

LoadMaster® Hardware Datasheet

DATA SHEET

Scalable High-Performance Application Delivery

Progress® Kemp® LoadMaster® hardware load balancers offer the scalability, feature depth and security required to enable resilient delivery of a wide range of application workloads for organizations of all sizes and capabilities. LoadMaster simplifies application delivery with easy management via web UI, API and Progress® LoadMaster® 360 with a compelling TCO and outstanding customer support.

The Benefits of Kemp LoadMaster

Resilient

LoadMaster can enhance application availability and resilience with the option for Highly Available (HA) pairing of appliances and geographic server load balancing (GSLB) removing single points of failure in the data center and across data centers. Application server health checks enable redirection of traffic to healthy servers and the insights provided through LoadMaster 360 will help maintain continuous application availability.

Secure

As the access point for applications, LoadMaster provides authentication and attack mitigation services to prevent malicious and unauthorized access to application resources. The Edge Security Pack (ESP) enables pre-authentication of clients (LDAP, OIDC, Active Directory, RADIUS and SAML) while the Web Application Firewall (WAF) offers continuous application-level protection through OWASP CRS with updated reputation data daily.

Easily Managed

LoadMaster appliances can be managed via the intuitive web UI, via API (PowerShell/RESTful). Application templates simplify deployment and optimization, while the API provides an easy way to automate configuration and management tasks whether through DevOps toolsets or operational frameworks.

Scalable

As application delivery demands grow, LoadMaster can scale by clustering multiple appliances together into a single load balancer entity. As well as scaling to meet increasing capacity requirements, clustering also provides resilience as the failure of a cluster member is gracefully handled with remaining members continuing to provide service.

Low Cost of Ownership

LoadMaster delivers performance and functionality at a compelling price point when measured against the key metrics of SSL transactions per second, application throughput and active connections.

Coupled with the low operational overheads delivered by features such as application templates and our world class customer support services, organizations can achieve significant TCO reductions on application delivery.

Fully Featured

LoadMaster includes a robust set of features to enable deployment of application delivery and interfaces and API to integrate with existing authentication, logging, management and provisioning systems.

Support Subscriptions

LoadMaster support subscriptions offer flexibility, simplicity and value to meet your application delivery requirements and challenges. Support subscriptions are annual and can be upgraded and downgraded as application delivery demands change for maximum flexibility. The tiers are mapped to common customer challenges and requirements, simplifying the task of selecting the appropriate feature set and support levels. This also offers additional value of up to 40% when compared to individually selecting features.

LoadMaster Support Subscription Tiers

Standard support	Enterprise support	Enterprise Plus support
10x5 Customer Support	24x7 Customer Support	24x7 Customer Support
Software Updates	Software Updates	Software Updates
Security Patches	Security Patches	Security Patches
L4-L7 Application Delivery	L4-L7 Application Delivery	L4-L7 Application Delivery
Network Telemetry	Network Telemetry	Network Telemetry
Intrusion Prevention	Intrusion Prevention	Intrusion Prevention
	Edge Security Pack	Edge Security Pack
		Web Application Firewall (WAF) with updated reputation data daily
		GSLB with updated reputation data daily
		Floating License

Each subscription tier adds to the features and services delivered by lower tiers as follows:

Features

Network Telemetry

- Export network flow data to Flowmon Collector in the industry standard IPFIX protocol format
- Leverage the power of Flowmon Collector to store and analyze flow data, gaining visibility into the entire application value delivery chain to identify bottlenecks, misconfigurations and potential security issues
- Combine LoadMaster-exported data with IPFIX data from other network nodes on Collector to gain a complete picture of your infrastructure
- View LoadMaster data on Flowmon Collector in dashboards and widgets specific to LoadMaster and the Virtual Services defined on it

Web Application Firewall (WAF)

- Real-time application threat mitigation
- Updated reputation data daily
- Threats mitigated:
 - Cookie tampering
 - Cross site request forgery
 - Cross site scripting
 - Data loss prevention
 - SQL injection
 - PCI-DSS Section 6.6 compliance

Edge Security Pack

- Microsoft TMG replacement
- Pre-authentication
- Multi-domain authentication and SSO

- X.509 client certificate authentication
- Custom login forms
- Two-factor authentication
- OIDC, SAML, Active Directory, RADIUS and LDAP
- Forms to Forms based authentication

Intrusion Prevention

- Snort compatible IPS
- Allow/Deny IP by address

Global Server Load Balancing (GSLB)

Scheduling and Balancing

- Round Robin
- Weighted Round Robin
- Chained Failover (Fixed Weighting)
- Regional
- Real Server Load
- Location Based
- Scale to 256 nodes per FQDN
- Use EDNS to direct client traffic

Security

- Allow/Deny List (Access Control List)
- Updated reputation data daily
- DDoS mitigation

Health Checking and Failover

- ICMP health checking of server farm machines
- Layer 4 TCP checking
- HTTP/HTTPS health check
- Active/Active High Availability

L4-L7 Application Delivery

General

- Server Load Balancing (SLB) for TCP/UDP based protocols
- TLS (SSL) Offload
- Layer 7 Content Switching
- Transparent caching for HTTP/HTTPS
- Compression of static and dynamic HTTP/HTTPS content
- HTTP/2 Support
- Up to 1000 Virtual and 1000 Real Servers
- NAT-based forwarding
- Support for Direct Server Return (DSR) configurations
- Configurable S-NAT support
- VLAN Trunking (802.1Q)
- Link interface bonding (802.3ad)
- USGv6 certified
- IPv6 support for addressing and features
- IPv6 to IPv4 gateway/proxy using a NIST USGv6 network stack

Health Checking

- Aggregated health checks
- ICMP health checking
- Layer 7 checking against any target server port
- Active/Hot Standby configurations for High Availability
- Stateful Failover
- Scale-out Clustering (not available on LM-X1)

Session Persistence

- Source IP (L4)
- TLS (SSL) SessionID (L4)
- HTTP/HTTPS Browser-session (L7)
- HTTP/HTTPS WebClient-session (L7)
- RDP Login ID (L7)
- Port Following for mixed HTTP/HTTPS sessions
- Session reconnection for Microsoft RDS

Scheduling and Balancing Methods

- Round Robin
- Weighted Round Robin
- Least Connection
- Weighted Least Connection
- Agent-based Adaptive
- Chained Failover (Fixed Weighting)
- Source-IP Hash
- Layer 7 Content Switching
- Global Server Load Balancing (GSLB)
- AD Group based traffic steering

SSL/TLS Feature

- Configurable TLS (1.0, 1.1, 1.2, 1.3) and SSL (2.0, 3.0)
- Support for EV (Extended Validation) certificates
- OCSP certificate validation
- Server Name Identification (SNI) support
- Support for up to 1,000 TLS (SSL) certificates
- Automated TLS (SSL) certificate chaining
- Certificate Signing Request (CSR) generation
- FIPS 140-2 Level 1
- STARTTLS mail protocols (POP3, SMTP, IMAP)

Administration

- Change auditing
- Web User Interface (WUI)
- SSH and physical console
- RESTful and PowerShell APIs
- VMware vRealize Orchestrator
- Context based help (WUI)
- Real time display of performance and availability
- Application templates
- Remote syslog support
- Automated configuration backup
- Selective restore of configuration
- Connection draining

- Robust logging and reporting
- SNMP support
- Diagnostic shell with in-line tcpdump

Security

- Common Criteria (ISO/IEC 15408) Certified
- Allow/Deny List (Access Control List)
- IP address filtering
- IPsec Tunnel support
- DDoS mitigation, including L7 rate-based attacks
- IPsec VPN to Azure, AWS and public clouds
- Authenticated NTP

LoadMaster 360

- Application analytics and telemetry
- Incident management
- Certificate lifecycle management
- Enhanced Web Application Firewall (WAF)

Specification

	LM-X1	LM-X3-NG
Support Subscription Tiers	All	All
Performance		
Application throughput (Layer 4)	1 Gbps	3.6 Gbps
Application throughput (Layer 7)	1 Gbps	3.4 Gbps
Bulk Encryption	1 Gbps	2 Gbps
SSL TPS (2K Keys)	1,000	1,700
Concurrent Layer 4 Connections	4,000,000	8,600,000
Concurrent Layer 7 Connections	32,800	125,000
Layer 7 HTTP requests/sec	70,000	300,000
Layer 4 requests/sec	78,000	500,000
Layer 4 connections/sec	25,000	200,000
Hardware Platform		
CPU	2.2GHz, 4C/4T	2.3GHz, 4C/8T
Memory (RAM Size)	4GB	8GB
Storage	500GB HDD	1TB HDD
Gigabit Ethernet Ports	4	8
10 Gigabit Ports (SFP+)	N/A	N/A
Monitor / Display Ports	VGA	HDMI
Console Ports	1 RJ45	1 RJ45
Rack Size	1U	1U
Dimensions	430 x 310 x 44mm	430 x 300 x 44mm
Weight	8.31lbs / 3.77kg	14.33lbs / 6.5kg
Storage Temperature	-4 to 167 °F (-20 to 75 °C)	-4 to 167 °F (-20 to 75 °C)
Operating Temperature	32 to 104 °F (0 to 40 °C)	32 to 104 °F (0 to 40 °C)
Storage Humidity	10% to 90% non-condensing	10% to 90% non-condensing
Operating Relative Humidity	10% to 90% non-condensing	10% to 90% non-condensing
Max Altitude in Operational Mode	16,404 feet (5,000 meters)	16,404 feet (5,000 meters)
Max Altitude in Non-Operational Mode	30,000 feet (9,144 meters)	16,404 feet (5,000 meters)
Input Voltage and Frequency Ranges	100-240VAC, 50-60Hz	100-240VAC, 50-60Hz
Hot-Swap, Redundant Power Supply	No	No
Max power supply (W)	65	300
Average Power Consumption (W)	28.44	45
Total Amp Drawn (A)	0.54 Max	0.41 Max
Heat Output (BTU)	96.9 Max	150.3 Max
Acoustic Noise (dB)	50.7	50.9

Specification

	LM-X15-NG	LM-X25-NG
Support Subscription Tiers	All	All
Performance		
Application throughput (Layer 4)	15.8 Gbps	26.2 Gbps
Application throughput (Layer 7)	15 Gbps	25 Gbps
Bulk Encryption	10 Gbps	20 Gbps
SSL TPS (2K Keys)	15,000	25,000
Concurrent Layer 4 Connections	35,000,000	75,800,000
Concurrent Layer 7 Connections	262,500	525,000
Layer 7 HTTP requests/sec	1,000,000	1,000,000
Layer 4 requests/sec	2,000,000	2,000,000
Layer 4 connections/sec	600,000	725,000
Hardware Platform		
CPU	3.8GHz, 4C/8T	2x 2.3GHz, 20C/40T
Memory (RAM Size)	32GB	64GB
Storage	2 x 1TB HDD (RAID 1)	2 x 1TB HDD (RAID 1)
Gigabit Ethernet Ports	16	2
10 Gigabit Ports (SFP+)	4	8
Monitor / Display Ports	HDMI	VGA
Console Ports	1 RJ45	1 RJ45
Rack Size	1U	2U
Dimensions	480 x 430 x 44mm	438 x 650 x 88mm
Weight	31.97lbs / 14.5 kg	35.2lbs / 16kg
Storage Temperature	-4 to 167 °F (-20 to 75 °C)	-4 to 167 °F (-20 to 75 °C)
Operating Temperature	32 to 104 °F (0 to 40 °C)	32 to 104 °F (0 to 40 °C)
Storage Humidity	10% to 90% non-condensing	10% to 90% non-condensing
Operating Relative Humidity	10% to 90% non-condensing	10% to 90% non-condensing
Max Altitude in Operational Mode	16,404 feet (5,000 meters)	16,404 feet (5,000 meters)
Max Altitude in Non-Operational Mode	49,000 feet (15,200 meters)	49,000 feet (15,200 meters)
Input Voltage and Frequency	100-240VAC, 47-63Hz	100-240VAC, 47-63Hz
Hot-Swap, Redundant Power Supply	Yes	Yes
Max power supply (W)	2 x 450	2 x 1300
Average Power Consumption (W)	81.2	361.68
Total Amp Drawn (A)	0.74 Max	7.2 Max
Heat Output (BTU)	276.89 Max	1131.96 Max
Acoustic Noise (dB)	73	79.4

Specification

	LM-X40-NG
Support Subscription Tiers	All
Performance	
Application throughput (Layer 4)	35 Gbps
Application throughput (Layer 7)	35 Gbps
Bulk Encryption	20 Gbps
SSL TPS (2K Keys)	35,000
Concurrent Layer 4 Connections	75,800,000
Concurrent Layer 7 Connections	525,000
Layer 7 HTTP requests/sec	1,250,000
Layer 4 requests/sec	2,600,000
Layer 4 connections/sec	850,000
Hardware Platform	
CPU	2x 2.3 GHx, 20C/40T
Memory (RAM Size)	64GB
Storage	2 x 1TB HDD (RAID 1)
Gigabit Ethernet Ports	2
10 Gigabit Ports (SFP+)	8
Monitor / Display Ports	VGA
Console Ports	1 RJ45
Rack Size	2U
Dimensions (with Bezel)	438 x 650 x 88mm
Weight	35.2lbs / 16kg
Storage Temperature	-4 to 167 °F (-20 to 75 °C)
Operating Temperature	32 to 104 °F (0 to 40 °C)
Storage Humidity	10% to 90% non-condensing
Operating Relative Humidity	10% to 90% non-condensing
Max Altitude in Operational Mode	16,404 feet (5,000 meters)
Max Altitude in Non-Operational Mode	49,000 feet (15,200 meters)
Input Voltage and Frequency	100-240VAC, 47-63Hz
Hot-Swap, Redundant Power Supply	Yes
Max power supply (W)	2 x 1300
Average Power Consumption (W)	361.68
Total Amp Drawn (A)	7.2 Max
Heat Output (BTU)	1131.96 Max
Acoustic Noise (dB)	79.4

Specification

	LM-XHC55-NG	LM-XHC75-NG
Support Subscription Tiers	All	All
Performance		
Application throughput (Layer 4)	57 Gbps	77 Gbps
Application throughput (Layer 7)	55 Gbps	75 Gbps
Bulk Encryption	35 Gbps	40 Gbps
SSL TPS (2K Keys)	40,000	40,000
Concurrent Layer 4 Connections	151,600,000	151,600,000
Concurrent Layer 7 Connections	1,050,000	1,050,000
Layer 7 HTTP requests/sec	1,500,000	1,500,000
Layer 4 requests/sec	3,000,000	3,000,000
Layer 4 connections/sec	1,000,000	1,000,000
Hardware Platform		
CPU	2x 3.0GHz, 18C/36T	2x 3.0GHz, 18C/36T
Memory (RAM Size)	128GB	128GB
Storage	2 x 1TB HDD (RAID 1)	2 x 1TB HDD (RAID 1)
Gigabit Ethernet Ports	2	2
10 Gigabit Ports (SFP+)	8	8
25 Gigabit Ports (SFP28)	4	4
100 Gigabit Ports (QSFP28)	4	4
Monitor / Display Ports Monitor	VGA	VGA
Console Ports	1 RJ45	1 RJ45
Rack Size	2U	2U
Dimensions (with Bezel)	438 x 650 x 88mm	438 x 650 x 88mm
Weight	35.2lbs / 16kg	35.2lbs / 16kg
Storage Temperature	-4 to 167 °F (-20 to 75 °C)	-4 to 167 °F (-20 to 75 °C)
Operating Temperature	32 to 104 °F (0 to 40 °C)	32 to 104 °F (0 to 40 °C)
Storage Humidity	10% to 90% non-condensing	10% to 90% non-condensing
Operating Relative Humidity	10% to 90% non-condensing	10% to 90% non-condensing
Max Altitude in Operational Mode	16,404 feet (5,000 meters)	16,404 feet (5,000 meters)
Max Altitude in Non-Operational Mode	30,000 feet (9,144 meters)	49,000 feet (15,200 meters)
Input Voltage and Frequency	100-240VAC, 47-63Hz	100-240VAC, 47-63Hz
Hot-Swap, Redundant Power Supply	Yes	Yes
Max power supply (W)	2 x 1300	2 x 1300
Average Power Consumption (W)	442.6	442.6
Total Amp Drawn (A)	7.2 Max	7.2 Max
Heat Output (BTU)	1285.4 Max	1285.4 Max
Acoustic Noise (dB)	79.4	79.4

Support Subscription Tiers

	LM-XHC100-NG
Support Subscription Tiers	All
Performance	
Application throughput (Layer 4)	91 Gbps
Application throughput (Layer 7)	90 Gbps
Bulk Encryption	45 Gbps
SSL TPS (2K Keys)	45,000
Concurrent Layer 4 Connections	151,600,000
Concurrent Layer 7 Connections	1,050,000
Layer 7 HTTP requests/sec	1,500,000
Layer 4 requests/sec	3,000,000
Layer 4 connections/sec	1,000,000
Hardware Platform	
CPU	2x 3.0GHz, 18C/36T
Memory (RAM Size)	128GB
Storage	2 x 1TB HDD (RAID 1)
Gigabit Ethernet Ports	2
10 Gigabit Ports (SFP+)	8
25 Gigabit Ports (SFP28)	4
100 Gigabit Ports (QSFP28)	4
Monitor / Display Ports	VGA
Console Ports	1 RJ45
Rack Size	2U
Dimensions	438 x 650 x 88mm
Weight	35.2lbs /16kg
Storage Temperature	-4 to 167 °F (-20 to 75 °C)
Operating Temperature	32 to 104 °F (0 to 40 °C)
Storage Humidity	10% to 90% non-condensing
Operating Relative Humidity	10% to 90% non-condensing
Max Altitude in Operational Mode	16,404 feet (5,000 meters)
Max Altitude in Non-Operational Mode	49,000 feet (15,200 meters)
Input Voltage and Frequency	100-240VAC, 47-63Hz
Redundant Power Supply	Yes
Hot-Swap, Max power supply	2 x 1300
Average Power Consumption (W)	442.56
Total Amp Drawn (A)	7.2 Max
Heat Output (BTU)	1285.4 Max
Acoustic Noise (dB)	79.4

Specifications – Multi-Tenant Platforms

	LM-X25MT-NG
Support Subscription Tiers	All
Performance	
Application throughput (Layer 4)	8.2 Gbps
Application throughput (Layer 7)	8.0 Gbps
Bulk Encryption	3.0 Gbps
SSL TPS (2K Keys)	4,000
Recommended Tenants	8
Maximum Tenants	16
Concurrent Layer 4 Connections	75,800,000
Layer 4 requests/sec	400,000
Hardware Platform	
CPU	2x 2.3GHz, 20C/40T
Memory (RAM Size)	64GB
Storage	2 x 1TB HDD (RAID 1)
Gigabit Ethernet Ports	2
10 Gigabit Ports (SFP+)	8
Monitor / Display Ports	VGA
Console Ports	1 RJ45
Rack Size	2U
Dimensions	438 x 650 x 88mm
Weight	35.2lbs / 16kg
Storage Temperature	-4 to 167 °F (-20 to 75 °C)
Operating Temperature	32 to 104 °F (0 to 40 °C)
Storage Humidity	10% to 90% non-condensing
Operating Relative Humidity	10% to 90% non-condensing
Max Altitude in Operational Mode	16,404 feet (5,000 meters)
Max Altitude in Non-Operational Mode	49,000 feet (15,200 meters)
Input Voltage and Frequency	100-240VAC, 47-63Hz
Hot-Swap, Redundant Power Supply	Yes
Max power supply (W)	2 x 1300
Average Power Consumption (W)	361.68
Total Amp Drawn (A)	7.2 Max
Heat Output (BTU)	1131.96 Max
Acoustic Noise (dB)	79.4

Certification and Compliance

	LM-X1	LM-X3-NG
FIPS	FIPS 140-2 Level 1 NIST Cert 4639	FIPS 140-2 Level 1 NIST Cert 4639
Common Criteria	CCEVS-VR-VID11280-2023	CCEVS-VR-VID11280-2023
Safety Agency Approval: (IEC, EN, BS, CSA, UL)	IEC 62368-1:2014 2nd Ed. EN 62368-1:2014+A11:2017 AS/NZS 62368.1:2018 CAN/CSA C22.2 No. 62368-1-14 UL 62368-1 2nd Ed.	IEC 62368-1:2014 2nd Ed. EN 62368-1:2014 EN 62368-1:2014/AC:2015 EN 62368-1:2014+A11:2017 BS EN 62368-1:2014 + A11:2017 AS/NZS 62368.1:2018
Electromagnetic Compatibility (EMC) Certifications: (CE, UKCA, FCC, VCCI)	EN 55032:2015 +A11:2020, Class A EN 61000-3-2:2014, Class A EN IEC 61000-3-2:2019 +A1:2021 EN 61000-3-3:2013 +A2:2021 EN 55035:2017 +A11:2020 CISPR 32:2015+COR1:2016 AS/NZS CISPR 32:2015, Class A 47 CFR FCC Part 15 Subpart B, Class A ICES-003:2016 Issue 6, updated Apr.2019 Class A VCCI-CISPR 32:2016, Class A BS EN 55032:2015 +A11:2020, Class A BS EN 61000-3-2:2014, Class A BS EN IEC 61000-3-2:2019 +A1:2021, Class A BS EN 61000-3-3:2013 +A2:2021 BS EN 55035:2017+A11:2020	EN 55032:2015 +A11:2020 EN 55035:2017 +A11:2020 EN 61000-3-2:2014 EN IEC 6100-3-2:2019/A1:2021 EN 61000-3-3:2013 EN 61000-3-3:2013/A2:2021 BS EN 55032:2015 +A11:2020 BS EN 55035:2017 +A11:2020 BS EN 61000-3-2:2014 BS EN IEC 6100-3-2:2019/A1:2021 BS EN 61000-3-3:2013 BS EN 61000-3-3:2013/A2:2021 FCC 47 CFR PART 15 SUBPART B ANSI C63.4: 2014 VCCI-CISPR32: 2016
RoHS Compliant	Yes	Yes
WEEE Compliant	Yes	Yes
REACH Compliant	Yes	Yes


Certification and Compliance

	LM-X15-NG	LM-X25-NG/LM-X25MT-NG/LM-X40-NG/ LMXHC55-NG/LM-XHC75-NG/LM-XHC100-NG
FIPS	FIPS 140-2 Level 1 NIST Cert 4639	FIPS 140-2 level 1 evaluation in progress
Common Criteria	CCEVS-VR-VID11280-2023	-
Safety Agency Approval: (IEC, EN, BS)	IEC 62368-1:2014 2nd Ed. EN 62368-1:2014 EN 62368-1:2014/AC:2015 EN 62368-1:2014+A11:2017 BS EN 62368-1:2014 + A11:2017 AS/NZS 62368.1:2018	EN 62368-1:2014, EN 62368-1:2014+A11:2017, IEC 62368-1:2104 and AS/NZS 62368.1:2018 BS EN 62368-1:2014+A11:2017
Electromagnetic Compatibility (EMC) Certifications: (CE, UKCA, FCC, VCCI)	EN 55032:2015 +A11:2020 EN 55035:2017 +A11:2020 EN 61000-3-2:2014 EN IEC 6100-3-2:2019/A1:2021 EN 61000-3-3:2013 EN 61000-3-3:2013/A2:2021 BS EN 55032:2015 +A11:2020 BS EN 55035:2017 +A11:2020 BS EN 61000-3-2:2014 BS EN IEC 6100-3-2:2019/A1:2021 BS EN 61000-3-3:2013 BS EN 61000-3-3:2013/A2:2021 FCC 47 CFR PART 15 SUBPART B ANSI C63.4: 2014 VCCI-CISPR32: 2016	EN 55032:2015 +A11:2020 EN 55035:2017 +A11:2020 EN IEC 6100-3-2:2019/A1:2021 EN 61000-3-2:2014 EN 61000-3-3:2013 EN 61000-3-3:2013/A2:2021 BS EN 55032:2015 +A11:2020 BS EN 55035:2017 +A11:2020 BS EN IEC 6100-3-2:2019/A1:2021 BS EN 61000-3-2:2014 BS EN 61000-3-3:2013 BS EN 61000-3-3:2013/A2:2021 FCC 47 CFR PART 15 SUBPART B ANSI C63.4:2014 VCCI-CISPR32: 2016
RoHS Compliant	Yes	Yes
WEEE Compliant	Yes	Yes
REACH Compliant	Yes	Yes

About Progress

Progress (Nasdaq: PRGS) provides software that enables organizations to develop and deploy their mission-critical applications and experiences, as well as effectively manage their data platforms, cloud and IT infrastructure. As an experienced, trusted provider, we make the lives of technology professionals easier. Over 4 million developers and technologists at hundreds of thousands of enterprises depend on Progress. Learn more at www.progress.com

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