# How To: Instant AP 3/4G Uplink

Instant supports the use of 3G and 4G USB modems to provide the Internet backhaul to an Instant network. The 3G or 4G USB modems can be used to extend client connectivity to places where an Ethernet uplink cannot be configured.

This network configuration setup focus on single IAP with 4G modem configuration and uplink redundancy with wired DSL and 4G modem.

## **Network Setup**



Note: Client IP assigned by internal DHCP server.

#### Hardware Tested:

- IAP IAP-315,305 and 205H
  - Version 6.5.2.0-6.5.2.0\_59123
  - DC powered.
- 4G Modem Huawei E3372h-607

- List of supported 4G modems <u>http://www.arubanetworks.com/support-</u> services/interoperability/#4g-usb-instant
- SIM card Vodafone NZ

### **WEBUI Configuration:**

Note: In this case, already created SSID on IAP with client ip assignment provided by VC.

- 1. Click the **System** link on the Instant main window.
- 2. In the System window, click the show advanced option settings link.
- Click the Uplink tab.
   Click 3G/4G and Uplink Priority List and configure the following parameter as shown in Figure below.

System							<u>Help</u>
General Admin Uplink L	3 Mobility Monitoring	WISPr	Proxy	Time Based Servic	es		
∧ Management			· · · ·				
Enforce uplink:	None	۲		Uplink Priority I	List		
Pre-emption:	Enabled	۲		3G/4G			
Pre-emption interval:	600			Wifi-sta Eth0			
VPN failover timeout:	180						
Internet failover:	Disabled	•					
Internet failover IP:	8.8.8.8			•			
∧ 3G/4G							
Country:	None	•		ISP:	None	T	
USB type:	huawei-cdc	•		USB dial:			
4G USB type:				USB mode switch:			
USB dev:	0x12d1155e			USB auth type:	None	T	
USB tty:	ttyUSB2			USB user:			
USB init:				USB password:			
wiEi							
• WIT							
V PPPoE							
✓ AP1X							
Hide advanced options						ОК	Cancel

5. Click OK.

6. Reboot the IAP for changes to take effect.

l	Mainte	enance					<u>Help</u>
	About	Configuration	Certificates	Firmware	Reboot	Convert	
	About Select 00:0b Reboo	Configuration the access poir :86:ed:d0:30 of selected Access of All	Certificates It you wish to Point	Firmware	Reboot	Convert	
							Cinee
							Close

7. After Reboot access the WEBUI via the ip address of your VC (it can be using the special ip address provided by your 4G modem link provider or gateway ip address which is IAP internal DHCP server).

									System RF Securit	/ Maintenance   More+   Help Logou
a Hewlett Packard Enterprise company	VIRTUAL CONTROLLER SetMet	Jp-C1:51:	BO							Search
l Network		+	🔊 1 Access Poi	int		+	💂 2 Clients			+
Name	Clients		Name 😓		Clients		Name 🗸	IP Address	ESSID	Access Point
Zion_4G New	2		a8:bd:27:c1:51:b0 *		2		DELOSELE3 Samsung-Galaxy-S7	172.31.99.109 172.31.99.201	Zion_4G Zion_4G	a0:bd;27:c1:51:b0 a0:bd;27:c1:51:b0
SetMeUp-C	C1:51:B0 SetMeUp-C1:51:B0	RF Dashboa	rd	Signal	Speed	Access Points	Utilization	Noise Err	Monitoring IDS Air Usage Trends ors Clients	Group Configuration 0 Alerts -
SetMeUp-C Info Name: Country code: Virtual Controller IP V C IPv6 Address: IP Mode: Management: Master: IPv6 Address: Upink type: Upink type:	C1:51:B0 NZ + 20.0.0 :: 0.0.0 v4-prefer Local 100-94.722.100 fe00:nabdi27frifec1:51b0 30:426	RF Dashboa All client	rd	Signal	Speed	Access Points a8:bd:27:c1:51:	Utilization	Noise Err	Monitoring IDS Ali Usage Trends Clients Clients 0 21:03 Throubeut Clients	Group Configuration 0 Alerts -

8. Check the cellular status and configuration under **support** tab. Cellular uplink must be up with IP address provide by ISP. You can check your 4G connection status by issuing **show log Ite** in CLI.

upport						Hel
Command: AP	3G/4G Status 🔻	Target: a8:bd:27:c1:5	1:b0 (VC) 🕶	Run Auto Run	Filter Clear	Save
a8:bd:27:c1:5	1:b0					
5/19/2017 15:3 ************************************	9:34 PM Target: a8:bd:27:c 2:27,Cellular uplink is up wi	1:51:b0 Command: show cellul h IP 100.94.232.180	ar status	******		Î
5/19/2017 15:3	18:34 PM Target: a8:bd:27:c	1:51:b0 Command: show cellul	ar config	*****		
cellular config Type  4g-usb-type usb-type usb-dev usb-dev usb-tty usb-init	valie Valie Husmei-cdc Øx12d1155 ttyUSB2					1
usb-auth-type usb-user usb-passwd usb-dial usb-modeswitch modem-isp modem-country						
Supported Moden	Types					
Modem Type option acm airprime hso sierra-evdo	Driver Used option acm airprime hso sierra-evdo					Ŧ

```
305# show log lte
Setting up data connection...
^RSSI:16
^HCSQ:"LTE",41,37,136,32
AT^CURC=0
AT^CERSSI=0
OKget modem mode:
AT^SYSCFGEX?
^SYSCFGEX:"00", 3FFFFFFF, 1, 2, 7FFFFFFFFFFFFFFFF
OKUSB Uplink RSSI(in dBm) : -81 81
2017-05-19 21:22:24 Current Network Service:NKT 3
Automode nkt & SSL - 3 & 2
Wait for CONNECTED status - 0 ...
Connecting to the modem E3372
AT+CGDCONT=1,"IP",""
OK
AT^NDISDUP=1,1
OKLTE successful...
Starting DHCP to get IP address...
Trying udhcp & waiting @ 0.
100.90.162.17 255.255.255.252 100.90.162.18
USB Details is queried and updated
```

9. Verify that Client get an ip address and connect to the internet using 4G modem uplink.

#### Uplink Redundancy: 4G Modem and Wired DSL.

In this testing we will be using 4G modem as backup link for the Ethernet-based Instant network.

Preemption is enabled and if the current Ethernet uplink fails, the IAP tries to find a available uplink based on the priority configured. If current uplink is active, the IAP periodically tries to use higher-priority uplink and switches to the higher-priority uplink even if the current uplink is active.



- 1. Both Ethernet and 4G modem uplinks connected to IAP.
- 2. Configure Uplink priority where Ethernet uplink use higher priority than 4G modem.

stem						For Help, click any text in g	reen italics Do
eneral Admin	Uplink	L3 Mobility	Monitoring	WISPr	Proxy	Time Based Services	
∧ Managemen	8						
Enforce uplink:		None		•		Uplink Priority List	
Pre-emption:		Enabled		۲		Eth0	
Pre-emption in	terval:	15	15			3G/4G Wifi-sta	
VPN failover tir	neout:	180				THE SA	
Internet failove	n	Enable	ed			-	
Internet failover IP:		8.8.8.8	1			- - -	
Max allowed test packet loss: 10							
Secs between	est packe	ets: 30	: 30				
Internet check	timeout:	10					

3. Verify uplink priority in CLI:

305# show	uplink	status		
Uplink pre	eemptior	ı		:disable
Uplink pre	eemptior	n interval		:600
Uplink end	force			:none
Ethernet u	uplink k	oond0		DHCP
Uplink Tak	ble			
Туре	State	Priority	In	Use
eth0	UP		Yes	8
Wifi-sta	INIT	2	No	
3G/4G	LOAD	1	No	
Internet f	failoven			:enable
Max allowe	ed test	packet los	33	:10
Secs betwe	een test	t packets		:30
VPN failow	ver time	eout (secs)		:180
Internet d	check ti	imeout (sea	:s)	:10
ICMP pkt s	sent	:5		
ICMP pkt 1	lost	:0		
Continuous	s pkt lo	ost :0		
VPN down t	time	:0		
AP1X type	NONE			
Certificat	tion typ	pe:NONE		
Validate s	server:1	IONE		
0058 1				

4. Pull out the Ethernet Cable on IAP and uplink failover to 4G modem (base on my test setup less than 30 seconds). Verify in CLI if 4G modem is In Use by using the command **show uplink status.** 

305# show	uplink	status							
Uplink pre	eemptior	n		:disable					
Uplink pre	eemptior	n interval		:600					
Uplink ent	force			:none					
Ethernet u	uplink k	bond0		DHCP					
Uplink Tak	ble								
Type	State	Priority	In	Use					
eth0	DOWN	0	No						
Wifi-sta	INIT	2	No						
3G/4G	UP	1	Yes	3					
Internet f	failove	c		:enable					
Max allowe	ed test	packet los	33	:10					
Secs betwe	een test	t packets		:30					
VPN failor	ver time	eout (secs)		:180					
Internet d	check ti	imeout (sea	cs)	:10					
ICMP pkt s	sent	:2							
ICMP pkt 1	lost	:0							
Continuous	s pkt lo	ost :0							
VPN down t	time	: 0							
AP1X type	NONE								
Certificat	tion typ	pe:NONE							
Validate s	server:1	NONE							

5. Insert the Ethernet cable on IAP and in 15 seconds it will go back to Ethernet uplink. (Uplink preemption time is configurable at minimum of 15 seconds).