HUAWEI AC6005 Series
Access Controller Datasheet

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HUAWEI TECHNOLOGIES CO.,LTD.
Huawei Industrial Base
Bantian Longgang
Shenzhen 518129,P.R.China
Tel: +86 755 28780808

HUAWEI TECHNOLOGIES CO., LTD.

HUAWEI

Multiple interface support

- 8 GE interfaces
- One RJ-45 serial maintenance interface
- One mini-USB serial maintenance interface

Large-capacity, high-performance design with proven reliability

- Connections for up to 128 APs per AC
- Backplane capacity of 4Gbit/s
- PoE support for maximum power on 8 ports
- Port backup using the Link Aggregation Control Protocol (LACP) or Multiple Spanning Tree Protocol (MSTP)

Easy to install and easy to maintain

- Convenient size (320 mm × 233.6 mm × 43.6 mm): small enough to fit a standard cabinet
- Local GUI-based management system
- eSight network management system support
- Support for an intra-board temperature probe, which monitors the operating environment of the AC in real time

Dynamic energy management

- Low-noise fans, which dynamically adjust to load changes to keep equipment noise and power consumption low
- Automatic power-saving mode, which engages during idle operation (when no peer device is connected)
- Highly integrated, energy-saving design, which provides even higher performance and lower power consumption when coupled with an intelligent device management system

The Huawei AC6005 access controller (AC) provides small- to medium-size enterprise networks with high-performance features and built-in reliability, flexibility, and scalability. This large-capacity AC integrates 1,000 M Ethernet switch functionality for both wired and wireless access control when deploying access points (APs), as well as extending hotspot coverage. Used with Huawei Premium Series APs, Enhanced Series APs and Standard Series APs, the AC6005 delivers a flexible networking solution that is easy to install and maintain for campus, industrial, and mid-size enterprise networks.

Huawei offers two AC6005 models:

- Model AC6005-8
- Model AC6005-8-PWR with PoE support

Advanced Network Features

The Huawei Model AC6005 provides AP connection and control for small- to large-size enterprise and campus networks. The AC6005 offers these features:

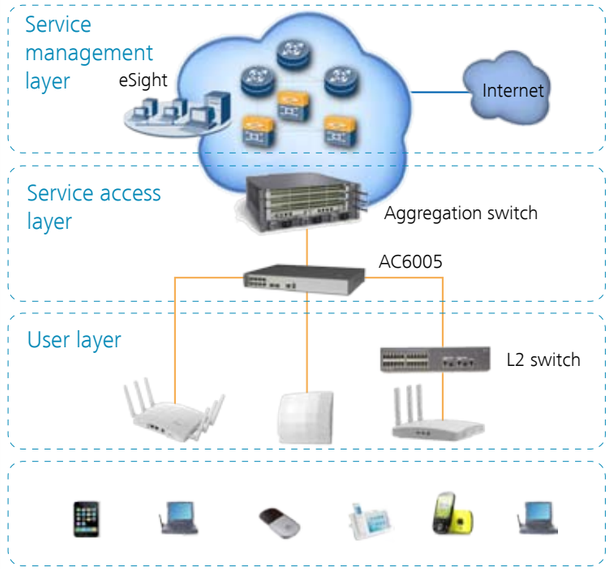
- licensing for multiple APs
- Flexible networking and forwarding
- Compatibility with 802.11a/b/g/n protocols
- Comprehensive user policy management and authorization control
- Secure and reliable N+1 backup
- Centralized authentication and distributed forwarding
- 4 Gbit/s switching capacity
- Centralized AP management and maintenance
- Integrated WLAN management

Typical Networking

The AC6005 can be deployed in branched, chain, and Wireless Distribution System (WDS) networks.

Branched Networking

In branched networking, the AC6005 connects to a network device (usually an aggregation switch) to manage the APs. Management flows are transmitted in Control and Provisioning of Wireless Access Points (CAPWAP) tunnels, and data flows are forwarded to the upper layer network by the aggregation switch and do not pass through the AC6005.

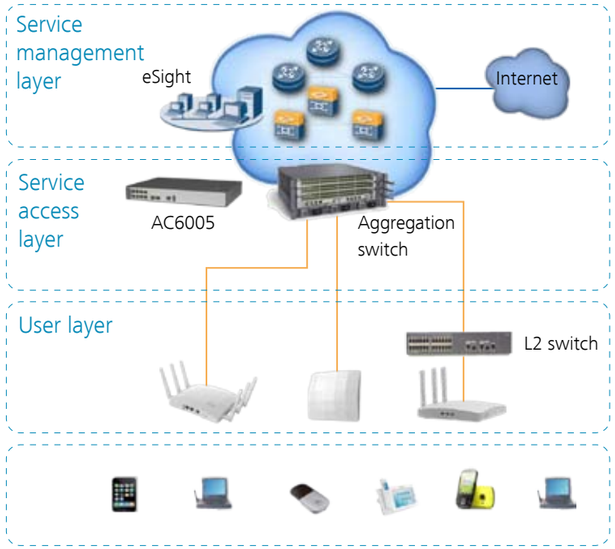


The AC6005 manages all the APs connected to the aggregation switch. This network topology works well where APs are scattered across hot spots. Because tunnel forwarding is commonly used for overlay network deployments, Huawei recommends using tunnel forwarding in branch network configurations for most enterprise networks.

Chain Networking

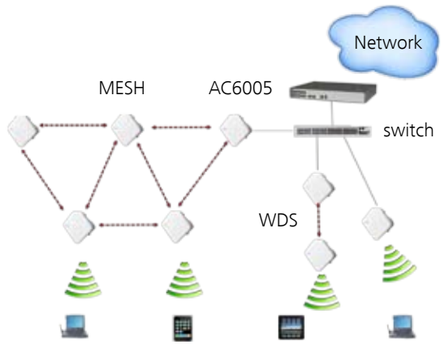
In chain networking, APs or access switches directly connect to the AC6005. The AC6005 functions as both an AC and an aggregation switch to forward and process data and management services for the APs.

In chain networking scenarios, the AC6005 sets up CAPWAP tunnels with APs to configure and manage these APs. Service data of wireless users can be forwarded between APs and the AC6005 over CAPWAP data tunnels or be directly forwarded by APs.



The AC6005 has a wired switching unit with powerful access, aggregation, and switching capabilities. Direct forwarding is often used in chain networking scenarios. This networking mode simplifies network architecture and is used with large-scale and centralized WLANs.

WDS and Mesh Networking



WDS and Mesh networking use a distributed network of APs. The WDS and Mesh networks connect to an AC through a switch, and the AC connects to the network through a network device, such as a gateway or an aggregation switch. The WDS and Mesh connect to user stations (STAs).

WDS and MESH networking are used to expand wireless coverage areas for outdoor wireless deployments.

AC6005 Features

Feature	Benefit
Scalability	Licenses are available for managing 1, 8, 32APs.
Flexible networking capability	The AC and APs can be connected across a Layer 2 or Layer 3 network. Network Address Translation (NAT) can be deployed in configurations where APs are deployed on an internal network and the AC is deployed on an external network. Services can be mapped between VLANs and Service Set Identifiers (SSIDs). The number of service VLANs and number of SSIDs can be in a ratio of 1:1 or 1:N based on service requirements. You can assign user VLANs based on SSIDs, physical locations, or services. The AC can be deployed in chain, branched, and WDS/Mesh networks. Where PoE interfaces are required, the AC6005-8-PWR provides PoE power for up to 8 interfaces to support power-sourcing the APs from the AC.
Flexible forwarding	The AC6005 allows you to easily configure forwarding modes on Virtual Access Point (VAP) settings with selections for local or centralized forwarding based on network traffic and service control requirements. • Centralized forwarding meets the requirements of most network configurations; however, when bandwidth demands from users connected to the same AP steadily increase, traffic switching loads will increase. • Local forwarding improves bandwidth efficiency, but the AC does not provide user authentication, however, user authentication can not be controlled by the AC in local forwarding mode. The AC6005 solves this problem with support for both local forwarding and centralized authentication to accommodate changing needs.
Radio management	The AC6005 supports automatic selection and calibration of radio parameters in AP regions. The AC6005 provides: • Automatic signal level adjustment and channel selection on powerup. • Automatic signal re-calibration in the event of signal interference. - Partial calibration adjusts a specific AP to optimal signal levels. - Global calibration adjusts all APs in a specified region for optimal signal levels. • Automatic power compensation: When an AP is removed or goes offline, the AC6005 increases the power of neighboring APs to compensate for reduced signal strength .
Flexible user rights management	The AC6005 uses Access Control Lists (ACLs) based on APs, VAPs, or SSIDs, and provides isolation and bandwidth-limiting. The AC6005 also provides access controls for users and user roles to meet enterprise requirements regarding permissions, authentication and authorization, as well as bandwidth limitations per user and user group. • The AC6005 implements per-user access control based on ACLs, VLAN IDs, and bandwidth limits sent from the RADIUS server. • User groups are defined with access control policies. An ACL, user isolation policy, and bandwidth limitations can be applied to user groups for additional access control. • Inter-group user isolation or intra-group user isolation can also be configured.

Feature	Benefit
WDS	The AC6005 provides STA access and wireless bridge management functions, as well as network bridge management when in Fit AP mode. The AC6005 supports these networking modes: point-to-multipoint bridging, single-band/dual-band multi-hop relay, dual-band WDS bridging + WLAN access, and single-band WDS bridging + WLAN access. The AC6005 can also function as a wireless bridge between a central campus network and multiple branch campuses. This configuration works well for deployments with no wired network or where cable routing is inconvenient.
High reliability	Multiple ACs can be configured in a network to increase WLAN reliability. If an active AC experiences a fault or the link between the active AC and APs disconnects, the APs can switch to a standby AC. The AC6005 system provides N+1 active/standby mode, which allows multiple active ACs to share the same standby AC. This feature provides high reliability at reduced cost.
Load balancing	• Inter-AP load balancing: When an STA is in the coverage area of multiple APs, the AC6005 connects the STA to the AP with the lightest load, delivering STA-based or traffic-based load balancing. • Inter-STA resource balancing: The AC6005 can dynamically and evenly allocate bandwidth resources to prevent some STAs from overusing available bandwidth due to network adapter performance or special applications, such as BT Total Broadband. • The AC6005 first utilizes the 5 GHz band to increase overall utilization of bandwidth.
Visualized WLAN network management and maintenance	The AC6005 and APs use Fit AP + AC networking and standard Link Layer Discovery Protocol (LLDP) for centralized AP management and maintenance. When paired with Huawei's eSight network management tool, the AC6005 offers a simplified approach to managing and optimizing network performance with network topology displays.

AC6005 Specifications

Item	Specifications
Technical specifications	Dimensions (W×D×H): 320 mm × 233.6 mm × 43.6 mm Weight: 2.9 kg Operating temperature: -5°C to 50°C Storage temperature: –40°C to +70°C Humidity: 5% RH to 95% RH Input voltage: 100 V AC to 240 V AC, 50/60 Hz(Rated voltage) 90 V AC to 264 V AC, 47 Hz to 63 Hz(Maximum voltage) Maximum power consumption: 152 W (Device power consumption: 28 W, PoE: 124 W)
Interface type	8×GE interfaces +2×Combo interfaces; power for up to 8 PoE interfaces One RJ-45 serial maintenance interface One mini-USB serial maintenance interface
Number of managed APs	128

Item	Specifications
Number of APs controlled by each license	1, 8, 32
Number of access users	Entire device: 2 K
Number of Extended Service Set Identifiers (ESSIDs)	1 K
User group management	The AC supports 128 user groups: • Each user group can reference a maximum of eight ACLs • Each user group can associate with a maximum of 128 ACL rules
Number of MAC addresses	4 K
Number of VLANs	4 K
Number of ARP entries	4 K
Number of routing entries	4 K
Number of multicast forwarding entries	4 K
Number of DHCP IP address pools	128 IP address pools, each containing a maximum of 16 K IP addresses

Wireless features

Feature	Description
Network management and maintenance	Device management and statistics • Command line management based on SSH/Telnet/Console • SNMPv2/v3 • Web management • Standard MIBs and Huawei proprietary MIBs • Syslog • AP and station statistics • Alarms with different severity levels Centralized AP configuration and management • Region-based AP management • Centralized version management and automatic file updates • Built-in AP type and customized AP addition Graphic AP deployment and topology displays • AP LLDP • AC LLDP

Feature	Description
Wireless protocols	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, and 802.11n
WLAN deployment	AP-AC networking • AP-AC Layer 2/3 networking • AC Layer 2 forwarding or Layer 3 routing • NAT traversal (APs are deployed on a private network and ACs are deployed on the public network) Data forwarding • AP-AC CAPWAP tunnel and DTLS encryption • VAP-based forwarding (centralized forwarding and local forwarding) • Centralized authentication and local forwarding VLAN deployment • Mapping between SSIDs and VLANs and VLAN assignment based on SSIDs or physical locations WDS deployment • Point-to-point and point-to-multipoint • Automatic topology detection and loop prevention (STP: Spanning Tree Protocol) AC active/standby mode • Dual-linked active and standby ACs with VRRP (Virtual Router Redundancy Protocol) • N:1 active and standby deployment
Radio management	Channel and power configuration • Centralized or static channel power configuration • Automatic channel allocation to implement global radio calibration or partial radio calibration • Automatic power adjustment to implement coverage hole compensation • AP region-based configuration and management Load balancing • Load balancing based on traffic volume on each radio • Load balancing based on number of users
Wireless service control	Extended Service Set (ESS)-based service management • ESS-based SSID hiding and AP isolation at Layer 2 • Maximum number of access users and associated aging time settings in an ESS • ESSs to service VLANs mapping • ESS associations with a security profile or a QoS profile • Optional Internet Group Management Protocol (IGMP) for APs in an ESS Wireless roaming • Layer 2 roaming • Inter-VLAN Layer 3 roaming • Pairwise Master Key Caching (PMK) caching, rapid key negotiation DHCP service control • Built-in DHCP server • DHCP snooping on APs support • DHCP relay and DHCP snooping on AC support Multicast service management • IGMP snooping • IGMP proxy

Feature	Description
Wireless user management	WLAN user management • User blacklist and whitelist • User access number limit • User disconnection • Support for multiple queries including online user information and statistics User group management • ACLs based on user groups • Isolation based on user groups
Wireless security and authentication	Authentication and encryption • OPEN/WEP/PSK/WPA (2) + 802.1x • WEP/TKIP/AES (CCMP) • WAPI User authentication and control • MAC address authentication, Portal authentication, and 802.1x authentication • MAC+Portal authentication • PEAP/TLS/MD5/CHAP Security and defense • ACLs based on interface, user, and user groups • Isolation based on VAPs and user groups • IP source guard for STAs • Detection of unauthorized APs and alarm function • User blacklist and whitelist AAA • Local authentication/local accounts (MAC addresses and accounts) • RADIUS authentication • Multiple authentication servers
Wireless QoS control	Flow control: • VAP-based rate limiting • User-group-based rate limiting • Rate limiting for a specified user • Dynamic traffic control, preventing resources from being wasted by STAs Priority mapping and scheduling • Mapping QoS settings of encapsulated data packets to 802.1p and DSCP fields of outer tunnel packets • Mapping between DSCP, 802.1p, and 802.11e

Wired features

Feature	Description
Ethernet features	802.1p, QinQ, Smart Link, LLDP Storm suppression, port isolation, and link aggregation
Ethernet loop protection	Spanning Tree Protocol (STP)/Rapid Spanning Tree Protocol (RSTP)/Multiple Spanning Tree Protocol (MSTP) Bridge Protocol Data Unit (BPDU) protection, root protection, and loop protection Partitioned STP and BPDU tunnels Rapid Ring Protection Protocol (RRPP) Hybrid networking of RRPP rings and other ring networks
IP routing	Unicast routing protocols: RIP, OSPF, BGP, and IS-IS
Device reliability	Virtual Router Redundancy Protocol (VRRP)
QoS features	Traffic classifier, traffic behavior, queue scheduling, congestion avoidance, and outbound interface rate limiting
Link detection	BFD EFM OAM, CFM OAM, and Y.1731
IP service control	ARP Built-in DHCP server RADIUS client Built-in FTP server DHCP relay and DHCP snooping

AC6005 purchase and accessory information

	Part Number	Product Name	Description
Bundle	02356813	AC6005-8-PWR-8AP Bundle	Including AC6005-8-PWR,Resource License 8AP.
Bundle	02356816	AC6005-8-8AP Bundle	Including AC6005-8,Resource License 8AP.
software	88031VEB	L_AC6005_1AP	Software Charge,AC6005,L-AC6005-1AP,AC6005 Access Controller AP Resource License(1 AP)
software	88031VEA	L_AC6005_8AP	Software Charge,AC6005,L-AC6005-8AP,AC6005 Access Controller AP Resource License(8 AP)
software	88031VEC	L_AC6005_32AP	Software Charge,AC6005,L-AC6005-32AP,AC6005 Access Controller AP Resource License(32 AP)
Power supply	Please refer to the ordering guide for more information.		
Power cable			
Optical module			
Optical connector			
Network cable			
Ground bar			

Professional Service and Support

Huawei Professional Services provides expert network design and service optimization tasks, helping customers design and deploy a high-performance network that is reliable and secure, maximizing return on investment as well as reducing operational expenses.

Company Addendum

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