

ExtremeWare™ v6.1

Extreme Networks understands that the e-commerce marketplace and 24/7 Internet access are serious business. That's why we developed ExtremeWare v6.1, the reliable, resilient software that runs on all Extreme Networks' "i" series switches. Common code with the "i" series switches mean plug-and-play compatibility on Extreme's Summit, Alpine and Black Diamond, switches, as well as consistent behavior and stable performance right out of the box.

ExtremeWare v6.1 delivers the uncompromising management, control and security needed on today's demanding service provider, enterprise and co-located networks. Its standards-based multi-layer switching and Policy-Based Quality of Service (QoS) give service providers and corporate networkers alike the tools they need to make the most of their capacity.

Also key is the flexibility of making your network design decisions for Layer 2, 3 and 4-7 switching independent from your QoS and security policies. For example, even if configured for simple L2 switching, the switch can implement bi-directional bandwidth management and security policies at Layer 3, 4 or even based on user name.

- **Implements Border Gateway Protocol (BGP): BGP4, External BGP and Internal BGP**
- **OSPF- a complete, feature-rich scaled and field proven implementation**
- **IP Multicast- PIM/DM ; PIM/SM ; DVMRP**
- **Supports all expected router services, including Dynamic Host Configuration Protocol/User Datagram Protocol (DHCP/UDP) relay, IRDP and controls on IP Option and Internet Control Message Protocol (ICMP) responses**
- **IPX RIP/SAP**
- **Wire speed Access Lists including Directional TCP session control**
- **Server Load Balancing and Web Cache Redirection**
- **Combined Layer 2 resiliency and loop prevention and Layer 3 default router redundancy using ESRP**
- **A single platform delivers resilient server load balancing, Layer 3-4 traffic redirects and Layer 2-3 switching, along with Policy-Based QoS**
- **Layer-independent QoS and access control (Layer 3/Layer 4 lockups with Layer 2 switching)**
- **Can classify incoming packets and set policy according to Layer 1 through Layer 7 classifications including port, MAC address, IP address, L4 port, WINS username or any possible IEEE 802.1p priority (8) and DiffServ code point values (64)**
- **VLAN aggregation; scales use of IP address space for server co-lo environments and preserves customer isolation**
- **Configuration and monitoring can be done via Telnet, common line interface, local web interface, SNMP and Secure Shell 2 (SSH2) with separate access profiles for access**
- **Support for EEM, Extreme's management platform for system-wide QoS Policy and efficient configuration/management tools**
- **Loaded with debug-trace logging utilities for BGP4, OSPF, RIP, and Spanning Tree**



Port Number	Speed	Link State	RxPackets Count	TxPackets Count	RxByte Count	TxByte Count	Collision
1	100	Active	473421	366577	12619544	11577317	0
2	100	Active	1800	3321152	372968	38480332	0
3	100	Standby	1711	2359259	42584	38482251	0
4	10	Active	21447	246306	1678110	7620889	0
5	100	Active	81852	3374068	11634528	116842017	0
6	100	Standby	0	0	0	0	0
7	100	Standby	0	0	0	0	0
8	100	Standby	10119	238715	2275229	38514038	0
9	100	Active	329	881	148814	178984	0
10	100	Active	1260	7983	588032	4101484	0
11	100	Active	1265	7985	588292	4105527	0
12	100	Standby	0	0	0	0	0
13	100	Standby	0	0	0	0	0
14	100	Standby	0	0	0	0	0
15	100	Active	1555852	294195	11861180	37999078	0
16	100	Standby	0	0	0	0	0
17	100	Standby	0	0	0	0	0
18	1000	Active	1229	418	39442	351395	0

The intuitive ExtremeWare Vista browser-based user interface simplifies the management of Extreme switches by supporting any combination of telnet, SNMP and Web management options.

ExtremeWare 6.1 Specifications

RIP:

RFC 1058 RIP v1
RFC 2453 RIP v2

OSPF:

RFC 2328 OSPF v2
RFC 1587 OSPF NSSA Option
RFC 2154 OSPF with Digital Signatures (password, MD-5)

BGP4:

RFC 1771 Border Gateway Protocol 4
RFC 1965 Autonomous System Confederations for BGP
RFC 1966 BGP Route Reflection
RFC 1997 BGP Communities Attribute
RFC 1745 BGP/OSPF Interaction

IP Multicast:

RFC 2362 PIM-SM
PIM-DM Draft IETF PIM Dense Mode v2-dm-03
RFC 1122 DVMRP Host req
DVMRP v3 draft IETF DVMRP v3-07
RFC 2236 IGMP v2
IGMP Snooping with Configurable Router Registration Forwarding

General Routing:

RFC 1812 Router Requirements
RFC 1519 CIDR
RFC 1256 IRDP Router Discovery
RFC 783 TFTP
RFC 951 BootP
RFC 1542 BootP
RFC 2131 BootP/DHCP helper
RFC 1591 DNS (client operation)
RFC 1122 Host Requirements
RFC 768 UDP
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
Extreme Standby Router Protocol (ESRP)

Quality of Service:

IEEE 802.1D -1998 (802.1p) Packet Priority
RFC 2474 DiffServ Precedence
RFC 2598 DiffServ Expedited Forwarding
RFC 2597 DiffServ Assured Forwarding
RFC 2475 DiffServ Core and Edge Router Functions
Bi-directional Rate Shaping
Layer 1-4, Layer 7 (user name) Policy-Based Mapping
Policy-Based Mapping/Overwriting of DiffServ code points,
.1p priority

VLANs:

IEEE 802.1Q VLAN Tagging
IEEE 802.3ad draft -Static Config
GVRP (Generic VLAN Registration Protocol)
Port-based
MAC-based
Protocol-sensitive

Management:

RFC 1157 SNMPv1/v2c
RFC 1907 SNMPv2RFC 1907 SNMPv2
RFC 1757 RMON 4 groups: Stats, History, Alarms and EventsRFC 2021
RMON2 (probe config)
RFC 2668 MAU
RFC 1493 Bridge MIB
RFC 1213 MIB-II
RFC 2037 Entity MIB
RFC 2233 Interface MIB
RFC 2096 IP Forwarding
RFC 1724 RIPv2 MIB
ExtremeWare private MIB (includes ACL, QoS policy and VLAN config)
RFC 1866 HTML
RFC 2068 HTTP
RFC 854 Telnet
HTML and Telnet management
Configuration logging
Multiple Images, Multiple Configs
Multiple Syslog Servers
999 Local Messages (criticals stored across reboots)
RFC 1769v3 Simple Network Time Protocol

Security:

FIPS-186 (Federal Information Processing Standards Publication 186) SSH2
RFC 1851 3DES-CBC cipher
RFC 2792 DSA key exchange
TACACS+
RFC 2138 RADIUS
RFC 2139 RADIUS Accounting
RADIUS Per-command Authentication
Access Profiles on All Routing Protocols
Access Profiles on All Management Methods

Denial of Service Protection:

RFC 2267 Network Ingress Filtering
RPF (Unicast Reverse Path Forwarding) Control
Wire-speed ACLs
Rate Limiting by ACLs
IP Broadcast Forwarding Control
ICMP and IP-Option Response Control
Server Load Balancing with Layer 3,4 Protection of Servers
SYN attack protection
Uni-directional Session Control

Relevant Immunity Testing:

- CERT (<http://www.cert.org>)

CA-97.28.TearDrop_Land -TearDrop and "LAND " attack
IP Options Attack
CA-98-13-tcp-denial-of-service
CA-98.01.smurf

CA-96.26.ping
CA-96.21.tcp_syn_flooding
CA-96.01.UDP_service_denial

CA-95.01.IP_Spoofing_Attacks_and_Hijacked_Terminal_Connections

- Host Attacks (<http://www.rootshell.org/beta/exploits.html>)

Syndrop	Nestea	Latierra
Newtear	Bonk	Winnuke
Raped	Simping	Sping
Ascend	Stream	

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