

Gaming Console Deployment Guide











MERUNETWORKS.COM

April 2011 | By Thomas Lee & Mike Ruiz

1. EXECUTIVE SUMMARY

Gaming consoles like the Sony PlayStation 3, Nintendo Wii, and Microsoft Xbox 360 are being increasingly used in wireless mode in enterprise environments like university dormitories. Testing in Meru's Interoperability Lab has shown that there are unique issues in connectivity with gaming system as compared to other mainstream Wi-Fi™ enabled devices. University IT personnel have to address how they will handle game console interoperability. This document shows the detailed configurations needed in Meru System Director 4.0 and 4.1 releases to support interoperability between Meru Networks controllers and APs with Sony PlayStation 3, Nintendo Wii, and Microsoft Xbox 360.

1.1 SONY PLAYSTATION 3

BACKGROUND

Sony Playstation 3 gaming console (like many common console systems) has both a wired Ethernet port and 802.11bg wireless network connectivity for online community access. While both of these interfaces have a MAC address, Sony utilizes one of them. During the process of associating to a wireless network the PS3 uses one MAC to probe for wireless APs and the other for the authentication portion of the association process.

INTEROPERABILITY DETAILS

Virtual Cell and Virtual Port features are enabled by default in 3.6.1 and newer versions of Meru System Director as well as on AP300 family access points. This allows for optimization of client association and seamless roaming. The Virtual Port feature uses the client MAC Address to create a Virtual Wireless Network (BSSID) specific to that client. A Virtual Port is assigned to the first MAC address. When the PS3 changes its MAC address during the association process, the second MAC address assignment is denied access.

PS3 can be connected by disabling the Virtual Cell and Virtual Port features in the ESS Profiles and in the AP300 radio settings. This would affect ALL ESS profiles on those APs and be suboptimal for all clients. With System Director 4.1, support for the AP1000 was added. The AP1000 can support Virtual Port and non-Virtual Port ESSes concurrently.

In Meru System Director 4.1, a feature called VCell Overflow was introduced. This enables the creation of a non-Virtual ESS Profile alongside existing ESS Profiles that are running Virtual Cell/Virtual Port on an AP300 radio in VCell Mode. The Sony PS3 has been successfully field tested in VCell Overflow on 4.1-39 and 4.1-55 versions of System Director.

CONFIGURATION OVERVIEW

To configure VCell Overflow ESSID for PS3, TWO ESS Profiles are required. In the example below, we will be presenting an ESSID to the community with an SSID of "GamingDevices."

For VCell Overflow to work there is a 'Parent' ESS Profile with VCell enabled from which the clients can overflow from. To keep non-PS3 clients from trying to associate to this VCell ESS Profile, we will set the "New APs join ESS" option to "NO." IF this is an existing ESS Profile, you need to set this to NO AND remove all ESS-AP entries. NOTE: This ESS will NOT be available to users.

VCell and VPort remain enabled New APs Join ESS is set to OFF SSID = GamingDevices Profile Name = GamingDevices_VC Next we are going to create the "Child" ESS Profile. VCell and VPort are set to OFF New APs Join ESS is set to ON* Overflow FROM = GamingDevices_VC SSID = GamingDevices Profile Name = GamingDevices_Overflow

* If you do not want the "GamingDevices" ESS Profile on ALL APs you can set "New APs Join ESS" to "OFF" and use the ESS-AP table to manage the radio list on which this ESS is broadcast. Make sure you ONLY use the OVERFLOW profile when doing this.

These ESS Profiles were created as a new profile. That ensures that all data rates are using the 4.1 DEFAULT settings. PS3 requires a minimum 11Mbps 11b data rate be available as a base AND transmit rate. The defaults are acceptable.

All Testing was done with Clear, WEP64 (ASCII & Hex), WEP128 (ASCII & Hex), WPA TKIP, and WPA2-PSK (AES) security.

1.2 NINTENDO WII

BACKGROUND

Nintendo Wii is a gaming console which provides by default ONLY an 802.11bg wireless network interface for online access. There is a USB-Wired Ethernet adapter available.

The Wii does not work with the DEFAULT ESS Configuration created in current versions of Meru System Director. Modifications to the base transmit speeds must be made as outlined below.

INTEROPERABILITY DETAILS

Nintendo Wii is compatible with Clear, WEP64 (ASCII & Hex), WEP128 (ASCII & Hex), WPA-PSK (TKIP) or WPA2-PSK (AES) security profiles.

It is recommended on AP300 to use Clear OR WPA2-PSK security.

Nintendo Wii also REQUIRES that 802.11b or 802.11b+g data rates are available.

CONFIGURATION OVERVIEW

It is recommended that more data rates be made available for the Nintendo Wii gaming console by modifying the default ESS profile configuration.

If you have created a special ESS Profile for the PS3 using the System Director 4.1 VCell Overflow feature, that same OVERFLOW ESS Profile can be used for the Wii. Note that the Wii is fully compatible with Virtual Cell and Virtual Port and does not REQUIRE System Director 4.1 or VCell overflow.

In the Example below we will create and modify an ESS Profile Called "WiiConsole"

Profile Name = WiiConsole SSID = WiiConsole VCell and VPort remain On

Changes from default in the BGN Transmit Base Rates matrix are required if your BGN data rates assuming your 2.4 GHz Radios are in "bgn" mode. If your AP radio is in "bg" mode then make the modifications in the BG data rates.

The change made from the default is in the BGN Transmit Base Rates matrix where 1 Mbps, 2 Mbps, 5.5 Mbps and 11Mbps data rates are checked. In the default configuration, only 11Mbps is checked.

1.3 XBOX 360

BACKGROUND

The Microsoft Xbox 360 has a built-in 802.11bgn wireless adapter. The Xbox 360 can run in Virtual Port mode or non-Virtual Port mode.

INTEROPERABILITY DETAILS

Microsoft Xbox 360 is compatible with Clear, WEP64 (hex or ASCII characters), WEP128 (hex or ASCII characters), WPA-PSK (TKIP), and WPA2-PSK (AES) security profiles.

CONFIGURATION OVERVIEW

Except for RADIUS authenticated ESSIDs, the Xbox 360 can associate to any network ESSID configuration in Virtual Port mode or non Virtual Port mode.

2. CONFIGURATION

SUPPORT ALL 3 GAMING CONSOLES IN SYSTEM DIRECTOR 4.0

Summary of steps to configure a security profile and ESSID to support all 3 gaming consoles in System Director 4.0

- 1. Create a security profile or select an existing security profile.
- 2. Create an ESS profile or select an existing profile.
- 3. Optionally, create a VLAN.
- 4. Disable Virtual Port and Virtual Cell on the ESS profile.
- 5. Disable Virtual Cell on the AP300.

Detailed configuration

WLAN Managemen	t		User: admin					Controller-172	.26.96.35 8:19:0	15 AM <u>CLI Save Help</u> N	IERU	
Monitor	5	Security	Profile Table (8 er	ntries)								
Maintenance			•							-		
 Configuration 			Security Profile Name	L2 Modes Allowed	Data Encrypt	Captive Portal	MAC Filtering	Firewall Capability	Firewall Filter ID	Passthrough Firewall Filter ID	Owner	
System Config			default	Clear	None	Disabled	Off	none			controller	
Quick Start	li		wpa2psk.	WPA2 PSK	CCMP-AES	Disabled	Off	none			controller	
Security												
Profile		\rightarrow	weich	WPA2 P5K	CCMP-AES	Disabled	Off	none			controller	
Radius	lİ		wep64-profile	Static WEP keys	WEP64	Disabled	Off	none			controller	
Captive Portal			wep128-profile	Static WEP keys	WEP128	Disabled	Off	none			controller	
Guest Users		\rightarrow										
Mac Filtering			wep64-in-hex-profile	Static WEP keys	WEP64	Disabled	Off	none			controller	
Wireless IDS/IPS	ĺ		wep128-in-hex-profile	Static WEP keys	WEP128	Disabled	Off	none			controller	
Rogue APs			wnansk-profile	WPA PSK	TKIP	Disabled	Off	DODE			controller	
Air Shield					1.1.4							
AP Packet Capture												
Wired												
VLAN												
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- 1. Connect to the controller using an internet browser. The address is 'http://<IP address of controller>'. Log in with your controller username and password.
- 2. Click on the 'Configuration' tab on the upper left hand corner of the screen.
- 3. Scroll down to the 'Security' section and click on the 'Profile' button. The screen above will now be shown.

WI AN Management	User: admin		(Controller-172.26.96.35	8:21:34 AM	<u>CLI Save</u>	Help M	IERU			
Monitor	Security Profile Table - Add										
Maintenance											
Configuration System Config	Security Profile Name			Enter 1-32 chars., Required							
Quick Start Security Profile	L2 Modes Allowed		Clear 802.1x Static	: WEP keys 🔲 WPA PA2 PSK 🔲 MIXED							
Radius Captive Portal	Data Encrypt		WEP64 WEP128 TK	CIP CCMP-AES							
Mac Filtering	Primary RADIUS Profile Name		No Data for Primary RADIUS Pro	ofile Name							
Wireless IDS/IPS	Secondary RADIUS Profile Name		No Data for Secondary RADIUS	Profile Name							
Rogue APs Air Shield	WEP Key (Alphanumeric/Hexade	cimal)									
AP Packet Capture	Static WEP Key Index		1 Valid range: [1-4]								
ñred VLAN	Re-Key Period (seconds)		0 Valid range: [0-65535]								
GRE	Captive Portal		Disabled 🔽								
Vireless Radio	802.1% Network Initiation		On 🗸								
ESS	Shared Key Authentication		Off v								
System Settings	Pre-shared Key (Alphanumeric/h	lexadecimal)]							
evices System Settings	Group Keying Interval (seconds)		0 Vald range: [0-65535]								
Controller	Vev Datation		7.2 - 1.7 - 2 - 1			OK		`ancol			
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- 4. Click on the 'Add' button to add a security profile and the screen above will be shown.
- 5. Add the security profile name.
- 6. Select the allowed L2 mode.
- 7. Select the relevant data encryption mode.
- 8. Enter the WEP key or preshared key depending upon the L2 mode selected.
- 9. Click OK to locally save the security profile.

WLAN Management			User: admin				Controller-172.2	26.96.35 8:35:55 AM CLI Save	Help MCRU
Monitor	VL	AN Co	onfiguration (1 e	entry)					
Maintenance	-			.,					
▼ Configuration			VLAN Name	Tag	Fast Ethernet Interface Index	IP Address	Netmask	IP Address of the Default Gateway	Owner
System Config		Search:							
Quick Start			gamers	1000	1	172.26.16.254	255.255.240.0	172.26.16.1	controller
Security						1	1		1
Profile									
Radius									
Captive Portal									
Guest Users									
Mac Filtering									
Wireless IDS/IPS									
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Air Shield									
AP Packet Capture									
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10. Depending upon the design of the network, this step may be optional. If so, skip to step 19. Otherwise, scroll down to the Wired section and click on the VLAN button to create a VLAN. The screen above should appear.

VLAN Managem	ient	User: admin		Controller-172.26.96.35	8:38:08 AM	<u>CLI Sar</u>	<u>ze Help</u>	MERU
Monitor		VI AN Configuration - Add						
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 Configuration 	^			1				
5ystem Config		VLAN Name		Enter 1-32 chars., Required				
Quick Start		Tag		Valid range: [1-4094] Required				
Security				lastalget[t lost]) reclance				
Profile		Fast Ethernet Interface Index		Valid range: [1-2]				
Radius		TR Address						
Captive Portal		AT 11400 000						
Guest Users		Netmask						
Mac Filtering		TO Address of the Defende Cohemen						
Wireless IDS/IPS		IP Address of the benault Gateway						
Rogue APs		Override Default DHCP Server Flag	Off V					
Air Shield								
AP Packet Capture		DHCP Server IP Address						
Wired		DHCP Relay Pass-Through	On 🗸					
VLAN			Contract of Contra					
GRE								
Wireless								
Radio								
ESS								
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System Settings								
evices								
System Settings								
Controller								
APs	~					OK		Cancel

- 11. Click on the Add button to add a VLAN. The screen above should appear.
- 12. Input the VLAN name.
- 13. Input the VLAN tag number.
- 14. Input the IP address of the VLAN.
- 15. Input the subnet mask.
- 16. Input the default gateway.
- 17. Depending upon the DHCP server configuration, input the IP address of DHCP server if it is on a different subnet.
- 18. Click OK to locally save the VLAN configuration.

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WLAN Managemen	t		User: admin				Cont	ruller=172,20,90,55 0;42	HIAM <u>CO 200</u>	Meru N
Monitor	E	SS Pro	file (2 entries)							
Maintenance	L Fe						1			
 Configuration 			ESS Profile Name	Enable/Disable	e SSID	Security Profile Name	SSID Broadcast	Tunnel Intertace Type	Dataplane Mode	Owner
System Config	[Search:								
Quick Start	ĺĺ		Proteus	Enable	proteus-demo	wpa2psk	On	No Tunnel	Tunneled	controller
Security			namers	Enable	gamers	wep128-in-bey-profile	00	Configured VI AN Only	Tunneled	controller
Profile	Ц		gamora	Lindbio	gamers	Wop120 II THEX prome		Conligated VEHN Only		Controller
Radius										
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Guest Users										
Mac Filtering										
Wireless IDS/IPS										
Rogue APs										
Air Shield										
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19. Scroll down to the Wireless section and click on the ESS tab to create an ESS profile. The screen above should appear.

WLAN Management	User: admin			Controller-172.26.96.35	8:45:21 AM	CLI Save	Help MCRU
Monitor	ESS Profile - Add						
Maintenance							
Configuration	ESS Profile Name			Fatar 1 22 share Dominad			
System Config	Loorionand			chost 1-52 chars., Requireu			
Quick Start	Enable/Disable		Enable 💌				
Security Profile	SSID			Enter 0-32 charg			
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Captive Portal	Security Profile Name		default	*			
Guest Users	Primary RADIUS Accounting S	rver	No Data for Primary RADIUS /	locounting Server			
Mac Filtering	Secondary RADIUS Accounting	i Server	No Data fao Casa da - DADI	C Assessmentiana Comuna			
Wireless IDS/IPS			NO Data for Secondary RADIL	is Accounting Server			
Rogue APs	Accounting Interim Interval (s	econds)	3600	Valid range: [600-36000]			
Air Shield	Beacon Interval (msec)		100	Valid range: [20-1000]			
AP Packet Capture							
Wired	SSID Broadcast		On 🚩				
VLAN	Bridging		AirFortress 🔲 IPV6 📃	AppleTalk			
GRE	New AP's Top ESS		On w				
Wireless			on v				
Radio	Tunnel Interface Type		No Tunnel	~			
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Q05 System Settings							
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Controller							
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- 20. Click on the Add button and the screen above should appear.
- 21. Input the ESS profile name.
- 22. Input the SSID.
- 23. Input the security profile that was created earlier.
- 24. If a VLAN is to be used in this profile, change the Tunnel Interface Type to configured VLAN only.
- 25. At the VLAN pull-down menu, select the VLAN name that was previously created.

WLAN Management	User: admin	Controller-172.26.96.35 8:49:08 AM CLI Save Help MCRU
Monitor	Silent Client Polling	
Maintenance		
 Configuration 	Virtual Cell	On 💌
System Config	Virtual Port	On v
Quick Start		
Security	WMM Support	Off 🖌
Profile	APSD Support	On V
Casting Dantal		
Captive Portal	DTIM Period (number of beacons)	1 Valid range: [1-255]
Mac Filtering	Dataplane Mode	Tunneled V
Utivelana Toc/Inc		
Roque APs	AP VLAN Tag	0 Valid range: [0-4094]
Air Shield	AP VLAN Priority	Off V
AP Packet Capture		
Wired	Countermeasure	On 🞽
VLAN	Multicast MAC Transparency	Off V
GRE	Deed Charries Made	
Wireless	Banu Steering Moue	Band Steering Disable 🞽
Radio	Band Steering Timeout(seconds)	5 Valid range: [1-65535]
ESS	Europhical Environd Quantida	
QoS	Expediced Porward Override	
System Settings	SSID Broadcast for Vport	Disabled 🛛
Devices		
System Settings	B Supported Transmit Rates (Mbps)	T mops I z mops I z 5.5 mops I z 11 mops
Controller		
APs 🔽		OK Cancel
● [0] ○ [7] ○ [0]	\\$\$[5]\$\$[2] \$\\$\{4]\$\$[1]	[1] □ [0]

26. Scroll down the screen until the Virtual Cell selection menu appears on the top of the screen.

- 27. Turn off Virtual Port.
- 28. Turn off Virtual Cell.

WI AN Management	User: admin	Controller-172.26.96.35 8:56:37 AM CLI Save Help MCRI							
Monitor	G Bare Transmit Dates (Mins)	🗹 6 Mbps 🗹 9 Mbps 🗹 12 Mbps 🗹 18 Mbps							
Maintenance	d base transmic rates (mps)	🗹 24 Mbps 🗹 36 Mbps 🗹 48 Mbps 🗹 54 Mbps							
 Configuration 									
System Config		🗹 1 Mbps 🗹 2 Mbps 🗹 5.5 Mbps 🗹 11 Mbps							
Quick Start	BG Supported Transmit Rates (Mbps)	🖉 6 Mbps 🗹 9 Mbps 🗹 12 Mbps 🗹 18 Mbps							
ecurity		🗹 24 Mbps 🗹 36 Mbps 🗹 48 Mbps 🗹 54 Mbps							
Profile									
Radius		🗌 1 Mbps 🛄 2 Mbps 🛄 5.5 Mbps 💌 11 Mbps							
Captive Portal	BG base Transmit Rates (Mbps)	24 Mines 26 Mines 48 Mines 54 Mines							
Guest Users		El 24 mups El 36 mups El 46 mups							
Mac Filtering		1 Mars 2 Mars 2 E E Mars 2 11 Mars							
ireless IDS/IPS	RGN Supported Transmit Pater (Mbor)	✓ 6 Mbns ✓ 9 Mbns ✓ 12 Mbns ✓ 18 Mbns							
Rogue APs	baiv Supported Hansinic Rates (https)	24 Mbns V 36 Mbns V 48 Mbns V 54 Mbns							
Air Shield									
AP Packet Capture		1 Mbps 2 Mbps 5.5 Mbps 🗹 11 Mbps							
ived	BGN Base Transmit Rates (Mbps)	6 Mbps 9 Mbps 12 Mbps 18 Mbps							
VLAN		24 Mbps 36 Mbps 48 Mbps 54 Mbps							
GRE									
ivelanc		🗹 MCS 0 🗹 MCS 1 🗹 MCS 2 🗹 MCS 3							
Radio	period and the second parts (second	🗹 MCS 4 🗹 MCS 5 🗹 MCS 6 🗹 MCS 7							
FCC	BGN Supporced HT Transmit Races (MCS)	MCS 8 MCS 9 MCS 10 MCS 11							
		MCS 12 MCS 13 MCS 14 MCS 15							
05 Custom Cattings									
system settings		MCS 0 MCS 1 MCS 2 MCS 3							
evices	BGN Base HT Transmit Bates (MCS)	MCS 4 MCS 5 MCS 6 MCS 7							
System Settings	per paper randing (rea)	MCS 8 MCS 9 MCS 10 MCS 11							
Controller									
APs		OK Canc							

- 29. The default mode of operation of the Meru APs in the 2.4 Ghz spectrum is 802.11bgn mode. The other possible modes are: 802.11b, 802.11g, or 802.11bg. By default, the base transmit rates are only set to 11mb for 802.11b, 802.11bg, and 802.11bgn. In order to support the Nintendo Wii, the base transmit rates must be changed to include 1mb, 2mb, and 5.5mb. This is done by checking the respective boxes in the respective mode sections.
- 30. Click the OK button to save the ESS profile locally.

WLAN Management			User: a	idmin					Controller-	172.26.96.35	9:41:17 AM	<u>LI Save Help</u>	MERU
Monitor	V	Vireless	Interfac	e Configuration	(9 entries)								
Maintenance				e e e i i i gar a i e i	(0 0111100)								
Configuration	Γ		AP ID	AP Name	Interface Index	AP Model	Administrative Status	Operational Status	Channel	Operating Channel	Short Preamble	RF Band Selection	AP Mode
System Config	Γ	Search:											
Quick Start			1	AP-1	2	AP320i	Up	Enabled	153	153	Off	802.11an	Normal Mode
Security			1	AP-1	1	AD320i	Lin	Epabled	1	1	00	802 11bap	Normal Mode
Profile			•			HI GEOI		Lindbled			011	ooziiriogii	Norman Hode
Radius			2	AP-2	2	AP320i	Up	Enabled	153	153	Off	802.11an	Normal Mode
Captive Portal	h		2	AP-2	1	AP320i	Lin	Enabled	1	1	On	802.11hm	Normal Mode
Guest Users	ļ				-				-	-			
Mac Filtering			3	WIPS-Sensor-1	2	AP320	Up	Enabled	36	36	Off	802.11an	Normal Mode
Wireless IDS/IPS	ľ		3	WIPS-Sensor-1	1	AP320	Up	Enabled	6	6	On	802.11bgn	Normal Mode
Rogue APs Air Shield	ľ		6	Spectrum Sensor	2	PSM3×	Up	Enabled	36	36	Off	802.11an	Normal Mode
AP Packet Capture	ſ		6	Spectrum Sensor	1	PSM3x	Up	Enabled	6	6	On	802.11bgn	Scanning Mode
Wired	ŀ					_							Scopping
VLAN			9	AP-9	1	AP1010	Up	Enabled	6	6	On	802.11b	Mode
Wireless Radio ESS QoS				-	1								1]
System Settings													
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APs 💌									Refres	sh 📔 Setti	ngs🚍 📔 🛛 Bull	k Update	View Details
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31. If the wireless network has AP300s and/or AP300is, then click on the Radio button to make changes to the APs that are in the ESS-AP table for the ESS profile that will support gaming consoles. Otherwise, skip to step 37.

WI AN Management	÷		User: a	admin					Controller	172.26.96.35	9:42:35 AM	<u>ILI Save He</u>	Meru
Monitor	Wir	eless	Interfac	e Configuration	n (9 entries)								
Maintenance	_												
▼ Configuration			AP ID	AP Name	Interface Index	AP Model	Administrative Status	Operational Status	Channel	Operating Channel	Short Preamble	RF Band Selection	AP Mode
System Config	Se	earch:											
		Z 🖨 🔽	1	AP-1	2	AP320i	Up	Enabled	153	153	Off	802.11an	Normal Mode
Profile			1	AP-1	1	AP320i	Up	Enabled	1	1	On	802.11bgn	Normal Mode
Radius		• 🔿	2	AP-2	2	AP320i	Up	Enabled	153	153	Off	802.11an	Normal Mode
Captive Portal	I		2	AP-2	1	AP320i	Up	Enabled	1	1	On	802.11bgn	Normal Mode
Mac Filtering		∍	3	WIPS-Sensor-1	2	AP320	Up	Enabled	36	36	Off	802.11an	Normal Mode
Wireless IDS/IPS			3	WIPS-Sensor-1	1	AP320	Up	Enabled	6	6	On	802.11bgn	Normal Mode
Rogue APs Air Shield		•	6	Spectrum Sensor	2	PSM3x	Up	Enabled	36	36	Off	802.11an	Normal Mode
AP Packet Capture			6	Spectrum Sensor	1	PSM3x	Up	Enabled	6	6	On	802.11bgn	Scanning Mode
VLAN GRF		•	9	AP-9	1	AP1010	Up	Enabled	6	6	On	802.11b	Scanning Mode
Wreless Radio ESS QoS System Settings Devices System Settings Controller													
APs 💌									Refre	sh Setti	ngs 🔁 🛛 🛛 Bul	k Update	View Details
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32. Check each radio that is in the ESS profile for which the gaming consoles will utilize.33. Click on the Bulk Update button.

			Controller-172.26.96.35	9:44:52 AM	CLI Save	Help Ment
	User: admin					мски
Maintenance		Wireless Interface Configura	ation- Bulk Update			
▼ Configuration ▲	Channel					
System Config	Short Preamble					
Quick Start	RE Band Selection					
Security						
Profile	Ancenna Selection					
Captive Portal	Transmit Power High(dBm)					
Guest Users	AP Mode					
Mac Filtering	Protection Mechanism					
Wireless IDS/IPS	Protection Mode					
Rogue APs	THOUGHINHOUG					
Air Shield	Channel Width		<u>~</u>			
AP Packet Capture	MIMO Mode					
Wired	802.11n only mode					
VLAN						
GRE	Virtual Cell	M On M				
Wireless	Probe Response Threshold	on	Valid range: [0-100]			
Radio ESS	* To update a Field, click the	checkbox next to it and input a	new value.			
005						
System Settings			Connol			
Devices		- OK	Calicer			
System Settings						
Controller						
APs 💌						
@ [0] <mark>@</mark> [6] <mark>@</mark> [0]	(G[5] (G[1])	0(5)∞[0] &[0]	[0] 6[2]		💿 (oc	ld:00h:24m:51s]

- 34. Check the Virtual Cell menu and pull down the menu to set Virtual Cell to off.
- 35. Click OK. Now the APs will be rebooted and come up in non Virtual Cell mode.
- 36. When the APs are back up and running, go back into the ESS profile that will support the gaming consoles and check the ESS-AP table to ensure the AP radios are assigned to this ESS profile. If not, then add those radios back to the ESS profile.
- 37. Click on the save button to save the configuration to the flash drive of the controller.
- 38. You are now ready to configure and test the gaming consoles. Refer to the screens and documentation of each gaming console to configure the SSID and wireless encryption modes.

SUPPORT ALL 3 GAMING CONSOLES IN SYSTEM DIRECTOR 4.1

Summary of steps to configure a security profile and ESSID to support all 3 gaming consoles in System Director 4.1

- 1. Create a security profile or select an existing security profile.
- 2. Optionally, create a VLAN.
- 3. Create an ESS profile or select an existing profile.
- 4. Create an overflow ESS profile or select an existing profile.

Detailed configuration settings

WI AN Managemen	t		User: admin					Controller-172	.26.96.35 8:19:0	15 AM <u>CLI Save Help</u> N	IERU
Monitor	1	Security	Profile Table (8 e	ntries)							
Maintenance				,							
▼ Configuration			Security Profile Name	L2 Modes Allowed	Data Encrypt	Captive Portal	MAC Filtering	Firewall Capability	Firewall Filter ID	Passthrough Firewall Filter ID	Owner
System Config			default	Clear	None	Disabled	Off	none			controller
Quick Start			wpa2psk	WPA2 PSK	CCMP-AES	Disabled	Off	none			controller
Security				UIDAO DOV	COMP ATC	Disabled	015				
Profile			weich	WPA2 PDK	CCMP-AES	Lisabled	on	none			controller
Radius			wep64-profile	Static WEP keys	WEP64	Disabled	Off	none			controller
Captive Portal			wep128-profile	Static WEP keys	WEP128	Disabled	Off	none	-		controller
Guest Users				a contract							
Mac Filtering			wep64-in-nex-pronie	Static WEP Keys	WEP64	Disabled	Un	none			controller
Wireless IDS/IPS			wep128-in-hex-profile	Static WEP keys	WEP128	Disabled	Off	none			controller
Rogue APs			wpapsk-profile	WPA PSK	TKIP	Disabled	Off	none			controller
Air Shield											
AP Packet Capture											
Wired											
VLAN											
GRE											
Wireless											
Radio											
ESS											
Q05											
System Settings											
Devices											
System Settings											
Controller											
APs 🗸			1.1.4		1.1.1.1		Refresh	Add	Delete	Settings	w Details
	1		(S)	[3]	Ų[4]♥[1]		🌽 [1] 🗒 [0]		🕼 [0] 🛄 [2]	(03d:00h:46m:0	.25]

- 1. Connect to the controller using an internet browser. The address is 'http://<IP address of controller>'. Log in with your controller username and password.
- 2. Click on the 'Configuration' tab on the upper left hand corner of the screen.
- 3. Scroll down to the 'Security' section and click on the 'Profile' button. The screen above will now be shown.

WLAN Management	User: admin	Controller-172.26.96.35 8:21:34 AM CLI Save Help MCRU
Monitor	Security Profile Table - Add	
Maintenance		
Configuration System Config	Security Profile Name	Enter 1-32 chars., Required
Quick Start Security Profile	L2: Modes Allowed	Clear
Radius Captive Portal	Data Encrypt	
Mac Filtering	Primary RADIUS Profile Name	No Data for Primary RADIUS Profile Name
Vireless IDS/IPS	Secondary RADIUS Profile Name	No Data for Secondary RADIUS Profile Name
Rogue APs Air Shield	WEP Key (Alphanumeric/Hexadecimal)	
AP Packet Capture	Static WEP Key Index	1 Valid range: [1-4]
vīred VLAN	Re-Key Period (seconds)	0 Valid range: [0-65535]
GRE	Captive Portal	Disabled V
Vireless Radio	802.1X Network Initiation	On w
ESS	Shared Key Authentication	Off v
205 System Settings	Pre-shared Key (Alphanumeric/Hexadecimal)	
evices System Settings	Group Keying Interval (seconds)	0 Valid range: [0-65535]
Controller	Vay Dotation	Distance (Cancel

- 4. Click on the 'Add' button to add a security profile and the screen above will be shown.
- 5. Add the security profile name.
- 6. Select the allowed L2 mode.
- 7. Select the relevant data encryption mode
- 8. Enter the WEP key or preshared key depending upon the chosen L2 mode.
- 9. Click OK to locally save the security profile.

WI AN Management	-		User: admin				Controller-172.20	5.96.35 8:35:55 AM CLL Save	Help MERU
Monitor	V	LAN C	onfiguration (1 e	ntrv)					
Maintenance									
▼ Configuration	Γ		VLAN Name	Tag	Fast Ethernet Interface Index	IP Address	Netmask	IP Address of the Default Gateway	Owner
System Config	ľ	Search:							
Quick Start	ľ		gamers	1000	1	172.26.16.254	255.255.240.0	172.26.16.1	controller
Security	L			1					I
Prohie									
Radius									
Captive Portal									
Guest Users									
Mac Hitering									
Wireless IDS/IPS									
Air Shield									
AB Backet Cardure									
Weed									
VIAN									
GRE									
Wireless									
Radio									
ESS									
005									
System Settings									
Devices									
System Settings									
Controller									
APs 💉						Refresh	Add	Delete Cettings	View Details
@ [0] <mark>@</mark> [22] <mark>@</mark> [0]]		6 14	6 [8]		& [1] 🖥 [0]	6	[0] 🛱 [2] 🛛 🚳 [9	03d:01h:01m:57s]

10. Depending upon the design of the network, this step may be optional. If so, then skip to step 19. Otherwise, scroll down to the Wired section and click on the VLAN button to create a VLAN.

WLAN Management	User: admin	Controller-172.26.96.35 8:38:08 AM 🛄	Save Help MCRU
Monitor	VLAN Configuration - Add		
Maintenance	, and the second s		
 Configuration 	ULAN Name		
System Config	V CAN NAME	Enter 1-32 chars., Required	
Quick Start	Tag	Valid range: [1-4094], Required	
Security			
Profile	Fast Ethernet Interface Index	Valid range: [1-2]	
Radius	IP Address		
Captive Portal			
Guest Users	Netmask		
Mac Filtering	IP Address of the Default Gateway		
Wireless IDS/IPS			
Rogue APs	Override Default DHCP Server Flag	Off 💙	
Air Shield	DHCP Server IP Address		
AP Packet Capture			
Wired	DHCP Relay Pass-Through	On 💌	
VLAN			
GRE			
Wireless			
Radio			
ESS			
QoS			
System Settings			
Devices			
System Settings			
Controller			
APs 🛛 🔽		0	K Cancel

- 11. Click on the Add button to add a VLAN. The screen above should appear.
- 12. Input the VLAN name.
- 13. Input the VLAN tag number.
- 14. Input the IP address of the VLAN.
- 15. Input the subnet mask.
- 16. Input the default gateway.
- 17. Depending upon the DHCP server configuration, input the IP address of DHCP server if it is on a different subnet.
- 18. Click OK to locally save the VLAN configuration.

I ANIMonogomont						Control	er-172.26.96.35 8:42	41 AM CLI Sav	e Help Merrin
Mean Management	ECC De	user: admin							MCRU
Maintenance	ESSPI	onie (z entries)							
🕶 Configuration 🛛 🔥		ESS Profile Name	Enable/Disable	SSID	Security Profile Name	SSID Broadcast	Tunnel Interface Type	Dataplane Mode	Owner
/stem Config	Search:								
Quick Start		Proteus	Enable	proteus-demo	wpa2psk	On	No Tunnel	Tunneled	controller
curity			Frable		was 100 is have see file	0-	Configurad III ANI Only	Townshield	
Profile		gamers	Enable	gamers	wep120-In-nex-pronie	On	Configured VLAN Only	Tunnelea	concroller
Radius									
Captive Portal									
Guest Users									
Mac Filtering									
eless IDS/IPS									
Rogue APs									
Air Shield									
AP Packet Capture									
ed									
VLAN									
GRE									
eless									
Radio ESS									
5									
System Settings									
rices									
System Settings									
Controller									
APs 🗸					Ref	resh A	.dd Delete	Settings	View Detai
		kal.	-	10 to 10 to	And a	[0]	Cra Ora		[03d:01b:07m:57e]

19. Scroll down to the Wireless section and click on the ESS tab to create an ESS profile. A similar screen above should appear.

WLAN Management	User: admin	Controller-172.26.96.35 8:45:21 AM CLI Save Help MCRU
Monitor	ESS Profile - Add	
Maintenance		
▼ Configuration	ECC Drofile Name	Color (Colore - Device)
System Config	LSS Profile Marile	Enter 1-32 chars., Required
Quick Start	Enable/Disable	Enable 💙
Security		
Profile	SSID	Enter 0-32 chars.
Radius Castila Dantal	Security Profile Name	default Y
Captive Portal	Primary RADTI IS Accounting Server	
Mac Elboring	Thinking to be been and be to	No Data for Primary RADIUS Accounting Server
Hide Hitering	Secondary RADIUS Accounting Server	No Data for Secondary RADIUS Accounting Server
Wireless IDS/IPS Roque APs	Accounting Interim Interval (seconds)	3600 Valid range: [600-36000]
Air Shield		
AP Parket Canture	Beacon Interval (msec)	100 Valid range: [20-1000]
Wired	SSID Broadcast	On 🗸
VLAN	Duidaina	
GRE	onagiirg	AirFortress I IPV6 AppleTalk
Wireless	New AP's Join ESS	On 💌
Radio	Tunnal Interface Tune	No. There is a second sec
ESS	ramo incoraco rypo	No Tunnel
QoS	VLAN Name	No VLAN 😪
System Settings	GRE Tunnel Profile Name	No Polo for 2011 Transl North Maria
Devices		No Data toi take Tointe Pronie Name
System Settings	Allow Multicast Flag	off 💌
Controller		
APs 🐱		OK Cancel
@ [0] <mark>@</mark> [12] <mark>@</mark> [0]		11 Setul 101 Com Br21 SetUlut 110:57:1

- 20. Click on the Add button and the screen above should appear.
- 21. Input the ESS profile name.
- 22. Input the SSID.
- 23. Input the security profile that was created earlier.
- 24. Turn off 'New APs Join ESS'.
- 25. If a VLAN is to be used in this profile, change the Tunnel Interface Type to configured VLAN only.
- 26. Select the VLAN name from the VLAN name pull down menu.

WI AN Management	llsar: admin	Controller-172.26.96.35 8:56:37 AM CLI Save Help MERU	
Monitor		🗹 6 Mbps 🗹 9 Mbps 🗹 12 Mbps 🗹 18 Mbps	^
Maintenance	G base Transmit Rates (Mbps)	🗹 24 Mbps 🗹 36 Mbps 🗹 48 Mbps 🗹 54 Mbps	
▼ Configuration			
System Config		🗹 1 Mbps 🗹 2 Mbps 🗹 5.5 Mbps 🗹 11 Mbps	
Quick Start	BG Supported Transmit Rates (Mbps)	🗹 6 Mbps 🗹 9 Mbps 🗹 12 Mbps 🗹 18 Mbps	
Security		💌 24 Mbps 🖭 36 Mbps 🖭 48 Mbps 🖭 54 Mbps	
Profile		E cut E out E cout M cout	
Radius	DC Door Turnersk Datas (March	6 Mbas 0 Mbas 12 Mbas 12 Mbas	
Captive Portal	ba base Transmic Rates (mups)	24 Mbps 36 Mbps 48 Mbps 54 Mbps	
Guest Users			
Mac Filtering		V 1 Mbps V 2 Mbps V 5.5 Mbps V 11 Mbps	
Wireless IDS/IPS	BGN Supported Transmit Rates (Mbps)	🗹 6 Mbps 🗹 9 Mbps 🗹 12 Mbps 🗹 18 Mbps	
Rogue APs		🗹 24 Mbps 🗹 36 Mbps 🗹 48 Mbps 🗹 54 Mbps	
Air Shield			
AP Packet Capture		🔲 1 Mbps 📃 2 Mbps 💭 5.5 Mbps 🗹 11 Mbps	
Wired	BGN Base Transmit Rates (Mbps)	🗌 6 Mbps 📃 9 Mbps 📃 12 Mbps 📃 18 Mbps	
VLAN		24 Mbps 36 Mbps 48 Mbps 54 Mbps	
GRE			
Wireless		MCS 0 MCS 1 MCS 2 MCS 3	
Radio	BGN Supported HT Transmit Rates (MCS)		
ESS			
QoS			
System Settings			
Devices		MCS 4 MCS 5 MCS 6 MCS 7	
System Settings	BGN Base HT Transmit Rates (MCS)	MCS 8 MCS 9 MCS 10 MCS 11	
Controller			~
APs 💌		OK Cancel	
@ [0] <mark>@</mark> [14] @ [0]	₩ej₩esj ₩tijΦtij	[1] [0] [2] [03d:01h:21m:57s]	

- 27. Scroll down the page until the screen looks like the above screen shot.
- 28. The default mode of operation of the Meru APs in the 2.4 Ghz spectrum is 802.11bgn mode. The other possible modes are: 802.11b, 802.11g, or 802.11bg. By default, the base transmit rates are only set to 11mb for 802.11b, 802.11bg, and 802.11bgn. In order to support the Nintendo Wii, the base transmit rates must be changed to include 1mb, 2mb, and 5.5mb.
- 29. Click the OK button to save the ESS profile locally.
- 30. Click on the save button to save the configuration to the flash drive of the controller.
- 31. Complete the following steps to create the Virtual Cell overflow ESS profile. Go to the Wireless section and click on the ESS button.

WLAN Management	t	admin@172.26.96.35 level:15 10:36:52 PM CLI Save Logout Help MCRU
Monitor	ESS Profile - Add	<u>^</u>
Maintenance		
▼ Configuration ▲	PPP Durffe Manua	
System Config	ESS Profile Name	Enter 1-32 chars., Required
Quick Start	Enable/Disable	Enable 👻
Security		
Profile	SSID	Enter 0-32 chars.
Radius	Security Profile Name	default.
Captive Portal		
Guest Users	Primary RADIUS Accounting Server	No Data for Primary RADIUS Accounting Server
Mac Filtering	Secondary RADIUS Accounting Server	No Data for Secondary RADIUS Accounting Server
Wireless IDS/IPS	Accounting Takeyin Takey (accords)	3000 Ukhuman Free organi
Rogue APs	Accounting Internet Interval (seconds)	3000 Valid range: [600-36000]
Air Shield	Beacon Interval (msec)	100 Valid range: [20-1000]
AP Packet Capture	CTD Dura durat	
Wired	SSID producast	On 📉
VLAN	Bridging	AirFortress IPV6 AppleTalk
GRE	New AD's Jain ESS	
Wireless	NOW AFS JUIT COD	On M
Radio	Tunnel Interface Type	No Tunnel 😪
ESS		
QoS	VLAIV IVame	No VLAN M
System Settings	GRE Tunnel Profile Name	No Data for GRE Tunnel Profile Name
Devices	Allow Multicast Filma	
System Settings	MIGW PILICES, FIEg	UII M
Controller	clask chask palks -	···· ·
APs 🖌		OK Cancel
@ [0] <mark>@</mark> [5] <mark>@</mark> [1]		🚳 [0] 🕼 [0] 🕼 [2] 🚫 [01d:20h:16m:49s]

- 32. Click on the Add button and the screen above should appear.
- 33. Input the ESS profile name. This profile name must be different from the name entered in step 21.
- 34. Input the same SSID that was entered in step 22.
- 35. Input the security profile that was created earlier.
- 36. If a VLAN is to be used in this profile, change the Tunnel Interface Type to configured VLAN only.

WLAN Management		admin@172.26.96.35 level:15 10:42:43 PM	CLI Save Loqout Help MCRU
Monitor	Allow Multicast Flag	off V	<u> </u>
Maintenance			
Configuration	Silent Client Polling	Off 💙	
System Config Quick Start	Virtual Cell	On 💌	
Security Profile	Virtual Port	On 💌	
Radius	Overflow from	No ESS 🗸	
Captive Portal Guest Lisers	WMM Support	No ESS Proteus	
Mac Filtering	APSD Support	on v	
Wireless IDS/IPS Rogue APs	DTIM Period (number of beacons)	1 Valid range: [1-255]	
Air Shield	Dataplane Mode	Tunneled 💌	
AP Packet Capture	AP VLAN Tag	0 Valid range: [0-4094]	
VLAN	AP VLAN Priority	v 110	
GRE	Countermeasure	On 💌	
Radio	Multicast MAC Transparency	Off V	
QoS	Band Steering Mode	Band Steering Disable 💌	
System Settings	Band Steering Timeout(seconds)	5 Valid range: [1-65535]	
Devices System Settings	Expedited Forward Override	V 110	~
<u>Controller</u>			
Ars (0)(5)(1)		♣(0) ඕ [0]	[01di20hi20mi49s]

- 37. Scroll down the page until the screen looks like the above screen shot.
- 38. Click on the 'Overflow from' pull-down menu and select the ESS profile that was created in step 21.
- 39. Click on the OK button to save the ESS profile locally.

	t			admin	@172.26.96.35	level:15 11:36:51 PM	CLI Save Logout	Help MCRU
Monitor	ESS-AP Configuration	n (4 entries)						
Maintenance								
Configuration	ESS Profile ESS-AP Ta	able Security P	rotiles					,
Stem Config	ESS Profile	AP ID	AP Name	Interface Index	Channel	Admin State	Max Calls	BSSID
Quick Start	Search:							
Profile	gamers 🤤	1	AP-1	1	1	Up	0	00:0c:e6:eb:72:24
Radius	gamers	1	AP-1	2	153	Up	0	00:0c:e6:47:a4:98
Captive Portal	gamers	2	AP-2	1	1	Up	0	00:0c:e6:eb:72:24
Guest Users	gamers	2	AP-2	2	153	Up	0	00:0c:e6:47:a4:98
Mac Filtering								1
AP Packet Capture ed VLAN GRE								
ala an								
Dada								
Radio								
Radio								
Radio ESS System Settings								
Radio ESS								
Radio								

- 40. Click on the ESS button on the left side.
- 41. Select the Virtual Cell overflow ESS profile by clicking on the adjacent red arrow box.
- 42. Click on the ESS-AP Table tab to add the APs to this ESS profile if the APs are not in the ESS-AP table. The screen above should appear.
- 43. Click on the save button to save the configuration to the flash drive of the controller.
- 44. You are now ready to configure and test the gaming consoles. Refer to the screens and documentation of each gaming console to configure the SSID and wireless encryption modes.

3. SUMMARY

This deployment document outlined the configuration steps required to support gaming consoles on Meru Networks controllers and access points. To support the Sony Playstation 3, ESS profiles must have Virtual Port and Virtual Cell disabled due to its unique MAC address change during the AP association phase. To support the Nintendo Wii, transmit data rates must be added. To support both of the Nintendo Wii and Xbox 360, Virtual Port can be enabled or disabled.