DATA SHEET

ARUBA CX 6400 SWITCH SERIES

PRODUCT OVERVIEW

The Aruba CX 6400 Switch Series is a modern, flexible and intelligent family of modular switches ideal for access, aggregation and core in enterprise campus and data center deployments. Created for game-changing operational efficiency with built-in security and resiliency, the 6400 switches provide the foundation for high-performance networks supporting IoT, mobile and cloud applications.

Built from the ground up with a combination of cutting-edge hardware, software and analytics and automation tools, the 6400 switches are part of the Aruba CX switching portfolio, designed for today's enterprise campus, branch and data center networks. By combining a modern, fully programmable OS with the Aruba Network Analytics Engine, the 6400 switches provide industry leading monitoring and troubleshooting capabilities across the network.

A powerful Aruba Gen7 ASIC architecture delivers performance and robust feature support with flexible programmability for tomorrow's applications. The Aruba Virtual Switching Extension (VSX) allows for high availability, and also enables non-disruptive fast upgrades and simplified management. This flexible series offers powerful connectivity options in a 5 or 10 slot compact chassis with non-blocking 2.8Tb fabric per slot and high density IEEE 802.3bt high power PoE. HPE Smart Rate multi-gigabit Ethernet paves the way for high speed access points and IoT devices by delivering fast connectivity and high power PoE using existing cabling. Line rate interfaces include 1GbE, 10GbE, 25GbE, 40GbE, and 100GbE ports[1] (50GbE transceiver capability will be enabled in future software release). High speed interconnect and Aruba VSX using 50G DACs.

Aruba Dynamic Segmentation extends Aruba's foundational wireless role-based policy capability to Aruba wired switches. What this means is that the same security, user experience and simplified IT management can be enjoyed throughout the network. Regardless of how users and IoT devices connect, consistent policies are enforced across wired and wireless networks, keeping traffic secure and separate.

KEY BENEFITS

- Powerful modular Layer 3 switches with BGP, EVPN, VXLAN, VRF, and OSPF with robust security and QoS
- High performance switching with up to 28 Tbps with 11.4 Bpps
- High availability with industry-leading VSX redundancy and redundant power supplies and fans
- Full density HPE Smart Rate (1/2.5/5GbE) multi-gigabit, 60W PoE and SFP+ modules
- High speed, non-blocking 1GbE, 10GbE, 25GbE, 40GbE, and 100GbE ports[1] (50GbE capability is for use with 50G DACs for both interconnect and Aruba VSX. 50GbE transceiver capability enabled by future software release)
- Intelligent monitoring, visibility, and remediation with Aruba Network Analytics Engine
- Manage via single pane of glass with Aruba Central across wired, wireless, and WAN
- Aruba NetEdit support for automated configuration and verification
- Aruba Dynamic Segmentation enables secure and simple access for users and IoT devices

PRODUCT DIFFERENTIATORS

AOS-CX - a modern operating system

The Aruba CX 6400 Switch Series is based on AOS-CX, a modern, database-driven operating system that automates and simplifies many critical and complex network tasks. A built-in time series database enables customers and developers to utilize software scripts for historical

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troubleshooting, as well as analysis of past trends. This helps predict and avoid future problems due to scale, security, and performance bottlenecks. Our AOS-CX software also includes Aruba Network Analytics Engine (NAE) and support for Aruba NetEdit. Because AOS-CX is built on a modular Linux architecture with a stateful database, our operating system provides the following unique capabilities:

- Easy access to all network state information allows unique visibility and analytics
- REST APIs and Python scripting for fine-grained programmability of network tasks
- A micro-services architecture that enables full integration with other workflow systems and services
- Continual state synchronization that provides superior fault tolerance and high availability
- Continuous telemetry data with WebSocket subscriptions for event driven automation
- All software processes communicate with the database rather than each other, ensuring near real-time state and resiliency and allowing individual software modules to be independently upgraded for higher availability

Aruba Central - unified single pane of glass management

Aruba Central is an AI-powered solution that simplifies IT operations, improves agility, and reduces costs by unifying management of all network infrastructure. Built for enterprise-grade resiliency and security, while simple enough for smaller businesses with limited IT staff, Aruba Central is your single point of visibility and control that spans the entire network --from branch to data center, wired and wireless LAN to WAN.

Available as a cloud-based or on-premises solution, Aruba Central is designed to simplify day zero through day two operations with streamlined workflows for tasks such as virtual switch stack creation, automated monitoring using AI-powered insights and NAE, as well as a unified view of all devices and users, both wired and wireless. Comprehensive switch management capabilities include configuration, on-boarding, monitoring, troubleshooting, and reporting.

Aruba Network Analytics Engine - advanced monitoring and diagnostics

For enhanced visibility and troubleshooting, Aruba's Network Analytics Engine (NAE) automatically monitors and analyzes events that can impact network health. Advanced telemetry and automation provide the ability to easily identify and troubleshoot network, system, application and security related issues easily, through the use of Python agents, CLI-based agents, and REST APIs.

The Time Series Database (TSDB) stores configuration and operational state data, making it available to quickly resolve network issues. The data may also be used to analyze trends, identify anomalies and predict future capacity requirements.

Aruba Central uses NAE and agents to deliver switch monitoring, analytics, and enhanced troubleshooting for wired assurance. Aruba NetEdit and third-party tools such as ServiceNow and Slack provide the intelligence to integrate NAE alerts into IT service management processes, speeding problem resolution

Aruba NetEdit – automated switch configuration and management

The Aruba CX portfolio empowers IT teams to orchestrate multiple switch configuration changes for smooth end-to-end service rollouts. Aruba NetEdit introduces automation that allows for rapid network-wide changes, and ensures policy conformance post network updates. Intelligent capabilities include search, edit, validation (including conformance checking), deployment and audit features. Capabilities include:

- Centralized configuration with validation for consistency and compliance
- Time savings via simultaneous viewing and editing of multiple configurations
- Customized validation tests for corporate compliance and network change analysis
- Automated large-scale configuration deployment without programming
- Network health and topology visibility via Aruba NAE integration

Note: A separate software license is required to use Aruba NetEdit.

Aruba CX Mobile App – true deployment convenience

An easy to use mobile app simplifies connecting and managing Aruba CX 6400 switches for any size project. Switch information can also be imported into Aruba NetEdit for simplified configuration management and to continuously validate the conformance of configurations anywhere in the network. The Aruba CX Mobile App is available for download.

Software-defined orchestration for data center networks

Aruba Fabric Composer is an intelligent, software-defined orchestration solution that simplifies and accelerates network provisioning, security management and day-to-day operations across enterprise IT network infrastructures. What makes Aruba Fabric Composer different from other solutions is its ability to orchestrate a discrete set of switches as a single networking fabric to simplify operations and troubleshooting. This infrastructure and application-aware solution also automate various configuration and life cycle events. Aruba Fabric Composer provides a series of workflows that are both interactive and automated which abstract the administrative complexities of setting up complex enterprise networking environments.

Aruba ASICs - programmable innovation

Based on over 30 years of continuous investment, Aruba's ASICs create the basis for innovative and agile software feature advancements, unparalleled performance and deep visibility. These programmable ASICs are purpose-built to allow for a tighter integration of switch hardware and software within campus and data center architectures to optimize performance and capacity. Virtual Output Queuing (VOQ) isolates congestion, prevents Head of Line Blocking (HOLB) and allows full line rate on outgoing (egress) ports. Flexible ASIC resources enable Aruba's NAE solution to inspect all data, which allows for industry-leading analytics capabilities. The Aruba CX 6400 is based on the Aruba Gen7 ASIC architecture.

Aruba Dynamic Segmentation - campus and branch fabric

The Aruba Dynamic Segmentation solution enables seamless mobility, consistent policy enforcement, and automated configurations for wired and wireless clients across networks of all sizes. It unifies role-based access and policy enforcement across LAN, WLAN, and SD-WAN networks with centralized policy definition and dedicated enforcement points, ensuring that users and devices can only communicate with destinations consistent with their role - keeping traffic secure and separate. Dynamic Segmentation is based on establishing least privilege access to IT resources by segmenting traffic based on identity, a fundamental concept of both Zero Trust and SASE frameworks where trust is based on roles and policies, not on where and how a user or device connects.

This innovation begins with colorless ports and role-based micro-segmentation technologies. Colorless ports allow wired clients to connect to any switch port, with the configuration automated using RADIUS-based access control. This eliminates the need for manual on-boarding of clients, including IoT devices, onto the network.

Role-based micro-segmentation delivers benefits of reduced subnet and VLAN sprawl, simplified policy definition, and scalable policy enforcement by introducing the concept of client user roles. Independent of network constructs such as VLANs and VRFs, clients can be grouped into a user role based on their identity, allowing the colorless ports technology to be extended to the centralized overlay fabric, as clients are on-boarded with automatic tunnel creation based on the associated user roles policy. The user roles policy offers the choice between micro-segmentation using centralized and unified policy enforcement for wireless and wired traffic with Layer 7 stateful firewall on gateways or a distributed approach with a Layer 4 role-role ACL on switches.

Dynamic Segmentation provides scale and flexibility in network design by allowing the stretching of VLANs and subnets across the entire network with an EVPN/VXLAN-based distributed overlay fabric. Fabric overlays use VXLAN or VXLAN-GBP tunnels on the data plane and provide the option of a Multi-Protocol BGP EVPN control plane for large deployments, or a static Layer 2 control plane for simplified deployments.

Mobility and IoT performance

The Aruba CX 6400 Switch Series uses a fully distributed architecture that utilizes the Aruba Gen7 ASICs. This ensures that our switches offer very low latency, increased packet buffering, and adaptive power consumption. All switching and routing are wire-speed to meet the demands of bandwidth-intensive applications today and in the future. Each switch includes the following:

- Up to 28 Tbps in non-blocking bandwidth and up to 11.4 Bpps for forwarding available on the fabric
- 100GbE uplinks and large TCAM sizes to cater to mobility and IoT deployments in large campuses with several thousand clients

- Selectable queue configurations that allow for increased performance by defining a number of queues and associated memory buffering to best meet the requirements of network applications
- Increased power efficiency and savings via 80 PLUS Platinum Certified power supplies

Aruba Virtual Switching Extension (VSX)

The ability of AOS-CX to maintain synchronous state across dual control planes allows a simplified carrier-class high availability solution called Aruba Virtual Switching Extension (VSX). Designed using the best features of existing high availability technologies such as Multi-chassis Link Aggregation (MC LAG), Aruba VSX enables a distributed architecture that is highly available during upgrades or control plane events. Features include:

- Continuous configuration synchronization via AOS-CX
- Flexible active-active network designs at Layers 2 and 3
- Operational simplicity and usability for easy configuration
- High availability by design during upgrades including support for VSX Live Upgrade with LACP traffic draining
- ISSU support for single chassis (dual management plane)

An Aruba CX 6400 switch for any enterprise environment

Whether in small to large enterprise environments, you can choose from two models ideal for access, aggregation and core deployments. Features of the 5 and 10 slot models include:

- Compact 5 slot (7 RU) and 10 slot (12 RU) support a choice of line cards and redundant, half-width management modules
- High density connectivity ideal for aggregation provides up to 480 ports of HPE Smart Rate multi-gigabit (1/2.5/5GbE) with IEEE 802.3bt High Power PoE (60W)
- Up to 240 ports of 10GBASE-T ideal for high performance desktop and server connections
- Convenient combination modules with four high speed uplinks (10GbE/25GbE)[1]
- High speed, non-blocking modules with 1GbE, 10GbE, 25GbE, 40GbE, and 100GbE ports[1] (50GbE transceiver capability will be enabled in future software release)
- High speed interconnect and Aruba VSX using 50G DACs
- Industry standard IEEE 802.3bt High Power PoE support (class 6) provides up to 60W per port for support of the latest IoT devices and APs. PoE support for IEEE 802.3at Power over Ethernet (PoE+) provides up to 30W per port as well as any IEEE 802.3af-compliant end device
- High availability with Always-On PoE, that continues to keep supplying PoE power even during scheduled reboots and firmware upgrades
- Quick PoE supplies PoE power to powered devices as soon as the switch is plugged into AC power so device can initialize at same time as switch OS boots up
- Support for pre-standard PoE detection provides power to legacy PoE devices
- Support for Energy Efficient Ethernet IEEE 802.3az reduces power consumption during periods of low network traffic
- Auto-MDIX provides automatic adjustments for straight-through or crossover cables on all 10/100/1000 ports, Smart Rate and 10GBASE-T ports
- Unsupported Transceiver Mode (UTM) allows to insert and enable all unsupported 1G and 10G transceivers and cables. Note that there is no warranty nor support for the transceiver/cable when this feature is used
- IPv6 capabilities include:
  - IPv6 host enables switches to be managed in an IPv6 network
  - Dual stack (IPv4 and IPv6) transitions from IPv4 to IPv6, supporting connectivity for both protocols
  - MLD snooping forwards IPv6 multicast traffic to the appropriate interface
  - IPv6 ACL/QoS supports ACL and QoS for IPv6 network traffic
  - IPv6 routing supports Static and OSPFv3 protocols
  - Security provides RA guard, DHCPv6 protection, dynamic IPv6 lockdown, ND snooping, IPv6 Destination Guard, IPv6 DHCP Guard,and IPv6 Router Advertisement Guard
- Jumbo frames allow for high-performance backups and disaster-recovery systems; provides a maximum frame size of 9198 bytes
- Packet storm protection against broadcast and multicast storms with user-defined thresholds
- Smart link enables simple, fast converging link redundancy and load balancing with dual uplinks avoiding Spanning Tree complexities

High availability and resiliency

To ensure a high degree of up-time we offer high availability and multicast features needed for a full Layer 3 deployment at access and aggregation such as PBR, MSDP, BSR, and IP SLA without the need for software licenses. This includes:

- AOS-CX software resiliency with VSX
- Hot Swappable Power Supplies

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  - Provide N+1 and N+N redundancy for high reliability in case of power line or supply failure
  - Increases total performance and power availability while providing hitless, stateful failover
- Virtual Router Redundancy Protocol (VRRP) allows groups of two routers to dynamically create highly available routed environments in IPV4 and IPV6 networks
- Uni-directional Link Detection (UDLD) to monitor link connectivity and shut down ports at both ends if uni-directional traffic is detected, preventing loops in STP-based networks
- IEEE 802.3ad LACP supports up to 256 LAGs, each with up to 8 links per LAG; and provides support for static or dynamic groups and a user-selectable hashing algorithm
- IEEE 802.1s Multiple Spanning Tree provides high link availability in VLAN environments where multiple spanning trees are required and legacy support for IEEE 802.1d and IEEE 802.1w
- IEEE 802.3ad link-aggregation-control protocol (LACP) and port trunking supports static and dynamic trunks where each trunk supports up to eight links (ports) per static trunk
- Support for Microsoft Network Load Balancer (NLB) for server applications
- Ethernet Ring Protection Switching (ERPS) supports rapid protection and recovery in a ring topology

Quality of Service (QoS) features

To support congestion actions and traffic prioritization, the Aruba CX 6400 Series includes the following:

- Strict priority (SP) queuing and Deficit Weighted Round Robin (DWRR)
- Traffic prioritization (IEEE 802.1p) for real-time classification
- Class of Service (CoS) sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, source port, and DiffServ
- Rate limiting sets per-port ingress enforced maximums and per-port, per-queue minimums
- Transmission rates of egressing frames can be limited on a per-queue basis using Egress Queue Shaping (EQS)
- Large buffers for graceful congestion management

Simplified configuration and management

In addition to Aruba Central, the Aruba CX Mobile App, Aruba NetEdit and Aruba Network Analytics Engine, the 6400 series offers the following:

- Built-in programmable and easy to use REST API interface
- Simple day zero provisioning
- Scalable ASIC-based wire speed network monitoring and accounting with no impact on network performance; network operators can gather a variety of network statistics and information for capacity planning and real-time network monitoring purposes
- Management interface control enables or disables each of the following depending on security preferences, console port, or reset button
- Industry-standard CLI with a hierarchical structure for reduced training time and expense. Delivers increased productivity in multivendor environments
- Management security restricts access to critical configuration commands, provides multiple privilege levels with password protection, and local and remote
- SNMP v2c/v3 provides SNMP read and trap support of industry standard Management Information Base (MIB), and private extensions sFlow (RFC 3176)
- SNMP support includes: Write Set Speed and Duplex, Write Port Security, Write POE Priority, Write Config Mgmt, SNMP-Read single OID for average CPU and memory, SNMP MIB View
- SNMP Trap include: Transceiver Traps (insertion/removal), SNMP Trap, SNMP MIB-SNMB Authentication, SNMPv2 MIB, Port Sec MIB-Port Sec, Config MIB-Running Config Change, Config MIB, AAA Server MIB, AAA Server State
- Remote monitoring (RMON) with standard SNMP to monitor essential network functions. Supports events, alarms, history, and statistics groups as well as a private alarm extension group; RMON, and sFlow provide advanced monitoring and reporting capabilities for statistics, history, alarms and events
- TFTP and SFTP support offers different mechanisms for configuration updates; trivial FTP (TFTP) allows bidirectional transfers over a TCP/ IP network; Secure File Transfer Protocol (SFTP) runs over an SSH tunnel to provide additional security
- Debug and sampler utility supports ping and traceroute for IPv4 and IPv6

- Network Time Protocol (NTP) synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so the devices can provide diverse applications based on the consistent time
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP) advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications
- Dual flash images provides independent primary and secondary operating system files for backup while upgrading
- Assignment of descriptive names to ports for easy identification
- Multiple configuration files can be stored to a flash image
- Ingress and egress port monitoring enable more efficient network problem solving
- Unidirectional link detection (UDLD) monitors the link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices
- IP SLA for Voice monitors quality of voice traffic using the UDP Jitter and UDP Jitter for VoIP tests

Layer 2 Switching

The following layer 2 services are supported:

- VLAN support and tagging for IEEE 802.1Q (4094 VLAN IDs)
- Jumbo packet support improves the performance of large data transfers; supports frame size of up to 9198 bytes
- IEEE 802.1v protocol VLANs isolate select non-IPv4 protocols automatically into their own VLANs
- Rapid Per-VLAN Spanning Tree (RPVST+) allows each VLAN to build a separate spanning tree to improve link bandwidth usage; is compatible with PVST+
- MVRP allows automatic learning and dynamic assignment of VLANs
- VXLAN encapsulation (tunnelling) protocol for overlay network that enables a more scalable virtual network deployment
- Bridge Protocol Data Unit (BPDU) tunnelling Transmits STP BPDUs transparently, allowing correct tree calculations across service providers, WANs, or MANs
- Port mirroring duplicates port traffic (ingress and egress) to a monitoring port; supports 4 mirroring groups
- STP supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
- Internet Group Management Protocol (IGMP) Controls and manages the flooding of multicast packets in a Layer 2 network
- IPv4 Multicast in VXLAN/EVPN Overlay support allows PIM-SM/IGMP snooping in the VXLAN Overlay
- IPv6 VXLAN/EVPN Overlay support, allows IPv6 traffic over the VXLAN overlay
- VXLAN ARP/ND suppression allows minimization of ARP and ND traffic flooding within individual VXLAN segments, thus optimizing the VXLAN network
- QinQ support to improve the VLAN utilization by adding another 802.1Q tag to tagged packets

Layer 3 Services

The following layer 3 services are supported:

- User Datagram Protocol (UDP) helper function allows UDP broadcasts to be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevents server spoofing for UDP services such as DHCP
- Loopback interface address defines an address in Open Shortest Path First (OSPF), improving diagnostic capability
- Route maps provide more control during route redistribution; allow filtering and altering of route metrics
- Address Resolution Protocol (ARP) determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network
- Dynamic Host Configuration Protocol (DHCP) simplifies the management of large IP networks and supports client; DHCP Relay enables DHCP operation across subnets
- DHCP server centralizes and reduces the cost of IPv4 address management
- Domain Name System (DNS) provides a distributed database that translates domain names and IP addresses, which simplifies network design; supports client and serverGeneric Routing Encapsulation (GRE) enables tunneling traffic from site to site over a Layer 3 path syslog capabilities allow logging of all access

- Supports internal loopback testing for maintenance purposes and increased availability; loopback detection protects against incorrect cabling or network configurations and can be enabled on a per-port or per-VLAN basis for added flexibility
- mDNS (Multicast Domain Name System) Gateway enables discovery of mDNS groups across L3 boundaries
- IP sub-interface is a virtual interface created by dividing physical interface into multiple logical interfaces tagged using different VLAN-IDs. A physical interface can be a regular physical, Split port or LAG L3 interface. A sub-interface is used for many uses-cases such as VRF-lite interconnection and inter-vlan routing (router on-a-stick)

Layer 3 Routing

The following layer 3 routing services are supported:

- Border Gateway Protocol (BGP) provides IPv4 and IPv6 routing, which is scalable, robust, and flexible
- Border Gateway Protocol 4 (BGP-4) delivers an implementation of the Exterior Gateway Protocol (EGP) utilizing path vectors; uses TCP for enhanced reliability for the route discovery process; reduces bandwidth consumption by advertising only incremental updates; supports extensive policies for increased flexibility; scales to very large networks with graceful restart capability
- Equal-Cost Multipath (ECMP) enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth
- Multi-protocol BGP (MP-BGP) enables sharing of IPv6 routes using BGP and connections to BGP peers using IPv6
- Routing Information Protocol version 2 (RIPv2) provides an easy to configure routing protocol for small networks as while RIPng provides support for small IPv6 networks
- Open shortest path first (OSPF) delivers faster convergence; uses link-state routing Interior Gateway Protocol (IGP), which supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- OSPF provides OSPFv2 for IPv4 routing and OSPFv3 for IPv6 routing
- Static IP routing provides manually configured routing; includes ECMP capability
- Policy-based routing uses a classifier to select traffic that can be forwarded based on policy set by the network administrator
- Static IPv4 and IPv6 routing provides simple manually configured IPv4 and IPv6 routes
- IP performance optimization provides a set of tools to improve the performance of IPv4 networks; includes directed broadcasts, customization of TCP parameters, support of ICMP error packets, and extensive display capabilities
- Dual IP stack maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design

Security

The Aruba CX 6400 Switch Series come with an integrated trusted platform module (TPM) for platform integrity. This ensure the boot process started from a trusted combination of Aruba AOS-CX switches. Other security features include:

- TAA Compliance uses FIPS 140-2 validated cryptography for protection of sensitive information
- Access control list (ACL) support for both IPv4 and IPv6; allows for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header
- ACLs also provide filtering based on the IP field, source/ destination IP address/subnet, and source/ destination TCP/UDP port number on a per-VLAN or per-port basis
- Remote Authentication Dial-In User Service (RADIUS)
- Terminal Access Controller Access-Control System (TACACS+) delivers an authentication tool using TCP with encryption of the full authentication request, providing additional security
- Enrollment over Secure Transport (EST) enables secure certificate enrollment, allowing for easier enterprise management of PKI
- Management access security for both on- and off-box authentication for administrative access. RADIUS or TACACS+ can be used to provide encrypted user authentication. Additionally, TACACS+ can also provide admin authorization services
- Control Plane Policing sets rate limit on control protocols to protect CPU overload from DOS attacks
- Supports multiple user authentication methods. Uses an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server to authenticate in accordance with industry standards

- Web based authentication using Captive Portal on ClearPass is supported for use cases such as Guest Access and for devices that don't support 802.1x or MAC Auth.
- Supports MAC-based client authentication
- Concurrent IEEE 802.1X, Web, and MAC authentication schemes per switch port accepts up to 32 sessions of IEEE 802.1X, Web, and MAC authentications
- DHCP protection blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- Secure management access delivers secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3
- Switch CPU protection provides automatic protection against malicious network traffic trying to shut down the switch
- ICMP throttling defeats ICMP denial-of-service attacks by enabling any switch port to automatically throttle ICMP traffic
- Identity-driven ACL enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user
- STP BPDU port protection blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks
- Dynamic IP lockdown works with DHCP protection to block traffic from unauthorized hosts, preventing IP source address spoofing
- Dynamic ARP protection blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- STP root guard protects the root bridge from malicious attacks or configuration mistakes
- Port security allows access only to specified MAC addresses, which can be learned or specified by the administrator
- MAC address lockout prevents particular configured MAC addresses from connecting to the network
- Source-port filtering allows only specified ports to communicate with each other
- Secure shell encrypts all transmitted data for secure remote CLI access over IP networks
- Secure Sockets Layer (SSL) encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
- Secure FTP allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of a switch configuration file
- Critical Authentication Role ensures that important infrastructure devices such as IP phones are allowed network access even in the absence of a RADIUS server
- MAC Pinning allows non-chatty legacy devices to stay authenticated by pinning client MAC addresses to the port until the clients logoff or get disconnected
- Security banner displays a customized security policy when users log in to the switch
- RadSec enables RADIUS authentication and accounting data to be passed safely and reliably across insecure networks
- Private VLAN (PVLAN) provides traffic isolation between users on the same VLAN; typically a switch port can only communicate with other ports in the same community and/or an uplink port, regardless of VLAN ID or destination MAC address. This extends network security by restricting peer-peer communication to prevent variety of malicious attacks.
- Auto VLAN Creation automates VLAN creation on access switches for authenticated clients.
- DHCP smart relay allows the DHCP relay agent to use secondary IP addresses when the DHCP server does not reply the DHCP-OFFER message

Multicast

- IGMP Snooping allows multiple VLANs to receive the same IPv4 multicast traffic, lessening network bandwidth demand by reducing multiple streams to each VLAN
- Multicast Listener Discovery (MLD) enables discovery of IPv6 multicast listeners; supports MLD v1 and v2
- Protocol Independent Multicast (PIM) defines modes of IPv4 and IPv6 multicasting to allow one-to-many and many-to-many transmission of information; supports PIM Sparse Mode (SM), Source-Specific Multicast (SSM), and Dense Mode (DM) for both IPv4 and IPv6
- Internet Group Management Protocol (IGMP) utilizes Any-Source Multicast (ASM) to manage IPv4 multicast networks; supports IGMPv1, v2, and v3
- Multicast Service Discovery Protocol (MSDP) efficiently routes multicast traffic through core networks
- MSDP for Anycast RP is an intra-domain feature that provides redundancy and load-sharing capabilities

Convergence

- IP multicast routing includes PIM Sparse, Source-Specific Multicast, and Dense modes to route IP multicast traffic
- IP multicast snooping (data-driven IGMP) prevents flooding of IP multicast traffic
- Protocol Independent Multicast for IPv6 supports one-to-many and many-to-many media casting use cases such as IPTV over IPv6 networks
- LLDP-MED (Media Endpoint Discovery) defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- PoE allocations supports multiple methods (allocation by usage or class, with LLDP and LLDP-MED) to allocate PoE power for more efficient power management and energy savings
- Auto VLAN configuration for voice RADIUS VLAN uses a standard RADIUS attribute and LLDP-MED to automatically configure a VLAN for IP phones
- CDPv2 uses CDPv2 to configure legacy IP phones

Additional information

- Green initiative support for RoHS (EN 50581:2012) and WEEE regulations

Customer first, customer last support

When your network is important to your business, then your business needs the backing of Aruba Support Services. Partner with Aruba product experts to increase your team productivity, keep pace with technology advances, software releases, and obtain break-fix support.

-Foundation Care for Aruba support services include priority access to Aruba Technical Assistance Center(TAC) engineers 24x7x365, flexible hardware and onsite support options, and total coverage for Aruba products. Aruba switches with assigned Aruba Central subscriptions benefit with option for additional hardware support only.

-Aruba Pro Care adds fast access to senior Aruba TAC engineers, who are assigned as a single point of contact for case management, reducing the time spent addressing and resolving issues.

For complete details on Foundation Care and Aruba Pro Care, please visit: https://www.arubanetworks.com/supportservices/

Warranty, services and support

- Limited Lifetime Warranty, see https://www.arubanetworks.com/support-services/product-warranties/ for warranty and support information included with your product purchase
- For Software Releases and Documentation, refer to https://asp.arubanetworks.com/downloads
- For support and services information, visit https://www.arubanetworks.com/support-services/arubacare/

SPECIFICATIONS

	Aruba 6405 Switch (R0X26A)	Aruba 6410 Switch (R0X27A)	Aruba 6405 96G CL4 PoE 4SFP56 Switch bundle (R0X29A)	Aruba 6405 48SFP+ 8SFP56 Switch bundle (R0X30A)	Aruba 6410 96G CLS4 PoE 4SFP56 Switch (JL741A)
Description	1x 6405 Chassis (R0X24A) 1x Management Module (R0X31A) 2x Fan Trays (R0X32A) 5 open module slots Power supply units not included; order separately Supports any of the following line cards in the open slots: R0X38B, R0X39B, R0X40B, R0X41A, R0X42A, R0X43A, R0X44A, R0X45A R0X44C, R0X45C Supports PoE Standards IEEE 802.3af, 802.3at, 802.3bt (up to 60W) 1x RJ-45 Console Port 1x USB-C Console Port 1x OOBM 1x USB Type A Host port 1x Bluetooth dongle to be used with CX Mobile App	1x 6410 Chassis (R0X25A) 1x Management Module (R0X31A) 4x Fan Trays (R0X32A) 10 open module slots Power supply units not included; order separately Supports any of the following line cards in the open slots: R0X38B, R0X39B, R0X40B, R0X41A, R0X42A, R0X43A, R0X44A, R0X45A R0X44C, R0X45C Supports PoE Standards IEEE 802.3af, 802.3at, 802.3bt (up to 60W) 1x RJ-45 Console Port 1x USB-C Console Port 1x OOBM 1x USB Type A Host port 1x Bluetooth dongle to be used with CX Mobile App	1x 6405 Chassis (R0X24A) 1x Management Module (R0X31A) 2x Fan Trays (R0X32A) 1x R0X38B Line Card 1x R0X39B Line Card Power supply units not included; order separately 96x 10/100/1000BaseT PoE+ Ports supporting up to 30W per port 4x 1GbE/10GbE/25GbE/ 50GbE[1] SFP ports Supports any of the following line cards in the open slots: R0X38B, R0X39B, R0X40B, R0X41A, R0X42A, R0X43A, R0X44A, R0X45A R0X44C, R0X45C Supports PoE Standards IEEE 802.3af, 802.3at, 802.3bt (up to 60W) 1x RJ-45 Console Port 1x USB-C Console Port 1x OOBM 1x USB Type A Host port 1x Bluetooth dongle to be used with CX Mobile App	1x 6405 Chassis (R0X24A) 1x Management Module (R0X31A) 2x Fan Trays (R0X32A) 2x R0X43A Line Card Power supply units not included; order separately 48x 1G/10G SFP+ ports 8x 1GbE/10GbE/25GbE/ 50GbE[1] SFP ports Supports any of the following line cards in the open slots: R0X38B, R0X39B, R0X40B, R0X41A, R0X42A, R0X43A, R0X44A, R0X45A R0X44C, R0X45C Supports PoE Standards IEEE 802.3af, 802.3at, 802.3bt (up to 60W) 1x RJ-45 Console Port 1x USB-C Console Port 1x OOBM 1x USB Type A Host port 1x Bluetooth dongle to be used with CX Mobile App	1x 6410 Chassis (R0X25A) 1x Management Module (R0X31A) 4x Fan Trays (R0X32A) 1x R0X38B Line Card 1x R0X39B Line Card 8 open module slots Power supply units not included; order separately 96x 10/100/1000BaseT PoE+ Ports supporting up to 30W per port 4x 1GbE/10GbE/25GbE/ 50GbE[1] SFP ports Supports any of the following line cards in the open slots: R0X38B, R0X39B, R0X40B, R0X41A, R0X42A, R0X43A, R0X44A, R0X45A R0X44C, R0X45C Supports PoE Standards IEEE 802.3af, 802.3at, 802.3bt (up to 60W) 1x RJ-45 Console Port 1x USB-C Console Port 1x OOBM 1x USB Type A Host port 1x Bluetooth dongle to be used with AOS-CX Mobile App
Power supplies	Supports four modular front-serviceable power supplies with removable rear-serviceable power cord inlet adapters. Supported Power Supplies: R0X35A, R0X36A. PoE available will be dependent on the number of management modules, line cards, fan trays and the number of power supplies used. Power supplies not included; order separately.				
Fans	Two field replaceable system fan trays	Four field replaceable system fan trays	Two field replaceable system fan trays	Two field replaceable system fan trays	Four field replaceable system fan trays
Physical characteristics					
Dimensions	(H) 30.66 cm x (W) 44.26 cm x (D) x 44.85 cm (12.1" x 17.5" x 17.7")	(H) 52.88 cm x (W) 44.26 cm x (D) 44.85 cm (20.8" x 17.5" x 17.7")	(H) 30.66 cm x (W) 44.26 cm x (D) x 44.85 cm (12.1" x 17.5" x 17.7")	(H) 30.66 cm x (W) 44.26 cm x (D) x 44.85 cm (12.1" x 17.5" x 17.7")	(H) 52.88 cm x (W) 44.26 cm x (D) 44.85 cm (20.8" x 17.5" x 17.7")
Configuration Weight	29.3 kg (64.7 lbs)	53.5 kg (118.2 lbs)	34.1 kg (75.2 lbs)	34.0 kg (75 lbs)	58.3 kg (128.8 lbs)
Additional Specifications					
CPU	Management Module: Quad Core ARM Cortex™ A72 @ 1.8GHz Line Card: Dual Core ARM Cortex™ A72 @ 1.8GHz				
Memory and Flash	Management Module: 16GB DDR4 ECC memory; 32GB eMMC Flash memory Line Card: 4GB DDR4 memory				
Packet Buffer	R0X38A-R0X43A and R0X38B-R0X40B Line Cards: 8MB packet buffer memory per line card R0X44A-R0X45A Line Cards: 32MB packet buffer memory per line card				
Performance					
System Switching Capacity	14 Tbps	28 Tbps	14 Tbps	14 Tbps	28 Tbps
System Throughput Capacity	5.7 Bpps	11.4 Bpps	5.7 Bpps	5.7 Bpps	11.4 Bpps

[1] 50GbE capability is for use with 50G DACs for both interconnect and Aruba VSX. 50GbE transceiver capability enabled by future software release.

SPECIFICATIONS (CONTINUED)

	Aruba 6405 Switch (R0X26A)	Aruba 6410 Switch (R0X27A)	Aruba 6405 96G CL4 PoE 4SFP56 Switch bundle (R0X29A)	Aruba 6405 48SFP+ 8SFP56 Switch bundle (R0X30A)	Aruba 6410 96G CLS4 PoE 4SFP56 Switch (JL741A)
Performance (continued)					
Average Latency (LIFO-64-bytes packets)	1G: 5.32 µSec 10G: 1.48 µSec 25G: 2.78 µSec 40G: 1.31 µSec 100G: 1.42 µSec				
Switched Virtual Interfaces (dual stack)	2,048				
IPv4 Host Table (ARP)	49,152 ; Up to 163,840 for R0X44C and R0X45C[2]				
IPv6 Host Table (ND)	49,152 ; Up to 163,840 for R0X44C and R0X45C[2]				
IPv4 Unicast Routes	61,000 ; Up to 630,780 R0X44C and R0X45C[2]				
IPv6 Unicast Routes	61,000 ; Up to 630,780 R0X44C and R0X45C[2]				
IPv4 Multicast Routes	8,192				
IPv6 Multicast Routes	8,192				
MAC Table Capacity	32,768 ; Up to 212,992 R0X44C and R0X45C[2]				
IGMP Groups	8,192				
MLD Groups	8,192				
IPv4/IPv6/MAC ACL Entries (ingress)	64,000 / 16,384 / 64,000 per line card for R0X44A/R0X44C and R0X45A/R0X45C; 20,480/5,120/20,480 per line card for all other line cards				
IPv4/IPv6/MAC ACL Entries (egress)	20,480 /5,120 / 20,480 per line card for R0X44A/R0X44C and R0X45A/R0X45C; 8,192/2,048/8,192 per line card for all other line cards				
VRF	256				
Environment					
Operating Temperature	32°F to 113°F (0°C to 45°C), up to 5,000 feet 32°F to 104°F (0°C to 40°C), 5,001 to 10,000 feet 1°C de-rating per 1,000 feet above 5,000 feet				
Operating Relative Humidity	15% to 95% relative humidity at 113°F (45°C), non-condensing				
Non-Operating	-40°F to 158°F ('-40°C to 70°C)				
Non-Operating Storage relative humidity	15% to 95% relative humidity at 149°F(65°C), non-condensing				
Max Operating Altitude	Up to 10,000 feet (3 km)				
Max non-operating Altitude	Up to 15,000 feet (4.5 km)				
Acoustics	• Sound power (LWAd): 6.6 Bel, Sound Pressure (LpAm, Bystander): 46.6 dB when tested with 2 x 1800W PSU (R0X35A), 2 x fan trays, 370W of PoE and traffic on all ports • Sound power (LWAd): 6.5 Bel, Sound Pressure (LpAm, Bystander): 46.3 dB when tested with 2 x 3000W PSU (R0X36A), 2 x fan trays, 370W of PoE and traffic on all ports	• Sound power (LWAd): 6.8 Bel, Sound Pressure (LpAm, Bystander): 48.8 dB when tested with 2 x 1800W PSU (R0X35A), 4 x fan trays, 370W of PoE and traffic on all ports • Sound power (LWAd): 6.8 Bel, Sound Pressure (LpAm, Bystander): 48.9 dB when tested with 2 x 3000W PSU (R0X36A), 4 x fan trays, 370W of PoE and traffic on all ports	• Sound power (LWAd): 6.6 Bel, Sound Pressure (LpAm, Bystander): 46.6 dB when tested with 2 x 1800W PSU (R0X35A), 2 x fan trays, 370W of PoE and traffic on all ports • Sound power (LWAd): 6.5 Bel, Sound Pressure (LpAm, Bystander): 46.3 dB when tested with 2 x 3000W PSU (R0X36A), 2 x fan trays, 370W of PoE and traffic on all ports	Not available	• Sound power (LWAd): 6.8 Bel, Sound Pressure (LpAm, Bystander): 48.8 dB when tested with 2 x 1800W PSU (R0X35A), 4 x fan trays, 370W of PoE and traffic on all ports • Sound power (LWAd): 6.8 Bel, Sound Pressure (LpAm, Bystander): 48.9 dB when tested with 2 x 3000W PSU (R0X36A), 4 x fan trays, 370W of PoE and traffic on all ports
Primary Airflow	Front-to-Back				

[2] R0X44C and R0X45C increased scale requires all line cards to be R0X44C/R0X45C – any inclusion of other line cards will reduce scale to original values.

SPECIFICATIONS (CONTINUED)

	Aruba 6405 Switch (R0X26A)	Aruba 6410 Switch (R0X27A)	Aruba 6405 96G CL4 PoE 4SFP56 Switch bundle (R0X29A)	Aruba 6405 48SFP+ 8SFP56 Switch bundle (R0X30A)	Aruba 6410 96G CLS4 PoE 4SFP56 Switch (JL741A)
Electrical Characteristics					
Frequency	50/60 Hz				
80plus.org certification	Platinum rated for both R0X35A and R0X36A PSUs				
AC Voltage	R0X35A and R0X36A PSUs: 110-127 / 200-240VAC				
Current	R0X35A PSU: 12A @ 110-127VAC, 10A @ 200-240VAC R0X36A PSU: 16A @ 110-240VAC				
Power Output	R0X35A PSU: 1800W @ 200-240VAC, 1100W @ 110-127VAC R0X36A PSU: 3000W @ 200-240VAC, 1500W @ 110-127VAC				
Safety					
	EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011 +A2:2013				
	EN62368-1:2014				
	IEC 60950-1:2005 Ed.2; AM 1:2009+A2:2013				
	IEC 62368-1 Ed. 2				
	IEC 60825:2007 (Applies to products with lasers)				
	UL 60950-1, CSA 22.2 No 60950-1				
	UL 62368-1 Ed. 2				
Emissions					
	VCCI Class A; EN 55022 Class A; CISPR 22 Class A; IEC/EN 61000-3-2				
	IEC/EN 61000-3-3; ICES-003 Class A; AS/NZS CISPR 22 Class A; FCC (CFR 47, Part 15) Class A; GB9254				
	EN55032:2012 Class A				
	CISPR32:2012 Class A				
Immunity					
Generic	Directive 2014/35/EU				
EN	EN 55024:2010 +A1:2001 +A2:2003; ETSI EN 300 386 V1.3.3				
ESD	EN 61000-4-2				
Radiated	EN 61000-4-3				
EFT/Burst	EN 61000-4-4				
Surge	EN 61000-4-5				
Conducted	EN 61000-4-6				
Power frequency magnetic field	IEC 61000-4-8				
Voltage dips and interruptions	EN 61000-4-11				
Harmonics	IEC/EN 61000-3-2				
Flicker	IEC/EN 61000-3-3				
Mounting and Enclosure					
	Cable management kit included. 2-post rack mounting kit included. 4-post rack mounting kit available separately				

STANDARDS AND PROTOCOLS

- ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
- CPU DoS Protection
- Bootstrap Router (BSR) Mechanism for PIM, PIM WG
- draft-ietf-savi-mix
- IEEE 802.1AB-2005
- IEEE 802.1ak-2007
- IEEE 802.1AX-2008 Link Aggregation
- IEEE 802.1D MAC Bridges
- IEEE 802.1p Priority
- IEEE 802.1Q VLANs
- IEEE 802.1s Multiple Spanning Trees
- IEEE 802.1t-2001
- IEEE 802.1v VLAN classification by Protocol and Port
- IEEE 802.1w Rapid Reconfiguration of Spanning Tree
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3ad Link Aggregation Control Protocol (LACP)
- IEEE 802.3ae 10-Gigabit Ethernet
- IEEE 802.3af Power over Ethernet
- IEEE 802.3at Power over Ethernet
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- IEEE 802.3bt Power over Ethernet
- IEEE 802.3z 1000BASE-X
- RFC 1122 Requirements for Internet Hosts -Communications Layers
- RFC 1215 Convention for defining traps for use with the SNMP
- RFC 1256 ICMP Router Discovery Messages
- RFC 1350 TFTP Protocol (revision 2)
- RFC 1393 Traceroute Using an IP Option
- RFC 1403 BGP OSPF Interaction
- RFC 1519 CIDR
- RFC 1542 BOOTP Extensions
- RFC 1583 OSPF Version 2
- RFC 1591 Domain Name System Structure and Delegation
- RFC 1657 Definitions of Managed Objects for BGP-4 using SMIv2
- RFC 1772 Application of the Border Gateway Protocol in the Internet
- RFC 1812 Requirements for IP Version 4 Router
- RFC 1918 Address Allocation for Private Internet
- RFC 1997 BGP Communities Attribute
- RFC 1998 An Application of the BGP Community Attribute in Multi-home Routing
- RFC 2131 DHCP
- RFC 2132 DHCP Options and BOOTP Vendor Extensions
- RFC 2236 IGMP
- RFC 2328 OSPF Version 2
- RFC 2375 IPv6 Multicast Address Assignments
- RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option
- RFC 2401 Security Architecture for the Internet Protocol
- RFC 2402 IP Authentication Header
- RFC 2439 BGP Route Flap Damping
- RFC 2460 Internet Protocol, Version 6 (IPv6) Specification
- RFC 2464 Transmission of IPv6 over Ethernet Networks
- RFC 2545 Use of BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing
- RFC 2576 (Coexistence between SNMP V1, V2, V3)
- RFC 2579 (SMIv2 Text Conventions)
- RFC 2580 (SMIv2 Conformance)
- RFC 2710 Multicast Listener Discovery (MLD) for IPv6
- RFC 2711 IPv6 Router Alert Option
- RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol
- RFC 2918 Route Refresh Capability for BGP-4
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
- RFC 2934 Protocol Independent Multicast MIB for IPv4
- RFC 3019 MLDv1 MIB
- RFC 3046 DHCP Relay Agent Information Option
- RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
- RFC 3065 Autonomous System Confederation for BGP
- RFC 3068 An Anycast prefix for 6to4 Relay Route
- RFC 3137 OSPF Stub Router Advertisment sFlow
- RFC 3376 IGMPv3
- RFC 3417 (SNMP Transport Mappings)
- RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
- RFC 3484 Default Address Selection for IPv6
- RFC 3509 Alternative Implementations of OSPF Area Border Routers
- RFC 3575 IANA Considerations for RADIUS
- RFC 3623 Graceful OSPF Restart
- RFC 3768 VRRP
- RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
- RFC 3973 PIM Dense Mode
- RFC 4022 MIB for TCP
- RFC 4113 MIB for UDP
- RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
- RFC 4251 The Secure Shell (SSH) Protocol

- RFC 4252 SSHv6 Authentication
- RFC 4253 SSHv6 Transport Layer
- RFC 4254 SSHv6 Connection
- RFC 4271 A Border Gateway Protocol 4 (BGP-4)
- RFC 4273 Definitions of Managed Objects for BGP-4
- RFC 4291 IP Version 6 Addressing Architecture
- RFC 4292 IP Forwarding Table MIB
- RFC 4293 Management Information Base for the Internet Protocol (IP)
- RFC 4360 BGP Extended Communities Attribute
- RFC 4419 Key Exchange for SSH
- RFC 4443 ICMPv6
- RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)
- RFC 4486 Subcodes for BGP Cease Notification Message
- RFC 4541 IGMP & MLD Snooping Switch
- RFC 4552 Authentication/Confidentiality for OSPFv3
- RFC 4601 PIM Sparse Mode
- RFC 4607 Source-Specific Multicast for IP
- RFC 4675 RADIUS VLAN & Priority
- RFC 4724 Graceful Restart Mechanism for BGP
- RFC 4760 Multiprotocol Extensions for BGP-4
- RFC 4861 IPv6 Neighbor Discovery
- RFC 4862 IPv6 Stateless Address Auto-configuration
- RFC 4940 IANA Considerations for OSPF
- RFC 5065 Autonomous System Confederation for BGP
- RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
- RFC 5187 OSPFv3 Graceful Restart
- RFC 5340 OSPFv3 for IPv6
- RFC 5424 Syslog Protocol
- RFC 5492 Capabilities Advertisement with BGP-4
- RFC 5519 Multicast Group Membership Discovery MIB (MLDv2 only)
- RFC 5701 IPv6 Address Specific BGP Extended Community Attribute
- RFC 5722 Handling of Overlapping IPv6 Fragments
- RFC 5798 VRRP (exclude Accept Mode and sub-sec timer)
- RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification
- RFC 6620 FCFS SAVI
- RFC 6987 OSPF Stub Router Advertisement
- RFC 7047 The Open vSwitch Database Management Protocol
- RFC 7313 Enhanced Route Refresh Capability for BGP-4
- RFC 768 User Datagram Protocol
- RFC 783 TFTP Protocol (revision 2)
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 813 Window and Acknowledgement Strategy in TCP
- RFC 815 IP datagram reassembly algorithms
- RFC 8201 Path MTU Discovery for IP version 6
- RFC 826 ARP
- RFC 879 TCP maximum segment size and related topics
- RFC 896 Congestion control in IP/TCP internetworks
- RFC 917 Internet subnets
- RFC 919 Broadcasting Internet Datagrams
- RFC 922 Broadcasting Internet Datagrams in the Presence of Subnets (IP_BROAD)
- RFC 925 Multi-LAN address resolution
- RFC 951 BOOTP
- RFC 1027 Proxy ARP
- SNMPv1/v2c/v3
- RFC 4861 IPv6 Neighbor Discovery
- RFC 4862 IPv6 Stateless Address Auto-configuration
- ITU-T Rec G.8032/Y.1344 Mar. 2010
- RFC 1757 Remote Network Monitoring Management Information Base
- 2.5G/5GBASE-T (IEEE 802.3bz-2016), 2.5G/5G NBASE-T
- 10GBASE-T (IEEE 802.3an-2006)
- 25-Gigabit Ethernet (IEEE 802.3by-2016, 802.3cc-2017)
- 40-Gigabit Ethernet (IEEE 802.3ba-2010)
- 50-Gigabit Ethernet (IEEE 802.3cd-2018)[1]
- 100-Gigabit Ethernet (IEEE 802.3ba-2010, 802.3bj-2014, 802.3bm-2014)
- RFC 3101 OSPF Not-so-stubby-area option
- RFC 4750 OSPFv2 MIB partial support no SetMIB

ARUBA CX 6400 SWITCHES AND ACCESSORIES

Switch Models

- Aruba 6405 Switch (R0X26A)
- Aruba 6410 Switch (R0X27A)
- Aruba 6405 96G CLS4 PoE 4SFP56 Switch bundle[1] (R0X29A)
- Aruba 6410 96G CLS4 PoE 4SFP56 Switch bundle[1] (JL741A)
- Aruba 6405 48SFP+ 8SFP56 Switch bundle[1] (R0X30A)

Modules

- Aruba 6400 Management Module (R0X31A)
- Aruba 6400 48p 1GbE CLS4 PoE Mod (R0X38B)
- Aruba 6400 48p 1GbE CLS4 PoE 4SFP56 Mod[1] (R0X39B)
- Aruba 6400 48p 1GbE CLS6 PoE 4SFP56 Mod[1] (R0X40B)
- Aruba 6400 48p Smart Rate CLS6 PoE 4SFP56 Mod[1] (R0X41A)

[1] 50GbE capability is for use with 50G DACs for both interconnect and Aruba VSX. 50GbE transceiver capability enabled by future software release.

- Aruba 6400 24p 10GT 4SFP56 Mod[1] (R0X42A)
- Aruba 6400 24p SFP+ 4SFP56 Mod[1] (R0X43A)
- Aruba 6400 48p 10G/25G SFP28 Mod (R0X44A)
- Aruba 6400 12p 40G/100G QSFP28 Mod (R0X45A)
- Aruba 6400 48p 10G/25G SFP28 v2 Mod (R0X44C)
- Aruba 6400 12p 40G/100G QSFP28 v2 Mod (R0X45C)

Power Supplies

- Aruba 6400 1800W PS w/C16 Inlet Accessory (R0X35A)
- Aruba 6400 3000W PS w/C20 Inlet Accessory (R0X36A)

Fan Tray

- Aruba 6400 Fan Tray (R0X32A)

Mounting Kit

- Aruba 6400 4-post Rack Mount Kit (R0X37A)

Cables

- Aruba 10G SFP+ to SFP+ 1m Direct Attach Copper Cable (J9281D)
- Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283D)
- Aruba 25G SFP28 to SFP28 0.65m Direct Attach Copper Cable (JL487A)
- Aruba 25G SFP28 to SFP28 3m Direct Attach Copper Cable (JL488A)
- Aruba 25G SFP28 to SFP28 5m Direct Attach Copper Cable (JL489A)
- HPE X242 40G QSFP+ to QSFP+ 1m DAC Cable (JH234A)
- HPE X242 40G QSFP+ to QSFP+ 3m DAC Cable (JH235A)
- HPE X242 40G QSFP+ to QSFP+ 5m DAC Cable (JH236A)
- Aruba 100G QSFP28-QSFP28 3m DAC Cable (JL307A)
- Aruba 50G SFP56 to SFP56 0.65m DAC Cable (R0M46A)[1]
- Aruba 50G SFP56 to SFP56 3m DAC Cable (R0M47A)[1]

Transceivers[1]

- Aruba 1G SFP LC SX 500m MMF Transceiver (J4858D)
- Aruba 1G SFP LC LX 10km SMF Transceiver (J4859D)
- Aruba 1G SFP LC LH 70km SMF Transceiver (J4860D)
- Aruba 1G SFP RJ45 T 100m Cat5e Transceiver (J8177D)
- Aruba 10G SFP+ LC SR 300m MMF Transceiver (J9150D)
- Aruba 10G SFP+ LC LR 10km SMF Transceiver (J9151E)
- Aruba 10G SFP+ LC ER 40km SMF Transceiver (J9153D)
- Aruba 10GBASE-T SFP+ RJ-45 30m Cat6A Transceiver (JL653B)
- Aruba 25G SFP28 LC SR 100m MMF Transceiver (JL484A)
- Aruba 25G SFP28 LC eSR 400m MMF Transceiver (JL485A)
- Aruba 25G SFP28 LC LR 10km SMF Transceiver (JL486A)
- Aruba 40G QSFP+ LC BiDi 150m MMF Optical Transceiver (JL308A)
- HPE X142 40G QSFP+ MPO SR4 Optical Transceiver (JH231A)
- HPE X142 40G QSFP+ MPO eSR4 300M Optical Transceiver (JH233A)
- HPE X142 40G QSFP+ LC LR4 SMF Optical Transceiver (JH232A)
- Aruba 40G QSFP+ LC ER4 40km SMF Optical Transceiver (Q9G82A)
- Aruba 50G SFP56 LC SR 100m MMF Transceiver[1] (R0M48A)
- Aruba 100G QSFP28 MPO SR4 MMF Optical Transceiver (JL309A)
- Aruba 100G QSFP28 LC LR4 SMF Optical Transceiver (JL310A)

Software

- Aruba CX Mobile App https://www.arubanetworks.com/products/networking/switches/cx-mobileapp/
- Aruba NetEdit Single Node: 1 year (JL639AAE)
- Aruba NetEdit Single Node: 3 years (JL640AAE)

Aruba Central Foundation Licenses

- Aruba Central 64xx or 54xx Switch Foundation 1 year Subscription E-STU (R8L80AAE)
- Aruba Central 64xx or 54xx Switch Foundation 3 year Subscription E-STU (R8L81AAE)
- Aruba Central 64xx or 54xx Switch Foundation 5 year Subscription E-STU (R8L82AAE)
- Aruba Central 64xx or 54xx Switch Foundation 7 year Subscription E-STU (R8L83AAE)
- Aruba Central 64xx or 54xx Switch Foundation 10 year Subscription E-STU (R8L84AAE)
- Aruba Central On-Premises 64xx or 54xx Switch Foundation 1 year Subscription E-STU (R8M10AAE)
- Aruba Central On-Premises 64xx or 54xx Switch Foundation 3 year Subscription E-STU (R8M11AAE)
- Aruba Central On-Premises 64xx or 54xx Switch Foundation 5 year Subscription E-STU (R8M12AAE)
- Aruba Central On-Premises 64xx or 54xx Switch Foundation 7 year Subscription E-STU (R8M13AAE)
- Aruba Central On-Premises 64xx or 54xx Switch Foundation 10 year Subscription E-STU (R8M14AAE)

For details and complete listing of Aruba Central licensing options, please refer to the Aruba Central Data Sheet.

[1] 50GbE capability is for use with 50G DACs for both interconnect and Aruba VSX. 50GbE transceiver capability enabled by future software release.

Aruba Fabric Composer

Aruba Fabric Composer is offered as a self-contained ISO or Virtual Machine OVA, and can be installed in both virtual and physical host environments as a single instance or as a Highly Available 3 node cluster. Aruba Fabric Composer is available as a yearly per switch software subscription option.

- Aruba Fabric Composer Device Management Service Tier 4 Switch 1 year Subscription E-STU (R7G99AAE)
- Aruba Fabric Composer Device Management Service Tier 4 Switch 3 year Subscription E-STU (R7H00AAE)
- Aruba Fabric Composer Device Management Service Tier 4 Switch 5 year Subscription E-STU (R7H01AAE)
- Aruba Fabric Composer Device Management Service Tier 4 Switch 7 year Subscription E-STU (R7H02AAE)
- Aruba Fabric Composer Device Management Service Tier 4 Switch 10 year Subscription E-STU (R7H03AAE)

Support

- R0X26A: 4 Hour Onsite 3 Year (HL8P0E)
- R0X27A: 4 Hour Onsite 3 Year (HR7V1E)
- R0X29A: 4 Hour Onsite 3 Year (HL8P0E)
- JL741A: 4 Hour Onsite 3 Year (HR7V1E)
- R0X30A: 4 Hour Onsite 3 Year (HL8P0E)

For Aruba Central hardware only support, 24x7 TAC support, and many other support options, go to Support Services Central SKU lookup tool.

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