

# Next-Generation Firewalls

NSG-8100 security platform delivers business reliability for large-sized enterprises and data centers.



## NSG-8100 Next-Generation Firewall

NSG-8100 Next-Generation Firewall provides comprehensive and granular visibility and control of applications. It can identify and prevent potential threats associated with high-risk applications while providing policy-based control over applications, users, and user-groups. Policies can be defined that guarantee bandwidth to mission-critical applications while restricting or blocking unauthorized or malicious applications. NSG-8100 provides real-time protection for applications from network attacks including viruses, spyware, worms, botnets, ARP spoofing, DoS/DDoS, Trojans, buffer overflows, and SQL injections. It incorporates comprehensive network security and advanced firewall features for large-sized enterprises and data centers.

### Benefits

- IPS, Anti-Virus, Threat Prevention, Attack Defense, URL Filtering
- SSL Decryption, Application Control
- IPsec VPN, SSL VPN, L2TP VPN, PnVPN
- NAT46, NAT64, NAT444, SNAT, DNAT, PAT, Full Cone NAT, STUN
- iQoS, Traffic Shaping, Bandwidth Allocation
- GUI, CLI (Console, SSH, Telnet), SNMP

## Key Features

### Granular Application Identification and Control

- Provides fine-grained control of web applications regardless of port, protocol, or evasive action.
- It can identify and prevent potential threats associated with high-risk applications while providing policy-based control over applications, users, and user-groups.
- Security Policies can be defined that guarantee bandwidth to mission-critical applications while restricting or blocking unauthorized or malicious applications.

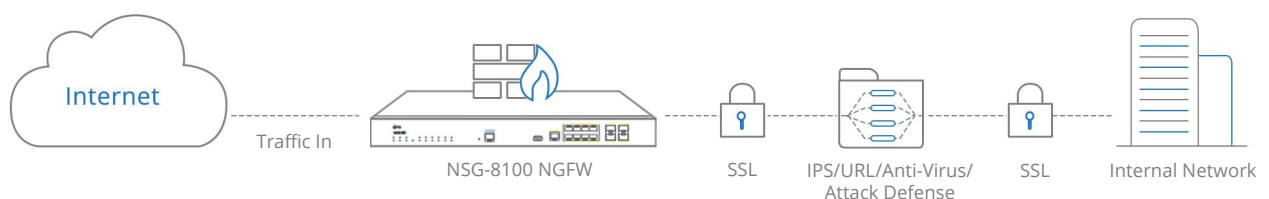
### Comprehensive Threat Detection and Prevention

- Provides real-time protection for applications from network attacks including viruses, spyware, worms, botnets, ARP spoofing, DoS/DDoS, Trojans, buffer overflows, and SQL injections.
- It incorporates a unified threat detection engine that share packet details with multiple security engines (AD, IPS, URL filtering, Anti-Virus).

### Superior Network Adaptability

- The intelligent link load balancing greatly promotes the link utilization and user experience for network access to meet the diverse requirements.
- With VPN acceleration chip, it can significantly improve IPSec/SSL VPN performance and support VPN deployment in large-scale network environments.
- Supports virtual firewall technology and provides the private security protection service for tenants.

## Deployment



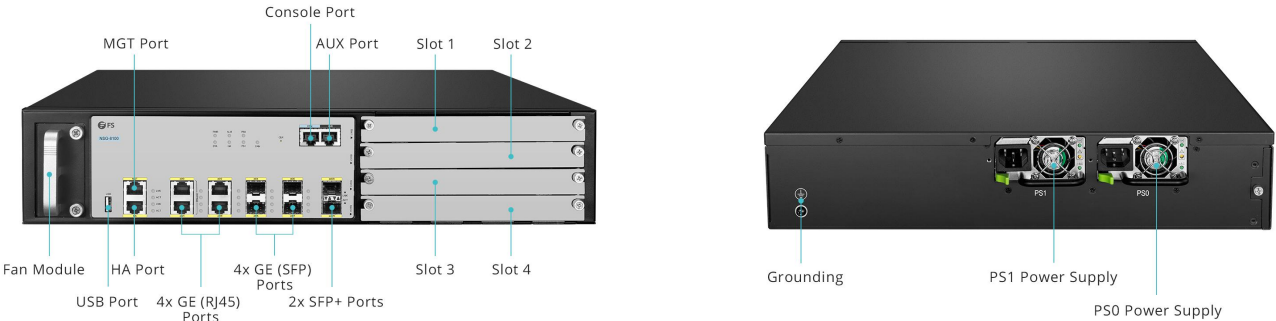
NSG-8100 incorporates a unified threat detection engine that share packet details with multiple security engines, including IPS, URL filtering, Anti-Virus, Attack Defense. It can support application identification and control, data security and load balancing.

NSG-8100 provides comprehensive network security and advanced firewall features for large-sized enterprises and data centers.

Panel Overview

NSG-8100

NSG-8100 Next-Generation Firewall combines the most comprehensive security protections to defend your mid-sized to large enterprises deployments.



Specification

System Specification	
Items	NSG-8100
Ports	4x GE (RJ45), 4x SFP, 2x SFP+
Firewall Throughput (1)	10 Gbps
NGFW Throughput (2)	3 Gbps
Threat Protection Throughput (3)	2 Gbps
IPS Throughput (4)	4 Gbps
IMIX Throughput (5)	4 Gbps
AV Throughput (6)	3 Gbps
IPSec VPN Throughput (7)	6 Gbps
New Sessions/sec (8)	170,000
Maximum Concurrent Sessions	6 Million
IPSec Tunnel Number	10,000
SSL VPN Users	8/8,000

Intrusion Prevention

1-Year Subscription Included

Specification

System Specification	
Items	NSG-8100
Anti-Virus	1-Year Subscription Included
URL Filtering	1-Year Subscription Included
QoS	1-Year Subscription Included
Management Ports	1 x Console Port, 1 x AUX Port, 1 x USB Port, 1 x HA, 1 x MGT
Expansion Slots	4 Generic Slots
Maximum Power Consumption	2x 450W, Redundancy 1 + 1
Power Supply	Dual
AC Input Power	100-240V, 50/60Hz
DC Input Power	-40 to -60V
Warranty	1 Year
Dimension (HxWxD)	3.5"x17.3"x 20.9" (88x440x530 mm)
Weight	27.1 lb (11.8kg)
Temperature	32-104 °F (0-40°C)
Relative Humidity	10-95% (no dew)

NOTES:

- (1) Firewall throughput data is obtained under single-stack UDP traffic with 1518-byte packet size;
- (2) NGFW throughput data is obtained under 64 Kbytes HTTP traffic with application control and IPS enabled;
- (3) Threat protection throughput data is obtained under 64 Kbytes HTTP traffic with application control, IPS, AV and URL filtering enabled;
- (4) IPS throughput data is obtained under bi-direction HTTP traffic detection with all IPS rules being turned on;
- (5) IMIX throughput data is obtained under UDP traffic mix (64 byte : 512 byte : 1518 byte =5:7:1);
- (6) AV throughput data is obtained under HTTP traffic with file attachment;
- (7) IPSec VPN throughput data is obtained under Preshare Key AES256+SHA-1 configuration and 1400-byte packet size packet;
- (8) New Sessions/s is obtained under TCP traffic.

Software Features

Software Features and Protocols	
Network Services	<ul style="list-style-type: none"><li>• Dynamic routing (OSPF, BGP, RIPv2)</li><li>• Static and Policy routing</li><li>• Route controlled by application</li><li>• Built-in DHCP, NTP, DNS Server and DNS proxy</li><li>• Tap mode – connects to SPAN port</li><li>• Interface modes: sniffer, port aggregated, loopback, VLANS (802.1Q and Trunking)</li><li>• L2/L3 switching &amp; routing</li><li>• Virtual wire (Layer 1) transparent inline deployment</li></ul>
Firewall	<ul style="list-style-type: none"><li>• Operating modes: NAT/route, transparent (bridge), and mixed mode</li><li>• Policy objects: predefined, custom, and object grouping</li><li>• Security policy based on application, role and geo-location</li><li>• Application Level Gateways and session support: MSRPC, PPTP, RAS, RSH, SIP, FTP, TFTP, HTTP, DCERPC, DNS-TCP, DNS-UDP, H.245 0, H.245 1, H.323</li><li>• NAT and ALG support: NAT46, NAT64, NAT444, SNAT, DNAT, PAT, Full Cone NAT, STUN</li><li>• NAT configuration: per policy and central NAT table</li><li>• VoIP: SIP/H.323/SCCP NAT traversal, RTP pin holing</li><li>• Global policy management view</li><li>• Security policy redundancy inspection</li><li>• Schedules: one-time and recurring</li></ul>
Intrusion Prevention	<ul style="list-style-type: none"><li>• Protocol anomaly detection, rate-based detection, custom signatures, manual, automatic push or pull signature updates, integrated threat encyclopedia</li><li>• IPS Actions: default, monitor, block, reset (attackers IP or victim IP, incoming interface) with expiry time</li><li>• Packet logging option</li><li>• Filter Based Selection: severity, target, OS, application or protocol</li><li>• IP exemption from specific IPS signatures</li><li>• IDS sniffer mode</li><li>• IPv4 and IPv6 rate based DoS protection with threshold settings against TCP Syn flood, TCP/UDP/SCTP port scan, ICMP sweep, TCP/UDP/SCIP/ICMP session flooding (source/destination)</li><li>• Active bypass with bypass interfaces</li><li>• Predefined prevention configuration</li></ul>
Anti-Virus	<ul style="list-style-type: none"><li>• Manual, automatic push or pull signature updates</li><li>• Flow-based Antivirus: protocols include HTTP, SMTP, POP3, IMAP, FTP/SFTP</li><li>• Compressed file virus scanning</li></ul>

Software Features and Protocols	
Attack Defense	<ul style="list-style-type: none"><li>• Abnormal protocol attack defense</li><li>• Anti-DoS/DDoS, including SYN Flood, DNS Query Flood defense</li><li>• ARP attack defense</li></ul>
IP Reputation	<ul style="list-style-type: none"><li>• Botnet server IP blocking with global IP reputation database</li></ul>
URL Filtering	<ul style="list-style-type: none"><li>• Flow-based web filtering inspection</li><li>• Manually defined web filtering based on URL, web content and MIME header</li><li>• Dynamic web filtering with cloud-based real-time categorization database: over 140 million URLs with 64 categories (8 of which are security related)</li><li>• Additional web filtering features:<ul style="list-style-type: none"><li>- Filter Java Applet, ActiveX or cookie</li><li>- Block HTTP Post</li><li>- Log search keywords</li><li>- Exempt scanning encrypted connections on certain categories for privacy</li></ul></li><li>• Web filtering profile override: allows administrator to temporarily assign different profiles to user/group/IP</li><li>• Web filter local categories and category rating override</li></ul>
Botnet C&C Prevention	<ul style="list-style-type: none"><li>• Regularly update the botnet server addresses</li><li>• prevention for C&amp;C IP and domain</li><li>• Support TCP, HTTP, and DNS traffic detection</li><li>• IP and domain whitelists</li></ul>
SSL Decryption	<ul style="list-style-type: none"><li>• Application identification for SSL encrypted traffic</li><li>• IPS enablement for SSL encrypted traffic</li><li>• AV enablement for SSL encrypted traffic</li><li>• URL filter for SSL encrypted traffic</li><li>• SSL Encrypted traffic whitelist</li><li>• SSL proxy offload mode</li></ul>
Endpoint Identification	<ul style="list-style-type: none"><li>• Support to identify endpoint IP, endpoint quantity, on-line time, off-line time, and on-line duration</li><li>• Support 10 operation systems</li><li>• Support query based on IP and endpoint quantity</li></ul>
Data Security	<ul style="list-style-type: none"><li>• File transfer control based on file type</li><li>• File protocol identification, including HTTP, FTP, SMTP and POP3</li><li>• File signature and suffix identification for over 100 file types</li><li>• Content filtering for HTTP-GET, HTTP-POST, FTP and SMTP protocols</li><li>• IM identification and network behavior audit</li></ul>

## Software Features and Protocols

### Application Control

- Over 3,000 applications that can be filtered by name, category, subcategory, technology and risk
- Each application contains a description, risk factors, dependencies, typical ports used, and URLs for additional reference
- Actions: block, reset session, monitor, traffic shaping
- Identify and control cloud applications in the cloud
- Provide multi-dimensional monitoring and statistics for cloud applications, including risk category and characteristics

### Quality of Service (QoS)

- Max/guaranteed bandwidth tunnels or IP/user basis
- Tunnel allocation based on security domain, interface, address, user/user group, server/server group, application/app group, TOS, VLAN
- Bandwidth allocated by time, priority, or equal bandwidth sharing
- Type of Service (TOS) and Differentiated Services (DiffServ) support
- Prioritized allocation of remaining bandwidth
- Maximum concurrent connections per IP
- Bandwidth allocation based on URL category

### Server Load Balancing

- Weighted hashing, weighted least-connection, and weighted round-robin
- Session protection, session persistence and session status monitoring
- Server health check, session monitoring and session protection

### Link Load Balancing

- Bi-directional link load balancing
- Outbound link load balancing includes policy based routing, ECMP and weighted, embedded ISP routing and dynamic detection
- Inbound link load balancing supports SmartDNS and dynamic detection
- Automatic link switching based on bandwidth, latency, jitter, connectivity, application
- Link health inspection with ARP, PING, and DNS

### VPN

- IPSec VPN
  - IPSec Phase 1 mode: aggressive and main ID protection mode
  - Peer acceptance options: any ID, specific ID, ID in dialup user group
  - Supports IKEv1 and IKEv2 (RFC 4306)
  - Authentication method: certificate and pre-shared key
  - IKE mode configuration support (as server or client)
  - DHCP over IPSEC
  - Configurable IKE encryption key expiry, NAT traversal keep alive frequency
  - Phase 1/Phase 2 Proposal encryption: DES, 3DES, AES128, AES192, AES256
  - Phase 1/Phase 2 Proposal authentication: MD5, SHA1, SHA256, SHA384, SHA512
  - Phase 1/Phase 2 Diffie-Hellman support: 1,2,5
  - XAuth as server mode and for dialup users
  - Dead peer detection
  - Replay detection
  - Autokey keep-alive for Phase 2 SA

Software Features and Protocols	
VPN	<ul style="list-style-type: none"><li>• IPSEC VPN realm support: allows multiple custom SSL VPN logins associated with user groups (URL paths, design)</li><li>• IPSEC VPN configuration options: route-based or policy based</li><li>• IPSEC VPN deployment modes: gateway-to-gateway, full mesh, hub-and-spoke, redundant tunnel, VPN termination in transparent mode</li><li>• One time login prevents concurrent logins with the same username</li><li>• SSL portal concurrent users limiting</li><li>• SSL VPN port forwarding module encrypts client data and sends the data to the application server</li><li>• Supports clients that run iOS, Android, and Windows XP/Vista including 64-bit Windows OS</li><li>• Host integrity checking and OS checking prior to SSL tunnel connections</li><li>• MAC host check per portal</li><li>• Cache cleaning option prior to ending SSL VPN session</li><li>• L2TP client and server mode, L2TP over IPSEC, and GRE over IPSEC</li><li>• View and manage IPSEC and SSL VPN connections</li><li>• PnVPN</li></ul>
VSYS	<ul style="list-style-type: none"><li>• System resource allocation to each VSYS</li><li>• CPU virtualization</li><li>• Non-root VSYS support firewall, IPsec VPN, SSL VPN, IPS, URL filtering</li><li>• VSYS monitoring and statistic</li></ul>
IPv6	<ul style="list-style-type: none"><li>• Management over IPv6, IPv6 logging and HA</li><li>• IPv6 tunneling, DNS64/NAT64 etc</li><li>• IPv6 routing protocols, static routing, policy routing, ISIS, RIPng, OSPFv3 and BGP4+</li><li>• IPS, Application identification, URL filtering, Anti-Virus, Access control, ND attack defense</li></ul>
High Availability	<ul style="list-style-type: none"><li>• Redundant heartbeat interfaces</li><li>• Active/Active and Active/Passive</li><li>• Standalone session synchronization</li><li>• HA reserved management interface</li><li>• Failover:<ul style="list-style-type: none"><li>- Port, local &amp; remote link monitoring</li><li>- Stateful failover</li><li>- Sub-second failover</li><li>- Failure notification</li></ul></li><li>• Deployment options:<ul style="list-style-type: none"><li>- HA with link aggregation</li><li>- Full mesh HA</li><li>- Geographically dispersed HA</li></ul></li></ul>



Software Features and Protocols	
User and Device Identity	<ul style="list-style-type: none"><li>• Local user database</li><li>• Remote user authentication: TACACS+, LDAP, Radius, Active</li><li>• Single-sign-on: Windows AD</li><li>• 2-factor authentication: 3rd party support, integrated token server with physical and SMS</li><li>• User and device-based policies</li><li>• User group synchronization based on AD and LDAP</li><li>• Support for 802.1X, SSO Proxy</li><li>• WebAuth page customization</li><li>• Interface based Authentication</li><li>• Agentless ADSSO (AD Polling)</li><li>• Use authentication synchronization based on SSO-monitor</li></ul>
Management	<ul style="list-style-type: none"><li>• Management access: HTTP/HTTPS, SSH, telnet, console</li><li>• Central Management: Web service APIs</li><li>• System Integration: SNMP, syslog, alliance partnerships</li><li>• Rapid deployment: USB auto-install, local and remote script execution</li><li>• Dynamic real-time dashboard status and drill-in monitoring widgets</li></ul>
Logs & Reporting	<ul style="list-style-type: none"><li>• Logging facilities: local memory and storage (if available), multiple syslog servers</li><li>• Reliable logging using TCP option (RFC 3195)</li><li>• Detailed traffic logs: forwarded, violated sessions, local traffic, invalid packets, URL etc.</li><li>• Comprehensive event logs: system and administrative activity audits, routing &amp; networking, VPN, user authentications, WiFi related events</li><li>• IP and service port name resolution option</li><li>• Brief traffic log format option</li><li>• Three predefined reports: Security, Flow and network reports</li><li>• User defined reporting</li><li>• Reports can be exported in PDF via Email and FTP</li></ul>

Ordering Information

NSG-8100

Default Configuration	NSG-8100 Next-Generation Firewall, includes 4x GE (RJ45), 4x SFP ports, 4x SFP+ ports, 2 AC power unit, IPS service, Anti-Virus, QoS, URL filtering service, hardware warranty and software upgrading service. (1 Year)
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NSG-8100 Customized Service

Hardware Options	Hardware warranty for 1, 2, 3 years.
Software License	Quantity of Virtual System and SSL VPN Concurrent Users. Software Upgrading service for 1, 2, 3 years. IPS, Antivirus, QoS, URL Filtering, Botnet C&C Prevention, IP Reputation for 1, 2, 3 years.

Business Module Options

NSG-8100 Gigabit INTERFACE CARDS

I/O Ports	8x GE (RJ45)	8x SFP	4x GE Bypass (2 pair bypass ports)	4x GE (RJ45) with PoE
Dimension	½ U (Occupies 1 generic slot)	½ U (Occupies 1 generic slot)	½ U (Occupies 1 generic slot)	1 U (Occupies 2 generic slots)
Weight	1.8 lb (0.8kg)	2.0 lb (0.9kg)	1.8 lb (0.8kg)	0.9 lb (0.4kg)



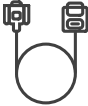








NSG-8100 10 Gigabit INTERFACE CARDS

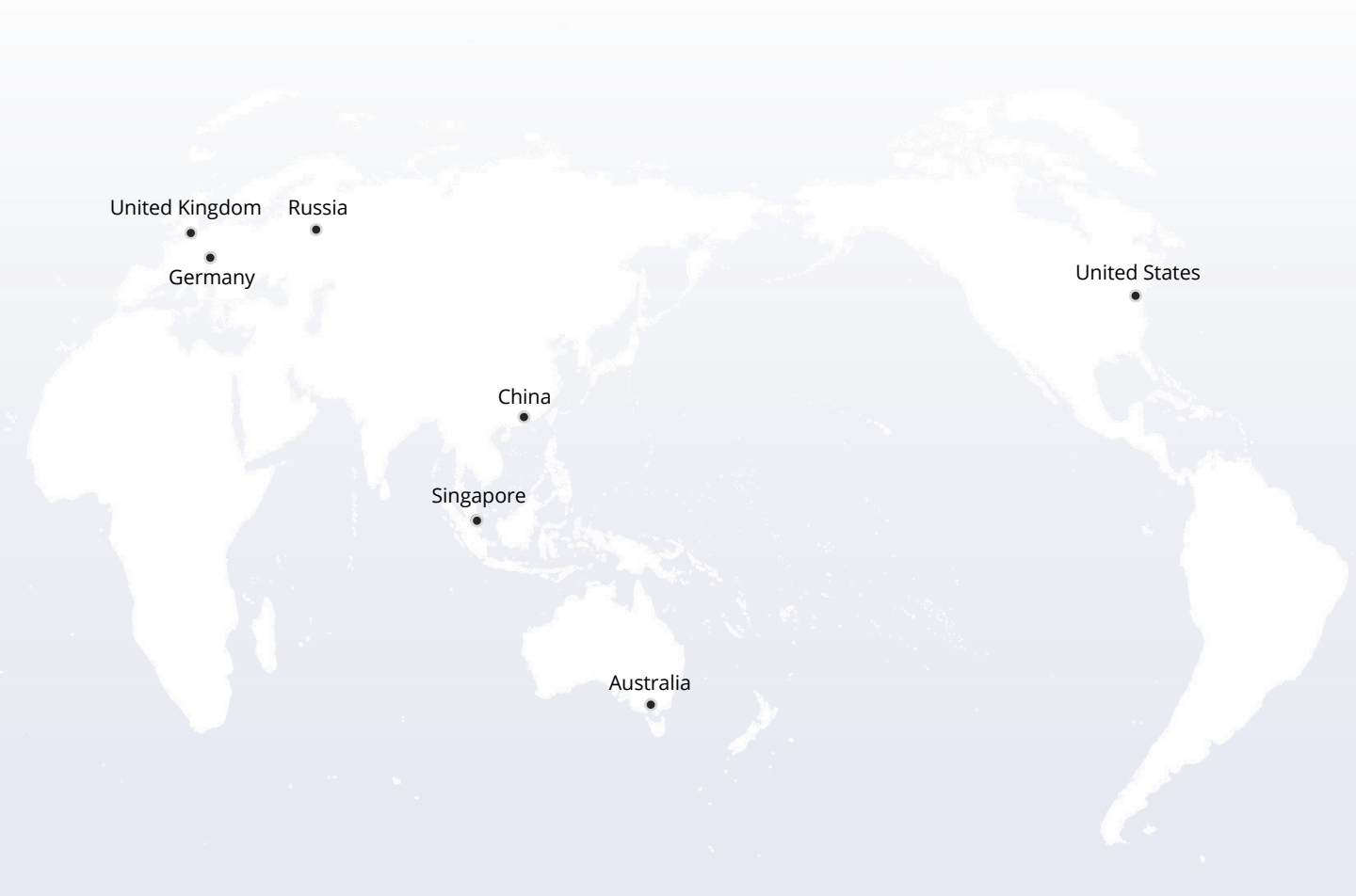
I/O Ports	4x SFP+	8x SFP+
Dimension	1 U (Occupies 2 generic slots)	1 U (Occupies 2 generic slots)
Weight	1.5 lb (0.7kg)	1.5 lb (0.7kg)

NOTE:

- 1. The optical transceiver module is not included.
- 2. The interface cards are unavailable online. You can contact with Sales@fs.com freely for your needs. Thanks.

Accessories

	Power Supply (Installed)*2		Power Cord*2		Console Cable*1
	Rubber Pads*4		Rack Mount Brackets*2		Rack Shelf*2
	M4 Screw*10		M6 Screw+ Nuts*12		Cat5e Cables*2
	Grounding Cable*1		User Manual*1		



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