



EdgeSwitch™ 16 XG

10G 16-Port Managed Aggregation Switch

Model: ES-16-XG

Non-Blocking Throughput Switching

Maximum Performance and Low Latency

10G Ethernet SFP+ and RJ45 Ports





Advanced Switching Technology for the Masses

Build and expand your network with Ubiquiti Networks® EdgeSwitch™ XG, part of the EdgeMAX® line of products. The EdgeSwitch XG is a fully managed, 10G fiber switch that enhances network capacity and provides high-bandwidth services to growing networks.

The EdgeSwitch XG offers an extensive suite of advanced Layer-2 switching features and protocols, and also provides Layer-3 routing capability.

Switching Performance

The EdgeSwitch XG offers the forwarding capacity to simultaneously process traffic on all ports at line rate without any packet loss.

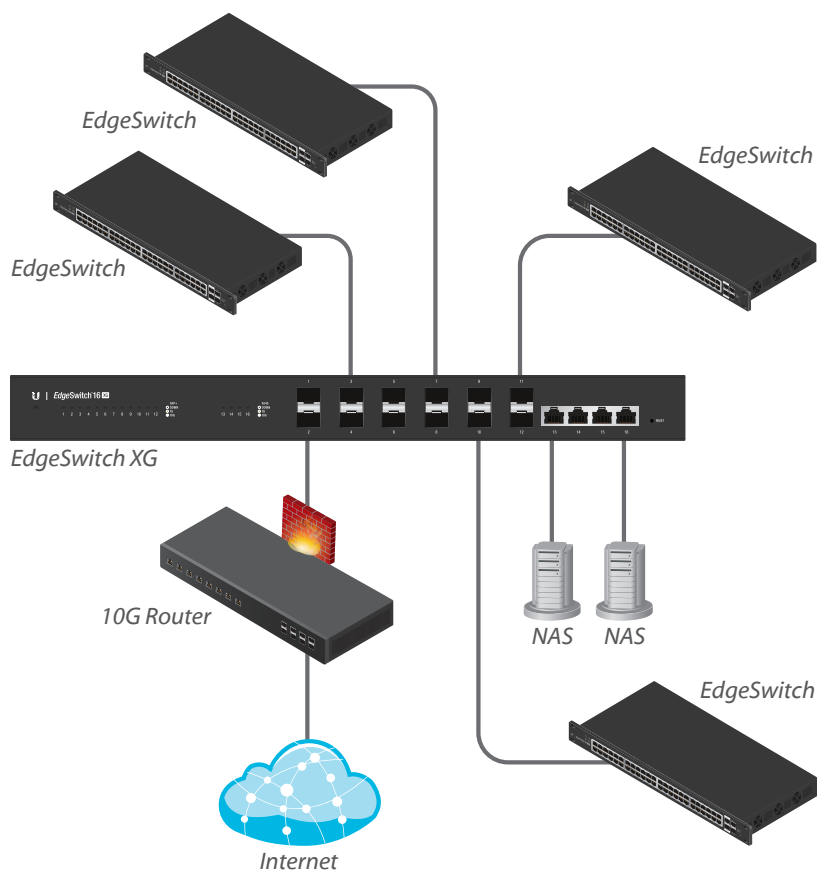
For its total, non-blocking throughput, the EdgeSwitch XG supports up to 160 Gbps.

10G High-Capacity Links

The EdgeSwitch XG offers maximum performance and low latency as an aggregation switch.

For fiber connectivity, it features 12 SFP+ ports. For copper connectivity, the EdgeSwitch XG offers four RJ45 ports that support 10GBASE-T, the standard for 10 Gbps connections using Cat6 (or higher) cabling and RJ45 connectors.

Deployment Example



The EdgeSwitch XG connects to the following:

- Multiple EdgeSwitches and a 10G router via SFP+ ports
- NAS (Network-Attached Storage) devices via 10G RJ45 ports



Comprehensive User Interface

Designed for convenient management, the EdgeSwitch Configuration Interface allows administrators to configure and monitor switch features in a graphical user interface.

For advanced users, an industry-standard command-line interface (CLI) is available through the serial console port, telnet, and SSH.

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Last login: Tue May 13 15:02:28 on tty00
root@ubnt:~# and kernel 3.6.5
Trying 10.242.1.16...
Connected to 10.242.1.16.
Escape character is '^]'.

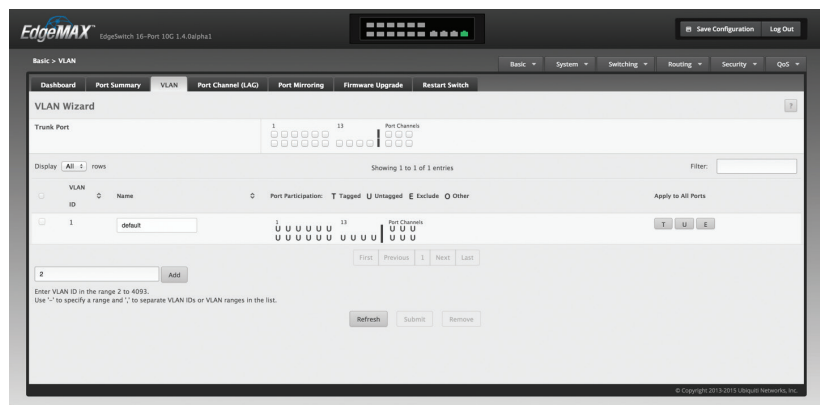
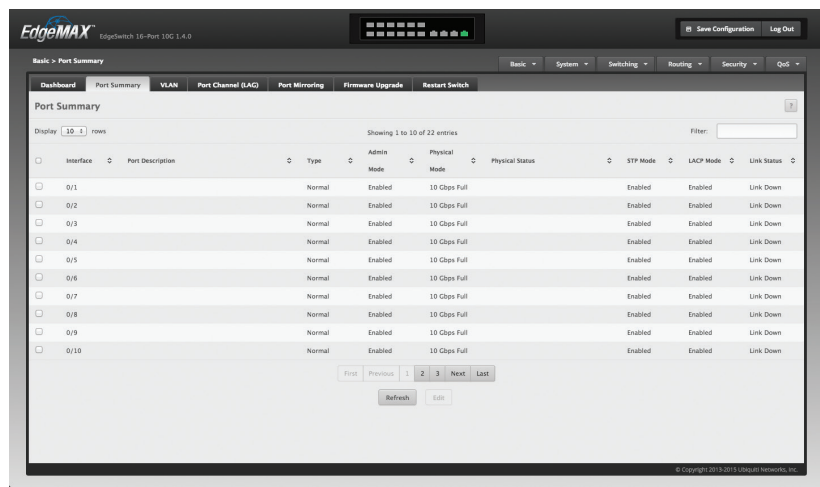
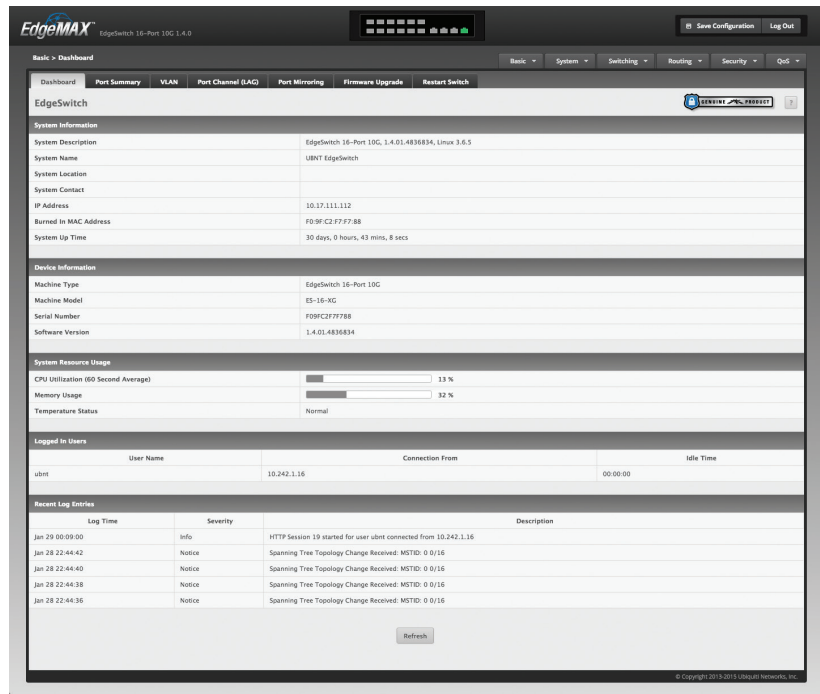
ubntswitch
EdgeSwitch>?
Enter info user privilege mode.
Display help for various special keys.
Exit this session. You cannot change one last.
Display help for various special keys.
Change an existing user's password.
Add user info records to a specified IP address.
Exit this session. You cannot change one last.
Display Switch (VLAN) and Settings.

EdgeSwitch>show
Display the value of BOOT/BOOTP reset parameters.
Display DiffServ class information.
Display class of service information.
Display DHCP parameters.
Display status of service user parameters.
Display service attribute configuration Protocol
information.
Display DHCP interface information.
Display DHCP Reservation Parameters.
To display the default domain name, a list of user
server hosts, the status and the current list of host
names and addresses.
    
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Powerful Functionality

The EdgeSwitch XG uses a sophisticated operating system that provides basic switching features and a variety of advanced features including:

- MSTP/RSTP/STP
- VLAN, Private VLAN, Voice VLAN
- Link Aggregation
- DHCP Snooping, IGMP Snooping
- TACACS+, RADIUS, 802.1X, MAC Filtering, ACL
- DiffServ, CoS
- Static Routing
- DHCP Server Functionality



Models

EdgeSwitch 16 XG

Model: ES-16-XG

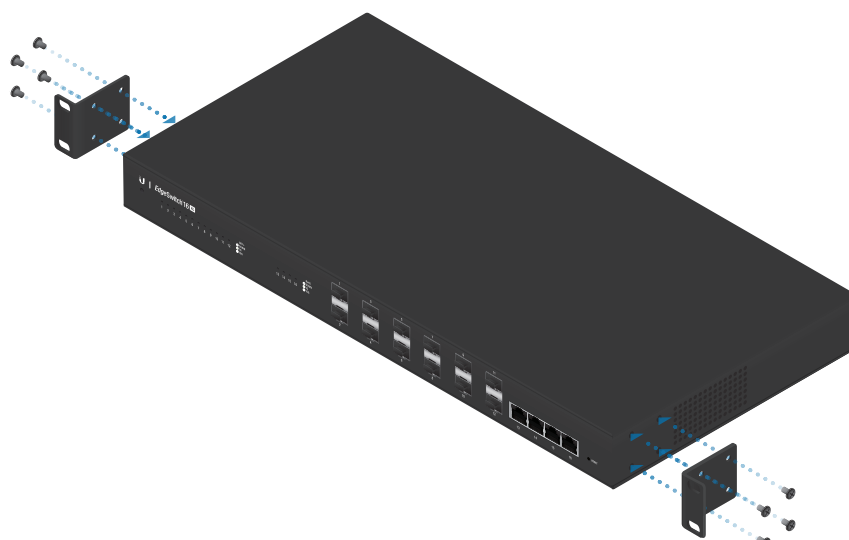
- (12) SFP+ Ports
- (4) 10G RJ45 Ports
- (1) RJ45 Serial Console Port
- Non-Blocking Throughput: 160 Gbps
- Switching Capacity: 320 Gbps
- Forwarding Rate: 238.10 Mpps
- Rack Mountable with Rack-Mount Brackets (Included)
- DC Input Option (Redundant or Stand-Alone)



Front Panel



Back Panel



Attaching Rack-Mount Brackets to the EdgeSwitch XG

Hardware Specifications

ES-16-XG		
Dimensions	443 x 221 x 43 mm (17.44 x 8.70 x 1.69")	
Weight	Rack-Mount Brackets Included	Rack-Mount Brackets Excluded
	2.71 kg (5.97 lb)	2.62 kg (5.78 lb)
Enclosure Characteristics	SGCC Steel	
Total Non-Blocking Throughput	160 Gbps	
Switching Capacity	320 Gbps	
Forwarding Rate	238.10 Mpps	
Max. DC Power Consumption	36W (Excludes SFP/SFP+ Modules)	
Power Method	AC	DC
	100-240VAC/50-60 Hz, Universal Input	DC 56W, 25 to 16V, with 2.5 mm DC Power Inline Connector
Supported Voltage Range	100 to 240VAC	25 to 16VDC
Power Supply	AC/DC, Internal, 56W DC	
LEDs Per Data Port	Speed/Link/Activity	
Networking Interfaces	(12) 1/10 Gbps SFP+ Ethernet Ports (4) 1/10 Gbps RJ45 Ethernet Ports	
Management Interface	(1) RJ45 Serial Port, Ethernet In/Out Band	
Certifications	CE, FCC, IC	
Rack Mount	Yes, 1U High	
ESD/EMP Protection	Air: ± 24 kV, Contact: ± 24 kV	
Operating Temperature	-5 to 40° C (23 to 104° F)	
Operating Humidity	5 to 95% Noncondensing	
Shock and Vibration	ETSI300-019-1.4 Standard	

Software Specifications

Software Information	
Core Switching Features	• ANSI/TIA-1057: LLDP-Media Endpoint Discovery (MED) • IEEE 802.1AB: Link Layer Discovery Protocol (LLDP) • IEEE 802.1D: Spanning Tree Compatibility • IEEE 802.1S: Multiple Spanning Tree Compatibility • IEEE 802.1W: Rapid Spanning Tree Compatibility • IEEE 802.1Q: Virtual LANs with Port-Based VLANs • IEEE 802.1p: Ethernet Priority with User Provisioning and Mapping • IEEE 802.1X: Port-Based Authentication with Guest VLAN Support • IEEE 802.3ab: 1000BASE-T • IEEE 802.3an-2006: 10GBASE-T • IEEE 802.1ak: Virtual Bridged Local Area Networks - Amendment 07: Multiple Registration Protocol • IEEE 802.3ac: VLAN Tagging • IEEE 802.3ad: Link Aggregation • IEEE 802.3x: Flow Control • IEEE 802.1D-2004: Generic Attribute Registration Protocol: Clause 12 (GARP) • IEEE 802.1D-2004: Dynamic L2 multicast registration: Clause 10 (GMRP) • IEEE 802.1Q-2003: Dynamic VLAN registration: Clause 11.2 (GVRP) • RFC 4541: Considerations for Internet Group Management Protocol (IGMP) Snooping Switches • RFC 5171: Unidirectional Link Detection (UDLD) Protocol
Advanced Layer 2 Features	• Broadcast Storm Recovery • Broadcast/Multicast/Unknown Unicast Storm Recovery • DHCP Snooping • IGMP Snooping Querier • Independent VLAN Learning (IVL) Support • Jumbo Ethernet Frame Support • Port MAC Locking • Port Mirroring • Protected Ports • Static MAC Filtering • TACACS+ • Voice VLANs • Unauthenticated VLAN • Internal 802.1X Authentication Server

Software Information	
Platform Specifications	• DHCP Server • Maximum Number of Pools: 128 • Maximum Number of Leases (Total): 2048 • Routing • Number of Routes: 16 • Number of Routing Interfaces: 15 • VLANs: 255 • MAC Addresses: 8k • MSTP Instances: 4 • LAGs: 6 • ACLs: 100 with 10 Rules per Port • Traffic Classes (Queues): 8
System Facilities	• Event and Error Logging Facility • Run-Time and Configuration Download Capability • PING Utility • FTP/TFTP Transfers via IPv4/IPv6 • Malicious Code Detection • BootP and DHCP • RFC 2021: Remote Network Monitoring Management Information Base Version 2 • RFC 2030: Simple Network Time Protocol (SNTP) • RFC 2819: Remote Network Monitoring Management Information Base • RFC 2865: RADIUS Client • RFC 2866: RADIUS Accounting • RFC 2868: RADIUS Attributes for Tunnel Protocol Support • RFC 2869: RADIUS Extensions • RFC 3579: RADIUS Support for EAP • RFC 3580: IEEE 802.1X RADIUS Usage Guidelines • RFC 3164: BSD Syslog Protocol
Management	• Web UI • Industry-Standard CLI • IPv6 Management • Password Management • Autoinstall Support for Firmware Images and Configuration Files • SNMP v1, v2, and v3 • SSH 1.5 and 2.0 • SSL 3.0 and TLS 1.0 • Secure Copy (SCP) • Telnet (Multi-Session Support)
Layer 3 Routing	• Static Routing

Software Information

QoS	• Access Control Lists (ACLs), Permit/Deny Actions for Inbound IP and Layer 2 Traffic Classification Based on: • Time-Based ACL • Source/Destination IP Address • TCP/UDP Source/Destination Port • IP Protocol Type • Type of Service (ToS) or Differentiated Services (DSCP) Field • Source/Destination MAC Address • EtherType • IEEE 802.1p User Priority • VLAN ID • RFC 1858: Security Considerations for IP Fragment Filtering • Optional ACL Rule Attributes • Assign Flow to a Specific Class of Service (CoS) Queue • Redirect Matching Traffic Flows • Differentiated Services (DiffServ) • Classify Traffic Based on Same Criteria as ACLs • Mark the IP DSCP or Precedence Header Fields, Optional • Police the Flow to a Specific Rate with Two-Color Aware Support • RFC 2474: Definition of the Differentiated Services Field (DS field) in the IPv4 and IPv6 Headers • RFC 2475: An Architecture for Differentiated Services • RFC 2597: Assured Forwarding Per-Hop Behavior (PHB) Group • RFC 3246: An Expedited Forwarding PHB • RFC 3260: New Terminology and Clarifications for DiffServ • Class of Service (CoS) Queue Mapping Configuration • AutoVoIP: Automatic CoS Settings for VoIP • IP DSCP-to-Queue Mapping • Configurable Interface Trust Mode (IEEE 802.1p, DSCP, or Untrusted) • Interface Egress Shaping Rate • Strict Priority versus Weighted Scheduling per Queue
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