# **ZYXEL**





# **NAP102**

### 802.11ac Dual-Radio Nebula Cloud Managed Access Point

The Zyxel Nebula NAP102 802.11ac Dual-Radio Nebula Cloud Managed Access Point is a high-performance, cloud-managed 2x2 MIMO 802.11ac AP designed for deployments in offices, schools, hospitals, hotels and retail stores. With ultra-fast speeds of up to 1.2 Gbps, the Nebula NAP102 has revolutionized cloud managed wireless networking to a higher entry level. Featuring dual-concurrent, dual-band operation and advanced technologies such as Dynamic Channel Selection, Load Balancing and Smart Client Steering, the NAP102 delivers high throughput and reliable coverage for a superb Wi-Fi experience.

Every Nebula AP has been engineered for cloud management. Based on the NETCONF standard, all data traffics between the cloud and access points are exchanged using secure transports to ensure transaction-safe configuration on all Nebula devices. Furthermore, with the intuitive management interface, administrators are able to manage all the access points quickly even without training.

### **Benefits**

#### **Zero-touch deployments**

The Zyxel Nebula NAP102 auto-configures itself after installation and then automatically connects to the Nebula cloud to join the network; so auto-configuration, provision, monitoring and diagnostics can be performed anytime, anywhere. This simplifies network setup and enables deployment of Nebula APs to a remotely located network even by non-IT professionals.



Cloud-managed, dual-radio 2x2 MIMO 802.11ac access point



Supports combined data rates of up to 1200 Mbps



Self-configuration and zerotouch deployment



Enterprise-class security and RF optimization



Dynamic Channel Selection, Load Balancing and Smart Client Steering



#### Optimized wireless experience

The Zyxel Nebula NAP102 delivers optimized wireless experience for users with comprehensive wireless features such as Dynamic Channel Selection (DCS), Load Balancing, and Smart Client Steering, etc. DCS avoids interference from co-channeling and overlapping channels continuously, while Load Balancing and Smart Client Steering which features Band Select and Balance for more spectrum to provide more stable, reliable wireless connections.

#### Smoke detector design that blends into environments

Different from traditional business access points, the Zyxel Nebula NAP102 comes in a "smoke detector" ceiling-mount design. Since the "smoke detector" design is not invasive, there is no need to hide it behind the ceiling tiles; and the ceilingmount optimized RF design can provide its best performance and coverage. In addition, the NAP102 is plenum-rated and made of non-toxic materials without hazardous emission – critical for public indoor wireless deployments.

#### **Enterprise-class security**

The Zyxel Nebula NAP102 inherits the NETCONF protocol for secure configuration changes. In terms of authentication and data encryption, it supports WPA2 enterprise protection and a wide range of Extensible Authentication Protocol (EAP) types, including EAP SIM for smartphones. Besides, the NAP102 also features access control and Layer-2 isolation for privacy protection. The comprehensive security features ensure NAP102 to deliver enterprise-grade protection to the entire network.

#### **Ultra-fast speed**

The Zyxel Nebula NAP102 is a 2x2 802.11ac AP that provides Gigabit Wi-Fi experience. The concurrent dual-band support meets the pervasive BYOD demands to support more clients with equal signal coverage in both 2.4 GHz and 5 GHz bands.



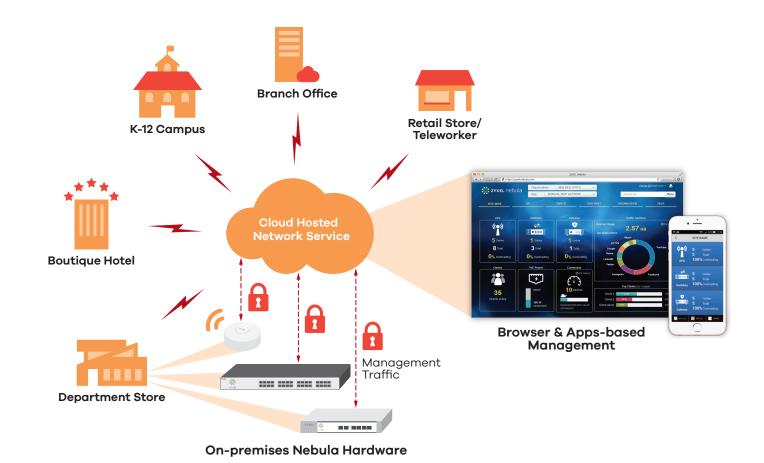
Real-time control of all the devices through a single pane of glass



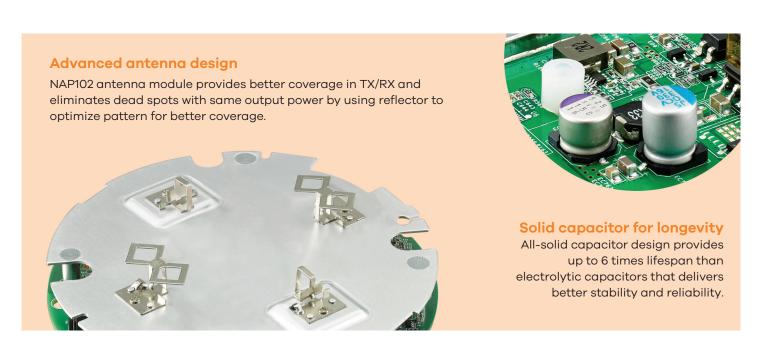
Monitor AP usage and client report by different time intervals and view historical status record via the intuitive management interface

### **Applications Diagram**

#### Nebula cloud management architecture



### **Robust Hardware**



# **Specifications**

Model	NAP102	
Product name	802.11ac Dual-Radio Nebula Cloud Managed Access Point	
	( country )	
RF Specifications		

RF Specificatio	ns			
Frequency band  802.11n/ac premium features		2.4 GHz (IEEE 802.11 b/g/n)  • USA (FCC): 2.412 to 2.462 GHz  • Europe (ETSI): 2.412 to 2.472 GHz  • Taiwan (TW): 2.412 to 2.462 GHz	<ul> <li>5 GHz (IEEE 802.11 a/n/ac)</li> <li>USA (FCC): 5.15 to 5.35 GHz; 5.725 to 5.850 GHz</li> <li>Europe (ETSI): 5.15 to 5.35 GHz; 5.470 to 5.725 GHz</li> <li>Taiwan (TW): 5.15 to 5.35 GHz; 5.725 to 5.850 GHz</li> </ul>	
		<ul> <li>2x2 Multiple-Input Multiple-Output (MIMO) with two spatial streams</li> <li>Maximal Ratio Combining (MRC)</li> <li>20-, 40- and 80-Mhz channels</li> <li>Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)</li> </ul>	<ul> <li>Cyclic Delay Diversity (CSD) support</li> <li>Maximum Likelihood Demodulation (MLD) support</li> <li>Low Density Parity Check (LDPC) support</li> </ul>	
Conducted	FCC 11b/g	23		
typical	FCC 11g/n	23		
transmit	FCC 11a	26		
output power (dBm)	FCC 11n/a (ac)	26		
(dBm)	EU 11b/g	20		
	EU 11g/n	20		
	EU 11a	26		
	EU 11n/a (ac)	26		
Antenna system		Embedded internal antenna		
Antenna gain		2.4 GHz 3 dBi; 5 GHz 4 dBi		
Support data rate		<ul> <li>802.11 a/g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps</li> <li>802.11n: up to 300 Mbps in MCS15 (40 MHz; GI = 400 ns)</li> <li>802.11ac: up to 866 Mbps in MCS9 (80 MHz; 2 spatial streams; GI = 400 ns)</li> </ul>		
Receive sensitivity		Min. Rx sensitivity up to to -99 dBm		
Interfaces				
Number of 10/10	00/1000M LAN	1		
Console port		4-Pin serial		
PoE		Yes		
PoE power draw		9 W		
Wireless Securi	ty			
WEP		Yes		
WPA/WPA2-PSK		Yes		
WPA/WPA2-Enterprise		Yes		
WLAN access control list		Yes		
EAP types		TLS, TTLS, PEAP, FAST, AKA and SIM		
IEEE 802.1X		Yes		
Number of SSID		8 (per radio)		
MAC filtering		Yes		

Wireless Security           Loger-2 isolation         Yes           RADIUS authentication         Yes           Captive portul         Yes           Network           VILANS         Yes           DHOP client         Yes           WIMM         Yes           WIMM power sure         Yes           WIMM power sure         Yes           Monagement         Yes           Cloud manage         Yes           Xes           Xes <th></th> <th>:</th> <th></th>		:	
RADIUS authentication         Yes           Octyte port to 1         yes           Ves           VEANS         Yes           Octyte port to 2         Ves           WIMM         Yes           WIMM power to 1         Yes           Management         Ves           Cloud mange to 1         Yes           Colvetifity         Support           Smart connect         Neighbor device discovery           Chief to 2           The power of 1         12 VDC, 1A           MTBF (hr)         12 VDC, 1A           MTBF (hr)         12 VDC, 1A           MTBF (hr)         12 VBC, 1A           WILE BES 802.3 to EEE 802.3 to EE			
Captive porture         Yes           Network           VLANS         Yes           DHCP client         Yes           WMMM         Yes           WMMM power save         Yes           Uniffer y marking         Yes           Management           Cloud monaged         Yes           Cloud monaged         Yes           Somet connect         Neighbor device discovery           Others           Semat connect         Neighbor device discovery           Others           Plenum rating         Yes           Neighbor device discovery           Others           Plenum rating         Yes           Neighbor device discovery           Others           Neighbor device discovery           Others           Plenum rating         Yes           Neighbor device discovery           Others           Plenum rating         Yes           Neighbor device discovery	Layer-2 isolation		Yes
Network           VLANs         Yes           DHCP client         Yes           QOS (PO)           WMM         Yes           WMM power save         Yes           WM general Support           Uses           Cloud managed         Yes           ZON utility         Support           Support           Smart connect         Neighbor device discovery           Cothers           Vers           James and to support           Support           Mart connect         Neighbor device discovery           Cothers           Pole Support           Ling to support           Mart connect           Mart connect           Mart connect           Mart connect           Ling to support           Ling to support <th< th=""><th colspan="2"></th><th>**</th></th<>			**
VLANs         Yes           DHCP client         Yes           Cos (PO)           WMM power sure         Yes           WMM power surking         Yes           Management           Cloud managed         Yes           Cloud managed         Yes           Cloud managed         Yes           Smart connect         Neighbor device discovery           Others           Stondard Connect           Neighbor device discovery           Others           Stondard Connect           Others           Stondard Connect           Ethernet         I EEE 802.3, IEEE 802.3u           PoE         I EEE 802.3, IEEE 802.3u           POE         I EEE 802.3, IEEE 802.3u <th< th=""><th></th><th>rtal</th><th>Yes</th></th<>		rtal	Yes
DHCP client	Network		
Ves	VLANs		Yes
WMM power save         Yes           Monagement           Cloud managed         Yes           Support           Smart connect         Neighbor device discovery           Others           Plenum rating         Yes           Imput power         12 y DC, 1 A           MTBF (hr)         1,727,244           Standard Compliance           Ethernet         IEEE 802.3 IEEE 802.3u           PoE         IEEE 802.3 ieE 802.3u           WIAN         802.1b: DBPSK, DQPSK, CCK           802.1b: DBPSK, QPSK, 16-QAM, 64-QAM           802.1b: BPSK, QPSK, 16-QAM, 64-QAM	DHCP client	t	Yes
Wes           Diff ser warking         Yes           Cloud manged         Yes           ZON utility         Support           Smort connect         Neighbor device discovery           Others           Plenum rathgrame that the properties of	QoS (PG)		
DiffServ mork by Management 100 more of 10	WMM		Yes
Management           Cloud managed         Yes           Support           Support           Support           Others           Plenum rating         Yes           Input power         12 VDC, 1 A           MTBF (In)	WMM powe	r save	Yes
Ves	DiffServ ma	ırking	Yes
Support           Support           Support           Others           Plenum rath	Manageme	nt	
Smart connect         Neighbor device discovery           Chies           Plenum rating         Yes           Input power         12 VDC, 1 A           MTBF (hr)         1,727,244           Standard Compliance           Ethernet         IEEE 802.3, IEEE 802.3u           PoE         IEEE 802.3f           WLAN         ***********************************	Cloud mand	aged	Yes
Plenum ratiss	ZON utility		Support
Plenum rating	Smart connect		Neighbor device discovery
Input power	Others		
MTBF (hr)         1,727,244           Standard O∞pliance           Ethernet         IEEE 802.3, IEEE 802.3u           PoE         IEEE 802.3af           WLAN         • 802.11b: DBPSK, DQPSK, CCK           • 802.11g: BPSK, QPSK, 16-QAM, 64-QAM         • 802.11b: BPSK, QPSK, 16-QAM, 64-QAM           • 802.11b: BPSK, QPSK, 16-QAM, 64-QAM         • 802.11b: BPSK, QPSK, 16-QAM, 256-QAM           Certification           EMC         ETSI EN 300 328 VI.7i: 11-2006, EN 301 893 VI.51           FC Part 15247, FCC Part 1524, FCC Part 1524, PCC Part 152	Plenum rating		Yes
Standard Compliance	Input power		12 VDC, 1 A
PoE	MTBF (hr)		1,727,244
PoE	Standard C	ompliance	
WLAN         • 802.11b: DBPSK, DQPSK, CCK           • 802.11g: BPSK, QPSK, 16-QAM, 64-QAM           • 802.11c: BPSK, QPSK, 16-QAM, 64-QAM           • 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM           • 802.11ac: BPSK, QPSK, 64-QAM, 256-QAM           Certifications           Radio           ETSI EN 300 328 V1.71: 11-2006, EN 301 893 V1.5.1           FCC Part 15.247, FCC Part 15E, LP0002, EN 60601-1-2: 2007           EMC         EN 301 489-1 V1.81: 11-2008, EN 301 489-17 V2.11: 05-2009           EN55022: 2010, EN55024: 2010, EN61000-3-2/-3           FCC Part 15.107, BSMI CNS13438.99, CNS14336: 99           Safety           EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011, IEC 60950-1: 2005; BSMI           Physical Specifications           Item         Dimensions (WxDxH)(mm/in.)         130 x 130 x 54.7/5.12 x 5.12 x 2.17           Weight (g/lb.)         300/0.67           Packing         Dimensions (WxDxH)(mm/in.)         278 x 209 x 72/10.94 x 8.23 x 2.83           Weight (g/lb.)         700/1.54           Included acceptable (glib)           Power adapter           • Wall/Ceiling-mount plate           Environmental Specifications           O°C to 50°C/32°F to 122°F	Ethernet		IEEE 802.3, IEEE 802.3u
\$802.11g: BPSK, QPSK, 16-QAM, 64-QAM	PoE		IEEE 802.3af
Radio       ETSI EN 300 328 V1.71: 11-2006, EN 301 893 V1.5.1	WLAN		<ul><li>802.11g: BPSK, QPSK, 16-QAM, 64-QAM</li><li>802.11a: BPSK, QPSK, 16-QAM, 64-QAM</li><li>802.11n: BPSK, QPSK, 16-QAM, 64-QAM</li></ul>
FCC Part 15.247, FCC Part 15E, LP0002, EN 60601-1-2: 2007   EMC	Certificatio	ons	
EN55022: 2010, EN55024: 2010, EN61000-3-2/-3   FCC Part 15.107, BSMI CNS13438.99, CNS14336: 99   Safety	Radio		
IEC 60950-1: 2005; BSMI           Physical Specifications           Item         Dimensions (WxDxH)(mm/in.)         130 x 130 x 54.7/5.12 x 5.12 x 2.17           Weight (g/lb.)         300/0.67           Packing         Dimensions (WxDxH)(mm/in.)         278 x 209 x 72/10.94 x 8.23 x 2.83           Weight (g/lb.)         700/1.54           Included accessories         • Power adapter           • Wall/Ceiling-mount plate           Environmental Specifications           Operating         Temperature         0°C to 50°C/32°F to 122°F           Humidity         10% to 90% (non-condensing)           Storage         Temperature         -30°C to 70°C/-22°F to 158°F	EMC		EN55022: 2010, EN55024: 2010, EN61000-3-2/-3
Item         Dimensions (WxDxH)(mm/in.)         130 x 130 x 54.7/5.12 x 5.12 x 2.17           Weight (g/lb.)         300/0.67           Packing         Dimensions (WxDxH)(mm/in.)         278 x 209 x 72/10.94 x 8.23 x 2.83           Weight (g/lb.)         700/1.54           Included accessories         • Power adapter • Wall/Ceiling-mount plate           Environmental Specifications           Operating         Temperature         0°C to 50°C/32°F to 122°F           Humidity         10% to 90% (non-condensing)           Storage         Temperature         -30°C to 70°C/-22°F to 158°F	·		
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Operating         Temperature         0°C to 50°C/32°F to 122°F           Humidity         10% to 90% (non-condensing)           Storage         Temperature         -30°C to 70°C/-22°F to 158°F	Included accessories		•
Humidity         10% to 90% (non-condensing)           Storage         Temperature         -30°C to 70°C/-22°F to 158°F	Environmer	ntal Specifications	
Storage Temperature -30°C to 70°C/-22°F to 158°F	Operating	Temperature	0°C to 50°C/32°F to 122°F
<u> </u>		Humidity	10% to 90% (non-condensing)
<b>Humidity</b> 10% to 90%	Storage		-30°C to 70°C/-22°F to 158°F
		Humidity	10% to 90%











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