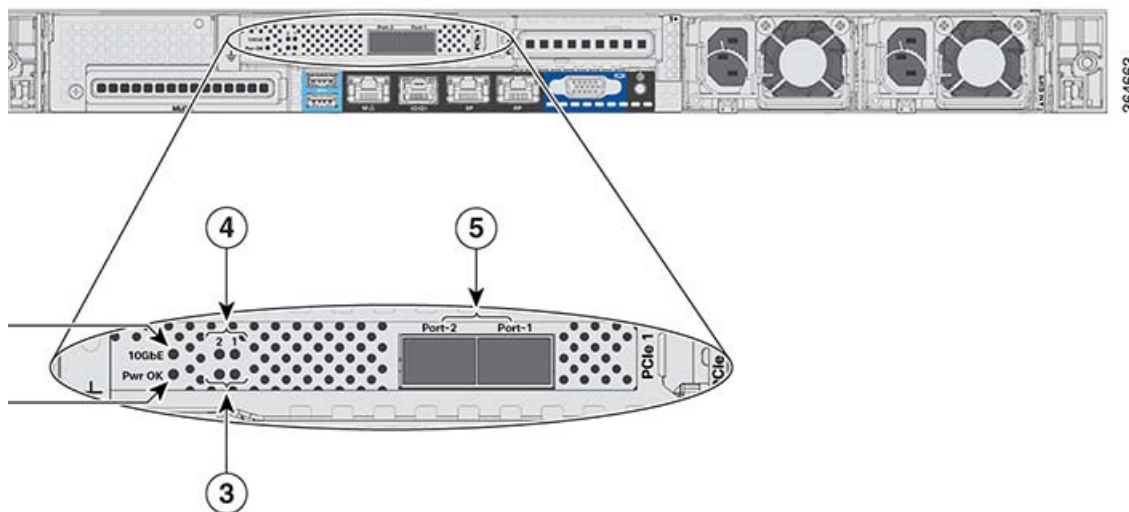


1	Two Type A 3.0 USB ports
2	CIMC port 10/100/1000 Base-T
3	Serial COM Connector—Standard RS-232 Serial COM port using RJ-45 connector
4	Ethernet Service Port (SP)—Management 10/100/1000 Base-T



Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

5	Redundancy Port (RP)
6	VGA Connector—Rear panel has a standard VGA port using a female D-Sub-15 Connector
7	ID Switch and LED



1	10 G
2	Pwr OK
3	Port-n Link Status
4	Port-n Link Activity
5	Two 1/10 G SFP/SFP+ Ports

Rear Panel LEDs, Definitions of States

Table 1 lists the Cisco 5520 Wireless Controller Rear Panel LEDs, Definitions of States.

Table 1 Cisco 5520 Wireless Controller Rear Panel LEDs, Definitions of States

LED Name	Function	State
Pwr OK	—	Amber On—Power is good
10 G	—	Amber On—10 G mode Amber Off—1 G mode
Port-n Link Status	—	Green On—Link is up

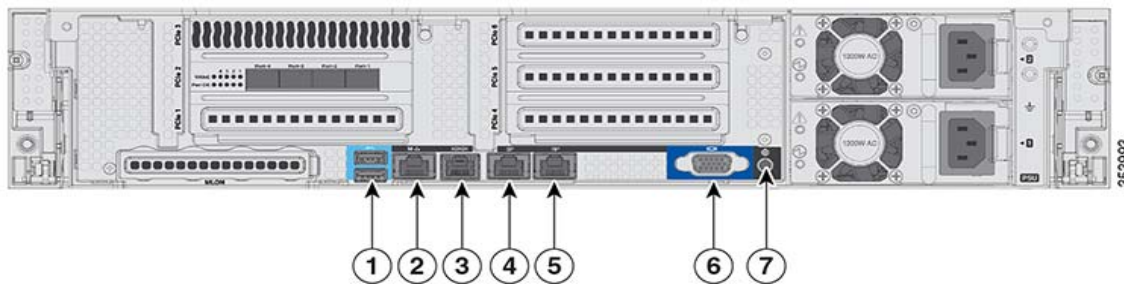
Table 1 Cisco 5520 Wireless Controller Rear Panel LEDs, Definitions of States

LED Name	Function	State
Port-n Link Activity	—	Green blinking—Link activity
Service Port and Redundancy Port LED (present on the port)	Interface Port Speed (the left LED on the port)	Off—Link Speed = 10 Mbps Amber On—Link Speed = 100 Mbps Green On—Link Speed = 1 Gbps
	Interface Port Status (the right LED on the port)	Off—No link Green On—Link Blinking—Traffic present

Overview of the Cisco 8540 Wireless Controller

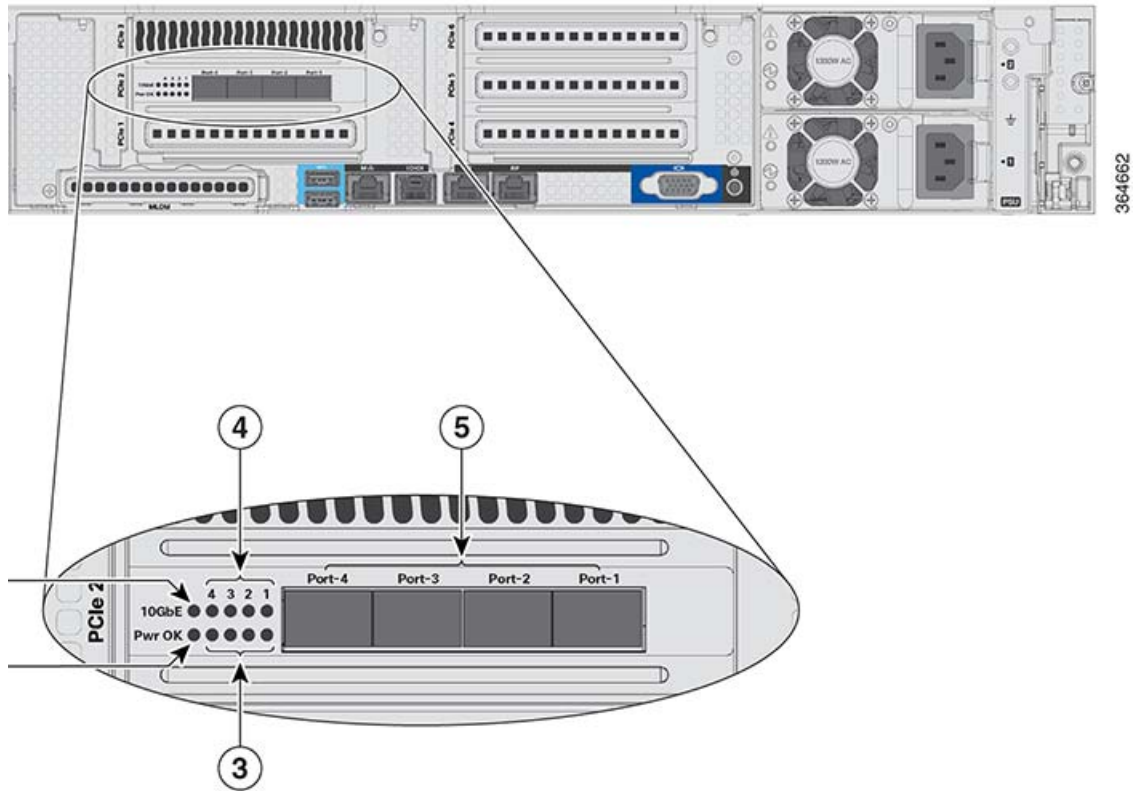
The Cisco 8540 Wireless Controller provides centralized control, management, and troubleshooting for high-scale deployments in service provider and large campus deployments. It offers flexibility to support multiple deployment modes in the same controller: for example, centralized mode for campus, Cisco FlexConnect mode for lean branches managed over the WAN, and mesh (bridge) mode for deployments where full Ethernet cabling is unavailable. As a component of the Cisco Unified Wireless Network, this controller provides real-time communications between Cisco Aironet access points, the Cisco Prime Infrastructure, and the Cisco Mobility Services Engine, and is inter-operable with other Cisco controllers.

Cisco 8540 Wireless Controller Rear Panel View



1	Two Type A 3.0 USB ports
2	CIMC port 10/100/1000 Base-T

3	SerialCOM Connector—Standard RS-232 Serial COM port using RJ-45 connector
4	Ethernet Service Port (SP)—Management 10/100/1000 Base-T
5	Redundancy Port (RP)
6	VGA Connector—Rear panel has a standard VGA port using a female D-Sub-15 Connector
7	ID Switch and LED



1	10 G
2	Pwr OK
3	Port-n Link Status
4	Port-n Link Activity
5	Two 1/10 G SFP/SFP+ Ports

Overview of CIMC

The Cisco Integrated Management Controller (CIMC) is the management service for the C-Series servers. CIMC runs within the server.

CIMC is a separate management module that is built into the motherboard. CIMC has its own ARM-based processor which runs the CIMC software. It is shipped with a running version of the firmware. Users can update CIMC firmware through the Firmware Update Management page. You need not worry about installing the initial CIMC firmware.

Logging in to CIMC

Before starting

Check if Adobe Flash Player 10 or higher is installed on your local machine.

-
- Step 1** Type or select the web link for CIMC in your web browser.
 - Step 2** A security dialog box is displayed, do the following:
 - a. Optional: Check the check box to accept all content from Cisco.
 - b. Click Yes to accept the certificate and continue.
 - Step 3** Enter your Username and password in the log in window.
 - Step 4** Click **Log In**.
-

Setting up CIMC

Setting up CIMC for 5520 and 8540 Wireless Controller

To setup the CIMC interface follow the given steps:

-
- Step 1** Connect the CIMC cable to the 10/100/1000 port in base T.
 - Step 2** Use the command `imm dhcp enable` on WLC CLI to enable DHCP to set the IP.
 - Step 3** If DHCP is not available, use the command `imm address <ip address> <net mask> <gateway ip>`.

View the IP and details, using the command `imm summary`.

```
imm ?
address IMM Static IP Configuration
dhcp Enable | Disable | Fallback DHCP
restart Saves settings and Restarts IMM Module
summary Displays IMM Parameters
username Configures Login Username for IMM
```

**Note**

Default password will be either 'password' or 'Cisco1234'. You can change this via the username command

CIMC Configurations that are required for reliable WLC operation

**Note**

Once the user logs in to CIMC the following should not be changed. This will cause issues for WLC operation.

- Do not change the NIC mode to shared. It should be in dedicated mode
- Do not change the FlexFlash Mode
- Do not change the SSD/Virtual disk settings
- BIOS parameters should not be changed

Expectations when logged in via CIMC

- FlexFlash is configured for RAID but only one flash is populated this causes CIMC to show the FlexFlash as degraded. We can safely dis-regard the FlexFlash degradation warning in our case.
- Expect to see only one CPU populated
- Do not configure Software Raid on SSD

IMM Chassis Command reference

```
>show imm chassis
bios          Fetch Chassis BIOS information
current       Fetch Chassis Current information
fan Fetch Chassis FAN information
mac Fetch Chassis MAC information
memory        Fetch Chassis Memory information
power-supply  Fetch Chassis Power Supply information
sol-info      Fetch Serial Over Lan information
temperature   Fetch Chassis Temperature information
```

Some Example Outputs

```
>show imm chassis bios
BIOS Information
Vendor: Cisco Systems, Inc.
Version: C240M4.2.0.4a.0.042220151400
Release Date: 04/22/2015
```

```
>show imm chassis fan
```

```

FAN1_SPEED | 13h | ok | 29.1 | 16000 RPM
FAN2_SPEED | 14h | ok | 29.2 | 16000 RPM
FAN3_SPEED | 15h | ok | 29.3 | 17100 RPM
FAN4_SPEED | 16h | ok | 29.4 | 17100 RPM
FAN5_SPEED | 17h | ok | 29.5 | 17100 RPM
FAN6_SPEED | 18h | ok | 29.6 | 17100 RPM

```

```

>show imm chassis mac
MAC Address: a4:6c:2a:39:0f:be

```

Verify that the chasis mac and show inventory mac are conservative and not the same.

```

>show inventory
Burned-in MAC Address..... A4:6C:2A:39:0F:BF
Power Supply 1..... Present, OK
Power Supply 2..... Present, OK
Maximum number of APs supported..... 6000
NAME: "Chassis", DESCR: "Cisco 8540 Wireless Controller"
PID: AIR-CT8540-K9, VID: V01, SN: FCH1913V18E

```

```

>show imm chassis temperature
FP_TEMP_SENSOR | 46h | ok | 12.1 | 23 degrees C
DDR4_P1_A1_TEMP | 64h | ok | 8.0 | 26 degrees C
DDR4_P1_B1_TEMP | 6Ah | ok | 8.3 | 26 degrees C
DDR4_P1_C1_TEMP | 71h | ok | 8.6 | 25 degrees C
DDR4_P1_D1_TEMP | 77h | ok | 8.9 | 25 degrees C
P1_TEMP_SENS | 1h | ok | 3.1 | 31 degrees C
PSU1_TEMP | C4h | ok | 10.1 | 24 degrees C
PSU2_TEMP | C5h | ok | 10.2 | 25 degrees C
PCH_TEMP_SENS | C6h | ok | 7.0 | 27 degrees C
RISER2_INLET_TMP | E8h | ok | 7.1 | 26 degrees C
RISER1_INLET_TMP | E9h | ok | 7.2 | 26 degrees C
RISER1_OUTLETTMP | EAh | ok | 7.3 | 28 degrees C
RISER2_OUTLETTMP | EBh | ok | 7.4 | 26 degrees C

```

```

>show imm chassis current
PSU1_IOUT | 28h | ok | 10.1 | 6 Amps
PSU2_IOUT | 2Eh | ok | 10.2 | 7 Amps

```

```

>show imm chassis power-supply
PSU1_POUT | 29h | ok | 10.1 | 72 Watts
PSU2_POUT | 2Fh | ok | 10.2 | 88 Watts
POWER_USAGE | C1h | ok | 7.0 | 176 Watts
PSU1_PIN | C2h | ok | 10.1 | 80 Watts
PSU2_PIN | C3h | ok | 10.2 | 96 Watts

```

```

>show imm chassis sol-info

```



Note

Serial over LAN Configuration: When SOL is enabled, external console does not work

```

Set in progress: set-complete
Enabled: false
Force Encryption: false
Force Authentication: false
Privilege Level: USER
Character Accumulate Level (ms): 50
Character Send Threshold: 201

```

```

Retry Count: 7
Retry Interval (ms): 500
Volatile Bit Rate (kbps): 115.2
Non-Volatile Bit Rate (kbps): 115.2
Payload Channel: 14 (0x0e)
Payload Port: 623

```

```

>show imm chassis memory
Size: 8192 MB
Locator: DIMM_A1
Size: No Module Installed
Locator: DIMM_A2
Size: No Module Installed
Locator: DIMM_A3
Size: 8192 MB
Locator: DIMM_B1
Size: No Module Installed
Locator: DIMM_B2
Size: No Module Installed
Locator: DIMM_B3
Size: 8192 MB
Locator: DIMM_C1
Size: No Module Installed
Locator: DIMM_C2
Size: No Module Installed
Locator: DIMM_C3
Size: 8192 MB
Locator: DIMM_D1
Size: No Module Installed

```

```
>debug fastpath dump temperature
```

Debug command to see the Dataplane card temperature

```

FP0.21:Address of Temp sensor SA56004 is 4c
FP0.21:
Configured Temperature values:
FP0.21:Crit Remote/local=105,90 Remote High/Low = 85,0 Local High/Low = 85,0
FP0.21:Status Reg= 0 Config =1 ,hysteresis=10
FP0.21:Octeon temp: 50.250 C, SA56004 temp: 25.750 C, Max/Min Temp = 55 / 0 C
FP0.21:
GPIO Stats:
FP0.21:Fan Status: Not Present
FP0.21:Temperature alert: Happened
Gives some advanced debugs for temperature related issue

```

Configure/View CIMC IP from console during bootup

Press F8 in the BIOS screen at the time of Bootup to view CIMC IP address configuration and to reset password.

-
- Step 1** Choose either DHCP or Static config.
 - Step 2** Enter the VLAN tag if needed.
 - Step 3** Enter the CIMC password.

Step 4 Press F5 to display the configured IP after making changes to IP or enabling DHCP.

```
CIMC Configuration Utility
Cisco Systems, Inc Version 1.1
*****
IPV4 (Basic)
DHCP enabled: (x)
CIMC IP:172.25.183.20
Subnetmask: 255.255.255.0
Gateway:172.25.183.1

VLAN (Advanced)
VLAN enabled: []
VLAN id:1
Priority:0

Default User (Basic)
Default password:
Reenter password:
*****
```

Step 5 Press F10 to save the configuration.

Accessing CIMC

To access CIMC follow the given steps:

Step 1 The POST and the option ROM config is displayed during the boot up process.

Step 2 These are the Option ROM config screens, which are displayed:

- LSI
- HBA/CNA if installed
- Additional NICs
- LOM

```
LSI Corporation MPT SAS BIOS
MPTBIOS-6.24.00.00 (2008.07.01)
Copyright 2000-2008 LSI Corporation.

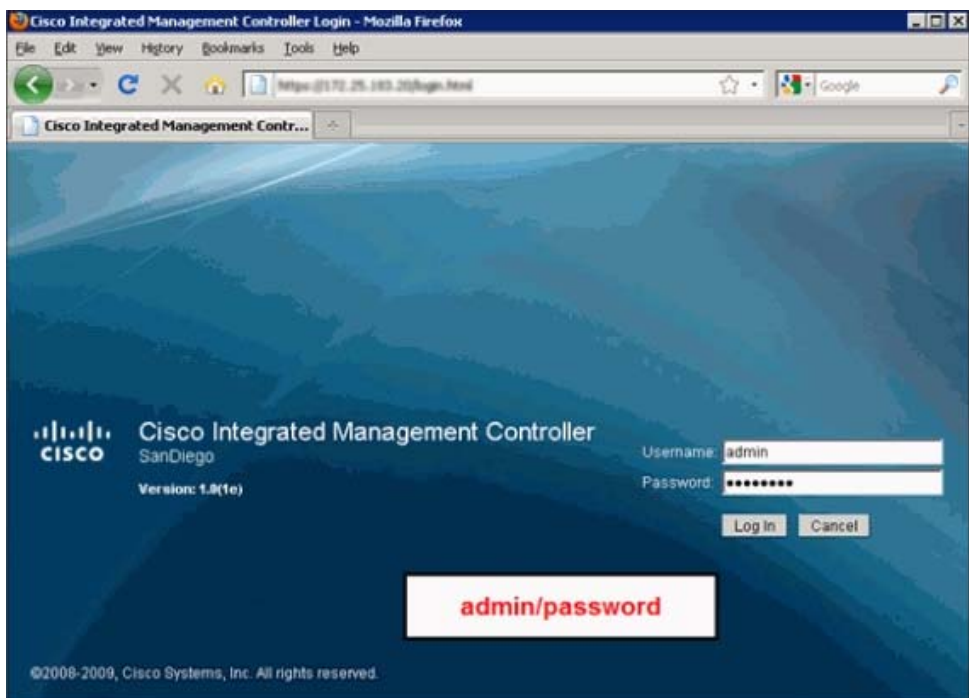
Searching for devices at HBA 0...

SLOT ID  LUN  VENDOR  PRODUCT  REVISION  SIZE \ NU
-----
0        4    0  LSILOGIC Logical Volume  3000      135 GB
0        6    0  SEAGATE  ST3146356SS   0007      136 GB
0        7    0  SEAGATE  ST3146356SS   0007      136 GB
0        0    0  LSILogic SAS1064E-IR   1.26.00.00 NU 2D:03
```

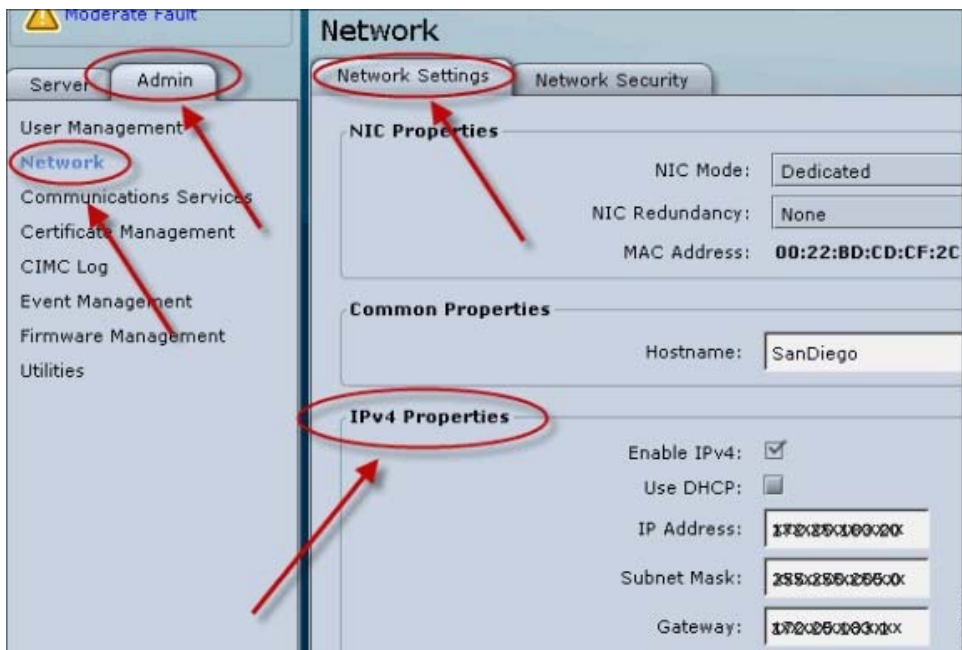
Step 3 Point a Web browser to the configured CIMC IP address.

- Default username: admin

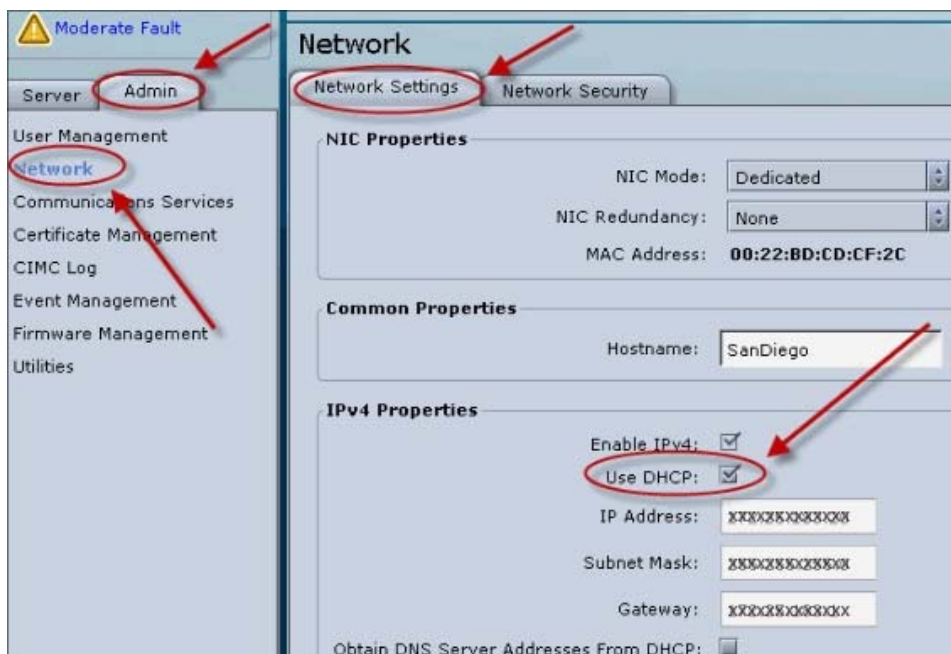
- Default password: password



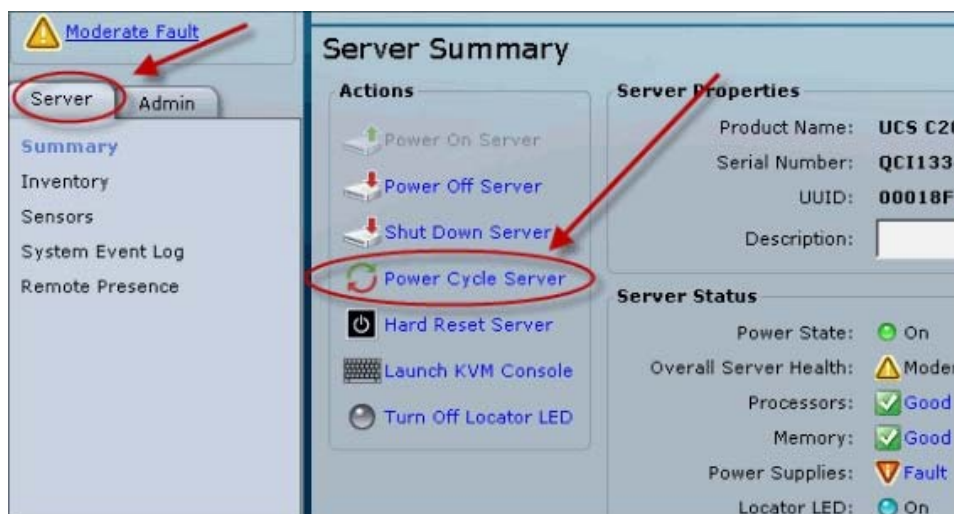
Step 4 Choose Admin > Network Settings and check Settings.



Step 5 Choose Network and in IPv4 properties, check the Use DHCP box, and reboot the chassis to revert to DHCP, from the Admin tab in the GUI.

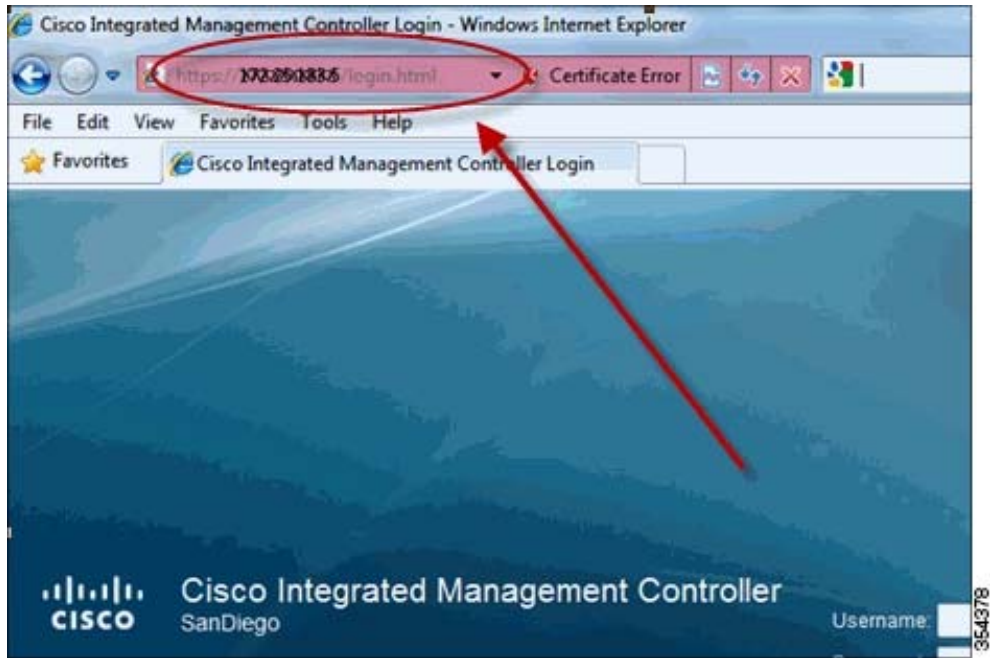


354376

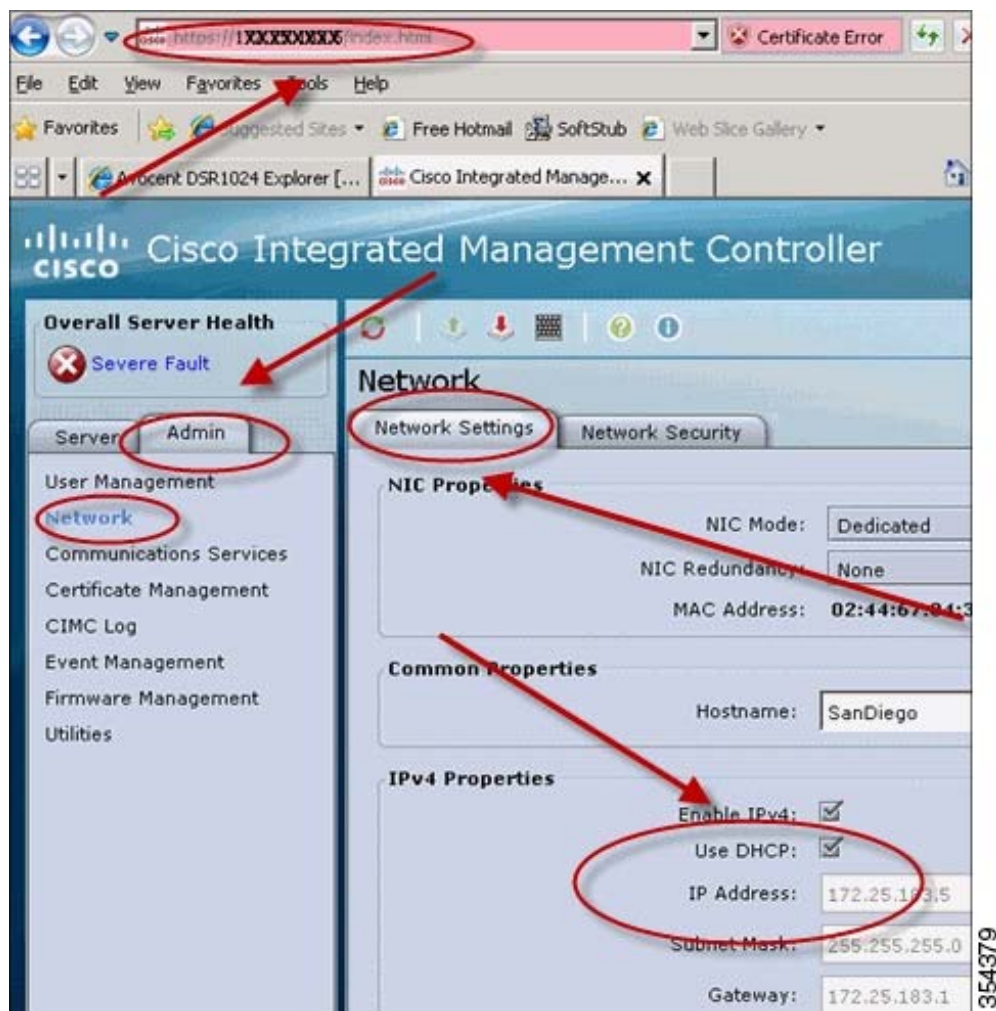


354377

Step 6 Monitor your DHCP server to see when the IP is assigned to your MAC. Point to the new IP server.



After logging into the CIMC, you can check the network setting:



Troubleshooting

- On Boot up vKVM /Monitor does not display any output
- Console output not visible / Console port not working
- APs not joining with and displays certificate Error / Certificates not found
- APs not joining with and cannot find AP images
- Serial Console not present at customer can we use SOL
- Continuous prints are seen on cli related to Temp Breach
- Controller is starting on connecting the power
- Service port is not working when CIMC port is connected
- My management port not coming up
- Not able to install/update 5520 controller software

Not able to detect the 1G SFP
 Port and Link LEDs

On Boot up vKVM /Monitor does not display any output

Solution

Display Port / VGA Terminal is not supported.

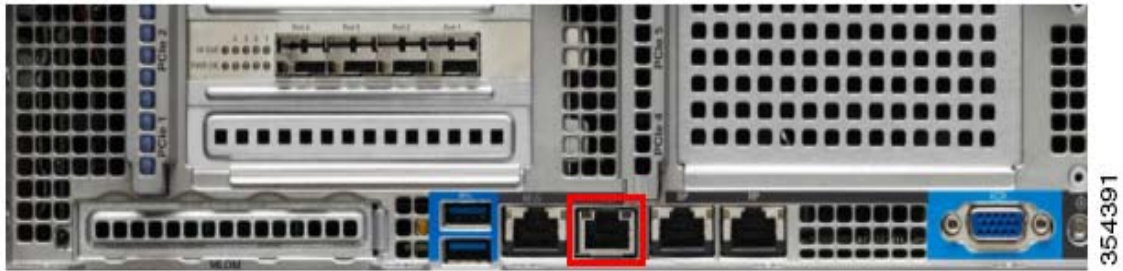
- Connect the RJ45 console at the rear or use console of break out connector.



Cisco Bootloader Loading stage2...

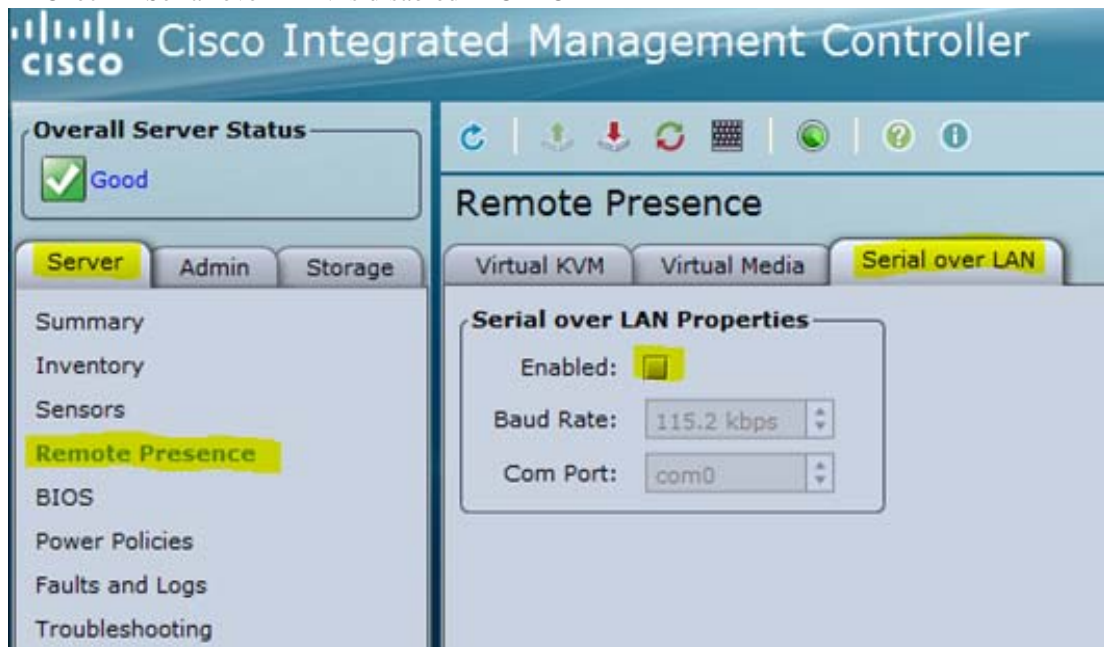
Console output not visible / Console port not working

Solution



- Check if the correct console port is connected and not VGA/Video port
- Check if baudrate is 9600

- Check if Serial-over-LAN is disabled in CIMC



- Get the status of this from the Telnet/SSH to controller using `show imm chassis sol-info`



Note

When Serial-Over-LAN is enabled all external consoles will be disabled.

APs not joining with and displays certificate Error / Certificates not found

Solution

- Check if the certificates are installed and not certificate errors were seen during bootup

Show certificate all

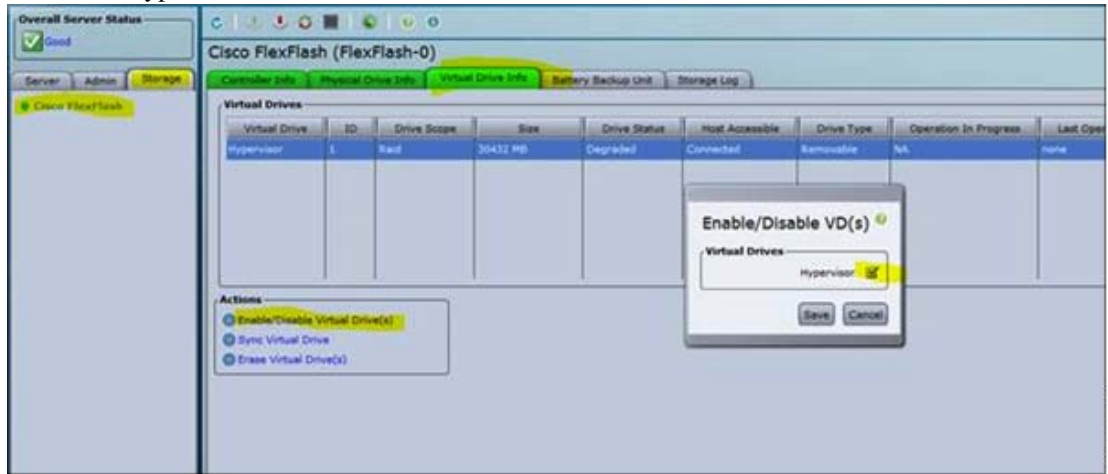
The above command shows the certificates present/installed and status

- Check if the FlexFlash is present in the SDCard panel in UCS
- Check if the Flexflash is connected to HOST



If we remove the SDCard while WLC is powered on, it will get disconnected and cannot be accessed in subsequent boots as well.

- Enable HyperVisor in Enable/Disable Virtual Device to connect it back to HOST.



APs not joining with and cannot find AP images

Solution

- Check if the AP image bundle is present on the controller.

Show ap bundle all



Note

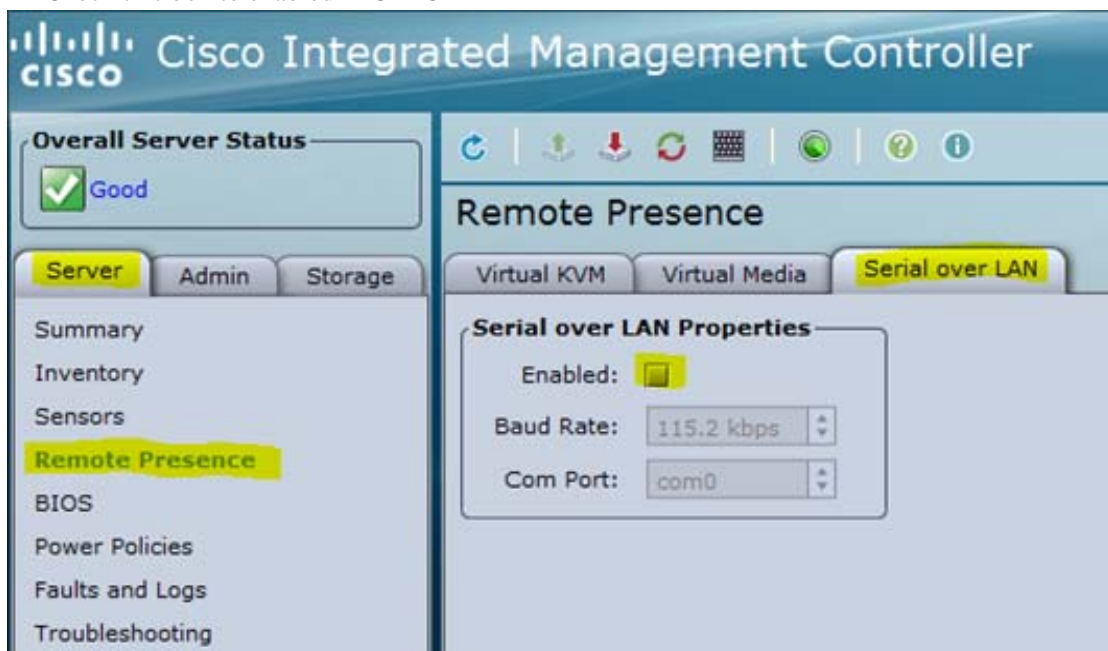
The above command is seen if the AP images are present. If not found transfer download AES image to re-install the AP bundle.

Serial Console not present at customer can we use SOL

Solution

Yes. But note that external consoles will be disabled.

- Check this box to enabled in CIMC



- **Log on** to CIMC via SSH
- Once logged in execute the command
connect host
- Type Ctrl+X to Exit the serial console.

Continuous prints are seen on cli related to Temp Breach

Solution



Note

Applicable for only 8.1.122.0 and below. Not applicable for 8.1.131.0 onwards and for 8.2

DP WARN - Ambient Temp 46 Breached remote High limit 45

DP WARN - Core temp 96 Breached remote High limit 95

The above prints related to Temp Breach are seen

- Verify the Fan settings and see that the fans are at least 16000 RPM by running
show imm chassis fan
- Check if the vents in the front and back of controller are not obstructed
- Check if the appliance is not in a thermal hot pocket

Controller is starting on connecting the power

Solution

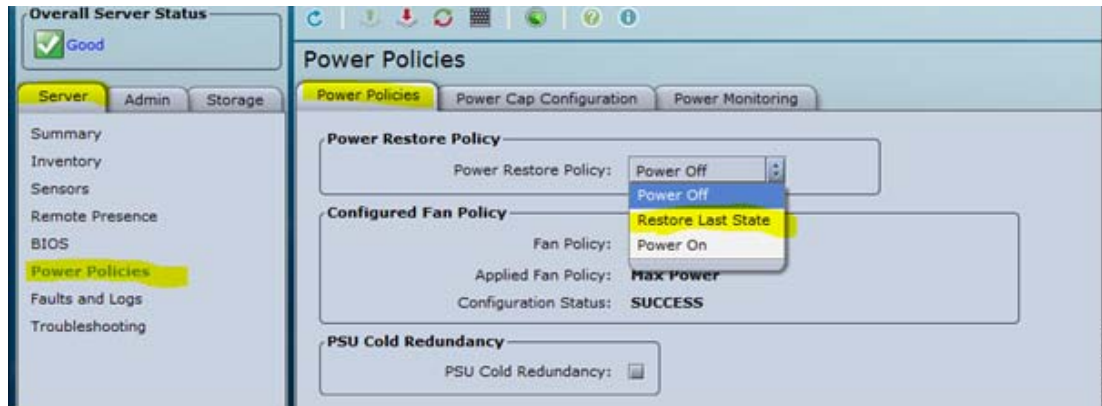
After a power outage my controller switches on by default

- Set the default power restore policy to power on.



Note

This is done so that you need not press the button to physically start the appliance even after all the LEDs are up. This can be changed in CIMC if required



354396

Service port is not working when CIMC port is connected

Solution

- Check if the NIC is in dedicated mode



354397

You can also figure this by comparing chassis mac and Burned in MAC

```
(Cisco Controller) >show imm chassis mac
MAC Address: a4:6c:2a:39:0f:be
(Cisco Controller) >show inventory
Burned-in MAC Address..... A4:6C:2A:39:0F:BF
```

Check if the show imm chassis mac and show inventory mac are conservative and not the same. Otherwise it will cause discrepancy.



Note

If this happens check if the NIC is set to be in shared mode in CIMC

My management port not coming up

Solution

- Verify if the correct port is connected



Note

Note that the port numbering starts from right to left.



Not able to install/update 5520 controller software

Solution

Check if you have downloaded the 5520 software . 5508 software is not compatible with 5520

<https://software.cisco.com/download/release.html?mdfid=286284738&flowid=74382&softwareid=280926587&release=8.1.102.0&reind=AVAILABLE&rellifecycle=ED&reltype=latest>

Not able to detect the 1G SFP

Solution

If there is nothing installed in port 1, the board will be configured for 10 G mode by default. Therefore, to switch to 1 G mode, install an SFP module in port 1 and the reboot the system.

Conversely, if an SFP module is installed and the user wants to switch to 4 x 10 G mode, then an SFP+ module must be installed in port 1 and the WLC has to be rebooted.

Thus, Online Insertion and Removal (OIR) of SFP and SFP+ between 10 G and 1 G is not possible.

OIR of 10 G to 10 G and 1 G and 1 G is possible.

Note for 1 G SFP to be detected make sure it is MSA compliant.

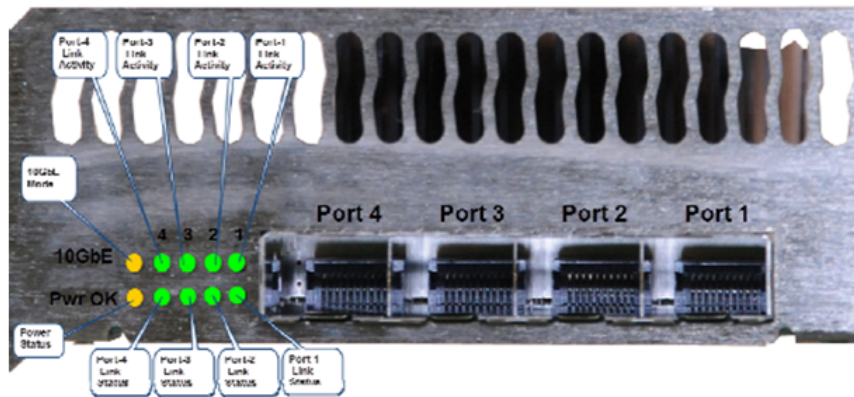
It is recommended to have all ports as either 10 G or 1 G. In case they are different, port 1 SFP determines the mode of operation and functionality on the other SFPs may not work.

Port and Link LEDs

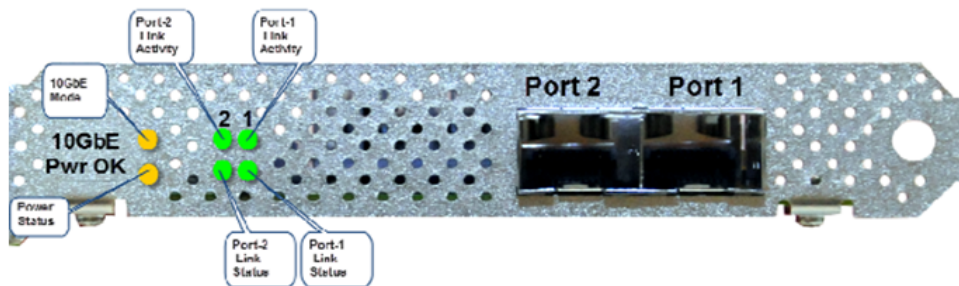
Solution

LED	Functional Definition
Pwr OK	LED: (Amber) On indicates power is good
10GbE	LED: (Amber) On indicates 10GbE mode. LED: Off indicates 1GbE mode
Port-n Link Status	LED: (Green) on indicates link up status
Port-n Link Activity	LED: (Green) blinking indicates link activity

Where n = port number



8540



5520

354400

Logging out of CIMC

Step 1 In the upper right of CIMC, click **Log Out**.

Logging out returns you to the CIMC log in page.

Step 2 (Optional) Log back in or close your web browser.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at:

<http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html>.

Subscribe to *What's New in Cisco Product Documentation*, which lists all new and revised Cisco technical documentation, as an RSS feed and deliver content directly to your desktop using a reader application. The RSS feeds are a free service.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

© 2015 Cisco Systems, Inc. All rights reserved.

