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Multi Service Gateways  
**MSG Series**

January **09**

Inventum International Limited

RESTRICTED ACCESS

# MSG MULTI-SERVICE GATEWAYS

## Modular broadband gateways for network control, security & analytics

Inventum's Multi-Service Gateways (MSG) are next generation security, bandwidth & subscriber management appliances designed to simplify deployment and operation of modern Enterprise and Public Internet networks.

MSGs combine the functionality of many common, but often separate networking devices, into a single, easy-to-deploy appliance which reduces cost and complexity. In most cases an entire rack of conventional networking equipment can be replaced with a single MSG.

The MSG goes beyond simple bundling of multiple device features by intelligently integrating and inter-operating complex networking functions. Administrators work with network user profiles rather than routing or firewall rules and effortlessly control everything from a web-GUI. For example, changing a user profile automatically triggers changes on the firewall, content filter, routing table and various other sub-systems that make up the MSG. The MSG ensures validation and effectiveness of each change automatically, alerting administrators of conflicts.

The following are the core network systems that are directly integrated into the MSG appliance. Each system is driven by a personalized user policy and managed from a unified web-GUI:

- **IP Router** - Standards based static and dynamic routing. Identity based routing on a per user basis including personal route table.
- **"Identity Centric" Unified Threat Management (UTM)** - Standards based firewall, IP filtering, gateway anti-virus, anti-spam, content filtering & IPS with on-board hardware\* acceleration engine to boost performance.
- **User Policy & Identity Management System** - Authenticate each session using interactive login page (via redirection) or passive methods like IP, VLAN & MAC. Support major protocols including RADIUS, LDAP and Microsoft® Windows® ADS. Provision network sessions based on locally stored user policies or central AAA servers.
- **Differential Bandwidth Services** - Support dynamic QoS capabilities based on nature of traffic. Personalize QoS for each user's peak/off-peak hours and day-of-week.
- **VPN** - Support for IPSec, L2TP, PPTP and GRE tunnels. Build secure site-to-site networks with road warrior (dial-in) support using standard VPN dialers.
- **Unique Encryption Silicon\*** - unique, on-board, runtime reconfigurable crypto accelerator hardware supporting popular commercial and military algorithms.

- **WAN Link Load Balancer** - Support multiple uplinks from Internet bandwidth providers. Split, policy route or use as active-passive configuration to manage your WAN bandwidth.
- **Bandwidth Management System** - Per session CIR/BIR based on user identity, profile, time-of-day, service type and application being used. For example, VIP and Guest profiles can have different QoS and time-of-day policies.
- **Session Metering** - Accumulate detailed metrics and usage data for each session. Create per user volume or time quotas to better utilize bandwidth and discourage misuse.
- **Billing Module** - Support service plans, packages, one-time-password generation and PIN based subscriber billing. Support Pre-Pay and Advance Pay including quota based, time-of-day, peak and off-peak bandwidth selling plans. Ideal for use by ISP, WISP and Hotspot owners.
- **Analytics** - Real-time, on device reporting and analysis including user session metrics, URL logs, security logs, trends, alerts and alarms.
- **Lawful Tracking** - Protect network from unlawful use particularly to comply with government regulations in specific countries and industries.

## Industry Specific Feature Editions

MSG gateways are available in four editions that provide targeted features for specific industry verticals. Regardless of edition, the MSG appliance hardware remains unchanged with only the on-board firmware being altered. This approach saves cost and improves performance by enabling only relevant features for your business. Choose from the following:

1. **MSG Enterprise** - Use in offices & corporate networks looking to replace or go beyond their existing firewall or UTM appliance. MSG Enterprise is also a competitive alternative to purchasing a new UTM which has only partial functionality.
2. **MSG Campus** - Use in educational & institutional networks to control Internet usage, network security and network admission. Allows administrators to design & implement different policies for alumni, faculty & visitors. Policies can include security, content filtering, bandwidth restrictions & more. Ideal to enable identity or role centric access to network resources.
3. **MSG ISP-in-a-Box** - Use as subscriber gateway & network access controller for WiFi, MESH, WIMAX, DSL, PON &

\* On select models only

other access networks. Provides authentication, bandwidth management, subscriber billing (RADIUS), PPPoE server, DHCP, DNS, load-balancing, security & more. MSG ISP-in-a-box can replace less powerful network access controllers, subscriber gateways, hotspot controllers, UTM, proxy servers and bandwidth managers.

- 4. MSG Hotspot** - Use in WiFi hotspot networks including hotels, cafes, airports, hospitals and other public network locations. MSG Hotspot provides comprehensive subscriber acquisition to billing functionality for hotspot and hotzone operators. Hundreds of WiFi access points can be controlled by a single MSG with a clear upgrade path for MSG ISP-in-a-Box solution should your business grow.

### Intelligent Interoperability

MSG sub-systems are not separate silos with a shared configuration interface, instead they are part of an inter-woven, holistic solution. This integrated design allows previously independent functions to work in tandem, completely aware of each systems functions and tasks. The result is an extremely powerful system with a unified, easy-to-use interface to manage all your inter-networking needs.

### Identity Centric Virtualization

MSGs are built with the subscriber entity as the core of any network policy or operation. This architecture allows for unprecedented new designs and unique personalization of network services such as single sign on schemes which automatically populate user preferences, security & service profiles from internal or external servers including LDAP, RADIUS and Microsoft® Windows® ADS.

### Modular Architecture

When it comes to networks, one size doesn't fit all! The MSG is highly customizable, offering industry specific configurations to cater your deployment nuances. Various MSG sub-systems and their functions are provided as modular blocks that can be added or upgraded at any time over the base firmware. Start with a basic MSG containing core network services & grow with your network requirements.

### Superior Performance

All MSG gateways are built using Inventum's unique packet classification & acceleration algorithms. Select models include specialized acceleration hardware that delivers unprecedented performance and value over pure software solutions.

MSGs are today being used in Enterprise, WISP, ISP and other service provider networks.

## EDITIONS

Editions	User & Subscriber Management	Bandwidth Management	Unified Threat Management	VPN	Link Load Balancing	Metering & Billing	Lawful Monitoring
<b>MSG Enterprise</b>	Yes	Yes	Yes	Yes	Yes	-	-
<b>MSG ISP-in-a-box</b>	Yes	Yes	-	-	Yes	Yes	Yes
<b>MSG Campus</b>	Yes	Yes	Yes	-	Yes	Yes	-
<b>MSG Hotspot</b>	Yes	Yes	-	-	-	Yes	-



MSG-3000 Series



MSG-2100 Series

# FEATURE SUMMARY

Feature	Description	Benefit
<b>Identity Aware Platform</b>	<ul style="list-style-type: none"> <li>Identity centric architecture</li> <li>Multi-service mapping to subscribers for multi-play scenarios</li> </ul>	<ul style="list-style-type: none"> <li>Easy configuration &amp; management</li> <li>Effortlessly control and provision all services against a user or subscriber ID</li> </ul>
<b>Full Stateful Firewall</b>	<ul style="list-style-type: none"> <li>Stateful packet inspection</li> <li>L2-L7 filtering (L7 on select models)</li> <li>Identity centric rules</li> <li>Unique Virtual Route &amp; Firewall Table (VRFT) on per subscriber basis</li> <li>Prevention from known network vulnerabilities &amp; attacks</li> </ul>	<ul style="list-style-type: none"> <li>Complete network security</li> <li>Application level filtering (Skype™, P2P)</li> <li>Customize each users network experience</li> <li>Different virtual firewall &amp; virtual routing rules per subscriber</li> <li>Out-of-the-box peace of mind</li> </ul>
<b>Anti-Virus, Anti-Spam &amp; Anti-Spyware</b>	<ul style="list-style-type: none"> <li>Scan major protocols transparently – POP3, SMTP, HTTP</li> <li>Infected message reports</li> <li>Identify rouge users and targets</li> <li>Regular web updates for signatures</li> </ul>	<ul style="list-style-type: none"> <li>Protect e-mail &amp; web traffic without reconfiguration at subscriber/user PC</li> <li>Identify problems</li> <li>Alerts administrator to potential threats</li> <li>Keeps threat database current and protection at maximum</li> </ul>
<b>Content Filtering</b>	<ul style="list-style-type: none"> <li>Filter keywords and websites</li> <li>Whitelist &amp; blacklist support</li> <li>Category based filters with thousands of pre-defined content categories</li> <li>Apply content policy on per user, group (department) or appliance level</li> <li>Enable walled garden services</li> <li>Time-based content filters</li> </ul>	<ul style="list-style-type: none"> <li>Block unwanted content &amp; sites</li> <li>Pre-determine threats &amp; friendly networks</li> <li>Block traffic that does not comply with corporate IT policy</li> <li>Conserve bandwidth &amp; improve employee productivity</li> <li>Host local servers for unrestricted free use</li> <li>Improve employee productivity</li> </ul>
<b>Application Filtering &amp; Deep Packet Inspection* (DPI)</b>	<ul style="list-style-type: none"> <li>Automatic classification of traffic using DPI (select models)</li> <li>Apply filters &amp; traffic limits based on application type</li> </ul>	<ul style="list-style-type: none"> <li>Automatically identify network application trends</li> <li>Control applications including P2P, VoIP, IM and more</li> </ul>
<b>Advanced Routing, Availability &amp; Multiple-Link load balancing</b>	<ul style="list-style-type: none"> <li>Static and dynamic routing</li> <li>Per user virtual routing table (VRF)</li> <li>Policy routing for multiple WAN links including load balancing and failover</li> <li>Cluster more than one MSG for high availability applications (1+1, active-active clusters)</li> </ul>	<ul style="list-style-type: none"> <li>Join any network</li> <li>Personalize routing &amp; security per user</li> <li>Support multiple uplink gateways and routes with automatic failover detection</li> <li>Ensure error free operation in demanding network conditions</li> </ul>
<b>Intrusion Prevention System (IPS)</b>	<ul style="list-style-type: none"> <li>Signature based IPS with database of known signatures and ability to customize new signatures</li> <li>Prevents various attacks, hacking attempts, malicious code and other blended network threats</li> </ul>	<ul style="list-style-type: none"> <li>Secure your network from known and future attacks.</li> <li>Protection works on both internal and external network threats</li> </ul>
<b>Bandwidth Management</b>	<ul style="list-style-type: none"> <li>Committed and burstable traffic limits for upstream and downstream traffic</li> <li>Apply on per user or group</li> <li>Time &amp; volume based quotas</li> <li>Time-of-day, day-of-week policies</li> </ul>	<ul style="list-style-type: none"> <li>Optimally utilize bandwidth across your network. Avoid bottlenecks.</li> <li>Prioritize users and applications</li> <li>Restrict users from over-use or limit network usage by schedule.</li> </ul>

Feature	Description	Benefit
<b>Virtual Private Network (VPN)</b>	<ul style="list-style-type: none"> <li>• Support site-to-site and road warrior (dial-in) users</li> <li>• Support GRE, PPTP, L2TP &amp; IPSec</li> <li>• MIL Grade Crypto for Defense applications including run-time reconfigurable crypto accelerator supporting AES, 3DES &amp; other custom algorithms</li> </ul>	<ul style="list-style-type: none"> <li>• Connect multiple branch offices or nomadic users securely</li> <li>• Use industry standard protocols</li> <li>• Customizable cryptography support ensures higher level of security for military and other no compromise applications</li> </ul>
<b>Administration</b>	<ul style="list-style-type: none"> <li>• Secure web browser based administration UI</li> <li>• Support role based access by operational staff</li> <li>• Alerts and audit log for key functions</li> </ul>	<ul style="list-style-type: none"> <li>• Easy administration from anywhere</li> <li>• Delegate precise control to administrative, customer care &amp; operations staff</li> <li>• Stay abreast of network activity &amp; changes</li> </ul>
<b>Analytics</b>	<ul style="list-style-type: none"> <li>• On appliance reports and Syslog support</li> <li>• Comprehensive alerts &amp; monitoring using SNMP, browser interface</li> <li>• Traffic profiling</li> </ul>	<ul style="list-style-type: none"> <li>• No separate report software. Ease of use.</li> <li>• Use any SNMP manager to monitor. Browser for textual &amp; graphical reports</li> <li>• Helps in planning policies, bandwidth upgrades and ensuring compliant usage of network resources</li> </ul>

## TECHNICAL SPECIFICATIONS

Description	MSG-2000	MSG-2100	MSG-3000
<b>INTERFACES</b>			
10/100BaseT	-	-	-
10/100/1000BaseTX	4	6	4 + 8 optional
Optical Ethernet Option	-	-	2 SFP option
Console	1	1	1
USB	2	2	2
LCD + Keypad	Yes	Yes	Yes
<b>NETWORKING</b>			
IP & Ethernet	Yes	Yes	Yes
Multiple Link Auto Failover	-	Yes	Yes
Load Balancing	Yes	Yes	Yes
Policy Routing (user and application)	Yes	Yes	Yes
PPPoE Aggregation	-	Yes	Yes
Support for TCP MSS Configuration	Yes	Yes	Yes
HTTP Proxy support	Yes	Yes	Yes
DNS (Server & Relay)	Yes	Yes	Yes
DHCP (Server & Relay)	Yes	Yes	Yes
Pool based IP assignment	Yes	Yes	Yes
VLAN Tagging 802.1q	4096	4096	4096
IP Tunneling - GRE, IP-IP	-	Yes	Yes
VRRP RFC 2338	-	-	Yes*
Multicast Support	Yes	Yes	Yes
L2 Ethernet Bridge Mode	Yes	Yes	Yes
NAT Support	Yes	Yes	Yes
DynDNS (DDNS) Support	Yes	Yes	Yes
NTP Support	Yes	Yes	Yes

\* Upcoming release

Description	MSG-2000	MSG-2100	MSG-3000
<b>ROUTING</b>			
Static Routing	Yes	Yes	Yes
Dynamic Routing RIP v1 & v2	Yes	Yes	Yes
BGP	-	-	Yes
OSPF	-	-	Yes
Policy Routing (device level)	Yes	Yes	Yes
Unique Per User Virtual Router (VRF)	1024	1024	1024
<b>BANDWIDTH MANAGEMENT</b>			
Policy based traffic shaping	Yes	Yes	Yes
Identity centric control	Yes	Yes	Yes
Support for CIR & BIR policies	Yes	Yes	Yes
Time-of-day, weekday, holiday policies	Yes	Yes	Yes
Diffserv - Differentiated Services Support	Yes	Yes	Yes
Traffic Discovery	-	-	Yes
<b>STATEFUL FIREWALL</b>			
NAT, SNAT, DNAT, Policy based NAT	Yes	Yes	Yes
NAT ALG (H.323, SIP, IPSec)	Yes	Yes	Yes
VLAN Tagging 802.1q	Yes	Yes	Yes
DoS attack prevention	Yes	Yes	Yes
Zone based filtering	Yes	Yes	Yes
Identity specific routing & filtering	Yes	Yes	Yes
Per user virtual firewall tables	Yes	Yes	Yes
Schedule based access	Yes	Yes	Yes
<b>USAGE &amp; QUOTA CONTROL</b>			
User/Group based, time & byte quotas	Yes	Yes	Yes
Time-band based byte & time pulse	Yes	Yes	Yes
<b>AUTHENTICATION</b>			
Internal local database	Yes	Yes	Yes
RADIUS Authentication (external)	Yes	Yes	Yes
Microsoft® Active Directory support	Yes	Yes	Yes
Portal Redirect with username & password	Yes	Yes	Yes
Captive portal support (with local branding)	Yes	Yes	Yes
LDAP support	-	Yes	Yes
IP/MAC/VLAN address binding	Yes	Yes	Yes
802.1x Support	-	-	Yes
External Application using XML/SOAP API	Yes	Yes	Yes
<b>LOGGING &amp; MONITORING</b>			
Remote Syslog support	Yes	Yes	Yes
Log to internal database	Yes	Yes	Yes
SNMP v1/v2	Yes	Yes	Yes
E-mail notifications	Yes	Yes	Yes
Lawful Tracking & Interception	Yes	Yes	Yes
Reports include intrusion, filtering, virus & spam threats in both textual & graphical modes	Yes	Yes	Yes

Description	MSG-2000	MSG-2100	MSG-3000
<b>INTRUSION PREVENTION SYSTEM (IPS)</b>			
Signature based IPS	Yes	Yes	Yes
Multiple policy support including custom	Yes	Yes	Yes
Protocol Anomaly support	Yes	Yes	Yes
Automatic Updates	Yes	Yes	Yes
P2P application signatures	-	-	Yes
Alarm Generation	Yes	Yes	Yes
<b>ADMINISTRATION</b>			
Web GUI with role based access	Yes	Yes	Yes
CLI SSH (Secure shell)	Yes	Yes	Yes
SOAP/XML API (separate purchase)	Yes	Yes	Yes
Local Serial Console	Yes	Yes	Yes
<b>VPN</b>			
PPTP, L2TP, IPSec & SSL	Yes	Yes	Yes
Dedicated Tunnels	Yes	Yes	Yes
DES, 3DES & AES Encryption Support	Yes	Yes	Yes
Custom Military-Grade crypto	Yes	Yes	Yes
Runtime reconfigurable crypto	Yes	Yes	Yes
SHA-1/MD5 Authentication	Yes	Yes	Yes
Hub & Spoke VPN	Yes	Yes	Yes
Dead Peer Detection	Yes	Yes	Yes
Road Warrior Support	Yes	Yes	Yes
<b>ANTI-VIRUS &amp; ANTI-SPYWARE</b>			
Anti-virus, anti-spyware & worm protection	Yes	Yes	Yes
Spyware, Malware, Phishing protection	Yes	Yes	Yes
Automatic database update	Yes	Yes	Yes
HTTP, SMTP, POP3, IMAP, FTP & IM	Yes	Yes	Yes
File quarantine support	-	Yes	Yes
Block by file size or type	Yes	Yes	Yes
Custom signature support	-	-	Yes
Alter/tag subject line of messages	Yes	Yes	Yes
<b>WEB CONTENT FILTERING</b>			
URL & Keyword filtering	Yes	Yes	Yes
URL exempt list	Yes	Yes	Yes
Content profiles & category based filtering	Yes	Yes	Yes
Block Java applets, Cookies, ActiveX	Yes	Yes	Yes
Custom block messages	Yes	Yes	Yes
<b>ANTI-SPAM</b>			
Real-time Blacklist (RBL)	Yes	Yes	Yes
MIME Header Check	Yes	Yes	Yes
Keyword/Phrase filtering	Yes	Yes	Yes
IP blacklist/Whitelist (exempt)	Yes	Yes	Yes
Image spam filter	Yes	Yes	Yes
Real-time updates (subscription)	Yes	Yes	Yes
Bayesian learning filter	Yes	Yes	Yes
Redirect to Spam or Ham e-mail address	Yes	Yes	Yes

\* Performance may vary based on network conditions & configured options of the MSG

Description	MSG-2000	MSG-2100	MSG-3000
<b>HIGH-AVAILABILITY</b>			
Active-Passive	-	Yes	Yes
Stateful Failover	-	Yes	Yes
Link Status Monitor (On Ethernet)	Yes	Yes	Yes
Link Failover	Yes	Yes	Yes
Device failure detection & notification	Yes	Yes	Yes
<b>PERFORMANCE*</b>			
MAC Address Table Size	16,000	32,000	64,000
Concurrent TCP Session (Routed)	300,000	1,000,000	5,000,000
Peak Forwarding Rate (RFC2544)	350 Mbps	500 Mbps	1 Gbps
<b>COMPLIANCE</b>			
CE Emission	Yes	Yes	Yes
FCC Class A	Yes	Yes	Yes
RoHS	Yes	Yes	Yes
<b>DIMENSIONS</b>			
Form Factor	1U	1U	2U
Physical Dimensions (WXHxD) mm.	426x44.4x270	431x44.4x361	426x88.8x584
Net Weight	6 kgs	7.2 kgs	20 kgs
<b>POWER</b>			
Rating	1U ATX 220W AC 100~240V @ 50~60Hz	1U ATX 220W AC 100~240V @ 50~60Hz	2U ATX 460W AC 90~264V @ 47~63Hz
Redundant Option	-	-	1+1
<b>ENVIRONMENTAL</b>			
Ambient Operating Temperature	0~40 C	0~40 C	0~40 C
Ambient Storage Temperature	-20~70 C	-20~70 C	-20~70 C
Non-condensing humidity	5~ 95 %	5~ 95 %	5~ 95 %

\* Performance may vary based on network conditions & configured options of the MSG

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