

### Mount the Array

8. Mount the Wi-Fi Array to the Wall Mounting Bracket by positioning the key post (on the underside of the mounting bracket) into the key receptacle on the underside of the Array.

When the key post is properly located, gently turn the Array in a clockwise direction to secure the Array to the mounting plate.



Figure 55. Mounting the Array on a Wall



#### **Removing the Array**

To remove the Array from the Wall Mount Assembly, simply apply a little upward pressure to the Array, then gently turn the Array in a counterclockwise direction to release the unit from the bracket.

#### See Also

Installation Workflow Installing Your Wi-Fi Array Mounting Array on a Wall (All models except 4-port Arrays) Mounting the Array on a Ceiling Securing the Array

## Powering Up the Wi-Fi Array

When powering up, the Array follows a specific sequence of LED patterns showing the boot progress, and following a successful boot will provide extensive status information.



Figure 56. LED Locations (XS-3900)

Array LED settings may be altered or disabled entirely for diagnostic purposes or for personal preference. Changes are made via the Array's Command Line Interface or the Web Management Interface—refer to "LED Settings" on page 283.



## Array LED Operating Sequences

Use the following tables to review the operating sequences of the Array's LEDs.

## **LED Boot Sequence**

The normal boot LED sequence is as follows:

Array Activity	Status LED	IAP LEDs
Power ON	Blinking GREEN	All OFF
Boot loader power ON self-test	Blinking GREEN	All ON
Image load from compact FLASH	Blinking GREEN	Spinning pattern (rotate all to ON, then all to OFF)
Image load failure	Blinking RED	All OFF
Hand off to ArrayOS	Solid GREEN	All OFF
System software initialization	Solid GREEN	Walking pattern (LED rotating one position per second)
Up and running	Solid GREEN	ON for IAPs that are up, and OFF for IAPs that are down



## LED Operation when Array is Running

The normal LED operation when the Array is running is as follows:

LED Status	Reason
IAP LED is OFF	IAP is down
IAP LED is solid ON	IAP is up, but no associations and no traffic
IAP LED heartbeat	IAP is up, with stations associated but no traffic
IAP LED flashing	IAP is up, passing traffic
Flashing at 10 Hz	Traffic > 1500 packets/sec
Flashing at 5 Hz	Traffic > 150 packets/sec
Flashing at 2.5 Hz	Traffic > 1 packet/sec
IAP LED is GREEN	IAP is operating in the 2.4 GHz band
IAP LED is ORANGE	IAP is operating in the 5 GHz band
IAP LED flashing ORANGE to	IAP <b>abg(n)2</b> is in monitor mode
GREEN at 1 Hz	(standard intrude detect)
Ethernet LEDs are dual color	
Ethernet LED is ORANGE	Transferring data at 1 Gbps
Ethernet LED is GREEN	Transferring data at 10/100 Mbps

#### See Also

Installation Prerequisites Installation Workflow Installing Your Wi-Fi Array

# XIRRUS

# Establishing Communication with the Array

The Array can be configured through the Command Line Interface (CLI) or the graphical Web Management Interface (WMI). You can use the CLI via the serial management port, the Fast Ethernet port, or either of the Gigabit Ethernet ports. You can use the WMI via any of the Array's Ethernet ports.



Figure 57. Network Interface Ports

## Using the Serial Port

If using the serial port to make your connection, use serial settings of 8 bits, no parity, no flow control, 1 stop bit (8N1) and a speed setting of 115200 baud. Use the communication package of your choice.

# Using the Ethernet Ports

By default, the Array's Ethernet interfaces use DHCP to obtain an IP address. If the Array is booted and does not receive DHCP addresses on either the Fast Ethernet or Gigabit Ethernet ports, the Fast Ethernet port will default to an IP address of 10.0.1.1 and both Gigabit Ethernet ports will default to 10.0.2.1. If the Array is connected to a network that provides DHCP addresses, the IP address can be determined by the following two methods:

- **1.** Examine the DHCP tables on the server and find the addresses assigned to the Array (Xirrus MAC addresses begin with 000F7D).
- 2. Query the Array using the CLI via the serial port. Use the **show ethernet** command to view the IP addresses assigned to each port.



## Logging In

When logging in to the Array, use the default user name and password—the default user name is **admin**, and the default password is **admin**.

#### See Also

Installation Workflow Performing the Express Setup Procedure Powering Up the Wi-Fi Array

# Performing the Express Setup Procedure

The Express Setup procedure establishes global configuration settings that enable basic Array functionality. Changes made in this window will affect all radios.

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		Encoder 1	

Figure 58. Express Setup

## Procedure for Performing an Express Setup

1. Host Name: Specify a unique host name for this Array. The host name is used to identify the Array on the network. Use a name that will be meaningful within your network environment, up to 64 alphanumeric characters. The default is **Xirrus-WiFi-Array**.



- 2. Location Information: Enter a brief but meaningful description that accurately defines the physical location of the Array. In an environment where multiple units are installed, clear definitions for their locations are important if you want to identify a specific unit.
- **3.** Admin Contact: Enter the name and contact information of the person who is responsible for administering the Array at the designated location.
- **4. Admin Email**: Enter the email address of the admin contact you entered in Step 3.
- 5. Admin Phone: Enter the telephone number of the admin contact you entered in Step 3.
- 6. Configure **SNMP**: Select whether to **Enable** SNMP on the Array, and set the **SNMP Read-Write Community String**. The factory default value for this is **xirrus**. If you are using the Xirrus Management System (XMS), this string must match the string used by XMS.
- 7. Configure the **Fast Ethernet** (10/100 Megabit), **Gigabit 1** and **Gigabit 2** network interfaces. The fields for each of these interfaces are the same, and include:
  - **a. Enable Interface**: Choose **Yes** to enable this network interface, or choose **No** to disable the interface.
  - **b.** Allow Management on Interface: Choose Yes to allow management of the Array via this network interface, or choose No to deny all management privileges for this interface.
  - **c. Configuration Server Protocol**: Choose **DHCP** to instruct the Array to use DHCP to assign IP addresses to the Array's Ethernet interfaces, or choose **Static** if you intend to enter IP addresses manually. If you choose the Static IP option, you must enter the following information:
    - **IP Address**: Enter a valid IP address for this Array. To use any of the remote connections (Web, SNMP, or SSH), a valid IP address must be used.
    - **IP Subnet Mask**: Enter a valid IP address for the subnet mask (the default is 255.255.255.0). The subnet mask defines the



number of IP addresses that are available on the routed subnet where the Array is located.

- **Default Gateway**: Enter a valid IP address for the default gateway. This is the IP address of the router that the Array uses to forward data to other networks.
- **8. SSID Settings**: This section specifies the wireless network name and security settings.
  - a. **SSID (Wireless Network Name)**: The SSID (Service Set Identifier) is a unique name that identifies a wireless network. All devices attempting to connect to a specific WLAN must use the same SSID. The default for this field is "**xirrus**."

For additional information about SSIDs, go to the Multiple SSIDs section of "Frequently Asked Questions" on page 400.

- b. Wireless Security: Select the desired wireless security scheme (Open, WEP, WPA, WPA2, or WPA-Both). WPA2 is recommended for the best Wi-Fi security.
  - **Open**—This option offers no data encryption and is not recommended, though you might choose this option if clients are required to use a VPN connection through a secure SSH utility, like PuTTy.
  - **WEP** (Wired Equivalent Privacy)—An optional IEEE 802.11 function that offers frame transmission privacy similar to a wired network. WEP generates secret shared encryption keys that both source and destination stations can use to alter frame bits to avoid disclosure to eavesdroppers.
  - **WPA** (Wi-Fi Protected Access)—A Wi-Fi Alliance standard that contains a subset of the IEEE 802.11i standard, using TKIP or AES as an encryption method and 802.1x for authentication.
  - WPA2 (Wi-Fi Protected Access 2)—WPA2 is the follow-on security method to WPA for wireless networks and provides stronger data protection and network access control. It offers Enterprise and consumer Wi-Fi users with a high level of



assurance that only authorized users can access their wireless networks. Like WPA, WPA2 is designed to secure all versions of 802.11 devices, including 802.11a, 802.11b, 802.11g, and 802.11n, multi-band and multi-mode.

• **WPA-Both** (WPA and WPA2)—This option makes use of both WPA and WPA2.

For more information about security, including a full review of all security options and settings, go to "Understanding Security" on page 208.

- **c. Wireless Key/Passphrase**: Depending on the wireless security scheme you selected, enter a unique WEP key or WPA passphrase.
- **d. Confirm Key/Passphrase**: If you entered a WEP key or WPA passphrase, confirm it here.
- **9.** Admin Settings: This section allows you to change the default password for the Array. Note that the Array also offers the option of authenticating administrators using a RADIUS server (see "Admin Management" on page 213).
  - a. New Admin Password: If desired, enter a new administration password for managing this Array. Choose a password that is not obvious, and one that you can remember. If you forget your password, you must reset the Array to its factory defaults so that the password is reset to admin (its default setting).
  - **b. Confirm Admin Password**: If you entered a new administration password, confirm the new password here.
- **10. Time and Date Settings:** This section specifies an optional time (NTP Network Time Protocol) server or modifies the system time if you're not using a server.
  - **a. Time Zone**: Select your time zone from the choices available in the pull-down list.
  - **b. Use Network Time Protocol**: Check this box if you want to use an NTP server to synchronize the Array's clock. This ensures that Syslog

# XIRRUS

time-stamping is maintained across all units. Without an NTP server assigned (no universal clock), each Array will use its own internal clock and stamp times accordingly, which may result in discrepancies. If you check **Yes**, the NTP server fields are displayed. If you don't want to use an NTP server, leave this box unchecked (default) and set the system time on the Array manually.

- **c. NTP Primary Server**: If you are using NTP, enter the IP address or domain name of the NTP server.
- **d. NTP Secondary Server**: Enter the IP address or domain name of an optional secondary NTP server to be used in case the Array is unable to contact the primary server.
- e. Set Time (hrs:min:sec): If you are not using NTP, check this box if you want to adjust the current system time. When the box is checked, the time fields become active. Enter the revised time (hours, minutes, seconds, am/pm) in the corresponding fields. If you don't want to adjust the current time, this box should be left unchecked (default).
- f. Set Date (month/day/year): If you are not using NTP, check this box if you want to adjust the current system date. When the box is checked, the date fields become active. Enter the revised date (month, day and year) in the corresponding fields. If you don't want to adjust the current date, this box should be left unchecked (default).
- g. Auto Adjust Daylight Savings: If you are not using NTP, check this box if you want the system to adjust for daylight savings automatically, otherwise leave this box unchecked (default).



### **11. IAP Settings:**

**Enable/Configure All IAPs**: Click on the **Execute** button to enable and auto configure all IAPs (a message displays the countdown time—in seconds—to complete the auto-configuration task). When an IAP is enabled, its LED is switched on.



Figure 59. LEDs are Switched On

- **12**. Click on the **Apply** button to apply the new settings to this session
- **13.** Click on the **Save** button to save your changes (otherwise your new settings will not take effect).

This ends the Express Setup procedure.

#### See Also

Establishing Communication with the Array Installation Prerequisites Installation Workflow Logging In Multiple SSIDs Security



# **The Web Management Interface**

This topic provides an overview of the Xirrus Wi-Fi Array's embedded Web Management Interface (WMI), used for establishing your network's configuration settings and wireless operating parameters. It also includes login instructions. The following topics are discussed:

- An Overview
- Structure of the WMI
- User Interface
- Logging In
- Applying Configuration Changes



## An Overview

The WMI is an easy-to-use graphical interface to your Wi-Fi Array. It allows you to configure the product to suit your individual requirements and ensure that the unit functions efficiently and effectively.

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Figure 60. Web Management Interface



# Structure of the WMI

The content of the WMI is organized by function and hierarchy, shown in the following table. Click on any item below to jump to the referenced destination.

Status Windows	Configuration Windows (cont'd)
Array Status Windows	Services
Array Summary	Time Settings (NTP)
Array Information	NetFlow
Array Configuration	System Log
Admin History	SNMP
Network Status Windows	DHCP Server
Network Map	VLANs
Spanning Tree Status	VLAN Management
Routing Table	Security
ARP Table	Admin Management
DHCP Leases	Admin RADIUS
Connection Tracking/NAT	Management Control
CDP Neighbors	Access Control List
<b>RF Monitor Windows</b>	Global Settings
IAPs	External Radius
Spectrum Analyzer	Internal Radius
Intrusion Detection	Rogue Control List
Station Status Windows	SSIDs
Stations	SSID Management
Location Map	Groups
RSSI	Group Management
Signal-to-Noise Ratio (SNR)	IAPs
Noise Floor	IAP Settings
Max by IAP	Global Settings (IAP)
Configuration Windows	Global Settings .11a
Express Setup	Global Settings .11bg
Network	Global Settings .11n
Network Interfaces	Advanced RF Settings
DNS Settings	LED Settings
CDB Settings	WDS
CDF Settlings	WDS Client Links
	Filters
	Filter Lists
	Filter Management



Statistics Windows IAP Statistics Summary Per-IAP Statistics Network Statistics VLAN Statistics WDS Statistics	System Log Window Tool Windows System Tools CLI Logout
VLAN Statistics WDS Statistics Filter Statistics Station Statistics Per-Station Statistics	CLI Logout



## **User Interface**

The WMI has been designed with simplicity in mind, making navigation quick and easy. In the following example, you'll see that windows are divided into left and right frames.

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Figure 61. WMI: Frames



The left frame contains three main elements:

- Configuration menu organized by function (for example, radio interfaces, security, etc.). Click the heading to display a summary of its current configuration, as well as an associated pull-down menu.
- Three counters are located at the bottom of the menu. They provide a running total of messages generated by the ArrayOS Syslog subsystem during your session—organized into **Critical**, **Warning**, and **General** messages. Click on a counter to display the associated Syslog messages. Messages at the selected level or higher will be shown.
- The Array representation contains shortcut links. Click a radio to view statistics for it. Click the center of the Array to display the IAP Settings window, which allows you to configure the Array's radios.

The right frame displays the status information or configuration parameters for the Wi-Fi Array. This is where you review the Array's current status and activity or input data (if you want to make changes). The green Array information bar at the top of the frame describes the Array—the Name and IP address allow you to quickly confirm that WMI is connected to the correct Array. The current Uptime since the last reboot is also shown.

### **Utility Buttons**

At the bottom of each window you will find a set of useful buttons—a **Feedback** button, a **Print** button and a **Help** button.







- Click on the Feedback button to generate a Web page that allows you to submit your comments to Xirrus, Inc. You can also access the feedback page at http://www.xirrus.com/public/feedback/. Refer to Figure 63 on page 125 to see a sample of the feedback form.
- Click on the **Print** button to send a print file of the active window to your local printer.
- Click on the Help button to access the Array's online help system.

#### Submitting Your Comments

When submitting comments via the Feedback button, ensure that you provide as much detail as possible, including your contact information, the product model number that the comment relates to, and the ArrayOS software version (if known). When finished, click on the **Submit** button to submit your comment.

XIRRUS	Switching Without	Wires	Connect ( MER.Free)
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Figure 63. Feedback Form



# Logging In

Use this procedure to log in to the WMI via your Web browser.

- 1. Establish a network connection and open your Web browser.
- 2. Connect to the Wi-Fi Array via its default IP address (10.0.2.1 for both Gigabit 1 and Gigabit 2 Ethernet ports) or via a DHCP assigned IP address.
- **3.** To log in to the Array's Web Management Interface, enter **admin** when prompted for a user name and password.

XS-3900 Wi-Fi Array		XIRRUS
Current Status:	Logged Out	
User Name:	admin	
User Password:		
		Logn
10		

Figure 64. Logging In to the Wi-Fi Array

# **Applying Configuration Changes**

When you have defined all your settings in any WMI configuration window, you must click on the **Apply** button for the changes to take effect in the current session, or click on the **Save** button to apply changes to this session and write your changes, so they will be preserved after a reboot.

## **Character Restrictions**

When inputting strings in the WMI (for example, assigning SSIDs, host name, password, etc.), use only common alphanumeric characters. Do not use any of the following characters:

& < > ' " / \

*See Also* Key Features and Benefits Wi-Fi Array Product Overview



# Viewing Status on the Wi-Fi Array

These windows provide status information and statistics for your Array using the product's embedded Web Management Interface (WMI). You cannot make configuration changes to your Array from these windows. The following topics have been organized into functional areas that reflect the flow and content of the Status section of the navigation tree in the left frame of the WMI.

- "Array Status Windows" on page 127
- "Network Status Windows" on page 134
- "RF Monitor Windows" on page 141
- "Station Status Windows" on page 149
- "Statistics Windows" on page 163
- "System Log Window" on page 171

Configuration and Tools windows are not discussed here. For information on these windows, please see:

- "Configuring the Wi-Fi Array" on page 173
- "Using Tools on the Wi-Fi Array" on page 295

# **Array Status Windows**

The following Array Status windows are available:

- Array Summary—displays information on the configuration of all Array interfaces, including IAPs.
- Array Information—provides version/serial number information for all Array components.
- Array Configuration—shows all configuration information for the Array in text format.
- Admin History—shows all current and past logins since the last reboot.



## Array Summary

This is a status only window that provides a snapshot of the global configuration settings for all Wi-Fi Array network interfaces and IAPs. You must go to the appropriate configuration window to make changes to any of the settings displayed here—configuration changes cannot be made from this window. Clicking on an interface or IAP will take you to the proper window for making configuration changes.

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Configuration			Enable	d	цр	Enabled	192,168,36	200	255 255 255 0	19	2 168 36 1		
Network	Gigal	hit Eth	ernet 2		Enabled		down	Enabled	192 168 36	5.200	255.255.255.0	- 19	2 168 36 1
RF Montor	Integ	rated	Access	Points									
Statistics	IAP	State	Cha	nnel	Antenna	Cell Size	TX Power	RX Threshold	Stations	WDS Link	MAC Addre BSSID	ss /	Descriptio
System Log	abg1	up	-11	auto.	int-dir	max	20	-90	1.		00 01 74 03 6	b:21	
onfiguration	abg2	up	monitor		int-amni	manual	20	-95	0	_	00 0f.7d 03 6	b 61	
Express Setup	abg3	up	1	auto.	int-dir	max	20	-90	0		00.0f7d:03.6	aut	
Network	abg4	UP.	6		int-dir	max	20	-90	0		00.0F7d.03.6	a.e1	
Senices	a1	. iip	36		int-dir	max.	20	-90	0	-	00.0f.7d 03.6	b 11	
VLANS	a2	up	153	auto	int-dir	max	20	-90	0	-	00 Of 7d 03 6	b 31	
Security	83	dout	36		int-dir	17181	20	.50	0	-	00 Of 7d 03.6	b 41	
SSO	a4	UP.	44	puto	int-dir	max	20	-90	0		00 0f 7d 03 6	b.51	
WPs .	a5	up	161	manual	int-de	max	20	-90	0		00.0f.7d 03.6	b 71	
WDa	<b>a6</b>	down	40		int de	max	20	-90	0	-	00 Of 78 03 6	a.01	
	a7	-up	149	auto	int-dir	max	20	-90	0	-	00.0f.7d 03.6	a.91	
	a8	Ligi .	40	auto	int-dir	max	20	-90	0		00 0f 7d 03 6	a b1	
System room	49	dawn	158 ·	manual	int-de	1144	20	-90	0	_	00.017±03.6	12.8	
a second	a10	MD	157	auto	int-dir	max.	20	-90	0	_	00 0f 7d 03 6	a:d1	-
LOYOUT	a11	up	48	auto	int-de	max	20	-90	0		00 OF 7d 03 8	is ft	
. ALZ .	a12	down	48		int-dir	max	20	-196	8		00 0f 7d 83 6	b 81	

Figure 65. Array Summary

#### Content of the Array Summary Window

The Array Summary window is sub-divided into the **Ethernet Interfaces** section and the **Integrated Access Points** (radio) section, providing you with the following information:

### • Ethernet Interfaces Section

This section provides information about network interface devices. To make configuration changes to these devices, go to "Network Interfaces" on page 181.

- **Interface**: Lists the network interfaces that are available on the Array (10/100 Ethernet 0, Gigabit Ethernet 1 and Gigabit Ethernet 2).
- **Status**: Shows the current state of each interface, either enabled or disabled.
- Link: Shows whether the link on this interface is up or down.
- **DHCP**: Shows whether DHCP on this port is enabled or disabled.
- **IP Address**: Shows the current IP address assigned to each network interface device.
- **Subnet Mask**: Shows the subnet mask, which defines the number of IP addresses that are available on the routed subnet where the Array is located.
- **Gateway**: Shows the IP address of the router that the Array uses to transmit data to other networks.

### Integrated Access Points Section

This section provides information about the Integrated Access Points (IAPs) that are contained within the Array. How many IAPs are listed depends on which product model you are using (16 IAPs for the XN16, XS16, or XS-3900, 12 IAPs for the XN12, or XS12, 8 IAPs for the XN8, XS8, or XS-3700, and 4 IAPs for the XN4, XS4 or XS-3500). To make configuration changes to these IAPs, go to "IAP Settings" on page 254.

• **IAP**: Lists the IAPs that are available on the Array.



• **State**: Shows the current state of each IAP, either up or down. IAPs that are down are shown in RED. Figure 66 shows an example where IAP **a3** is down.

Integ	grated	Access	Points								
IAP	State	Cha	nnel	Antenna	Cell Size	TX Power	RX Threshold	Stations	WDS Link	MAC Address / BSSID	Description
abg1	up	11	auto	int-dir	max	20	-90	1		00:0f:7d:03:6b:21	
abg2	up	monitor		int-omni	manual	20	-95	0		00:0f:7d:03:6b:61	
abg3	up	1	auto	int-dir	max	20	-90	0		00:0f:7d:03:6a:a1	
abg4	up	6		int-dir	max	20	-90	0		00:0f:7d:03:6a:e1	
a1	up	36		int-dir	max	20	-90	0		00:0f:7d:03:6b:11	
a2	up	153	auto	int-dir	max	20	-90	0		00:0f:7d:03:6b:31	
a3	down	36		int-dir	max	20	-90	0		00:0f:7d:03:6b:41	
a4	up	- 44	auto	int-dir	max	20	-90	0		00:0f:7d:03:6b:51	
a5	up	161	manual	int-dir	max	20	-90	0		00:0f:7d:03:6b:71	
a6	down	40		int-dir	max	20	-90	0		00:0f:7d:03:6a:81	
a7	up	149	auto	int-dir	max	20	-90	0		00:0f:7d:03:6a:91	
<b>a</b> 8	up	40	auto	int-dir	max	20	-90	0		00:0f:7d:03:6a:b1	

Figure 66. Disabled IAP (Partial View)

- **Channel**: Shows which channel each IAP is using, and the channel setting. To avoid co-channel interference, adjacent radios should not be using adjacent channels. To make channel selections for a specific IAP, go to "IAP Settings" on page 254.
- Antenna: Shows which antenna is being used by each IAP.
- **Cell Size**: Indicates which cell size setting is currently active for each IAP—small, medium, large, max, automatic, or manually defined by you. The cell size of an IAP is a function of its transmit power and determines the IAP's overall coverage. To define cell sizes, go to "IAP Settings" on page 254. For additional information about cell sizes and the importance of planning for and defining the optimum cell sizes for your Array, go to "Coverage and Capacity Planning" on page 50.





Figure 67. IAP Cells

- **Tx Power**: Shows the transit power for each IAP.
- **Rx Threshold**: Shows the receive threshold for each IAP.
- **Stations**: Informs you how many client stations are currently associated with each IAP. The high-capacity XN16, XS16, or XS-3900 can handle up to 64 concurrent users per individual IAP (1024 users per Array, or 960 when the monitor **abg(n)2** is enabled).
- WDS Link: The WDS Link on this radio (if any). See "WDS" on page 285.
- MAC Address/BSSID: Shows the MAC address for each IAP.
- **Description**: The description (if any) that you set for this IAP.



## Array Information

This is a status only window that shows you the current firmware versions utilized by the Array, the serial numbers assigned to each module, and MAC addresses.

You cannot make configuration changes in this window, but if you are experiencing issues with network services, you may want to print the content of this window for your records.

Status			(0	ptime - 0 days, 4 hours, 11 min			
Anny	Model	XS-3900, 512MB (825MHz)					
Information	Component	Part Number	Serial Number	Date			
in of it in order	Array	Array 180-0001-001 XS39220500078		2007-Dec-06 14:09			
Network	Controller	100-0024-001 B1	0000016795	2005-May-19 20:34			
RF Monitor	IAP Module 1	100-0013-003.C	000002157	2005-May-25 14:28			
Stations	IAP Module 2	100-0013-005 B1	000000648	2006-May-23 17:39			
Statistics	IAP Module 3	100-0013-003.C	000002144	2006-May-25 16:19			
Event Log	LAP Module 4	100-0013-003.C	000002156	2006-May-25 15:45			
onfiguration	EPGA Status	Boot Venior		S/W Version			
Express Setup	Queue Control/FTE	0.009		0.016			
Network	Encryption Engine	0.002		0.005			
Senices	Multi-Channel MAC	0.057		0.076			
VLANS	TRACE AND ADDRESS OF THE OWNER		and the second second	2412000			
Security	Interface		MAC Address(es)				
SS0	Ethernet 10/100 MAC		00.0f7d.00.41.9b				
MPs .	Gigabit 1 MAC		00:0f 7d:00:41:5c				
WOS	Gigabit 2 MAC		00 0f 7d 00 41 9d				
Filters	IAP MAC Range		00 0f 7d 03 6a 80-03 6b 7f				
ools	Component		Version				
System Tools	Best Loader		1.0./Aux 13.2007) Euclid 300	1			
a	IAP Driver		1.0 (hug 13 2007) Guid 300				
Legout	Contract Contract		2 2 11 - 20 2000), Dulle 3/2	19 ·			



## Array Configuration

This is a status only window that allows you to display the configuration settings assigned to the Array, based on the following filter options:

- **Running**—displays the current configuration (the one running now).
- **Saved**—displays the saved configuration from this session.
- **Lastboot**—displays the configuration as it was after the last reboot.



• **Factory**—displays the configuration established at the factory.

XS-3900 Wi-Fi Array	1						xir	RRUS
Status					Uptime	-1 day,	19 hours	s, 41 minutes
• Anny	Select Config	Running 🛩	Include	Defaults	Select Diff	None	*	
Configuration	t configure							^
P Network	hostname mmu-16p	att-2						
Stations	hardware-config	uration						
Statistics     Event Loo	! Model: X3-390	0, 51285 (	125M2fz)					
Configuration Express Setup	1 component 1 Array	180-0001-	-001	serial number XS39220500078	date 2007-Jun-27 01:43			
<ul> <li>Network</li> <li>Services</li> </ul>	<pre>/ controller / iap module 1 / iap module 2</pre>	100-0024 100-0013 100-0013	-001.81 -003.C -005.81	0000016795 0000002157 00000006688	2005-May-19 20:34 2006-May-25 14:28 2006-May-23 17:39			
Security	1 iap module 3 1 iap module 4	100-0013	000.C	0000002144 0000002156	2006-May-25 16:19 2006-May-25 15:45			
WPs	fpga status	boot	t version	s/w version				
e WDS Filters	gueue control	/fte gine	0.009	0.016				
Tools	! multi-channel	mac	0.057	0.076				
CU CU	1 interface	nac address	r (e.s)					
Legent	<pre>! isps ! ethernet 0 ! gigabit 1</pre>	00:0f:7d:0 00:0f:7d:0 00:0f:7d:0	3:6a:80-0 0:41:9b 0:41:9c	3:6b:7£				

Figure 69. Show Configuration

If you want to see just the differences between the Running, Saved, Lastboot, and Factory configurations, you can do this by choosing a configuration option from the **Select Config** pull-down menu then selecting an alternative configuration option from the **Select Diff** pull-down menu.

You also have the option of including the default configuration settings in the output. To do this, choose your configuration then click in the **Include Defaults** check box. If **Include Defaults** is disabled, then only the changes from the default configuration are shown.



## **Admin History**

It is useful to know who else is currently logged in to an array while you're configuring it. It's also nice to see who has logged in since the array booted. This status-only window shows you all administrator logins to the Array that have occurred since the last reboot. To determine who is currently logged in, check which entries say **active** in the **Logout Time** column.

XS-3900 Wi-Fi Arra	У					Xi	RRUS		
Status	Name: 55:Array (10,100.47.186)	ю.	Uptime: 0 days, 3 hours, 44 minu						
- Array	User	IP Address	Interface	Via	Login Time	Logout Time	Session Time D:H:M		
And an end of the second second	admin	10:100.21.71	CLI	ssh-	Sep-11 22:27	active	0.00.20		
Configuration Admin History	admin	10.100.21.71	WW.	https	Sep-11 19:08	active	0.03.38		
Picture ( Colory						Auto Refre	Refresh		

Figure 70. Admin Login History

# **Network Status Windows**

The following Network Status windows are available:

- **Network Map**—displays information about this Array and neighboring Arrays that have been detected.
- **Spanning Tree Status**—displays the spanning tree status of network links on this Array.
- **Routing Table**—displays information about routing on this Array.
- **ARP Table**—displays information about Address Resolution Protocol on this Array.
- **DHCP Leases**—displays information about IP addresses (leases) that the Array has allocated to client stations.
- **Connection Tracking/NAT**—lists connections that have been established for client stations.
- **CDP** Neighbors—lists neighboring network devices using Cisco Discovery Protocol.



#### Network Map

This window offers detailed information about this Array and all neighboring Arrays, including how the Arrays have been set up within your network.

Status								Uptin	se - 0 day	rs, 18 bi	ours, 8	minuter
Artay Network	Array Name	Location	ArrayOS	IP Address	IAPs Total	IAPs Up	SSIDe	Active SSIDs	Stations	in Range	Fast Roam	Uptime D:H M
Network Map	SS-Array	Marketing	XS-3.3- 0579	192.168.36.200	16	2	64	1	0	yes	yes	0 10 00
Rooting Table DHCP Lassies	XS-3700_AF	Ximus Campus South		172.16.4.6	(B)	0	<b>.</b> 1	Зř	0			8 18 14
COP //wgrbms	XS-4-AF-1	X-370-3	XS-3.3- 0539	172.16.4.4	4	0	2	2	0			0 15 42
R Montor	Testlictification	main		172.16.4.11	16	5	2	2	2	yes		1.00.48
a Stations	XS_3500_AF	X-370-3		172.16.4.5	4	0	1	1	0			8.18.11
Contain Last	XS_4_AF-num2	310 bidg	1	172.16.4.12	4	0	- 1	0	0			15-12-14
Configuration	XS_8_AF		XS-3.3- 0539	172.16.4.3	8	0	1	1	0	y##		0.16.38
Express Setup			100 10			1	11	-	- Au	to Refn	esh F	latesh

Figure 71. Network Map

You may sort the rows based on any column that has an active column header, indicated when the mouse pointer changes to the hand icon h. Click **Refresh** to update the information at any time. Click **Auto Refresh** to instruct the Array to refresh this window automatically.

### Content of the Network Map Window

The network map includes the following status information for each Array:

- Array Name: The host name assigned to the Array. To establish the host name, go to "Express Setup" on page 174.
- **Location**: The location assigned to the Array. To establish the location information, go to "Express Setup" on page 174.
- Array OS: The software version running on the Array.
- **IP Address**: The Array's IP address. If DHCP is enabled, the Array's IP address is assigned by the DHCP server. If DHCP is disabled, you must assign a static IP address. To enable DHCP or to assign a static IP address for the Array, go to "Express Setup" on page 174.



- IAPs Total: The number of IAPs on the Array.
- IAPs Up: Informs you how many IAPs are currently up and running. To enable or disable all IAPs, go to "Express Setup" on page 174. To enable or disable individual IAPs, go to "IAP Settings" on page 254.
- **SSIDs**: Informs you how many SSIDs have been assigned for the Array. To assign an SSID, go to "SSID Management" on page 238.
- Active SSIDs: Informs you how many SSIDs are enabled. To enable or disable SSIDs, go to "SSID Management" on page 238.
- **Stations**: Informs you how many stations are associated to the Array. To associate (or disassociate) a station, go to "Stations" on page 150.
- **In Range**: Informs you whether the Array is within wireless range of another Wi-Fi Array.
- Fast Roam: Informs you whether or not the Xirrus fast roaming feature is enabled. This feature utilizes the Xirrus Roaming Protocol (XRP) ensuring fast and seamless roaming capabilities between IAPs or Arrays at both Layer 2 and Layer 3. To enable or disable fast roaming, go to "Global Settings (IAP)" on page 259.
- **Uptime (D:H:M)**: Informs you how long the Array has been up and running (in Days, Hours and Minutes).

### **Spanning Tree Status**

Multiple active paths between stations can cause loops in the network. If a loop exists in the network topology, the potential exists for the duplication of messages. The spanning tree protocol is a link management protocol that provides path redundancy while preventing undesirable loops. For a wireless network to function properly, only one active path can exist between two stations.

To facilitate path redundancy, the spanning tree protocol defines a tree that spans all stations in the network and forces certain redundant data paths into a standby (blocked) state. If one segment in the spanning tree becomes unreachable, the spanning tree algorithm reconfigures the network topology and reestablishes the



link by activating the standby path. The spanning tree function is transparent to client stations.

XS-3900 Wi-Fi Array									)	ciR	RUS
Status								Uptime	1 day, 20	hours, 2	0 minutes
Artay		HOMO DE 1944	a china tha	WDS Client Links				WDS Host Links			
<ul> <li>Network:</li> </ul>	VLAN Name	Number	Gigabit	1	2	3	4	1	2	3	4
Network Map	(none)		forwarding								
Spanning Tree Status				111 14				/n	Auto P	tefresh	Rebesh
Connection Tracking											

Figure 72. Spanning Tree Status

This window shows the spanning tree status (forwarding or blocked) for path segments that terminate on this Array. You may sort the rows based on the VLAN Name or Number columns by clicking the column header. Click **Refresh** to update the information at any time. Click **Auto Refresh** to instruct the Array to refresh this window automatically.

See Also DNS Settings Network Network Interfaces Network Statistics Network Status Windows



## **Routing Table**

This status-only window lists the entries in the Array's routing table. The table provides the Array with instructions for sending each packet to its next hop on its route across the network.

XS-3900 Wi-Fi Array				xirrus
Status	1			Uptime -1 day, 20 hours, 25 minutes
Anny	Destination	Mask	Gateway	Interface
<ul> <li>Network</li> </ul>	255 255 255 255	255.255.255.255	0.0.0	eth0
	192 168 39.0	255 255 255 0	0.0.0.0	ethD
Eperang Tree Status	192.168.36.0	255 255 255.0	192 168 39 1	eth0
Routing Table	10.0.2.0	255.255.255.0	0.0.0.0	gig1/2
Consection Tracking				Auto Refresh Refresh



*See Also* VLANs Configuring VLANs on an Open SSID

## **ARP** Table

This status-only window lists the entries in the Array's ARP table. For a device with a given IP address, this table lists the device's MAC address. It also shows the Array interface through which this device may be reached. The table typically includes devices that are on the same local area network segment as the Array.

XS-3900 Wi-Fi Array			Xirrus
Status	Name: SS-Array (10.100.47.186)	Location: Main Corridor South	Uptime: 1 day, 22 hours, 46 minutes
Array	IP Address	MAC Address	Interface
<ul> <li>Network</li> </ul>	10.100.47.33	00:0F:7D:00:45:DC	gig1/2
Network Map	10.100.47.34	00:0F:7D:00:45:F1	gig1/2
Spanning Tree Status	10.100.47.1	00:10:DB:FF:20:A0	gig1/2
Routing Table	10.100.47.31	00:0F:7D:00:46:03	gig1/2
ARP Table DHCP Leases			Auto Refresh Refresh
Connection Tracking			

Figure 74. ARP Table



## *See Also* Routing Table ARP Filtering

#### **DHCP** Leases

This status-only window lists the IP addresses (leases) that the Array has allocated to client stations. For each, it shows the IP address assigned from one of the defined DHCP pools, and the MAC address and host name of the client station. The start and end time of the lease show how long the allocation is valid. The same IP address is normally renewed at the expiration of the current lease.

Status						Uptime - 2 days, 23 hours, 32 minute
Array	IP Address	MAC Address	Start Time	End Time	Time Left	Host Name
Network Network Map	10 10 11 49	00 13 ce 25 63 84	Dec-14 21:05:26	Dec-14 21.10.26	0 days 0.02 49	SS-lap
Sparning Tree Status	-					



# See Also

### DHCP Server

#### **Connection Tracking/NAT**

This status-only window lists the session connections that have been created on behalf of clients. This table may also be used to view information about current NAT sessions.

XS-3900 WI-FI Array							iR	RU	s			
Status	T							U	ptime - 1 day, 1	hour	18 min	ates
D. Array	Outbound Traffic							Return Traffic				
Network	Туре	State	Source IP	Destination IP	Src Port	Dst	State	Source IP	Destination IP	Sec. Port	Dut Port	Use
Spanning Tree Status	udp		192 168 39 121	192.168.39.255	137	137	Unreplied	192.168.39.255	192 168 39 121	137	137	1
Rivering Table	udp		192 168 39 173	192 168 39 255	137	137	Unreplied	192.168.39.255	192 168 39 173	137	137	1
DHCP Leases	udp		192.168.39.232	192 168 39 255	138	138	Unreplied	192 168 39 255	192 168 39 232	138	138	1
Connection Tracking	ude		0.0.0.0	265 255 255 255	68	67	Unreplied	255 255 255 256	0000	67	68	1

Figure 76. Connection Tracking



You may sort the rows based on any column that has an active column header, indicated when the mouse pointer changes to the hand icon  $^{h}$ . Click **Refresh** to update the information at any time. Click **Auto Refresh** to instruct the Array to refresh this window automatically.

## See Also

Filters

## **CDP Neighbors**

This status-only window lists devices on the Array's network that support the Cisco Discovery Protocol (CDP). The Array performs discovery on the network on an ongoing basis. This list shows the devices that have been discovered—Cisco devices and other devices on the network that have CDP running. For each, it shows the device's host name, IP address, manufacturer and model name, the device interface that is connected to the network (i.e., the port that was discovered), and the network capabilities of the device (switch, router, supported protocols, etc.).

XS-3900 Wi-Fi Array						XIRRUS
Status	1				Uptime - 0 d	ays, 0 hours, 29 minutes
Array .	Hostname	IP Address	Model	Interface	Native VLAN	Copabilities
<ul> <li>Network</li> </ul>	\$S-Array	192 168 36 200	Ximus XS-3900. 512MB (825MHz)	Gig1/2	none	L2SW(smitch)
Hataash Mag	KS-4-AF-1	172 16.4.4	Ximus X54, 512MB (825MHz)	Gig1	none	L2SW(switch)
Spanning Tree Status Routing Table	corea-3560g	192.168.36.1	Cisco WS-C3560G-48TS	GigabitEthemet0/35	36	L3R(router) L2SW(switch) JGRP
OHCP Leases Connection Tracking						Auto Refresh Refresh

Figure 77. CDP Neighbors

CDP must be enabled on the Array in order to gather and display this information. See "CDP Settings" on page 189.



## **RF Monitor Windows**

Every Wi-Fi Array includes an integrated RF spectrum analyzer as a standard feature. The spectrum analyzer allows you to characterize the RF environment by monitoring throughput, signal, noise, errors, and interference levels continually per channel. This capability uses the built-in threat-sensor radio **abg(n)2**. The associated software is part of the ArrayOS.

The following RF Status windows are available:

- IAPs—displays current statistics and RF measurements for each of the Array's IAPs.
- **Spectrum Analyzer**—displays current statistics and RF measurements for each of the Array's channels.
- Intrusion Detection—displays rogue APs that have been detected by the Array.


## IAPs

The RF Monitor—IAPs window displays traffic statistics and RF readings observed by each Array IAP (radio). Note that the data is an instantaneous snapshot for the IAP—it is not an average or a cumulative total.

									_		
Status								Uptime -	5 days, 2	3 hours, 24	I minutes
Array     Network	IAP	Channel	Packets/Sec	Bytes/Sec	802.11	Other	Signal to Noise	Noise	Error	Average	Average Data
<ul> <li>RF Monitor</li> </ul>					Dusy	Dusy	to Noise	Picor	Rate	Kaal	Rate
IAPa	<b>_</b>		0 06	0 0	0% 100%	0% 100%	0 30	-95 -70	0% 100%	-05 -30	111 5414
Spectrum Analyzer	abg1	1		1		•			•		•
Intrusion Detection	abg2	-									
Stations	abg3	11									
Statistics	abg4	6				1					
Event Log	a1	36				•					
Configuration	a2	52									
Express Setup	a3	149						I			
Network	a4	40									
Services	a5	56								1	
VLANs	a6	157									
Security	a7	44		1						1	
SSIDs	a8	60									
IAPs	a9	153		1		-				1	
WDS	a10	48		1	1			1		1	1
. Elhern						-		-	1	-	

Figure 78. RF Monitor—IAPs

Figure 78 presents the data as a graphical display, enabled by selecting the **Graph** checkbox on the lower left. If this option is not selected, data is presented as a numerical table. You may sort the rows based on any column that has an active column header, indicated when the mouse pointer changes to the hand icon b. Click **Refresh** to update the information at any time. Click **Auto Refresh** to instruct the Array to refresh this window automatically.



## Spectrum Analyzer



The RF measurements for this feature are obtained by IAP **abg(n)2**, which **must** be set to **monitor** mode for any data to be available. See "IAP Settings" on page 254.

Spectrum analysis on Wi-Fi Arrays is a distributed capability that automatically covers the entire Wi-Fi network, since a sensor is present in every unit. Arrays monitor the network 24/7 and analyze interference anywhere in the network from your desk. There's no need to walk around with a device as with traditional spectrum analyzers, thus you don't have to be in the right place to find outside sources that may cause network problems or pose a security threat. The Array monitors all 802.11 radio bands (a/b/g/n), not just those currently used for data transmission.

The RF Spectrum Analyzer window displays instantaneous traffic statistics and RF readings for all channels, as measured by the Array's **abg(n)2** radio. This differs from the RF Monitor-IAPs window, which displays values measured by each IAP radio for its current assigned channel. For the spectrum analyzer, the abg(n)2 radio is in a listen-only mode, scanning across all Wi-Fi channels. Each channel is scanned in sequence, for a 250 millisecond interval per channel. The spectrum analyzer window presents the data as a graphical display of vertical bar graphs for each statistic as shown in Figure 79 (the default presentation), or horizontally as bar graphs or numerical RF measurements. The measurements displayed are explained in "Spectrum Analyzer Measurements" on page 145.

As an aid to viewing data for a particular channel, click the channel number. The channel will be highlighted down the page (or across the page for a rotated view, in both text and graph modes). Click additional channels to highlight them for easy comparison. To remove the highlighting from a channel, click the channel number again. Click **Refresh** to update the information at any time. Click **Auto Refresh** to instruct the Array to refresh this window automatically.





Figure 79. RF Spectrum Analyzer

The Spectrum Analyzers offers several display options:

- To display horizontal bar graphs, click the **Rotate** checkbox at the bottom of the data window.
- In the rotated view, if you wish to view data as a numerical table, click the **Text** checkbox. Click again to return to a graphical display. The text option is only available in the rotated view.
- When viewing a graphical display, click **Bars** to have the bar graphs displayed against a gray background—you may find this easier on the eyes. This operation is not available when Text is selected.
- You may sort the rows based on any column that has an active column header, indicated when the mouse pointer changes to the hand icon <sup>(h)</sup>. Sorting is only available in the rotated view.
- At the bottom left of the frame, you may select whether to display only 2.4 GHz channels, 5 GHz channels, or both (both is the default). Note that the data is an instantaneous snapshot—it is not an average or a cumulative total.

## Spectrum Analyzer Measurements

The spectrum analyzer displays the following information:

- **Packets/Sec:** Total number of Wi-Fi packets per second on the channel, both valid and errored packets.
- **Bytes/Sec:** Total number of Wi-Fi bytes per second on the channel, valid packets only.
- **802.11 Busy:** Percentage of time that 802.11 activity is seen on the channel.
- **Other Busy:** Percentage of time that the channel is unavailable due to non-802.11 activity.

The total busy time (802.11 Busy plus Other Busy) will never total more than 100%. The remaining time (100% minus total busy time) is quiet time—the time that no activity was seen on the channel.



- Signal to Noise: Average SNR (signal to noise ratio) seen on the channel, calculated from the signal seen on valid 802.11 packets less the noise floor level. A dash value "-" means no SNR data was available for the interval.
- Noise Floor: Average noise floor reading seen on the channel (ambient noise). A dash value "-" means no noise data was available for the interval.
- **Error Rate:** Percentage of the total number of Wi-Fi packets seen on the channel that have CRC errors. The Error rate percentage may be high on some channels since the monitor radio is set to receive at a very sensitive level, enabling it to hear packets from devices at far distances.
- Average RSSI: Average RSSI level seen on 802.11 packets received on the channel. A dash value "-" means no RSSI data was available for the interval.
- Average Data Rate: Average data rate over time (per byte, not per packet) seen on 802.11 packets received on the channel. A dash value "-" means no data rate information was available for the interval. A higher date rate (above 6 Mbps) typically indicates user data traffic on the channel. Otherwise, the data rate reflects control packets at the lower basic rates.



## **Intrusion Detection**

This window displays all detected access points, according to the category you select from the drop-down list at the top—either Unknown, Known or Approved. This includes ad hoc access points (station-to-station connections). You can sort the results based on the following parameters by clicking the desired column header:



- Channel
- RSSI

Status							Uptin	ne - O	days, 4 hours	8 minutes
e Anay		31 - S		Select List Unkn	kowiti 👻	-	-	-		
a Network	Select	BSSID	SSID	Manufacturer	Channel	RSSI	Security	Type	Discovered	Last Active
Her Monitor		00.1c.10.a0.53.5a	linksys	Cisco-Linksys	6	-59	000	ESS	Feb-06 19:36	active
Spectrum Analyzer		00 e0 98 fe 6d 44	gardner	Abocom	6	-64	WEP	ESS	Feb-06 19 36	active
Intrusion Detection		00 09 55 w9 92 ca	NETGEAR	Netgear	11	-82	WEP	ESS	Feb-06 19:36	active
Stations		00 1a 70 7c ac d5	landen	Cisco-Linksys	2	-72	WEP	ESS	Feb-06 19:37	active
Foundation		00.16.01.b9 fe bf	00160189FEBE	Buffalo	10	-88	none	ESS	Feb-06 19.39	Feb-06

Select the type of AP to display

Figure 80. Intrusion Detection/Rogue AP List

The Intrusion Detection window provides the easiest method for designating rogue APs as Known. Approved, or Unknown. Choose one or more APs using the checkbox in the **Select** column, then set whether they are Approved, Known, or Unknown using the buttons on the lower left. (Figure 81)



	dbr	00:0f:7d:64:20:00	Xirrus	104	-88	none	ESS	Dec-11	01:50
	11n_eng_proto	00:0f:7d:25:20:00	Xirrus	104	-81	none	ESS	Dec-11	02:04
	11n_eng_proto	00:0f:7d:25:20:10	Xirrus	112	-85	none	ESS	Dec-11	02:04
	11n_eng_proto	00:0f:7d:25:20:30	Xirrus	128	-87	none	ESS	Dec-11	02:04
	bsc-dot11n	00:0f:7d:00:20:00	Xirrus	104	-90	none	ESS	Dec-11	02:12
	dbr	00:0f.7d.82:20:00	Xirrus	104	-87	none	ESS	Dec-11	02:23
	(empty)	00:0f:7d:04:a2:c0	Xirrus	11	-84	AES+TKIP+PSK	ESS	Dec-11	02:24
	(empty)	00:0f:7d:04:a2:c1	Xirrus	11	-83	none	ESS	Dec-11	02:24
	test	00:09:5b:68:61:12	Netgear	3	-82	none	ESS	Dec-11	02:27
	dbr	00:0f:7d:c5:20:00	Xirrus	104	-88	none	ESS	Dec-11	02:33
	dbr	00:0f:7d:0f:20:00	Xirrus	104	-88	none	ESS	Dec-11	02:43
Set	Approved Set Known	Set Unknown						Auto Refresh	Refresh

Figure 81. Categorizing APs

You can refresh the list at any time by clicking on the **Refresh** button, or click in the **Auto Refresh** check box to instruct the Array to refresh the list automatically.

See Also Network Map Rogue Control List SSIDs SSID Management



## **Station Status Windows**

The following Station Status windows are available:

- **Stations**—this list describes all stations associated to the Array.
- **Location Map**—displays a map showing the approximate locations of all stations associated to the array.
- **RSSI**—for each associated station, this displays the Received Signal Strength Indicator at each of the Array's IAPs.
- **Signal-to-Noise Ratio (SNR)**—for each associated station, this displays the SNR at each of the Array's IAPs.
- **Noise Floor**—for each associated station, this displays the ambient noise (silence) value at each of the Array's IAPs.
- **Max by IAP**—for each IAP, this shows the historical maximum number of stations that have been associated to it over various periods of time.





## Stations

This status-only window shows client stations currently visible to the Array. You may choose to view only stations that have associated to the Array, or only stations that are not associated, or both, by selecting the appropriate checkboxes above the list. The list shows the MAC address of each station, its NetBIOS name, its IP address, its manufacturer, the SSID used for the association, the Group (if any) that this station belongs to, its VLAN, the IAP used for the association, transmit and receive rates, the RSSI for each station, and how long each association has been active (up time).

Status	Hame	Discontanage (1980	100:47-521	1.01	Location: My	Gesk		Upti	tie 15	days	Shoe	16.431	ulastes
Nay	Display	Associated	Unassocia	ted	a state of the second		Associated: 1	Unasso	ciate	£ 154	Total	Static	om: 155
s Network s RF Mandar	Select	MAC Address	Nethios Name	IP Address	Manufacturer	SSID	User Group	VLAN	iAP	TX Rate	RX Rate	RSSI	Time D.H.M
<ul> <li>Stations</li> </ul>	Г	00:1e::2:be:ab:11			Apple	ximus.32		-	47	1	4	-64	0.12.54
Lacation Mag RSDL	Deau	hanticate Deny A	60955	<i></i>	A	- HARRING S			1	Auto	Refin	n F	letrest.



You may sort the rows based on any column that has an active column header, indicated when the mouse pointer changes to the hand icon  $\sqrt[h]{}$ . Click again to reverse the sort order. You may select a specific station and perform one of the following actions by clicking the associated button:

- **Deny Access:** Sends a de-authentication frame to the selected station and explicitly denies it access by adding its MAC address to the Deny List in the Access Control List window. To permit access again, go to "Access Control List" on page 221 and delete the station from the **Deny** list.
- **Deauthenticate:** Sends a de-authentication frame to the selected station. The station may re-authenticate.

Click on the **Refresh** button to refresh the station list, or click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.



#### See Also

Access Control List Station Status Windows

## **Location Map**

The Location Map shows the approximate locations of stations relative to this Array. You may display stations associated to this Array, unassociated stations (shown in gray), or both. The station count is shown on the left, above the map. You may also choose to display 5 GHz stations (shown in orange) or 2.4 GHz stations (shown in green), or both.

The map and Array are shown as if you were looking down on the Array from above, say from a skylight on the roof. Thus the positions of the radios **abg(n)1** to **abg(n)4** are a mirror image of the way they are typically drawn when looking at the face of the Array. Radios **abg(n)1** to **abg(n)4** are marked (1 to 4) on the map to show the orientation of the Array.



Figure 83. Location Map



A station is identified by its NetBIOS name if known, or else by its IP or MAC address. Hover the mouse over a station to show detailed information. If multiple stations are near each other, they will be displayed slightly offset so that one station does not completely obscure another. You may minimize a station that is not of interest by clicking it. Click it again for normal display. There is also a **Minimize All** button.

You may replace the range-finder background image above with your own custom image of the floorplan of the area served by the Array.

## Controls and items displayed on the Location Map window



The controls for the Location Map are all at the bottom of the window and take up a fair amount of width. If some of the controls shown in Figure 84 are not visible, resize your browser window to be wider until all of the controls appear.

Also, the Location Map has its own scroll bars in addition to the browser's scroll bars. If you narrow the browser window, the map's scroll bar may be hidden. Use the browser's bottom scroll bar if you need to move it into view.



Figure 84. Controls for Location Map



- **Display Associated/Unassociated**: Select whether to display stations that are associated to the Array, stations that are not associated, or both.
- **Display 2.4 GHz/5 GHz**: Select whether to display 802.11bg(n) stations, or 802.11a(n) stations, or both.
- **Minimize All**: All stations are shown by default with their NetBIOS name or IP or MAC address. If the map is too cluttered, you can reduce the display for each station to a small rectangle. You may still display detailed information for the station by hovering over it. To enlarge all rectangles, clear the Minimize All checkbox.



Figure 85. Minimizing stations

- Scale: This view-only value shows the approximate distance represented by each hashmark on the default map background. Scale is the rightmost of the items displayed in the control area you may need to scroll to the right edge to see it.
- **Custom Image**: Use this feature to replace the default background image with your own image of the floor plan of your location. Click the **Browse** button and browse to the desired file on your computer. This may be a .gif, .jpg, .jpeg., .png, .htm, or .html file. The scale of the file should be 100 feet per inch. Then click **Upload** (see below). For more information on



using the custom, image, see "Working with the Custom Image" on page 154.

- **Upload**: After browsing to the desired custom image, click the **Upload** button to install it. The map will be redisplayed with your new background. No hash marks are added to the image display.
- **Reset**: Click this button to restore the map display to the factory settings. All attributes are restored—including the stations selected for display, the scale, the rotation, and the background map.
- **Rotate**: Click this button to rotate the orientation of the entire map. It rotates the map 45° counter-clockwise.
  - **Enlarge**: Click this button to enlarge (zoom in on) the map. The displayed **Scale** on the bottom right is updated with the new scale for the map.
- **Reduce**: Click this button to reduce (zoom out on) the map. The displayed **Scale** on the bottom right is updated with the new scale for the map
  - Auto Refresh: Instructs the Array to refresh this window automatically.
  - **Refresh:** Updates the stations displayed.

#### See Also

Access Control List Station Status Windows

## Working with the Custom Image

After you have uploaded a custom image (see **Custom Image** and **Upload** in "Controls and items displayed on the Location Map window" on page 152), you should move the display of the Array on your map to correspond with its actual location at your site. The Location Map window provides a special set of controls for moving the location of the Array. These controls are displayed on the upper right corner of the map (Figure 86). The location controls only appear when you are using a custom image for your background. You will not see them if you are using the default map background.

To move the Array on the map in a particular direction, click an arrow for the desired direction on the location controls. The inner arrows move the Array by



small steps; the outer arrows move it by larger steps. The arrows only work when you position the mouse directly over them—make sure you see the hand icon  $\sqrt[h]$ . If you need to return the Array to the center of the map, click the center of the location controls. When you are done, click the **Apply** button to save the new Array location, as well as the enlarge/reduce/rotate settings. These location settings will persist for the duration of the current WMI session, but not after a reboot (but the custom image will still be used after rebooting—whether or not you click **Apply**).



Figure 86. Setting Array location on a Custom Image



## RSSI

For each station that is associated to the Array, the RSSI (Received Signal Strength Indicator) window shows the station's RSSI value as measured by each IAP. In other words, the window shows the strength of the station's signal at each radio. You may choose to display **Unassociated Stations** as well with a checkbox at the bottom of the window.



Figure 87. Station RSSI Values

By default, the RSSI is displayed numerically. You may display the relative strength using color if you select **Colorize Intensity**, with the strongest signals indicated by the most intense color. (Figure 87) If you select **Graph**, then the RSSI is shown on a representation of the Array, either colorized or numerically based on your selection. (Figure 88) The stations are listed to the left of the Array—click on a station to show its RSSI values on the Array.



Name: SS-Array	(10.100.47.186)		_	Location:	Main Corridor Sc	outh	Uptime: 1 day,	0 hours, 51 minutes
RSSI	ntensity (-95 to -3	0)	-					
MAC Address	Netbios Name	IP Address	1					
00:16:cf:ab:51:4d			]					
00:21:5c:23:95:9d			1					
00:0f:7d:00:8a:60			1					
00:0f b5:97:3c:78			1					
00:0f:7d:06:08:60								
00:0f:7d:0b:90:60			]					
00:0f:7d:0b:7f:60			1					
00:21:5c:05:95:cb			Г	1				
00.0f.7d.06.05.60			1					
00:0e:9b:9b:aa:4d			1					
00:0f:7d:06:11:60			]			-11		
00:0f:7d:05:0f:60			]					
00:0f:7d:06:07:60			]			A11 A12	A1 .	
00:0f:7d:06:0a:60			]			ABG4	ADG1	
00:0e:35:7c:20:0a			1			210	12	
00:0f:7d:0b:0d:b1			]		-	-	A1 -	
00:0f:7d:03:6b:60			1		•	AB	A4 😐	
00:0f:7d:01:b4:b0			]			ABG3	ABG2	
00:0f:7d:00:85:60			1			· · · ·	•	
00:0f:7d:0b:85:60			1					

Figure 88. Station RSSI Values—Colorized Graphical View

In either graphical or tabular view, you may sort the rows based on any column that has an active column header, indicated when the mouse pointer changes to the hand icon  $\stackrel{\text{(h)}}{\longrightarrow}$ . Click on the **Refresh** button to refresh the station list, or click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.

## *See Also* Station Status Windows RF Monitor Windows

# XIRRUS

## Signal-to-Noise Ratio (SNR)

For each station that is associated to the Array, the Signal-to-Noise Ratio (SNR) window shows the station's SNR value as measured by each IAP. In other words, the window shows the SNR of the station's signal at each IAP radio. The signal-to-noise ratio can be very useful for determining the cause of poor performance at a station. A low value means that action may need to be taken to reduce sources of noise in the environment and/or improve the signal from the station.

XS-3900 Wi-Fi Array															2	ci	Я	:U	s
Status	Name: Bruces Arr	ay (10.1	100.47.32	)	1	Locatio	an: My	Oesk	i.			Uş	stime	:: 4 d	ays, i	/ hou	in, 11	l min	utes
Array     Network	MAC Address	Netbios Name	IP Address	abg1	abg2	abg3	abg4	a1	a2	aĴ	a4	a5	a6	a7	að	<b>a</b> 9	a10	a11	a12
RF Monitor	00:1e:c2:be:ab:11			1.0	1.0	28	1.					1		37			•		
Stations     Location Map     RSSI     Signal to Noise     Noise Floor     Max by IAP     Statistics																			

Figure 89. Station Signal-to-Noise Ratio Values

You may choose to display **Unassociated Stations** as well with a checkbox at the bottom of the window.

By default, the SNR is displayed numerically. (Figure 89) You may display the relative value using color if you select **Colorize Intensity**, with the highest SNR indicated by the most intense color. (Figure 90) If you select **Graph**, then the SNR is shown on a representation of the Array, either colorized or numerically based on your selection. The stations are listed to the left of the Array—click on a station to show its SNR values on the Array.



Name: Bruces-Arr	ay (10.100.47.3	2)	Location: MyDesk	Uptime: 4 days, 7 hours, 20 minutes
Signa	al/Noise (0 to 30)			
MAC Address	Netbios Name	IP Address		
00:1e:c2:be:ab:11				
				A11 A12 A1
				ABG4 ABG1
				A10 A2
				● A8 A4 ●
				A7 45 45
				31 🖉 🦉 📍
				33

Figure 90. Station SNR Values—Colorized Graphical View

In either graphical or tabular view, you may sort the rows based on any column that has an active column header, indicated when the mouse pointer changes to the hand icon  $\textcircled{}^{h}$ . Click on the **Refresh** button to refresh the station list, or click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.

*See Also* Station Status Windows RF Monitor Windows



## **Noise Floor**

For each station that is associated to the Array, the Noise Floor window shows the ambient noise affecting a station's signal as measured by each IAP. The noise floor is the RSSI value when the station is not transmitting, sometimes called a Silence value. In other words, the window shows the noise floor of the station's signal at each IAP radio. The noise floor value can be very useful for characterizing the environment of a station to determine the cause of poor performance. A relatively high value means that action may need to be taken to reduce sources of noise in the environment.

XS-3900 Wi-Fi Array															2	ci	R	R	s
Status	Name: Bruces-Arr	ay (10.1	100.47.32	)	ι	.ocatio	an: My	Oesk				Up	otime	c 4 d	ays, i	7 hou	irs, 2	5 min	utes
Array     Network	MAC Address	Netbios Name	IP Address	abg1	abg2	abg3	abg4	a1	a2	aJ	a4	a5	a6	a7	<b>a</b> 8	a9	a10	a11	a12
RF Monitor	00:1e:c2:be:ab:11			-		-84	-	•		-	-		-	-92	-	-	-	-	-
Stations     Location Map     Signal to Noise     Noise Floor     Max by IAP																			

Figure 91. Station Noise Floor Values

You may choose to display **Unassociated Stations** as well with a checkbox at the bottom of the window.

By default, the noise floor is displayed numerically. (Figure 91) You may display the relative value using color if you select **Colorize Intensity**, with the highest noise indicated by the most intense color. If you select **Graph**, then the ambient noise is shown on a representation of the Array, either colorized or numerically based on your selection.(Figure 92) The stations are listed to the left of the Array—click on a station to show its values on the Array.



Name: Bruces-Arra	ay (10.100.47.3	2)	Location: MyDesk	Uptime: 4 days, 7 hours, 30 minutes
Noise	Floor (-35 to -95)			
MAC Address	Netbios Name	IP Address		
00:1e:c2:be:ab:11				
				A11 A12 A1
				ABG4 ABG1
				A10 A2
				• A9 😄 A3 •
				🗧 A8 🛛 🗛 🧧
				+863 A862

Figure 92. Station Noise Floor Values—Colorized Graphical View

In either graphical or tabular view, you may sort the rows based on any column that has an active column header, indicated when the mouse pointer changes to the hand icon  $\textcircled{}^{h}$ . Click on the **Refresh** button to refresh the station list, or click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.

*See Also* Station Status Windows RF Monitor Windows

## XIRRUS

## Max by IAP

This status-only window shows the maximum number of client stations that have historically been associated to the Array. For each IAP, the list shows the IAP's state and channel number, the current number of stations associated, and the highest number of stations that have been associated over various periods of time: hour, day, week, month, and year. In other words, the Max Station Count shows the "high water mark" over the selected period of time—the maximum count of stations for the selected period, rather than a cumulative count of all stations that have associated. This information aids in network administration and in planning for additional capacity.

XS8 Wi-Fi Array								2	kirr	US
Status	Name: X	S8-CMU	( 172.16.1.8	)			Uptin	ne: 0 days,	1 hour, 29	minutes
<ul><li>Array</li><li>Network</li></ul>	IAP	State	Cha	nnel	Current Stations	Hour	Ma Day	ax station Week	count Month	Year
RF Monitor	abg1	up	1	manual	0	0	0	0	0	0
<ul> <li>Stations</li> </ul>	abg2	up	monitor		0	0	0	0	0	0
Location Map	abg3	up	11	manual	2	3	3	3	3	3
RSSI	abg4	up	6	manual	0	1	2	2	2	2
Signal to Noise	a1	up	36	manual	0	2	2	2	2	2
Max by IAP	a2	up	153	manual	2	4	4	4	4	4
Statistics	a3	up	56	manual	0	0	0	0	0	0
System Log	a4	up	165	manual	1	1	1	1	1	1

#### Figure 93. Max by IAP

You may click an IAP to go to the IAP Settings window. Click on the **Refresh** button to refresh the station list, or click **Auto Refresh** to instruct the Array to refresh this window automatically.

*See Also* IAPs Station Status Windows



## **Statistics Windows**

The following Array Statistics windows are available:

- **IAP Statistics Summary**—provides an overview of the statistical data associated with all IAPs. Expands to show links for displaying detailed statistics for individual IAPs.
- Per-IAP Statistics—provides detailed statistics for an individual IAP.
- **Network Statistics**—displays statistical data associated with each network (Ethernet) interface.
- VLAN Statistics—provides statistical data associated with your assigned VLANs.
- **WDS Statistics**—provides statistical data for all WDS client and host links.
- **Filter Statistics**—provides statistical data for all configured filters.
- **Station Statistics**—provides statistical data associated with each station.

## **IAP Statistics Summary**

This is a status only window that provides an overview of the statistical data associated with all IAPs. It also shows the channel used by each IAP. For detailed statistics for a specific IAP, see "Per-IAP Statistics" on page 164. Click the Unicast Stats Only checkbox above the statistics to filter the results, or clear the checkbox to show statistics for all wireless traffic.

You can **Refresh** the data (update the window with the latest information) or **Clear** the data (reset all content to zero and begin counting again) at any time by clicking on the appropriate button. You can also click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.



Status								lptime : 4 day	s, 1 hour,	37 militates
Anay	1				Dr.Un	icast Stats Only		10-10-10-10-10-10-10-10-10-10-10-10-10-1		
<ul> <li>Network</li> </ul>			- Ha	ceive Statistic	a by IAP		Trans	mit Statistics b	y IUP	
F RF Monter	IAP	Channel	Bytes	Packets	Errors	Retries	Bytes	Packets	Errors	Retries
<ul> <li>Stations</li> </ul>	abgt	- 6	781749655	15344968	6756963	430473	313118346	3074568	1	41
Distribute	sbg2	monitor	11425005003	29648669	3375762	1641160	0	0	0	
= (A) <sup>a</sup>	abu3	11	1022117137	19663062	1152006	487621	362924217	3412117		
	abg4	1	63150372388	82994073	8510562	9513109	62785537849	68772282	38825	18753478
AP and	a1	165	10919512	10619	229125	2150	257761100	2765291	374	15615
100	02	52	0	0	20993357	-0	297047100	3183379		4
WF #1	al	157	1656	24	365910	1	252710918	2792230	0	0.4
	a4	44	56	2	3434465	0	286588754	3074039	1	7
	05	60	2006579742	2019271	2082014	420616	2294254732	5076960	1494	1480437
10 M	26	36	4	0	\$71099		276510212	3015322	D.	
	a7	148	109272935875	110379057	12173717	21589985	109910725158	115129976	36191	72357591
	86	-45	148068007306	140004554	12339581	27991308	148721193007	153522555	18122	34380306
	a9	261	0	0	.0	0	0	0	0	
100 20	at0	40	135	4	\$70473	0	274226474	2967717	33	15
40.41	att	153	339215	3132	1996729	563	262535519	2872982	- 6	222
	a12	64	0			0	0		0	4
345 a12.								Auto Refresh	Retest	Clear

Figure 94. IAP Statistics Summary Page

## See Also

System Log Window Global Settings (IAP) Global Settings .11a Global Settings .11bg IAPs

## **Per-IAP Statistics**

This is a status only window that provides detailed statistics for the selected IAP. If you click the link for **IAP All** in the left frame, each detailed statistic field will show the sum of that statistic for all IAPs. For a summary of statistics for all IAPs, see "IAP Statistics Summary" on page 163. Use the **Statistics Type** drop-down field above the statistics to select the output format - **Numeric** for raw numbers, or **Percentage** to express each statistic as a percentage of the total at the top of the column.

A quick way to display the statistics for a particular IAP is by clicking the Array graphic at the bottom left of the WMI window. Click the desired IAP, and the selected statistics will be displayed. See "User Interface" on page 123.



			Statistics	Type: N	Numeri	ic 💌				
Receive Statistics			N	lumeri	c b ics					
Total Bytes 781749665			49665	Percentage * 313118346						
Total Packets	tal Packets 15344968 T			44968 To	Total Packets 307/					3074568
Unicasts		1364663			nicast	9				843209
Multicasts				14 M	lulticas	its				40
Broadcasts		6990154			roadca	ists				473
Mgmt Packets	\$		13	64645 M	Mgmt Packets					843198
Beacons			69	90137 B	Beacons 22				2230846	
Fragments				0 Fr	ragme	nts				0
RTS Count				0 R1	TS Co	unt				0
CTS Count				0 01	TS Co	unt				24
Receive Erro	rs & Retries			Tr	ransm	it Errors & Retries				
Total Errors			71	86436 Te	otal En	rors		48		
Total Retries			4	30473 To	otal Re	tries				44
Dropped Pack	iets	0			Dropped			0		
Unassociated		0			Unassociated			0		
CRC			56	79896 A	ACK Failures 4					
Fragment Erro	ors .			0 R1	TS Fai	lures				0
Encryption En	rors	0			RTS Retries					0
Duplicates			0 Single Retries						4	
Overruns			10	76067 M	Multiple Retries			7		
	Re	ceive Statistics	s by Rate		Transmit		Statistics by Rate			
Rate	Bytes	Packets	Errors	Retrie	<b>85</b>	Bytes	Pa	ckets	Errors	Retries
1	771000047	8227603	0	42	29254	10230253	9	843711	4	31
2	7521050	100550	0		1		1	0	0	0
5.5	0	0	0		0		)	0	0	0
11	225	3	0		1	(	0	0	0	0
6	3225297	26540	0		1200	(	1	0	0	0
9	0	0	0		0	(	1	0	0	0
12	517	6	0		2	(	1	0	0	0
18	137	1	0		1	(		0	0	0
24	42	1	0		1	(		0	0	0
36	1095	16	0		6			0	0	0
48	943	7	0		6			0	0	0
54	312	4	0		1	86		11	0	13
							Au Au	to Refresh	Refresh	Clear

Figure 95. Individual IAP Statistics Page (for IAP abg(n)1)

You can **Refresh** the data (update the window with the latest information) or **Clear** the data (reset all content to zero and begin counting again) at any time by clicking on the appropriate button. You can also click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.

#### See Also

System Log Window Global Settings (IAP) Global Settings .11a Global Settings .11bg



## IAPs

## **Network Statistics**

This is a status only window that allows you to review statistical data associated with each network (Ethernet) interface and its activity. You can **Refresh** the data (update the window with the latest information) or **Clear** the data (reset all content to zero and begin counting again) at any time by clicking on the appropriate button. You can also click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically. If you are experiencing problems on the Array, you may also want to print this window for your records.

Status	A COMPANY AND A COMPANY	Uptime -5 days, 23 hours, 56 minutes								
h Anny	Fast Ethernert Statistics	Fast Ethernet Statistics enabled, link up, 100Mips, full duples								
<ul> <li>Network</li> </ul>	Receive Bytes	451630162	Transmit Bytes	54391508						
<ul> <li>RF Munitar</li> </ul>	Receive Packets	3367351	Transmit Packets	232677						
Stations	Receive Compressed	6	Transmit Compressed	0						
<ul> <li>Statistics</li> </ul>	Receive Multicast		Transmit Carrier Errors	0						
	Receive Dropped	0	Transmit Dropped	0						
Network	Receive FIFO Errors	6	Transmit FIFO Errors	0						
11/21	Receive Frame Errors		Transmit Collisions	0						
ALC: NOT THE REAL PROPERTY OF	Receive Total Errors	6	Transmit Total Errors	0						
and the second second	Gigshit 1 Statistics	1	enabled, lis	ik up, 1966Migs, full duplex						
Event Log	Receive Bytes	1000543946964	Transmit Bytes	1794994273274						
Configuration	Receive Packets	1831711995	Transmit Packets	1797973424						
Express Setup	Receive Compressed		Transmit Compressed	0						
<ul> <li>Network</li> </ul>	Receive Multicast	- 4	Transmit Carrier Errors	0						
Services	Receive Dropped		Transmit Dropped	-0						
<ul> <li>VLANs.</li> </ul>	Receive FIFO Errors	0	Transmit FIFO Errors	6						
t Security	Receive Frame Errors		Transmit Collisions	0						
<ul> <li>SSDs</li> </ul>	Receive Total Errors		Transmit Total Errore	¢						
<ul> <li>WPs</li> </ul>	Gigabit 2 Statistics	Gigabit 2 Statistics enabled, link down, 1000Bpps, full d								
<ul> <li>WDS</li> </ul>	Receive Bytes	4	Transmit Bytes							
t fitmi	Receive Packets	4	Transmit Packets	0						
Tools	Receive Compressed	6	Transmit Compressed	0						
System Taxes	Receive Multicast		Transmit Carrier Errors	0						
ai	Receive Dropped		Transmit Dropped	0						
Logist	Receive FIFO Errors	0	Transmit FIFO Errors	0						
	Receive Frame Errors		Transmit Collisions	0						
<ul> <li>At 1 AL</li> </ul>	Receive Total Errors	-4	Transmit Total Errors	0						
			■ Aut	o Refresh Refresh Clear						

Figure 96. Network Statistics

See Also DHCP Server DNS Settings Network Network Interfaces



## **VLAN Statistics**

This is a status only window that allows you to review statistical data associated with your assigned VLANs. You can refresh the information that is displayed on this page at any time by clicking on the **Refresh** button, or select the **Auto Refresh** option for this window to refresh automatically. The **Clear All** button at the lower left allows you to clear (zero out) all VLAN statistics.

XS-3900 WI-FI Array		Xirrus
Status	Up	time - 1 day, 5 hours, 3 minutes
Array Voice (5) Statistics		Clear
Network     Becelve Bytes	d Transmit Bytes	
RF Mondor     Receive Packets	O Transmit Parkets	0
Stations     Becalve Compressed	0 Transmit Compressed	
v Statution Receive Compression	a Transmit Compressed	
Receive Dropped	0 Transmit Dronged	
Paralus EIFO Forem	Transmit EEO Errors	
VLAN Decelve Fir O Lines	Transmit Collisions	
Bacalus Total Errors	A Transmit Total Errors	
States 1000 States	o rranamit rotal crists	
System Lop		Clear
Receive Bytes 10	44 Transmit Bytes	4130
Receive Packets	19 Transmit Packets	7
Receive Compressed	0 Transmit Compressed	0
Receive Multicast	© Transmit Carrier Errors	0
Receive Dropped	© Transmit Dropped	0
Receive FIFO Errors	0 Transmit FIFO Errors	0
Receive Frame Errors	© Transmit Collisions	0
Receive Total Errors	0 Transmit Total Errors	0
WDS Clear Al		Auto Refresh Refresh



See Also VLAN Management VLANs



## **WDS Statistics**

The main WDS Statistics window provides statistical data for all WDS client and host links. To access data about a specific WDS client or host link, simply click on the desired link in the left frame to access the appropriate window. You can also select to view a sum of the statistics for all client links, all host links, or all links (both client and host links).









## **Filter Statistics**

The Filter Statistics window provides statistical data for all configured filters. The name, state (enabled—on or off), and type (allow or deny) of each filter is shown. For enabled filters, this window shows the number of packets and bytes that met the filter criteria. Click on a column header to sort the rows based on that column. Click on a filter name to edit the filter settings.

NO-0000 WI-FI A	wiey				XIRRUS
Status					Uptime - 1 day, 0 hours, 6 minutes
Anay	Name	Type	State	Packets	Byter
Network	srp-filter	allow	on	36	2970
R R					Auto Refresh Refresh Clear
Stationa	-				
Statistics					
féctwork					
VLAU					

#### Figure 99. Filter Statistics

#### *See Also* Filters

Filters

## **Station Statistics**

This status-only window provides an overview of statistical data for all stations. Stations are listed by MAC address, and Receive and Transmit statistics are summarized for each. For detailed statistics for a specific station, click the desired MAC address in the **Station** column and see "Per-Station Statistics" on page 170.

Status						1	Uptime - 5 day	s, 23 hours,	
Array		Rece	ive Statistics by	Station		Trans	Transmit Statistics by Station		
Network	Station	Bytes	Packets	Errors	Retries	Bytes	Packets	Errors	
RF Monitor	00:0f:3d:03:02:e8	693119	2043	0	223	2358	12	0	
Stations	00:0f:b5:97:3c:79	51442645153	52791337	0	5371975	65480578303	65515091	26764	
<ul> <li>Statistics</li> </ul>	00:0e:35:45:dd:c0	1691913717	24210701	0	8748417	168562071943	164832863	112870	
♦ IAP	00:30:b4:01:69:c4	1004756270	10171896	0	0	265914094203	259348067	10303	
Network	00:0f:66:19:95:34	1550292533	5009662	0	1202533	36006985880	36032055	309661	
VLAN WDR	00:03:7f:bf:14:43	197116974748	195875363	0	32942200	277967033447	266885001	45170	
Film	00:04:e2:8b:42:57	323018216404	312187836	0	29556244	507270199576	492647649	12040	
Stations	00:10:18:91:06:68	181652416042	177651569	0	18383672	264862154829	263394451	170454	
Event Log	00:40:96:a7:d2:b2	249090923768	247980426	0	22610375	276050170214	270423992	18482	
Configuration							■ A	uto Refresh	

Figure 100. Station Statistics

You can **Refresh** the data (update the window with the latest information) at any time by clicking on the appropriate button. You can also click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.

Note that you can clear the data for an individual station (see below), but you cannot clear the data for all stations using this window.

## See Also Per-Station Statistics

## **Per-Station Statistics**

This window provides detailed statistics for the selected station. Receive and Transmit statistics are listed by **Rate**—this is the data rate in Mbps. For a summary of statistics for all stations, see "Station Statistics" on page 169.

You can **Refresh** the data (update the window with the latest information) or **Clear** the data (reset all content to zero and begin counting again) at any time by clicking on the appropriate button. You can also click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.

	Station Statistics for 00:0f:3d:00:02:e8									
	Receive Statistics Transmit Statistics									
Rate	Bytes	Packets	Errors	Retries	Bytes	Packets	Errors	Retries		
1	1015465	18726	0	0	0	0	0	0		
2	0	0	0	0	0	0	0	0		
5.5	0	0	0	0	0	0	0	0		
11	0	0	0	0	0	0	0	0		
6	3728543	77325	0	15	0	0	0	0		
9	0	0	0	0	0	0	0	0		
12	1710	5	0	3	0	0	0	0		
18	1726	5	0	2	0	0	0	0		
24	0	0	0	0	0	0	0	0		
36	5959	22	0	2	0	0	0	0		
48	73724	228	0	29	0	0	0	0		
54	693119	2043	0	223	2358	12	0	1		
Total	5520246	98354	0	274	2358	12	0	1		
Clear	Clear Auto Refresh Refresh									

Figure 101. Individual Station Statistics Page

## See Also Station Statistics



## System Log Window

This is a status only window that allows you to review the system log, where system alerts and messages are displayed. Although there are no configuration options available in this window, you do have the usual choice of deciding how the event messages are sorted by clicking in the column header for the desired field (Time Stamp, Priority, or Message).

- **Time Stamp**—sorts the list based on the time the event occurred.
- **Priority**—sorts the list based on the priority assigned to the message.
- Message—sorts the list based on the message category

The displayed messages may be filtered by using the **Filter Priority** option, which allows control of the minimum priority level displayed. For example, you may choose (under **Services >System Log**) to log messages at or above the Debug level but use **Filter Priority** to display only messages at the Information level and above.

XS-3900 Wi-Fi Array			XIRRUS
Status	Name: SS-A	rray (10.10	0.47.186 ) Location: Main Corridor South Uptime: 3 days, 1 hour, 8 minutes
<ul> <li>Array</li> <li>Naturals</li> </ul>		Filter Priori	ty: Notfication 💌 Highlight Priority: Notfication 💌
RF Monitor	Time Stamp	Priority	Message
Statistics	Oct 21 17:24:38	Notification	Admin user admin logged into web management interface from 10.100.21.73
System Log Configuration	Oct 21 17:24:33	Notification	Admin user admin was logged out of web management interface due to timeout
Express Setup Network	Oct 21 17:04:34	Alert	Rogue AP detected. SSID: SQA-WPR-Custom, BSSID: 00.0f.7d:06.cc.10, Manufacturer: Xirrus, Channel: 64, RSSI: -64, Security: none
Senices     VLANs	Oct 21 17:02:56	Alert	Rogue AP detected. SSID: zoraopen1, BSSID: 00.0f.7d:09:ef:50, Manufacturer: Ximus, Channel: 60, RSSI: +93, Security: none
Security	Oct 21 16:57:12	Alert	Rogue AP detected: SSID: public, BSSID: 00:0f.7d:04:f2:03, Manufacturer: Ximus, Channel: 161, RSSI: -90, Security: none
Groups	Oct 21 16:55:01	Alert	Rogue AP detected: SSID: SQA-WPR-Custom, BSSID: 00:0f7d:06:cd:50, Manufacturer: Xirrus, Channel: 40, RSSI: -90, Security: none
WDS	Oct 21 16:52:47	Alert	Rogue AP detected: SSID: SQA-WPR-Login-int, BSSID: 00.0f.7d:0a:3f.51, Manufacturer: Xirrus, Channel: 40, RSSI: -85, Security: none
Filters Tools	Oct 21 16:49:45	Alert	Rogue AP detected. SSID: firedigit, BSSID: 00:0f.7d:00:8d:56, Manufacturer: Xirrus, Channel: 40, RSSI: -76, Security: none

Figure 102. System Log

Use the **Highlight Priority** field if you wish to highlight messages at the selected priority level. Click on the **Refresh** button to refresh the message list, or click on the **Clear Log** button to delete all messages. You can also click in the **Auto Refresh** check box to instruct the Array to refresh this window automatically.



# **Configuring the Wi-Fi Array**

The following topics include procedures for configuring the Array using the product's embedded Web Management Interface (WMI). Procedures have been organized into functional areas that reflect the flow and content of the WMI.

The following WMI windows allow you to establish configuration parameters for your Array, and include:

- "Express Setup" on page 174
- "Network" on page 180
- "Services" on page 191
- "VLANs" on page 203
- "Security" on page 207
- "SSIDs" on page 233
- "Groups" on page 245
- "IAPs" on page 252
- "WDS" on page 285
- "Filters" on page 289

After making changes to the configuration settings of an Array you must click on the **Save** button at the bottom of the configuration window, otherwise the changes you make will not be applied the next time the Array is rebooted. Click the **Apply** button if you want the changes applied to the current configuration, without making them permanent.

This chapter only discusses using the configuration windows on the Array. To view status or use system tools on the Array, please see:

- "Viewing Status on the Wi-Fi Array" on page 127
- "Using Tools on the Wi-Fi Array" on page 295



## **Express Setup**

The Express Setup procedure allows you to establish global configuration settings that will enable basic Array functionality. Any changes you make in this window will affect all radios. When finished, click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

Arry       Host Name:       [SS-Array         I Methody       Location Information:       Man Corridor South         I Status       Admin Contact:       [J Smith]         Status       Admin Ennal:       [j Smith]         System Log       Admin Ennal:       [j Smith]         Configuration       SMIN*22 Settings       [Not South]         Excress Stup       Security       SMIN*22 Settings       [Not South]         Security       1995 SSC 1212       South>       [Not South]         Security       Security       1995 SSC 1212       [Not South]         Security       1995 SSC 1212       [Not South]       [Not South]         Security       1995 SSC 255 255 255 255 255 255 255 255 255 25	Status	Name: SS-Array (10.100.47.186)	Location: Main Co	rridor South Uptime: 2 days, 0 hours, 18 minutes
Notack         Location Information:         Main Corridor South           PF Montor         Admin Contact:         J Smith           Statistics         Admin Phone:         Spread           Statistics         Admin Phone:         Spread           Statistics         Admin Phone:         Spread           System Log         Configuration         Spread           Express Solup         Enable Statistics         Statistics           Network         Read-Only Community String:         Forecommonity String:           Solutistics         Solutistics         Statistics           Solutistics         Solutistics         Statistics           Solutistics         Protocol         PutP         Statistic           Solutistics         Solutistics         Protocol         PutP         Statistic           Solutistics         Solutistics         Solutistics         Solutistics         Solutistics           Solutistics <td>Array</td> <td>Host Name:</td> <td>SS-Array</td> <td></td>	Array	Host Name:	SS-Array	
Strike       Admin Contact:       [J Smith         Configuration       Strike       Strike         Express Setup       Enable Strike       Strike         Network       Read-Only Community String:       Immediate Strike         VANa       Read-Only Community String:       Immediate Strike         Strike       Strike       C No         Configuration Server Protocol:       © NUCP       C Stratec         VDOS       IP Address:       [DSD Strike       C No         Cols       Default Ethernet 1 Settings       Enable Interface:       @ Yes       C No         Configuration Server Protocol:       © DNO       Configuration Server Protocol:       © No         Configuration Server Protocol:       © D No       Enable Interface:       @ Yes       C No         Configuration Server Protocol:       © D No       Enable Interface:       @ Yes       C No         Configuration Server Protocol:       © D No       Enable Interface:       @ Yes       C No         Configuration Server Protocol:       © D No       Configuration Server Protocol:	Network	Location Information:	Main Corridor South	
Statistics Admin Cinitable [] Shatistics   Statistics Admin Email: [] smm@/bygcorp.com   Statistics Admin Email: [] smm@/bygcorp.com   Statistics Admin Email: [] smm@/bygcorp.com   Admin Email: [] smm@/bygcorp.com   Statistics Statistics Statistics   Statistics Admin Email: [] smm@/bygcorp.com   Statistics Read Write Community String: [] smm@/bygcorp.com   Statistics Read Write Community String: [] statistics   Statistics Read Write Community String: [] statistics   Statistics Pailor [] Statistics   Statistics ID Statistics [] Statistics   Statistics ID Statistics [] Statistics   VANa Read Write Community String: [] statistics   ID Statistics IP Addees: [] ID 11   IP Addees: [] ID 1011   IP Submet Mask: [] Statistics   Configuration Server Protocol: C No   Configuration Server Protocol: C No   StiD Wireless Network Name]: [] Statistic   IP Submet Mask: [] Statistics   StiD Wireless Network Name]: [] Statistics   StiD Wireless Network Name]: [] Mw Admin Strings <td>RF Monitor</td> <td>Adapta Contract</td> <td>[10-10</td> <td></td>	RF Monitor	Adapta Contract	[10-10	
Statistics       Admin Email:       jumBi@kygcop.com         Configuration       Admin Phone:       \$06:555-1212         Express Setup       Enable SMMP/2:       @ Yes       Mo         Press       Read-Ohly Community String:       #************************************	Stations	Admin Contact:	name u	
Admin Phone:           Soverhald       SMMP-2: Settings         Express Setup       SMMP-2: Settings         Intervent       Read-Only Community String:         Society       Society         VLANs       Read-Only Community String:         Society       Society         Society       Enable Interface:         P Address:       ID011         P Submet Mask:       255252550         Colo       Glgable Ethernet 1 Settings         Colo       Glgable Ethernet 1 Settings         Colo       Glgable Ethernet 1 Settings         Colo Management On Interface:       @ Yes         Concil 403       Configuration Server Protocol:         Configuration Server Protocol:       C DHCP         P Submet Mask:       25525250         Colo Belin Gateway:       ID 100471166         IP Address:       ID 100471166         IP Submet Mask:       25525250         SSID (Wireless Network Name):       Open *         Management Admin Network Name):	Statistics     Sustain Log	Admin Email:	jsmith@xyzcorp.com	
Contractional Action       SMMP-2: Protect       Pres       No         Express Setup       Enable SMMP/2: Protect       Pres       No         Security       Security       Enable SMMP/2: Protect       Press       No         SSDS       Enable SMMP/2: Protect       Press       No         SSDS       Enable Interface:       Press       No         SSDS       Default Cateway:       Default Cateway:       Default Cateway:         Configuration Server Protocol:       C DHCP       Static:       Words         Concical       433       Configuration Server Protocol:       C DHCP       Static:         Waring       11       P Adress:       10.100/71       SSDS DEfault         SSD Writeles Network Name):       IV       SSD Writeles Network Name):       Vireless Security:         Adim Settings       Model Settings       IV       IV       SSD Settings         SSD Writeles Network Name):       SSD Writeles Network Name):       Vireless Se	Configuration	Admin Phone:	805-555-1212	
Colored Study       Enable SMMP-2:       @ Yes       C No         Nuck       Read.Only Community String:	Extrans Satur	SNMPv2 Settings		
Services       Read-Only Community String:	Network	Enable SNMPv2:	© Yes C	No
V.VA/s       Read Write Community String:       #*****         SSD:       Enable Interface:       @ Yes       No         Solution       Enable Interface:       @ DHCP       C Stade         WD3       IP Address:       10011       IP         IP Subnet Mask:       2552552550       IP         Cols       System Tools       Default Gateway:       2552525255         Cui       Gigabit Ethernet 1 Settings       ID         Cold       Gigabit Ethernet 1 Settings       ID         Configuration Server Protocol:       © DHCP       © No         Cold System Tools       Configuration Server Protocol:       © DHCP       @ Stadie         Varing       Allow Management On Interface:       @ Yes       © No         Configuration Server Protocol:       © DHCP       @ Stadie       IP         Varing       Subout Mask:       255 255 255 0       IP default Gateway:       ID         Varing       Auto       Still Settings       Still Settings       ID         Still Settings       Still OWireless Network Name):       IM       Writeless Security:       Open       IM         Math       Still OWireless Network Name):       Image and Data Settings       Image and Data Settings       Image and Data Settings <td>Services</td> <td>Read-Only Community String:</td> <td></td> <td></td>	Services	Read-Only Community String:		
Security     Social     Soc	VLANs	Read Write Community String:		
SSDs       Notice Examine 2       IP vis       No         Cocups       Configuration Server Protocol:       IP DRCP       Static         IP Address:       IP Address:       IP Address:       IP Address:         Tools       System Tools       Cigable Ethernet 1 Settings       Configuration Server Protocol:       IP No         Cuit       Cigable Ethernet 1 Settings       Enable Interface:       IP Yes       No         Cuit       Configuration Server Protocol:       IP DRCP       IP Static       IP Address:         IP Address:       IP Job Vanter Mask:       IP Static       IP Address:       IP Static       IP Address:         IP Address:       IP Subnet Mask:       IP Static       IP Address:       IP On Interface:       IP Yes       No         Configuration Server Protocol:       IP DRCP       IP Static       IP Address:       IP Static	Security	10/100 Ethernet 0 Settings	1	
Groups       Enable interface:       IV Yes       No         VMDS       IP Address:       [10011]         IP Address:       ID011       IP Address:         IP Subnet Mask:       255 255 255 0         Cols       System Tools       Gigabit Ethernet 1 Sottings         Cupout       Enable Interface:       IP Yes       No         Logout       Gigabit Ethernet 1 Sottings       III Subnet Mask:       255 255 255 0         CU       Gigabit Ethernet 1 Sottings       IIII Subnet Mask:       255 255 255 0         Cupout       Enable Interface:       IP Yes       No         Logout       Enable Interface:       IP Yes       No         Configuration Server Protocol:       ID HCP       Statice       III         Varing       IP Subnet Mask:       255 255 255 0       ID Eduit Gateway:       ID 100 47 186         General       IP Subnet Mask:       255 255 255 0       ID Eduit Gateway:       ID 100 47 186         SSID Sottings       SSID Christes Network Name):       Vireless Security:       Main Sottings         Admin Sottings       III No.000000000000000000000000000000000000	SSIDs	For No Eulernet o Settings	6 Mar. 0	N-
AAPs       Configuration Server Protocol:       IP DHCP       C Static         IP Address:       ID 0.1.1       IP         IP Subnet Mask:       255 255 255 0       ID 0.1.1         IP Subnet Mask:       255 255 255 0       ID 0.1.1         Logout       Gigabit Ethernet 1 Settings       ID 0.1.1         Logout       Gigabit Ethernet 1 Settings       ID 0.1.1         Logout       Configuration Server Protocol:       IP Ves       No         Citical       43       Configuration Server Protocol:       ID 100.47.186       IP         IP Subnet Mask:       255 255 255 0       ID 100.47.186       IP       ID 100.47.186         IP Subnet Mask:       255 255 255 0       ID 100.47.11       ID 100.47.11       ID 100.47.11         SSID (Wireless Network Name):       ID 100.47.11       ID 100.47.11       ID 100.47.11       ID 100.47.11         Markanow       Admin Settings       ID 100.47.11       ID 100.47.11       ID 100.47.11       ID 100.47.11         Markanow       Admin Settings       ID 100.47.11	Groups	Enable Interface:	C res C	No
W05       IP Address:       [10.01.1]         IP Subnet Mask:       [255.255.255.0]         Tools       Opfault Gateway:       [255.255.255.255]         CU       Glgabit Ethernet 1 Settings         Logout       Enable Interface:       @ Yes       C No         Maring 0       O       Configuration Server Protocol:       C DHCP       @ Static         Warning 0       IP Address:       10.0047.186       IP Subnet Mask:       255.255.255.0         Stil 5.41       Address:       10.10047.186       IP Subnet Mask:       255.255.255.0         Stil 5.41       IP Subnet Mask:       255.255.255.0       IP Address:       IP Subnet Mask:         Stil 5.51       Default Gateway:       10.10047.186       IP Subnet Mask:       255.255.255.0         Default Gateway:       Stil 0.55110.00       IP Address:       IP Subnet Mask:       255.255.255.0         Stil 5.51       Default Gateway:       ID 10047.186       IP Subnet Mask:       255.255.255.0         Default Gateway:       Stil 0.55110.00       IP Address:       IP Address:       IP Address:         Vireless Security:       Open       Nether Admin Settings       IP Admin Settings       IP Admin Settings         New Admin Date Settings       IP Admin Settings       IP Admi	APs	Configuration Server Protocol:	• DHCP C	Static
IP Subnet Mask: 255 255 255 0   Cools Opfault Gateway:   Copout Enable Interface:   Logout Enable Interface:   Cop Messages Configuration Server Protocol:   Critical 433   Warning 0   Caneral 17   IP Subnet Mask: 255 255 255 0   No Configuration Server Protocol:   Critical 433   Warning 0   Caneral 17   IP Subnet Mask: 255 255 255 0   Default Gateway: 10 100 47.186   IP Subnet Mask: 255 255 255 0   Default Gateway: 10 100 47.1   SSID Settings SSID Wireless Network Name):   SSID Settings SSID Wireless Network Name):   Wireless Security: Open   Admin Strings New Admin User (Replaces user "admin"):   New Admin Dassword: Image: Configuration Password:   Configurations Password: Image: Configurations Password:   Time Zone: (CMT) Greenwich Mean Time: Dublin, Lisbon, London I   Auto Adjust Daylight Savings: Image: Configure All IAPs:   Use Network Time Protocol: If Yes   NTP Primary Server: Sime nist.gov   NTP Secondary Server: pool.ntp.org   IAP Settings Execute	WDS	IP Address:	10.0.1.1	
Clob       Default Gateway:       255 255 255 255         Clu       Gigabit Ethernet 1 Settings         Log Massages       Allow Management On Interface:       @ Yes       No         Critical       433       Configuration Server Protocol:       © DHCP       @ Static         Warning       0       Offiguration Server Protocol:       © DHCP       @ Static         Warning       0       Offiguration Server Protocol:       © DHCP       @ Static         Warning       0       Offiguration Server Protocol:       © DHCP       @ Static         Warning       0       Offiguration Server Protocol:       © DHCP       @ Static         UP Subnet Mask:       255 255 255 0       Default Gateway:       10 100 47.1         SSID Settings       SSID Wireless Network Name):	Priflets Toolo	IP Subnet Mask:	255 255 255 0	
Gigabit Ethernet 1 Settings         Log Messages         Critical         Configuration Server Protocol:         Path         Math	Dusteen Texts	Default Gateway:	255 255 255 255	
Corr     Enable Interface:     If Yes     No       Log Messages     Allow Management On Interface:     If Yes     No       Critical     433     Configuration Server Protocol:     O DHCP     If Static       IP Address:     10 100.47.186     IP Address:     ID 100.47.186       IP Subnet Mask:     255.255.255.0     Default Gateway:     ID 100.47.1       SSID Settings     SSID Vireless Network Name):     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):       Mathew Admin Settings     Mew Admin Settings     Image: Static     Image: SSID (Vireless Network Name):       New Admin Settings     Image: Static     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):       Mathew Admin Network Name):     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):       Mathew Admin Network Name):     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):       Mew Admin Network Name:     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):       New Admin Network Name:     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name):       Image: SSID (Vireless Network Name):     Image: SSID (Vireless Network Name): <td>System roois</td> <td>Gigabit Ethernet 1 Settings</td> <td></td> <td></td>	System roois	Gigabit Ethernet 1 Settings		
Cop Messages Allow Management On Interface: P Yes No   Critical 433 Configuration Server Protocol: C DHCP © Static   IP Address: 10.100.47.186   IP Subnet Mask: 255.255.255.0   Default Gateway: 10.100.47.1   SSID Settings   SSID (Wireless Network Name):   Wireless Security:   Admin Settings   New Admin User (Replaces user radmin T):   New Admin Dassword:   Confirm Admin Password:   Time and Dato Settings   TimeZone:   Auto Adjust Daylight Savings:   Use Network Time Protocol:   @ Yes   NTP Primary Server:   Sime nist gov   NTP Secondary Server:   pointings   Lise Network Server:   pointing or g   MP Settings   Enable/Configure All IAPs:	Longit	Enable Interface:	© Yes C	No
Critical       433         Warning       Configuration Server Protocol:       C DHCP       Image: Static         IP Address:       10.100.47.186         IP Subnet Mask:       255.255.255.0         Default Gateway:       10.100.47.1         SSID Settings       SSID (Wireless Network Name):         Mask       SSID Settings         Mask       SSID (Wireless Network Name):         Mask       Mask         Mask       SSID (Wireless Network Name):         Wireless Security:       Open         Admin Settings       Mask         New Admin Dase (Replaces user radmin"):       Mex Admin Password:         Confirm Admin Password:       Confirm Admin Password:         Time and Dato Settings       Image: Confirm Admin Password:         Use Network Time Protocol:       If Yes         NtP Primary Server:       Image: Confirm Admin Password:         Use Network Time Protocol:       If Yes         NtP Primary Server:       Image: Confirm Admin Password:         Mask       Mask Adjust Daylight Savings:       Image: Confirm Admin Password:         Use Network Time Protocol:       If Yes       No         NtP Primary Server:       Image: Confirm Admin Password:       Image: Confirm Admin Password: <td< td=""><td>Log Messages</td><td>Allow Management On Interface:</td><td>© Yes C</td><td>No</td></td<>	Log Messages	Allow Management On Interface:	© Yes C	No
Warning     Orbit     Orbit     Sadot       General     17     IP Address:     10.100.47.186       Martin     Address:     255.255.255.0       All     Address:     10.100.47.1       SSID     SSID Settings     SSID Settings       SSID Settings     SSID (Wireless Network Name):     Wireless Security:       Martin     Admin User (Replaces user 'admin'):     Martin       Mew Admin User (Replaces user 'admin'):     Mew Admin Password:       Confirm Admin Password:     Confirm Admin Password:       Time and Dato Settings     Imartine Confirm Admin Password:       Use Network Time Protocol:     @ Yes       NTP Primary Server:     Sime nist gov       NTP Secondary Server:     Sime nist gov       NTP Secondary Server:     pool nip org       MP Settings     Execute	Critical 483	Configuration Server Protocol:	CDHCP @	Static
General       17       IP subort Mask:       255 255 255 255 0         Jab       Asis       255 255 255 0         Jab       Asis       255 255 255 0         Jab       Asis       255 255 255 255 0         Jab       SID Settings       SID Vireless Network Name):         Wireless Security:       Open       Admin Settings         New Admin User (Replaces user "admin"):       Mew Admin Password:       Confirm Admin Password:         Confirm Admin Password:       Confirm Admin Password:       Confirm Admin Password:         Time and Date Settings       TimeZone:       (GMT) Greenwich Mean Time: Dublin, Lisbon, London ▼         Auto Adjust Daylight Savings:       □       Use Network Time Protocol:       © Yes         NTP Primary Server:       Sime.nist.gov       NTP Secondary Server:       pool.nip.org         MP Settings       Enable/Configure All IAPs:       Execute	Warning 0	ID Address:	10 100 47 186	
Min       Addition       Add	General 17	ID Subast Mask	265 255 265 0	
All       All         All	A12	Default Category	200,200,200,0	
All Security: Admin Settings New Admin User (Replaces user "admin"): New Admin Password: Confirm Admin Password: Time and Dato Settings TimeZone: Auto Adjust Daylight Savings: Use Network Time Protocol: NEW Confirm Admin Password: Confirm Admin Password: Confirm Admin Password: Confirm Admin Password: Confirm Admin Password: TimeZone: Auto Adjust Daylight Savings: Use Network Time Protocol: NEW Configure All IAPs: Enable/Configure All IAPs: Execute	ABGA ABGI	SSID Catilogs	10.100.47.1	
SSD (Wireless Network Name): Wireless Security: Open ▲ Admin Settings New Admin User (Replaces user admin"): New Admin Password: Confirm Admin Password: Time and Date Settings TimeZone: Auto Adjust Daylight Savings: Use Network Time Protocol: © Yes ◯ No NTP Primary Server: pool.ntp.org IAP Settings Enable/Configure All IAPs: Execute	A30 A2 🔴	SSID Settings		
Main Settings         Addinin Settings         New Admin User (Replaces user "admin"):         New Admin User (Replaces user "admin"):         New Admin Password:         Confirm Admin Password:         Time and Dato Settings         TimeZone:         Auto Adjust Daylight Savings:         Use Network Time Protocol:         @ Yes         NTP Primary Server:         Images         NTP Secondary Server:         Images         Images </td <td>• CA 😄 EA •</td> <td>SSID (Wireless Network Name):</td> <td></td> <td></td>	• CA 😄 EA •	SSID (Wireless Network Name):		
Addition Settlings         New Admin User (Replaces user "admin"):         New Admin User (Replaces user "admin"):         New Admin Password:         Confirm Admin Password:         Time and Date Settlings         TimeZone:         Auto Adjust Daylight Savings:         Use Network Time Protocol:         ® Yes         NTP Primary Server:         Imanist gov         NTP Secondary Server:         Imanist gov         Notice         Arodary Server	● A8 A4 ●	Wireless Security:	Open 💌	
New Admin User (Replaces user admin"): New Admin Password: Confirm Admin Password: Time and Date Settlings TimeZone: Auto Adjust Daylight Savings: Use Network Time Protocol: Ves CNo NTP Primary Server: Sme.nist.gov NTP Secondary Server: pool.ntp.org IAP Settlings Enable/Configure All IAPs: Execute	ABG3 ABG2	Admin Settings		
New Admin Password:	• * * *•	New Admin User (Replaces user "admin"):		
Confirm Admin Password:          Time and Dato Settlings         TimeZone:         (GMT) Greenwich Mean Time: Dublin, Lisbon, London          Auto Adjust Daylight Savings:         Use Network Time Protocol:         % Yes         NTP Primary Server:         Ime.nist.gov         NTP Secondary Server:         IAP Settlings         Enable/Configure All IAPs:		New Admin Password:		
Time and Date Settlings         TimeZone:       (GMT) Greenwich Mean Time: Dublin, Lisbon, London          Auto Adjust Daylight Savings:       Image: Comparison of the set of		Confirm Admin Password:		
TimeZone:     (GMT) Greenwich Mean Time: Dublin, Lisbon, London       Auto Adjust Daylight Savings:     Image: Constraint of the second secon		Time and Date Settings		
Auto Adjust Daylight Savings:     Image: Constraint of the second s		TimeZone:	(GMT) Greenwich Mean 1	Time: Dublin, Lisbon, London 💌
Use Network Time Protocol: © Yes C No NTP Primary Server: 5me.nist.gov NTP Secondary Server: pool.ntp.org IAP Sottings Enable/Configure All IAPs: Execute		Auto Adjust Daylight Savings:		
NTP Primary Server:     Sme.nist.gov       NTP Secondary Server:     pool.ntp.org       IAP Sottings     Enable/Configure All IAPs:		Use Network Time Protocol:	© Yes C	No
NTP Secondary Server: pool np org IAP Settings Enable/Configure All IAPs: Execute		NTP Primary Server:	time.nist.gov	
IAP Settings Enable/Configure All IAPs: Execute		NTP Secondary Server:	pool.ntp.org	
Enable/Configure All IAPs: Execute		IAP Settings		
Anniv Save		Enable/Configure All IAPs:	Execute	
		-		Apply Save

Figure 103. WMI: Express Setup

## **Procedure for Performing an Express Setup**

- 1. Host Name: Specify a unique host name for this Array. The host name is used to identify the Array on the network. Use a name that will be meaningful within your network environment, up to 64 alphanumeric characters. The default is Xirrus-WiFi-Array.
- 2. Location Information: Enter a brief but meaningful description that accurately defines the physical location of the Array. In an environment where multiple units are installed, clear definitions for their locations are important if you want to identify a specific unit.
- **3.** Admin Contact: Enter the name and contact information of the person who is responsible for administering the Array at the designated location.
- **4. Admin Email**: Enter the email address of the admin contact you entered in Step 3.
- **5. Admin Phone**: Enter the telephone number of the admin contact you entered in Step 3.
- 6. Configure SNMP: Select whether to Enable SNMP on the Array, and set the SNMP community strings. The factory default value for the SNMP Read-Only Community String is xirrus\_read\_only. The factory default value for the SNMP Read-Write Community String is xirrus. If you are using the Xirrus Management System (XMS), the read-write string must match the string used by XMS. XMS also uses the default value xirrus.
- 7. Configure the **10/100 Ethernet 0** (10/100 Mb) and **Gigabit Ethernet 1** network interface settings. Note that the and Gigabit Ethernet 2 port is not configured on this page. If you need to make changes to Gigabit 2, please see "Network Interfaces" on page 181.

The fields for each of these interfaces are similar, and include:

- **a. Enable Interface**: Choose **Yes** to enable this network interface, or choose **No** to disable the interface.
- **b.** Allow Management on Interface: This option is available only on the Gigabit 1 and Gigabit 2 interfaces—the 10/100 Ethernet port is also known as the Management Port, and management is **always** enabled



on this port. Choose **Yes** to allow management of the Array via this Gigabit interface, or choose **No** to deny all management privileges for this interface.

- **c. Configuration Server Protocol**: Choose **DHCP** to instruct the Array to use **DHCP** to assign IP addresses to the Array's Ethernet interfaces, or choose **Static** if you intend to enter IP addresses manually. If you choose the Static IP option, you must enter the following information:
  - **IP Address**: Enter a valid IP address for this Array. To use a remote connection (Web, SNMP, or SSH), a valid IP address must be used.
  - **IP Subnet Mask**: Enter a valid IP address for the subnet mask (the default is 255.255.255.0). The subnet mask defines the number of IP addresses that are available on the routed subnet where the Array is located.
  - **Default Gateway**: Enter a valid IP address for the default gateway. This is the IP address of the router that the Array uses to forward data to other networks.
- **8. SSID Settings**: This section specifies the wireless network name and security settings.
  - a. The SSID (Wireless Network Name) is a unique name that identifies a wireless network (SSID stands for Service Set Identifier). All devices attempting to connect to a specific WLAN must use the same SSID. The default SSID is **xirrus**. Entering a value in this field will replace the default SSID with the new name.

For additional information about SSIDs, go to the Multiple SSIDs section of "Frequently Asked Questions" on page 400.

- b. Wireless Security: Select the desired wireless security scheme (Open, WEP or WPA). Make your selection from the choices available in the pull-down list.
  - **Open**—This option offers no data encryption and is not recommended, though you might choose this option if clients are



required to use a VPN connection through a secure SSH utility, like PuTTy.

- **WEP** (Wired Equivalent Privacy)—An optional IEEE 802.11 function that offers frame transmission privacy similar to a wired network. WEP generates secret shared encryption keys that both source and destination stations can use to alter frame bits to avoid disclosure to eavesdroppers.
- WPA (Wi-Fi Protected Access)—A Wi-Fi Alliance standard that contains a subset of the IEEE 802.11i standard, using TKIP or AES as an encryption method and 802.1x for authentication. WPA is the stronger of the two wireless security schemes.
- WPA2 (Wi-Fi Protected Access 2)—WPA2 is the follow-on security method to WPA for wireless networks and provides stronger data protection and network access control. It offers Enterprise and consumer Wi-Fi users with a high level of assurance that only authorized users can access their wireless networks. Like WPA, WPA2 is designed to secure all versions of 802.11 devices, including 802.11a, 802.11b, 802.11g, and 802.11n, multi-band and multi-mode.
- **WPA-Both** (WPA and WPA2)—This option makes use of both WPA and WPA2.

For more information about security, including a full review of all security options and settings, go to "Understanding Security" on page 208.

- **c. Wireless Key/Passphrase**: Depending on the wireless security scheme you selected, enter a unique WEP key or WPA passphrase.
- **d. Confirm Key/Passphrase**: If you entered a WEP key or WPA passphrase, confirm it here.
- **9.** Admin Settings: This section allows you to change the default admin username and password for the Array.
  - a. New Admin User (Replace Default): Enter the name of a new administrator user account. The new administrator will have read/


write privileges on the Array (i.e., the new user will be able to change the configuration of the Array). The default **admin** user is deleted. Note that the Array also offers the option of authenticating administrators using a RADIUS server (see "Admin Management" on page 213)).

- **b.** New Admin Password: If desired, enter a new administration password for managing this Array. Choose a password that is not obvious, and one that you can remember. If you forget your password, you must reset the Array to its factory defaults so that the password is reset to admin (its default setting).
- **c. Confirm Admin Password**: If you entered a new administration password, confirm the new password here.
- **10. Time and Date Settings:** This section specifies an optional time (NTP Network Time Protocol) server or modifies the system time if you're not using a server.
  - a. **Time Zone**: Select your time zone from the choices available in the pull-down list.
  - **b.** Auto Adjust Daylight Savings: If you are not using NTP, check this box if you want the system to adjust for daylight savings automatically, otherwise leave this box unchecked (default).
  - c. Use Network Time Protocol: Check this box if you want to use an NTP server to synchronize the Array's clock. This ensures that Syslog time-stamping is maintained across all units. Without an NTP server assigned (no universal clock), each Array will use its own internal clock and stamp times accordingly, which may result in discrepancies. If you check **Yes**, the NTP server fields are displayed. If you don't want to use an NTP server, leave this box unchecked (default) and set the system time on the Array manually.
  - **d. NTP Primary Server**: If you are using NTP, enter the IP address or domain name of the NTP server.



- e. NTP Secondary Server: Enter the IP address or domain name of an optional secondary NTP server to be used in case the Array is unable to contact the primary server.
- f. Set Time (hrs:min:sec): If you are not using NTP, check this box if you want to adjust the current system time. When the box is checked, the time fields become active. Enter the revised time (hours, minutes, seconds, am/pm) in the corresponding fields. If you don't want to adjust the current time, this box should be left unchecked (default).
- g. Set Date (month/day/year): If you are not using NTP, check this box if you want to adjust the current system date. When the box is checked, the date fields become active. Enter the revised date (month, day and year) in the corresponding fields. If you don't want to adjust the current date, this box should be left unchecked (default).
- **11. IAP Settings:**

**Enable/Configure All IAPs**: Click on the **Execute** button to enable and auto configure all IAPs (a message displays the countdown time—in seconds—to complete the auto-configuration task). When an IAP is enabled, its LED is switched on.



Figure 104. LEDs are Switched On

**12**. Click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.





This ends the Express Setup procedure.

# Network

This is a status only window that provides a snapshot of the configuration settings currently established for the 10/100 Ethernet 0 interface and the Gigabit 1 and Gigabit 2 interfaces. DNS Settings and CDP Settings (Cisco Discovery Protocol) are summarized as well. You must go to the appropriate configuration window to make changes to any of the settings displayed here (configuration changes cannot be made from this window). You can click on any item in the **Interface** column to "jump" to the associated configuration window.

XS-3900 Wi-Fi Arri				X	RRUS				
Status F. Anna	Interface Settings S	ummany	-			U	ptime - 2 da	rys, 3 he	ours, 3 minute
Network	Interface	Status	Link	Port Mode	DHCP	IP Address	Subnet	Mask	Gateway
RF Monitor	10/100 Ethernet 0	Enabled	down	a la	Enabled	10 0 1 1	255.25	5 255 0	
Stations	Gigabit Ethernet 1	Enabled	40	ink-backup	Enabled	192, 168, 36, 20	2.168.36.200 255.255		192 168 36 1
<ul> <li>Statistics</li> </ul>	Gigabit Ethernet 2	Enabled	down	link-backup	Enabled	192 168 36 20	0 255 255	5 255 0	192 168 36 1
System Log	DNS Settings Summ	NIN .							
Configuration	Hostname	D	Domain		DNS Server 1		Server 7	DI	IS Server 3
Express Setup	SS-Array	1000	us com	190	168 39 13	192.1	68 39 7	-	
<ul> <li>Network</li> </ul>	CDP Settings Summ	and w		-				1	
environ	State				Interval		Hold Time		16
ONS COR	Enable	ed			60		180		
Non-South Distance			1.1			1			



WMI windows that allow you to change or view configuration settings associated with the network interfaces include:

- "Network Interfaces" on page 181
- "DNS Settings" on page 188
- "CDP Settings" on page 189

*See Also* DNS Settings Network Interfaces Network Status Windows



## Spanning Tree Status Network Statistics

## Network Interfaces

This window allows you to establish configuration settings for the 10/100 Fast Ethernet interface and the Gigabit 1 and Gigabit 2 interfaces.

tatus			Uptime - 1 day, 23 hours, 20 minu
Actay	10/100 Ethernet 0 Settings		
Network	Enable Interface:	Yes	O No
RF Monitor Stations	Auto Negotiate:	Yes	○ No
Statistics	Duplex:	Full	O Half
System Log	Speed:	100 Megabit ~	
onfiguration	Configuration Server Protocol:	OHCP	O Static
Express Setup	IP Address:	10.0.1.1	
Vetwork	ID Subset Mask	255 255 255 0	
DNS	ir subiet hask.	230 233 230 0	
	Default Gateway:		
Services	Static route (IP Address/Mask):	192.168.39.0	/ 255 255 255 0
/LANs	Gigabit Ethernet 1 Settings		
security	Enable Interface:	O Yes	○ No
Groups	LED Indicator:	Enabled	Olisabled
APs	Allow Management On Interface:	• Yes	O No
MDS	Auto Negotiate:	• Yes	O No
iters	Duplex:	• Full	O Half
ols	Speed:	Gigabit	
System Loois	Port Mode:	Active backup (	(gig1/2 fail over to each other)
ogout	Configuration Server Protocol:	⊙ DHCP	O Static
• A12	IP Address:	192.168.36.200	
All Al ABGI	IP Subnet Mask:	255 255 255 0	
A10 A2	Default Gateway:	192.165.36.1	
	Gigabit Ethernet 2 Settings		
AS ANG	Enable Interface:	Yes	⊙ No
AT 16 45	LED Indicator:	Enabled	Obisabled
•••	Allow Management On Interface:	⊙ Yes	O No
Critical Megs:	4 Auto Negotiate:	⊙ Yes	○ No
Warning Msgs:	1 Duplex:	Full	O Half
General Msgs: 18	4 Speed:	Gigabit	
	Port Mode:	Active backup (	(gig1/2 fail over to each other)
	Configuration Server Protocol:	· DHCP	Static
	IP Address:	192.168.36.200	
	IP Subnet Mask:	255 255 255 0	

Figure 106. Network Settings





*Gigabit 2 settings will "mirror" Gigabit 1 settings (except for MAC addresses) and cannot be configured separately.* 

When finished making changes, click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent. When the status of an Ethernet or Gigabit port changes, a Syslog entry is created describing the change.

## **Network Interface Ports**

The following diagram shows the location of each network interface port on the underside of the Array.



Figure 107. Network Interface Ports

## Procedure for Configuring the Network Interfaces

Configure the **Fast Ethernet** and **Gigabit 1** network interfaces (some **Gigabit 2** settings cannot be configured separately and will mirror **Gigabit 1**). The fields for each of these interfaces are the same, and include:



- **1. Enable Interface:** Choose Yes to enable this network interface (Fast Ethernet, Gigabit 1 or Gigabit 2), or choose No to disable the interface.
- 2. LED Indicator: Choose Enabled to allow the LED for this interface to blink with traffic on the port, or choose Disabled to turn the LED off. The LED will still light during the boot sequence, then turn off. This option is only available for the Gigabit interfaces.
- 3. Allow Management on Interface: Choose Yes to allow management of this Array via the selected network interface, or choose No to deny all management privileges for this interface. This option is only available for the Gigabit interfaces—management is always enabled on the 10/100 interface (sometimes called the Management Port).
- **4. Auto Negotiate**: This feature allows the Array to negotiate the best transmission rates automatically. Choose **Yes** to enable this feature, or choose **No** to disable this feature—the default is enabled. If you disable the Auto Negotiate feature, you must define the Duplex and Speed options manually (otherwise these options are not available).
  - a. **Duplex**: Data is transmitted in two directions simultaneously (for example, a telephone is a full-duplex device because both parties can talk and be heard at the same time). Half-duplex allows data transmission in one direction at a time only (for example, a walkie-talkie is a half-duplex device. If the Auto-Negotiate feature is disabled, you can manually choose **Half** or **Full** duplex for your data transmission preference.
  - **b.** Speed: If the Auto-Negotiate feature is disabled, you can manually choose the desired data transmission speed from the pull-down list. If configuring the Fast Ethernet interface the options are 10 Megabit or 100 Megabit. If configuring the Gigabit 1 or Gigabit 2 interfaces the options are 100 Megabit or Gigabit.
- 5. **Port mode:** Select the desired behavior for the gigabit Ethernet ports from the following options. For a more detailed discussion of the use of the Gigabit ports and the options below, please see the *Xirrus Gigabit Ethernet Port Modes Application Note* in the <u>Xirrus Library</u>.

# XIRRUS

- a. Active Backup (gig1/gig2 failover to each other)—This mode provides fault tolerance and is the default mode. Gigabit 1 acts as the primary link. Gigabit2 is the backup link and is passive. Gigabit2 assumes the IP properties of Gigabit1. If Gigabit 1 fails the Array automatically fails over to Gigabit2. When a failover occurs in this mode, Gigabit2 issues gratuitous ARPs to allow it to substitute for Gigabit1 at Layer 3 as well as Layer 2. See Figure 108 (a).
- b. Aggregate Traffic from gig1 & gig2 using 802.3ad—The Array sends network traffic across both gigabit ports to increase link speed to the network. Both ports act as a single logical interface (trunk), using a load balancing algorithm to balance traffic across the ports. The destination IP address of a packet is used to determine its outgoing adapter. For non-IP traffic (such as ARP), the last byte of the destination MAC address is used to do the calculation. The network switch must also support 802.3ad. If a port fails, the trunk degrades gracefully—the other port still transmits. See Figure 108 (b).

#### (a) Active backup

(b) Aggregate using 802.3ad





Figure 108. Port Modes (a-b)



- c. Bridge traffic between gig1 & gig2—Traffic received on Gigabit1 is transmitted by Gigabit2; similarly, traffic received on Gigabit2 is transmitted by Gigabit1. This allows the Array to act as a wired bridge and allows Arrays to be daisy-chained and still maintain wired connectivity. See Figure 109 (c).
- d. Transmit Traffic on both gig1 & gig2—Transmits incoming traffic on both Gigabit1 and Gigabit2. Any traffic received on Gigabit1 or Gigabit2 is sent to the onboard processor. This mode provides fault tolerance. See Figure 109 (d).





e. Load balance traffic between gig1 & gig2—This option provides trunking, similar to option (b)—Aggregate Traffic from gig1 & gig2 using 802.3ad, but it uses a different load balancing algorithm to determine the outgoing gigabit port. The outgoing port used is based on an exclusive OR of the source and destination MAC address. Like option (b), this mode also provides load balancing and fault tolerance. See Figure 110 (e).









f. Mirror traffic on both gig1 & gig2—all traffic received on the Array is transmitted out both Gigabit1 and Gigabit2. All traffic received on Gigabit1 is passed on to the onboard processor as well as out Gigabit2. All traffic received on Gigabit2 is passed on to the onboard



processor as well as out Gigabit1. This allows a network analyzer to be plugged into one port to capture traffic for troubleshooting, while the other port provides network connectivity for data traffic. See Figure 110 (f).

- 6. Configuration Server Protocol: Choose DHCP to instruct the Array to use DHCP when assigning IP addresses to the Array, or choose Static IP if you intend to enter IP addresses manually. If you select the Static IP option you must specify the IP address, IP subnet mask and default gateway.
  - a. **IP Address**: If you selected the Static IP option, enter a valid IP address for the Array. To use any of the remote connections (Web, SNMP, or SSH), a valid IP address must be established.
  - b. IP Subnet Mask: If you selected the Static IP option, enter a valid IP address for the subnet mask (the default for Class C is 255.255.255.0). The subnet mask defines the number of IP addresses that are available on the routed subnet where the Array is located.
  - **c. Default Gateway**: If you selected the Static IP option, enter a valid IP address for the default gateway. This is the IP address of the router that the Array uses to transmit data to other networks.
- 7. Static Route (IP Address/Mask): (Fast Ethernet port only) The 10/100 Ethernet Port may be used for managing the Array out of band from the Gigabit Ethernet ports. The 10/100 port will route only management traffic, using a static route that may be configured using this field.
- 8. When done configuring all interfaces as desired, click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

See Also DNS Settings Network Network Statistics Spanning Tree Status



# **DNS Settings**

This window allows you to establish your DNS (Domain Name System) settings. At least one DNS server must be set up if you want to offer clients associating with the Array the ability to use meaningful host names instead of numerical IP addresses. When finished, click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

XS-3900 Wi-Fi Arra	ау		xirrus
Status			Uptime - 0 days, 2 hours, 20 minutes
Array	DNS Hostname:	SS-Array	
Network	DNS Domain:	Viene Autor	
RF Monitor	UN S DOMAIN.	An a second	
Stations	DNS Server 1:	192.168.39.13	
Statistics	DNE Conver 2:	100 100 30 7	
System Log	UNS Server 2:	192.160.39.7	
Configuration	DNS Server 3:		
Express Setup			Apply Save
<ul> <li>Network</li> </ul>			
Interfaces			
DNS			

Figure 111. DNS Settings

### **Procedure for Configuring DNS Servers**

- 1. DNS Host Name: Enter a valid DNS host name.
- 2. DNS Domain: Enter the DNS domain name.
- 3. DNS Server 1: Enter the IP address of the primary DNS server.
- **4. DNS Server 2** and **DNS Server 3**: Enter the IP address of the secondary and tertiary DNS servers (if required).
- 5. Click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

### See Also

Network Network Interfaces Network Statistics Spanning Tree Status

#### Wi-Fi Array



## **CDP Settings**

CDP (Cisco Discovery Protocol) is a layer 2 network protocol used to share information (such as the device manufacturer and model, network capabilities, and IP address) with other directly connected network devices. Wi-Fi Arrays can both advertise their presence by sending CDP announcements, and gather and display information sent by neighbors (see "CDP Neighbors" on page 140).

This window allows you to establish your CDP settings. When finished, click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

XS-3900 WI-Fi Arr	ау			XiRRUS
Status			Uptime - 0	days, I hour, 11 minutes
Artay	Enable CDP:	© Yes	ONe	
<ul> <li>Network</li> <li>Ref Machine</li> </ul>	CDP Interval:	60	seconds	
Stations	CDP Hold Time:	180	seconds	
Statistics System Log				Peoly Same
Configuration				
Express Setup				
<ul> <li>Network</li> </ul>				
totactaces (245)				
CDP				

Figure 112. CDP Settings

### **Procedure for Configuring CDP Settings**

- **1. Enable CDP:** When CDP is enabled, the Array sends out CDP announcements of the Array's presence, and gathers CDP data sent by neighbors. When disabled, it does neither. CDP is enabled by default.
- 2. **CDP Interval**: The Array sends out CDP announcements advertising its presence at this interval. The default is 60 seconds.
- 3. CDP Hold Time: CDP information received from neighbors is retained for this period of time before aging out of the Array's neighbor list. Thus, if a neighbor stops sending announcements, it will no longer appear on the CDP Neighbors window after CDP Hold Time seconds from its last announcement. The default is 180 seconds.



See Also CDP Neighbors Network Network Interfaces Network Statistics

#### Wi-Fi Array



# Services

This is a status only window that allows you to review the current settings and status for services on the Array, including DHCP, SNMP, Syslog, and Network Time Protocol (NTP) services. For example, for the DHCP server, it shows each DHCP pool name, whether the pool is enabled, the IP address range, the gateway address, lease times, and the DNS domain being used. There are no configuration options available in this window, but if you are experiencing issues with network services, you may want to print this window for your records.

Status	Name: SS:Array	( 10.10	0:47/186	(-	Location: Map Uptime: 3 days, 6 hours, 43 m					6 hoors, 43 minute	
Artay	Time Settings Su	mmany									
Network	NTP Se	rver St	atus		NTP Server 1 Address			NTP Server 2 Address			
RF Monitor	Er	beide			time nist gov				peol ntp. org		
Blations	Netflow Summary	2		1	à.	- 20		6	-73		
Statistics	5	tate			Collect	or Hor	t i		Collect	or Port	
System Log	Dis Dis	beide									
Configuration	System Log Settle	ngs Su	mmarys	10				10			
Express Setup	Syslog Server Sta	tus			Enabled						
Network	Console Logging			-	Disabled	Lmel	6 and lower ()	nformation	n and more ser	ousi	
Senices	Local File				500 lines	Level 6 and lower (Information and more serious)				idurs)	
Terre	Primary Server	Primary Server				Level	6 and lower ()	ntomation	and more ser	ious)	
Contraction of the	Secondary Server			-	192.168.36.51	Level	6 and lower il	ntormation	and more ser	ious)	
READ	Tertiary Server	Tertiary Server				Level	6 and lower ()	ntormatica	s and more ser	ious)	
DICP Seren	Email SMTP Serve	Email SMTP Server				Level	4 and lower (V	Vaining a	nd more seriou	18.]	
VLANs	SNMP Settings Summary					T ST ST		Concerning of		28 <u>.</u>	
Security	SNMP Status	Tra	p Auth F	ailures	Trap Host IP 1	Trap Host IP 2		Trap Host IP 3		Trap Host IP 4	
8904	Disabled	1	Disable	d	20					2	
Groups	R/O Community	R/	W Comm	unity	Tran Dort 1	Tran Bort 3		Tran Dect 3		Tran Port 4	
WPs.	String		String	1	mapronit		Trap Port 2		aprons	map Pont4	
WDS	xinus_wad_only	1	XITUE	-		1					
Fillers	DHCP Server Set	ings		1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 -	50 C						
fools	DHCP Name	State	NAT		IP Range/Mask		IP	Default	Maximum	DNS Domain	
System Tools	71.550.00000.	0.000	3755	_		Gateway		Lease	Lease	Cito Domain	
au	dhcp Server	00	on	450.40	120.100.0.10 -		120 100.0.1	300	300	dnsDom	
Logout				120:10	0.0 250 (255 255 255	50		000 000		and the second	

Figure 113. Services

The following sections discuss configuring services on the Array:

- "Time Settings (NTP)" on page 192
- "NetFlow" on page 194
- "System Log" on page 195
- "SNMP" on page 198
- "DHCP Server" on page 201



# Time Settings (NTP)

This window allows you to manage the Array's time settings, including synchronizing the Array's clock with a universal clock from an NTP (Network Time Protocol) server. Synchronizing the Array's clock with an NTP server ensures that Syslog time-stamping is maintained across all units.

Ansy     TimeZone:     (GMT - 08:00) Pacific Time (US & Canadia); Tipuana      Anso     Notarck     Auto Adjust Daylight Savings:     Statistics     System Log     Adjust Time (Incrimin:tec):     Satistics     System Log     Adjust Date (month/daylyear):     S	(GMT - 08:00) Pacific Time (US & Canada); Tipuana ♥ s:
Network     Auto Adjust Daylight Savings:     PF Montor     Use Network Time Protocol:     Ore     Statistics     Adjust Time (Inscrimitsec):     F     6     05     17     PM     Configuration     Adjust Date (month/daylyear):     P     9     7     23     7     2005	s: ☑ ○ Yes ◎ No ☑ 6 05 37 PM ♥ 9 / 23 / 2008
Option     Use Network Time Protocol:     O Yes     O No       Stations     Adjust Time (Instministed):     Image: Configuration     Image: Configuration       Configuration     Adjust Date (month/day/year):     Image: Configuration     Image: Configuration	○ Yes         ⊙ No           Ø         6         05         37         PM ♥           I         Ø         / 23         / 2006         Apply         Save
Scalings     Adjust Time (her.min:sec):     Image: Figure 1       System Log     Adjust Date (month/day/year):     Image: Figure 1       Configuration     Image: Figure 1     Image: Figure 1	Ø         6         05         37         PM ♥           ⊭         Ø         9         / 23         / 2008         Apply         Save
System Log Configuration Adjust Date (month/day/year): [] 9 / 23 / 2005	E E 9 / 23 / 2008
Configuration Annual	Apply Save
	ADDV Save
Express Setup	
Network	
Senices	
Time	

Figure 114. Time Settings (Manual Time)

## Procedure for Managing the Time Settings

- **1. Time Zone:** Select the time zone you want to use (normally your local time zone) from the pull-down list.
- 2. Auto Adjust Daylight Savings: Check this box if you want the system to adjust for daylight savings automatically, otherwise leave this box unchecked (default).
- **3. Use Network Time Protocol:** select whether to set time manually or use NTP to manage system time.
- 4. Setting Time Manually
  - a. Adjust Time (hrs:min:sec): If you are not using NTP, check this box if you want to adjust the current system time. When the box is checked, the time fields become active. Enter the revised time (hours, minutes, seconds, am/pm) in the corresponding fields. If you don't want to adjust the current time, this box should be left unchecked (default).



- **b.** Adjust Date (month/day/year): If you are not using NTP, check this box if you want to adjust the current system date. When the box is checked, the date fields become active. Enter the revised date (month, day and year) in the corresponding fields. If you don't want to adjust the current date, this box should be left unchecked (default).
- 5. Using an NTP Server
  - **a. NTP Primary Server**: If you are using NTP, enter the IP address or domain name of the NTP server.

XS-3900 WI-FI Arr	ау		Xirrus
Status	Name: 55-Amay (10.100.47.186)	Location: Map	Uptime: il days, 6 hours, 47 minutes
Artay	TimeZone:	(GMT - 08:00) Pacific Time	e (US & Canada). Tijuana 🛛 🛫
<ul> <li>Network</li> </ul>	Auto Adjust Daylight Savings:	2	
Stations	Use Network Time Protocol:	⊗Yes C	No
Satisfics	NTP Primary Server:	time nist gov	
System Log Configuration	NTP Secondary Server:	pool ntp. org	
Express Setup			Juny Save

Figure 115. Time Settings (NTP Time Enabled)

- **b. NTP Secondary Server**: Enter the IP address or domain name of an optional secondary NTP server to be used in case the Array is unable to contact the primary server.
- 6. Click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

See Also
Services
SNMP
System Log



## NetFlow

This window allows you to enable or disable the sending of NetFlow information to a designated collector. When enabled, the Array will send IP flow information (traffic statistics) to the collector.

	Name: SS:Array (10,100.47,185)	Location:	Maga:	Uptime: 2 days, 6 hours, 59 minute
Anay	Enable Netflow:	· Yes	ONo	
Network RF Monitor	Netflow Collector Host	10 10 10 10		
Stations	Netflow Collector Port:	2055		
System Log Configuration Express Setup				Apply Sav
Services Tima Netflow System Log				

Figure 116. NetFlow

## **Procedure for Configuring NetFlow**

- 1. **Enable NetFlow:** Choose **Yes** to enable NetFlow functionality, or choose **No** to disable this feature.
- **2.** NetFlow Collector Host (Domain or IP): If you enabled NetFlow, enter the domain name or IP address of the collector.
- **3. NetFlow Collector Port**: If you enabled NetFlow, enter the port on the collector host to which to send data.

#### Wi-Fi Array



# System Log

This window allows you to enable or disable the Syslog server, define primary, secondary, and tertiary servers, set up email notification, and set the level for Syslog reporting for each of the servers and for email notification—the Syslog service will send Syslog messages that are at the selected severity or above to the defined Syslog servers and email address.

Status	Name: SS-Array. (10.100.47.186)	Location: Map	Uptime: 0 days, 6 hours, 51 minute
Actay	Enable Syslog Server:	⊙Yes C	No
Networks	Console Logging:	OYes G	No
RF Monitor	Local File Size (1-500):	500	
Statistics	Primary Server Address (Domain or IP):	192 163 36 66	
System Log	Finally Server Hadress (Sources of F	Concentration of the second	
Configuration	Secondary Server Address (Domain or IP):	192.168.36.51	
Express Setup	Tertiary Server Address (Domain or IP):		
Network	Email SMTP Address (Domain or IP):		
Sevices	Email SMTP User.		
Netter	Email SMTP Password		
System Log			
ANNE CONT	Email SMTP From:		
DecCP Senar	Email SMTP To:		
Secultu	Syslog Levels		
SSID	Console Logging:	Information and more	serious 💌
Groups	Local File:	Information and more	serious 💌
MP1	Primary Server:	Information and more	senous V
W05	Successfam Samuer	Information and more	
	Secondary server.	and the second second second	serrous
com	Tertiary Server:	Information and more	setious ·
Cities and a contract of the c	Email SMTP Server:	Warning and more ser	ious 💌
Tannat			Acole Save

Figure 117. System Log

### **Procedure for Configuring Syslog**

- **1. Enable Syslog Server:** Choose **Yes** to enable Syslog functionality, or choose **No** to disable this feature.
- 2. **Console Logging**: If you enabled Syslog, select whether or not to echo Syslog messages to the console as they occur. If you enable console logging, be sure to set the Console Logging level (see Step 7 below).



- **3.** Local File Size (1-500): Enter a value in this field to define how many Syslog records are retained locally on the Array's internal Syslog file. The default is 500.
- **4. Primary Server Address (Domain or IP)**: If you enabled Syslog, enter the domain name or IP address of the primary Syslog server.
- 5. Secondary/Tertiary Server Address (Domain or IP): If you enabled Syslog, you may enter the domain name or IP address of one or two additional Syslog servers to which messages will also be sent. (Optional)
- **6. Email Notification**: The following parameters allow you to send an email to a designated address each time a Syslog message is generated. The email will include the text of the Syslog message.
  - a. Email SMTP Address (Domain or IP): The domain name or the IP address of the SMTP server to be used for sending the email. Note that this specifies the mail server, **not** the email recipient.
  - **b. Email SMTP User/Email SMTP Password**: Specify a user name and password for logging in to an account on the mail server designated in Step a.
  - **c. Email SMTP From**: Specify the "From" email address to be displayed in the email.
  - **d. Email SMTP To**: Specify the entire email address of the recipient of the email notification.
- 7. **Syslog Levels**: For each of the Syslog destinations, choose your preferred level of Syslog reporting from the pull-down list. Messages with criticality at the selected level and above will be shown. The default level varies depending on the destination.
  - a. Console Logging: For messages to be echoed to the console, the default level is Critical and more serious. This prevents large numbers of non-critical messages from being displayed on the console. If you set this level too low, the volume of messages may make it very difficult to work with the CLI or view other output on the console.



- **b.** Local File: For records to be stored on the Array's internal Syslog file, choose your preferred level of Syslog reporting from the pull-down list. The default level is **Debugging and more serious**.
- c. **Primary Server**: Choose the preferred level of Syslog reporting for the primary server. The default level is **Debugging and more serious**.
- d. Secondary/Tertiary Server: Choose the preferred level of reporting for the secondary/tertiary server. The default level is Information and more serious. (Optional)
- e. Email SMTP Server: Choose the preferred level of Syslog reporting for the email notifications. The default level is Warning and more serious. This prevents your mailbox from being filled up with a large number of less severe messages such as informational messages.
- 8. Click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

See Also System Log Window Services SNMP Time Settings (NTP)



### **SNMP**

This window allows you to enable or disable SNMP v2 and SNMP v3 and define the SNMP parameters. SNMP v2 allows remote management of the Array by the Xirrus Management System (XMS). SNMP v3 was designed to offer much stronger security. You may enable either SNMP version, neither, or both. If you enable both, be aware that data and keys are not encrypted when SNMPv2 is used.

**NOTE:** If you are managing your Arrays with XMS (the Xirrus Management System), it is very important to use SNMP v2 and the correct **Read-Write Community String** for proper operation of XMS with the Array. Both XMS and the Array must have the same value for this string.

XS-3900 Wi-Fi Array					xi	RRUS
Status	Name: SS-Array (10.100.47.186)	Location: Map		Uptime: 3	days, 6 hou	irs, 53 minutes
Anay	SNMPv2 Settings					
Network	Enable SNMPv2:	OYes @	No			
RF Monitor	Read-Write Community String:					
Stations	reducting community string.					
<ul> <li>Statistics</li> </ul>	Read-Only Community String:	•••••				
System Log	SNMPv3 Settings					
Configuration	Enable SNMPv3:	⊙Yes C	No			
Express Setup	Authentication:	⊙ SHA C	MD5			
<ul> <li>Network</li> <li>Senices</li> </ul>	Privacy:	© AES C	DES			
Time	Context Engine ID:	8000521503				
Netflow System Log	Read-Write Username:	xirrus-tw				
SNMP	Read-Write Authentication Password:	•••••				
DHCP Sever	Read-Write Privacy Password:	•••••				
Security	Read-Only Username:	xirrus-ro				
SSIDs	Read-Only Authentication Password:	•••••				
WPs	Read-Only Privacy Password:					
WDS	SNMP Trap Settings					
Filters	Trap Host 1 IP Address:	100.100.100.10	Port:	162		
Curtern Tools	Trap Host 2 IP Address:		Port			1
CLI	Trap Host 3 IP Address:		Port			1
Logout	Trap Host 4 IP Address:		Port			í –
Log Messages	Sond Auth Failure Trans	0.4.4	No			_
Critical 402	Jena Addi Panare Traps.	0105	no			
warning 0						Apply Save

Figure 118. SNMP

#### **Procedure for Configuring SNMP**

- 1. Enable SNMPv2: Choose Yes to enable SNMP v2 functionality, or choose No to disable this feature. When used in conjunction with the Xirrus Management System, SNMP v2 (not SNMP v3) must be enabled on each Array to be managed with XMS. The default for this feature is Yes (enabled).
- 2. **SNMP Read-Write Community String**: Enter the read-write community string. The default is **xirrus**.
- **3. SNMP Read-Only Community String**: Enter the read-only community string. The default is **xirrus\_read\_only**.
- **4. Enable SNMPv3**: Choose **Yes** to enable SNMP v3 functionality, or choose No to disable this feature. The default for this feature is Yes (enabled).
- 5. Authentication: Select the desired method for authenticating SNMPv3 packets: SHA (Secure Hash Algorithm) or MD5 (Message Digest Algorithm 5).
- 6. **Privacy**: Select the desired method for encrypting data: **DES** (Data Encryption Standard) or the stronger **AES** (Advanced Encryption Standard).
- 7. **Context Engine ID**: The unique identifier for this SNMP server. We recommend that you do not change this value. The Context Engine ID must be set if data collection is to be done via a proxy agent. This ID helps the proxy agent to identify the target agent from which data is to be collected.
- 8. **SNMP Read-Write Username**: Enter the read-write user name. This username and password allow configuration changes to be made on the Array. The default is **xirrus-rw**.
- **9. SNMP Read-Write Authentication Password**: Enter the read-write password for authentication (i.e., logging in). The default is **xirrus-rw**.
- **10. SNMP Read-Write Privacy Password**: Enter the read-write password for privacy (i.e., a key for encryption). The default is **xirrus-rw**.



- **11. SNMP Read-Only Username**: Enter the read-only user name. This username and password do not allow configuration changes to be made on the Array. The default is **xirrus-ro**.
- **12. SNMP Read-Only Authentication Password**: Enter the read-only password for authentication (i.e., logging in). The default is **xirrus-ro**.
- **13. SNMP Read-Only Privacy Password**: Enter the read-only password for privacy (i.e., a key for encryption). The default is **xirrus-ro**.
- 14. SNMP Trap Host IP Address: Enter the IP Address or domain name, as well as the **Port** number, of an SNMP management station that is to receive SNMP traps. You may specify up to four hosts that are to receive traps.
- **15. Send Auth Failure Traps**: Choose **Yes** to log authentication failure traps or **No** to disable this feature.
- **16.** Click on the **Apply** button to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

# *See Also* Services System Log Time Settings (NTP)

#### Wi-Fi Array



## **DHCP Server**

This window allows you to create, modify and delete DHCP (Dynamic Host Configuration Protocol) pools and enable or disable DHCP server functionality. DHCP allows the Array to provide wireless clients with IP addresses and other networking information. The DHCP server will not provide DHCP services to the wired side of the network.

If you enable the DHCP server, you need to define the DHCP lease time (default and maximum) and establish the IP address range that the DHCP server can use.

									Uptime - 2 d	ays, 3 hours, 26	minutes
New D	HCP	Pool									
				Creat	•						
		Lease	Time		Leas	e IP Range					
DHCP Pool	On	Default	Max	NAT	Start	End	Subnet Mask	Gateway	Domain	DNS Servers	Delete
pool1		300	300		192.168.1.2	192.168.1.254	255 255 255 0	192.168.1.1	whatsamattaU	192.168.1.1	
pool2		300	300		192.168.2.2	192.168.2.254	255 255 255 0				
										Apply	Save

Figure 119. DHCP Management

### **Procedure for Configuring the DHCP Server**

- **1.** New Internal DHCP Pool: Enter a name for the new DHCP pool, then click on the Create button. The new pool ID is added to the list of available DHCP pools.
- **2. On**: Click this checkbox to make this pool of addresses available, or clear it to disable the pool.
- **3.** Lease Time—Default: This field defines the default DHCP lease time (in seconds). The factory default is 300 seconds, but you can change the default at any time.
- **4. Lease Time—Max**: Enter a value (in seconds) to define the maximum allowable DHCP lease time. The default is 300 seconds.



- 5. Network Address Translation (NAT): Check this box to enable the Network Address Translation feature.
- 6. Lease IP Range—Start: Enter an IP address to define the start of the IP range that will be used by the DHCP server. The default is 192.168.1.100.
- 7. Lease IP Range—End: Enter an IP address to define the end of the IP range that will be used by the DHCP server. The DHCP server will only use IP addresses that fall between the start and end range that you define on this page. The default is 192.168.1.200.
- 8. **Subnet Mask**: Enter the subnet mask for this IP range for the DHCP server. The default is 255.255.255.0.
- 9. Gateway: If necessary, enter the IP address of the gateway.
- **10. Domain**: Enter the DNS domain name. See also, "DNS Settings" on page 188.
- **11. DNS Servers** (1 to 3): Enter the IP address of the primary DNS server, secondary DNS server and tertiary DNS server. See also, "DNS Settings" on page 188.
- **12.** Click **Apply** to apply the new settings to this session, or click **Save** to apply your changes and make them permanent.

See Also DHCP Leases DNS Settings Network Map



# **VLANs**

This is a status only window that allows you to review the current status of assigned VLANs. A VLAN (Virtual LAN) is comprised of a group of devices that communicate as a single network, even though they are physically located on different LAN segments. Because VLANs are based on logical rather than physical connections, they are extremely flexible. A device that is moved to another location can remain on the same VLAN without any hardware reconfiguration.

In addition to listing all VLANs, this window shows your settings for the Default Route VLAN and the Native (Untagged) VLAN (Step 1 page 205).

XS-3900 Wi-Fi Array								X	irr	lUS
Statue 6 Actey • Setemb	Default Route VLAN Refre (Jintegged)	0047488)		Optime: 1 days, 4 hours, 20 minuted						
<ul> <li>Stations</li> <li>Statistics</li> <li>System Lag</li> </ul>	VLAR Name VolP Video	Number 18 100	Nanagement disafioned disafioned	CHCP distlet anablel	10 Address 10 10 10 2	Subnet Mask 255 255 255 8	Gatterway 10.10.10.1	Turnel Server VTUN	Port 4321	State 60x11
Express Setup • Factaons • Services • VCAVe VCAVe										

Figure 120. VLANs



For a complete discussion of implementing Voice over Wi-Fi on the Array, see the **Xirrus Voice over Wi-Fi Application Note** in the **Xirrus Library**.

# **Understanding Virtual Tunnels**

Xirrus Arrays support Layer 2 tunneling with Virtual Tunnels. This allows an Array to use tunnels to transport traffic for one or more SSID-VLAN pairs onto a single destination network through the Layer 3 core network.

The Array has low overhead and latency for VTun connections, with high resilience. The Array performs all encryption and decryption in hardware, maintaining wire-rate encryption performance on the tunnel.



## Virtual Tunnel Server (VTS)

Tunneling capability is provided by a Virtual Tunnel Server. You supply the server and deploy it in your network using open-source VTun software, available from vtun.sourceforge.net. To enable the Array to use tunneling for a VLAN, simply enter the IP address, port and secret for the tunnel server as described in Step 10 on page 206.

VTun may be configured for a number of different tunnel types, protocols, and encryption types. For use with Arrays, we recommend the following configuration choices:

- Tunnel Type: Ether (Ethernet tunnel)
- Protocol: UDP
- Encryption Type: select one of the encryption types supported by VTun (AES and Blowfish options are available)
- Keepalive: yes

## **Client-Server Interaction**

The Array is a client of the Virtual Tunnel Server. When you specify a VTS for a an active VLAN-SSID pair, the Array contacts the VTS. The server then creates a tunnel session to the Array. VTun encapsulated packets will cross the Layer 3 network from the Array to the VTS. When packets arrive at the VTS, they will be de-encapsulated and the resultant packets will be passed to your switch with 802.1q VLAN tags for final Layer 2 processing. The process occurs in reverse for packets traveling in the other direction.

We recommend that you enable the VTun keep-alive option. This will send a keep-alive packet once per second to ensure that the tunnel remains active. Tunnels can be configured to come up on demand but this is a poor choice for Wi-Fi, since tunnel setup can take roughly 5-20 seconds and present a problem for authentication.



## **VLAN Management**

This window allows you to assign and configure VLANs. After creating a new VLAN (added to the list of VLANs), you can modify the configuration parameters of an existing VLAN or delete a selected VLAN.

XS-3900 WI-FI Am	ву								- 8	xirr	US
Statue	Name: SS Array 118	108.47.188.1			Location: N	le l		. Upti	and de	p. Altower, 54	in statement
e Anay	Default Route:			inonej ···		VLAN Number					
<ul> <li>RF Muster</li> </ul>	Native VLAN			(1004)		VLAN Number					
Damens     Damens     Damens	VLAN Name	Natiber	Management Create	(INCP	P Address	Subnet Mask	Gataway	Tunnel Server	Part	New Secret	Delete
Configuration	VolP.	10	E1	11	1010102	268,258,258.0	1010101	VTUN	4321	1	
Express Setup 1 Refeard 2 Services 1 VI Alia	Vider	100		E					1	Perro	- D Save

Figure 121. VLAN Management

The Wi-Fi Array supports dynamic VLAN assignments specified by RADIUS policy settings. When RADIUS sends these assignments, the Array dynamically assigns wireless stations to VLANs as requested. VLAN tags on traffic are passed through the Array (i.e., VLAN tags are not stripped). Once a station has been dynamically moved to a new VLAN, it will be shown in the Stations window as a member of the new VLAN. (Figure 82 on page 150)

It is critical to configure all VLANs to be used on the Array, even those that will be dynamically assigned.

### Procedure for Managing VLANs

- 1. **Default route:** This option allows you to choose a default VLAN route from the pull-down list. When you click **Apply** the VLAN you choose will appear in the corresponding VLAN Number field. The IP Gateway must be established for this function to work.
- 2. Native VLAN: This option allows you to choose the Native VLAN from the pull-down list. When you click **Apply** the VLAN you choose will appear in the corresponding VLAN Number field.