



The Power of We™

Highlights:

- Intelligent stackable chassis solution enabling true pay as you grow scaling, in-service maintenance and restoration and centralized management.
- Convergence friendly features including plug and play capabilities for select Avaya IP phones, automatic QoS provisioning for select Avaya Unified Communications and voice solutions, and industry standard Power over Ethernet capabilities.
- Lower Total Cost of Ownership through simple stacking operations, an energy efficient design and lifetime warranty capabilities.
- Integration with Avaya Identity Engines portfolio for cost-effective, standards-based, network access control, helping network operators deal with the explosive growth of employee-owned mobile devices connecting to the network.

Avaya Ethernet Routing Switch 2500 Series

A low-cost, feature rich solution, the Avaya Ethernet Routing Switch (ERS) 2500 series is a family of cost effective, stackable 10/100BASE-TX Ethernet switching products perfectly suited to branch offices of larger enterprises and/or the enterprise edge.

Ideal for enterprises moving to a converged network now or in the future, the Ethernet Routing Switch 2500 offers the resiliency, performance and simplified operational features you need, while helping keep on-going total cost of ownership low.

Convergence-ready for Unified Communications and more

For businesses looking to consolidate all forms of communication – data, voice and video – on a single infrastructure, the Avaya ERS 2500 delivers functionality that simplifies convergence of these technologies.

Through support for standards-based Power-over-Ethernet (IEEE 802.3af PoE), power is delivered to IP phones, wireless access points, networked CCTV cameras and other devices. This eliminates the need for separate power supplies for each unit, enabling reduced cabling and management costs for adds, moves or changes.

The Avaya ERS 2500 further optimizes power consumption by allowing each port to be configured to a power priority level of low, high or critical, limiting the amount of power delivered to non-business-critical devices. This unique design delivers a flexible convergence-ready solution that can help keep costs low for customers.

Simplifies IP phone deployments

With Avaya's auto-discovery and configuration capability (ADAC), the Avaya ERS 2500 automatically configures the switch to apply correct Quality-of-Service (QoS) and VLAN settings, making mass IP phone deployments quick and easy. Standards-based 802.1AB auto-discovery can be used for non-Avaya devices.



Delivering unsurpassed control for networks requiring sophisticated capabilities, advanced QoS functions of the Avaya ERS 2500 enable management of egress queue shaping, mutation of DiffServ Code Point values on egress, definition of filter sets using both Layer 2 and Layer 3 (IP) criteria, and full optimization of the schema for queue and buffer management. With these new QoS capabilities, the Avaya ERS 2500 Series delivers a superlative quality management solution.

Automatic QoS

In addition to supporting certain Avaya Unified Communications and voice solutions through recognition of Differentiated Service Code Point (DSCP) values unique to these applications, Automatic QoS optimizes management of egress queues.

Intelligent stacking solution delivering scalability, flexibility, resilience and performance

A stack of up to eight Avaya ERS 2500 units can be created (via a stacking license or stack-enabled units), enabling the Ethernet Routing Switch 2500 series to deliver up to 32 Gbps stacking throughput by scaling up to 384 10/100 ports and 16 10/100/1000/ SFP combo ports.

Industry-leading, pay-as-you-grow scalable capacity

Using our stackable solutions to combine non-blocking internal switching fabrics with a high-speed stacking architecture, Avaya offers a truly high performance solution designed to scale proportionally as new switches are added. Shortest-

path traffic forwarding capability, providing the most optimal path for each data flow, is at the heart of our stackable chassis architecture. Our solution does away with unwieldy logical ring or token technology found in competing offers. Instead, Avaya uses a physical/logical ring topology that allows traffic to flow upstream and downstream simultaneously from every switch in the stack, optimizing performance, resiliency, and resource utilization.

In-service maintenance and restoration

Virtual hot swap, a critical serviceability and operability capability, helps ensure that failure in any unit is quickly and easily rectified. Pioneered in modular switches, virtual hot swap is available in Avaya stackable chassis solutions where, without complex engineering, it enables immediate like-for-like unit replacement with no impact on other functionality and traffic, empowering operators to deploy our solutions just as they would a chassis. If a failure occurs, neighboring switches automatically wrap their fabric connections to help ensure that other switches in the stack are not impacted. The failed unit is simply disconnected from the fabric and, without pre-staging of software or configuration, a like unit is inserted, cabled, and powered-up. The Automatic Unit Replacement (AUR) process self-manages downloads to the new switch then brings it online,

without the need for an engineer to configure or manage the process.

Further complementing the Avaya ERS 2500 stacking architecture, Avaya supports standards-based 802.3ad Link Aggregation as well as its own Multi-Link Trunking technology that allows grouping of ports to form high-speed trunks/aggregations. These bundles or groups of ports can be distributed across different units in the same stack, delivering higher levels of resilience in case of link or switch failure to help ensure that traffic gets to its destination.

Stack health-check monitoring, a real-time, at-a-glance view of stack operational status and health, further enhances operational and management simplicity.

Automatic software/ configuration control and centralized management

With chassis solutions, implementation and management consists of adding a new module, configuring the module, and connecting devices. With Avaya stackables, the process is just as simple: cable in the new member then extend appropriate configuration. Through the AUR feature, the diagnostic image and agent image software is automatically checked

and updated if necessary to the new member. If a replacement unit is being inserted, the AUR self management function will also download and restore the configuration file in addition to the diagnostic and agent images. All units in a switch stack operate and are managed as a single network entity.

Securing access at the edge

The ERS 2500 offers a wide range of flexible security options to help ensure that only authorized personnel gain access to the LAN. Through either an IEEE 802.1X-based EAP client or device MAC Address, network managers control authentication for access to specific resources.

When advanced, standards-based, policy-based and centralized user/device authentication is required, the Avaya ERS 2500 can be used in conjunction with the innovative Avaya Identity Engines portfolio solution to assign network access rights and permissions based on user role, where user connects (local or remote), and whether or not the connection is wired or wireless. In this way, every connected device is known and adheres to established security policies. As the number of employee-owned devices requesting access to the corporate network increases, Identity Engines helps



network operators retain control. Running device health checks and verifying credentials of users and devices requesting access, Identity Engines helps ensure that network access permission levels are enforced and adhered to.

In addition, the Avaya ERS 2500 offers advanced security services that enable the Avaya ERS 2500 to actively protect against malicious network attacks. These services include protection from snooping of DHCP services, verification and filtering of ARP traffic via in-hardware processing (Dynamic ARP inspection), restriction of IP traffic to registered end devices (IP Source Guard), and control of the flow of Spanning Tree BPDUs within the network (BPDU Filtering).

Avaya ERS 2500 also supports advanced packet classification and deep packet filtering of up to 128 bytes, helping block unwanted network traffic while forwarding mission-critical traffic efficiently.

New in the Avaya ERS 2500 v4.4 Feature Release:

Enhanced Integration with Avaya Voice

- 802.1AB Integration - enables configuration of 802.1AB (LLDP) parameters for Avaya IP handsets.
- 802.1AB Customization - enables configuration of all 802.1AB (LLDP) system and MED parameters as well as timers for maximum configuration flexibility.
- ADAC Enhancements - provides greater flexibility in uplink configuration, supporting up to 8 uplinks per switch or stack.

Simplified Operations

- Dynamic Host Configuration Protocol (DHCP) Server functionality - embedded DHCP Server automates IP address assignment with support of additional options to network devices.
- Diagnostic Auto Unit Replacement - provides automatic upgrade, diagnostic, and agent image along with configuration update for any unit inserted or replaced in an Avaya ERS 2500 switch stack.

L2/3 Enhancements

- Non-local IP Static Routing - utilized when the next-hop IP address is not directly reachable from the switch.
- IPv6 VLANs - supports IPv6 Protocol based VLANs, enabling segmentation of IPv6 traffic.
- IGMPv3 Snooping and Proxy - identifies IGMPv3 join packets for snooping.

Enhanced Security Features

- Secure FTP support - enables use of Secure FTP to transfer an Avaya ERS2500 switch binary configuration file.
- SSH Enhancement to support RSA - supports RSA public-private key encryption using a digital certificate with SSH login.802.1X/ NEAP and Guest VLAN on the same port, enabling Guest-Vlan on ports where NEAP is configured.
- 802.1X /NEAP Last Assigned VLAN - honors last received RADIUS-VLAN assignment on a port.
- 802.1X/ NEAP with Fail_Open VLAN Enhancement -when RADIUS servers are unreachable, already authenticated clients remain in their authenticated VLANs. New client or unauthenticated ports are placed in the Fail_Open VLAN, helping ensure that some level of service is maintained.
- 802.1X/ NEAP Re-authentication Timer - helps ensure that 802.1X and Non-EAP (NEAP) devices (such as printers) maintain network connectivity even if an end device goes into sleep mode.
- 802.1X EAP/NEAP RADIUS requests to different Servers - enables different servers to handle RADIUS/802.1X functions.
- RADIUS Server reachability (using RADIUS requests) - allows use of dummy RADIUS requests for continuity checks on availability of RADIUS server(s).

Improved Manageability

- Dual Syslog server support - enables configuration of a second Syslog server using either IPv4 or IPv6 addresses.
- Show environmental information - provides access to environmental information (such as switch fan status and temperature) via EDM or CLI.
- Show software status - provides visibility into software agent image, diagnostic image, and license including version loaded in Flash RAM via EDM or CLI.
- MLT Enable/Disable whole trunk - supports enabling and disabling of whole MLT trunks.
- Sticky MAC - provides a high level of control plus simple configuration and operation for MAC address security. Secures a MAC address to a specific port so that if the address moves to a different port, an intrusion event is raised. With Sticky MAC, the switch performs initial auto-learning of MAC addresses and can store automatically-learned addresses across switch reboots.
- Configure Asset ID - for asset tracking, allows specific asset information to be entered for an individual switch and switch stack.

Secure and simplified network management

Supported on all Avaya ERS 2500 models, Avaya Ethernet switch software simplifies network operations and management because a single image operates on any mixture of models in a stack.

Eliminating worry about different software versions and capabilities on different products, the software image is loaded on the base unit of the stack which then loads the image to other switches. As switches are added to an existing stack, Avaya ERS 2500 software helps ensure that new switch diagnostics and software are added to software already running on the stack.

The Avaya ERS 2500 supports secure management via IPv4 or IPv6 through access control lists, and administrative authentication via RADIUS or TACACS+ when connecting to the switch or stack.

Creating a flexible operational environment, the Avaya ERS 2500 Series can be managed by a variety of management tools including standardized Command Line Interface (CLI), Web-based Enterprise Device Manager (EDM), SNMP-based management (SNMPv1, v2 & v3), HTTPS (Secure Web), and the evolving Unified Communication Management (UCM) framework for comprehensive, centralized, multi-

faceted network management. UCM is based on Common Services (authentication and access control, audit, etc.) and the following integrated plug-in AJAX-based applets that deliver seamless task-specific capabilities with a consistent look and feel:

- Configuration & Orchestration Management
- Visualization, Performance, & Fault Management
- Enterprise Policy Manager
- IP Flow Manager
- Network Resource Manager

Provision Wizards and other labor-saving tools provide faster service activation and a more consistent approach to configuration. And, because templates are pre-populated with best-practice recommendations or mandatory values, they can reduce human error. The entire framework is context-based, enabling a faster, more accurate and intelligent approach to delivering both device-centric and network-wide management services.

Lifetime warranty

Avaya includes industry-leading warranty services for our portfolio of stackable switches, including Avaya ERS 2500 Series products. The warranty includes complimentary next-business-day shipment of failed

units for the life of the product, next-business-day shipping worldwide on replacement of failed hardware, and basic technical support as follows: Level 1 for the supported lifecycle of the product and up to Level 3 for the first 90 days after purchase. This includes support for the shipped software version, with an optional Software Release Service available to provide access to new feature releases.

Summary

Avaya is positioned to provide an end-to-end solution for converged networks. The Ethernet Routing Switch 2500 series, along with other Avaya products, can increase profitability and productivity, streamline business operations, lower costs and help your business gain a competitive edge.

Learn more

To learn more about the Ethernet Routing Switch 2500 series, please contact your Avaya Account Manager or Avaya Authorized Partner. Or, visit us online at avaya.com.

Avaya Ethernet Routing Switch 2500 Series Ordering Information

Hardware			
Model	Description	Ordering Standalone	Ordering Stack Enabled
ERS 2526T	24 x 10/100 ports + 2 combo 10/100/1000BASE-T / SFP ports + 2 x 1000BASE-T RJ-45 ports at the rear	AL2500?01-E6	AL2515?01-E6
ERS 2526T-PWR	24 x 10/100 ports (PoE supported on 12 ports) + 2 combo 10/100/1000BASE-T / SFP ports + 2 x 1000BASE-T RJ-45 ports at the rear	AL2500?11-E6	AL2515?11-E6
ERS 2550T	48 x 10/100 ports + 2 combo 10/100/1000BASE-T / SFP ports + 2 x 1000BASE-T RJ-45 ports at the rear	AL2500?02-E6	AL2515?02-E6
ERS 2550T-PWR	48 x 10/100 ports (PoE supported on 24 ports) + 2 combo 10/100/1000BASE-T / SFP ports + 2 x 1000BASE-T RJ-45 ports at the rear	AL2500?12-E6	AL2515?12-E6

A 46cm stack cable is included with all ERS 2500 series products

? - The seventh character (?) of the switch order number must be replaced with the proper code to indicate desired product nationalization:

“A” - No power cord included

“B” - Includes European “Schuko” power cord common in Austria, Belgium, Finland, France, Germany, The Netherlands, Norway, and Sweden

“C” - Includes power cord commonly used in the United Kingdom and Ireland

“D” - Includes power cord commonly used in Japan

“E” - Includes North American power cord

“F” - Includes Australian power cord, also commonly used in New Zealand and the People’s Republic of China

Software		
Stacking license kit	Ethernet Routing Switch 2500 Stacking License Kit, for 1 switch, to enable stacking functionality on ERS 2500 series standalone switches. For use with AL2500xxx-E6 order codes. (one license required per switch).	AL2515001
Stacking license kit	Ethernet Routing Switch 2500 Stacking License Kit, for up to 10 switches, to enable stacking functionality on ERS 2500 series standalone switches. For use with AL2500xxx-E6 order codes. (one license required per switch).	AL2515002
Stacking license kit	Ethernet Routing Switch 2500 Stacking License Kit, for up to 50 switches, to enable stacking functionality on ERS 2500 series standalone switches. For use with AL2500xxx-E6 order codes. (one license required per switch).	AL2515003
Stacking license kit	Ethernet Routing Switch 2500 Stacking License Kit, for up to 100 switches, to enable stacking functionality on ERS 2500 series standalone switches. For use with AL2500xxx-E6 order codes. (one license required per switch).	AL2515004

Stacking cables	
Stack cable 46cm / 1.5 ft for Ethernet Routing Switch 2500 series (for use as a spare)	AL2518001-E6
Stack cable 1.5m / 3ft for Ethernet Routing Switch 2500 series (for use as a spare or as a return cable for resiliency)	AL2518002-E6
Stack cable 3m / 10ft for Ethernet Routing Switch 2500 series (for use as a spare or as a return cable for resiliency)	AL2518003-E6

Avaya Ethernet Routing Switch 2500 Series Technical Specifications

General and Performance

- 10/100 Ethernet ports: 24 or 48 per switch
- Gigabit ports: 2 combo 10/100/1000 or SFPs per switch + 2 1000BaseT ports at the rear
- SFP support: SX, LX, BX, XD, ZX, EX & CWDM (40km & 70km)
- Switching capacity: 12.8 Gbps on 24 port 15.6 Gbps on 48 port
- Maximum throughput: 9.523-11.606 Mpps
- Stack bandwidth: 32 Gbps (8 unit high stack)
- Flash: 16M
- RAM: 128M
- Concurrent VLANs: 256
- Maximum MAC addresses: 16,000
- Jumbo Frame support on Gigabit ports: Up to 9216 octets
- 1 RU high
- MLT/DMLT/802.3ad: 6 groups with 4 active links
- Multiple Spanning Tree Groups: 8
- Latency: ~9µs
- Frame length: 1518 bytes (1522 tagged)
- DHCP Snooping: 512 entries max per switch/stack
- ARP entries: 1,000 dynamic entries
- IP interfaces: 256
- IPv4 routes: 256 local, 32 static, plus default route
- DHCP Server: 16 pools, one pool per VLAN, ~1,000 hosts max per switch/stack

Standards compliance

- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- IEEE 802.1Q VLANs
- IEEE 802.1p Priority Queues
- IEEE 802.1D Spanning Tree
- IEEE 802.1w Rapid Spanning Tree
- IEEE 802.1s Multiple Spanning Tree Groups
- IEEE 802.1X Ethernet Authentication Protocol (EAP)
- IEEE 802.3 10BASE-T Ethernet
- IEEE 802.3u 100BASE-TX Fast Ethernet
- IEEE 802.3z Gigabit Ethernet
- IEEE 802.3 (ANSI) Auto-negotiation
- IEEE 802.3x Flow Control
- IEEE 802.3ad Link Aggregation
- IEEE 802.3af Power over Ethernet (15.4W max)
- RFC 783 Trivial File Transfer Protocol (TFTP)
- RFC 791/950 Internet Protocol (IP)
- RFC 792 Internet Control Message Protocol (ICMP)
- RFC 826 Address Resolution Protocol (ARP)
- RFC 854 Telnet Server and Client
- RFC 951 / 1542 BOOTP
- RFC 1112 Internet Group Management Protocol v1
- RFC 1215 SNMP Traps Definition
- RFC 1271 / 1757 / 2819 RMON
- RFC 1361 / 1769 Simple Network Time Protocol (SNTP)
- RFC 1493 Bridge MIB
- RFC 1573 / 2863 Interface MIB
- RFC 1643 / 2665 Ethernet MIB
- RFC 1905 / 3416 SNMP
- RFC 1906 / 3417 SNMP Transport Mappings
- RFC 1907 / 3418 SNMP MIB
- RFC 1945 HTTP v1.0
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2011 SNMP v2 MIB for IP
- RFC 2012 SNMP v2 MIB for TCP
- RFC 2013 SNMP v2 MIB for UDP
- RFC 2132 DHCP Option 6, 43 & 60
- RFC 2138 RADIUS
- RFC 2236 Internet Group Management Protocol v2
- RFC 2460 Internet Protocol v6 (IPv6) Specification
- RFC 2461 Neighbour Discovery for IPv6
- RFC 2462 IPv6 Auto-configuration of link local addresses
- RFC 2474 Differentiated Services Support
- RFC 2570 / 3410 SNMPv3
- RFC 2571 / 3411 SNMP Frameworks
- RFC 2572 / 3412 SNMP Message Processing
- RFC 2573 / 3413 SNMPv3 Applications
- RFC 2574 / 3414 SNMPv3 USM
- RFC 2575 / 3415 SNMPv3 VACM
- RFC 2576 / 3584 Co-existence of SNMP v1/v2/v3
- RFC 2660 HTTPS (Secure Web Server)
- RFC 2665 Ethernet MIB
- RFC 2863 Interfaces Group MIB
- RFC 2674 Q-Bridge MIB
- RFC 2737 Entity MIBv2
- RFC 2819 RMON MIB
- RFC 2866 RADIUS Accounting
- RFC 2869 RADIUS Extensions (interim updates)
- RFC 3046 (& 5010) DHCP option 82, Relay Agent Information Option
- RFC 3058 RADIUS Authentication.
- RFC 3361 SIP Servers DHCP option
- RFC 3576 RADIUS Change of Authorization
- RFC 4007 Scoped Address Architecture
- RFC 4193 Unique Local IPv6 Unicast Addresses
- RFC 4291 IPv6 Addressing Architecture
- RFC 4301 Security Architecture for the Internet Protocol
- RFC 4443 Internet Control Message Protocol (ICMPv6). Update to RFC2463.
- RFC 4675 RADIUS Attributes for VLAN and Priority Support
- RFC 5859 TFTP Servers DHCP option

About Avaya

Avaya is a global provider of business collaboration and communications solutions, providing unified communications, contact centers, data solutions and related services to companies of all sizes around the world. For more information please visit www.avaya.com.

Electrical specifications

- Power supply AC 100-240V, 50-60Hz
- Input current at 110v: Non-PoE 0.8A, PoE 2.9A
- Input current at 220v: Non-PoE 0.4A, PoE 1.1A
- Max power consumption: Non-PoE 96 watts, PoE 350W

Dimensions

Avaya ERS 2526T

- Width: 17.36 in (44.1 cm)
- Height: 1.73 in (4.4 cm)
- Depth: 12.17 in (30.9 cm)
- Weight: 8.5 lbs

Avaya ERS 2550T

- Width: 17.36 in (44.1 cm)
- Height: 1.73 in (4.4 cm)
- Depth: 14.53 in (36.9 cm)
- Weight: 10.5 lbs

Avaya ERS 2526T-PWR

- Width: 17.36 in (44.1 cm)
- Height: 1.73 in (4.4 cm)
- Depth: 12.17 in (30.9 cm)
- Weight: 9.4 lbs

Avaya ERS 2550T-PWR

- Width: 17.36 in (44.1 cm)
- Height: 1.73 in (4.4 cm)
- Depth: 14.53 in (36.9 cm)
- Weight: 11.6 lbs

Environmental specifications

- Operating temperature: 0 to 40 degrees C
- Storage temperature: -40 to 70 degrees C
- Relative humidity: 10% to 95% noncondensing
- Peak noise level: 43.8 dBA
- Thermal rating: Non-PoE: 327 BTU/hr, PoE 500 BTU/hr
- Calculated MTBF:
 - Avaya ERS 2526T: 356,514 hrs
 - Avaya ERS 2550T: 284,713 hrs
 - Avaya ERS 2526T-PWR: 222,012 hrs
 - Avaya ERS 2550T-PWR: 203,208 hrs
- EUED RoHS 6/6 compliant

Safety Agency Approvals

- IEC 60950 International CB Certification
- EN 60950 European Certification
- UL60950 US certification
- CSA22.2, #60950 Canadian Certification
- NOM Mexican Certification

EMC Agency Approvals to the latest release of the following standards

- CISPR22, Class A/CISPR24 International
- EN55022, Class A/EN55024 European
- FCC, Part 15, Class A US Certification
- ICES-003, Class A Canadian Certification
- AN/NZS 3548 Australian/NZ Certification
- BSMI - Taiwan - CNS 13438, Class A
- MIC - Korea - MIC, No. 2001-116
- VCCI Class A Japanese Certification

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References to Avaya include the Nortel Enterprise business, which was acquired as of December 18, 2009.

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