



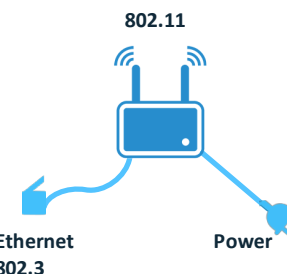
## Sophos Wireless Networking Cheat Sheet

Everything you ever wanted to know about wireless networking technology but were too afraid to ask

<b>HARDWARE</b> What's the difference?	<b>HUB:</b> Replicates Bits and sends them to all clients, wastes bandwidth so now mostly obsolete	<b>SWITCH:</b> Replaced hub. Learns to forward traffic based on MAC address and port associated with a client	<b>ROUTER:</b> Provides communication between internal and external network (e.g. the internet)	<b>ACCESS POINT:</b> Radio device which converts a single wired connection to wireless and vice versa	
	Uses binary code	Uses MAC addresses	Uses IP addresses	Uses MAC addresses	
<b>STANDARDS</b> You might hear	<b>802.3</b>	<b>802.3af or at</b>	<b>802.11</b>	<b>802.1X</b>	<b>802.11r</b>
	Ethernet	Power over Ethernet	Wireless LAN	Authentication standard	Fast roaming
	<b>802.11ac</b> is the most current and fastest Wireless LAN standard, however, customers may still be using 802.11n. <b>802.11ac Wave 2</b> refers to the newest iteration of the 'ac' specification. It brings faster speeds and new features.				
<b>KEY TERMS</b> explained	<b>SSID</b>	<b>Power over Ethernet</b>	<b>MIMO Multiple Input Multiple Output</b>	<b>Mesh network</b>	
	Service Set Identifier is the 'name' given to a wireless network (vs. BSSID which is the MAC address of an AP)	PoE uses a single data cable to provide power and ethernet by connecting to a PoE injector or switch	Uses multiple antennae to combine signals and therefore transfer more data at the same time (think car pool lane)	Access points communicate and broadcast a common SSID to extend coverage even to hard to wire areas	
<b>Bands &amp; Channels</b>	Band refers to the frequency range a network is broadcasting. Each band is split into channels.				
	<b>2.4 GHz - Wide support, long range but busy</b>		<b>5 GHz - Growing support, shorter range but better signal</b>		
	Most common and widely supported band for WLAN Used by many other devices, e.g. Wireless mouse 11-14 channels only, suffers from congestion		Becoming the preferred band where supported Limited used by other devices, e.g. radar Offers more channels but some reserved for radar		

### How it Works

An access point takes the Ethernet signal from a single connection, translates it to wireless and then makes it available to multiple clients. When it receives data it does the same thing in reverse.



Every access point needs power and internet from somewhere. In many cases, both will be supplied by a single data cable connected to a PoE-capable switch. An individual PoE injector for each AP can also be used in smaller environments.

# An A to Z of Essential Wireless Terminology

## A B C D E F G H I

<b>Access Point</b> Radio device you connect to	<b>BSSID</b> The MAC address of an AP	<b>Channel</b> Path through which signals flow	<b>Dual-band</b> Supports 2.4 & 5 GHz bands	<b>Evil Twin</b> AP impersonation or spoof attack	<b>Frequency</b> See band	<b>Gigabit Wi-Fi</b> Refers to 802.11ac	<b>Hotspot</b> Often network in public area	<b>IoT</b> Internet of Things connected devices
<b>Association</b> Client connection process	<b>Band</b> Frequency range (2.4 or 5 GHz)		<b>Diversity</b> Use of antennae to improve signal					
	<b>Beacon</b> Transmit signal of AP (10x/sec)							

## R Q P O N M L K J

<b>Rogue AP</b> Untrusted AP or AP impersonation	<b>QoS</b> Quality of Service, e.g. Traffic prioritization	<b>PoE</b> Power over Ethernet	<b>OFDM</b> Scheme to encode digital data	<b>Node</b> Connection point in a network	<b>MIMO</b> Multiple Input Multiple Output	<b>LAN</b> Local Area Network	<b>kHz</b> Unit of frequency for radio waves	<b>Jargon</b> Commonly used with Wi-Fi ;-)
					<b>Mesh</b> Extends a Wi-Fi network			

## S T U V W X Y Z

<b>SSID</b> Name of a wireless network	<b>TLS</b> Transport Layer Security	<b>UNII Band</b> Unlicensed 5 GHz frequencies in WiFi	<b>VLAN</b> Logical group on a network	<b>WIDS/WIPS</b> Wireless Intrusion Security features	<b>Xylophone</b> What else?!	<b>Y</b> Why choose any other Wi-Fi?	<b>ZigBee</b> Low-power/ cost specification
---	--	--	---	--	---------------------------------	---	--

United Kingdom and Worldwide Sales  
Tel: +44 (0)8447 671131  
Email: sales@sophos.com

North American Sales  
Toll Free: 1-866-866-2802  
Email: nasales@sophos.com

Australia and New Zealand Sales  
Tel: +61 2 9409 9100  
Email: sales@sophos.com.au

Asia Sales  
Tel: +65 62244168  
Email: salesasia@sophos.com

Oxford, UK  
© Copyright 2016. Sophos Ltd. All rights reserved.  
Registered in England and Wales No. 2096520, The Pentagon, Abingdon Science Park, Abingdon, OX14 3YP, UK  
Sophos is the registered trademark of Sophos Ltd. All other product and company names mentioned are trademarks or registered trademarks of their respective owners.

16-10-11-NA (NP)