

STG-10G

Stateful Traffic Generator®

1GbE, 4 or 8-Ports, Up to 8GbE of Aggregate Traffic, 10 GbE, 2 or 4-Ports, Up to 40 GbE of Aggregate Traffic



FEATURES / BENEFITS

- ✓ IP Stateful Traffic Generation with real time Network Measurements & Reports
- ✓ D-ITG™ Traffic Engine operates in Standard and Turbo using INTEL® DPDK Fast Packet Technology
- ✓ Emulation of Network Traffic to test device capabilities or Quality of Service(QoS)
- ✓ Network Monitoring, analysis and performance evaluation
- ✓ Interface - 4-Ports 10GbE and up to 8-Ports 10/100/1000GbE Interfaces(Copper or Fiber)
- ✓ Embedded System with no software to load and an Easy to use 10/100/1000 Ethernet GUI Interface
- ✓ Real Time Traffic Graphs, Network Statistics, Delay, Jitter, BitRate and Packet Loss
- ✓ Multiple Senders and Receivers allowed
- ✓ Protocols: UDP, TCP, ICMP, DCCP, SCTP (IGMP coming soon) and Pcap Player
- ✓ Distributions: Uniform, Constant, Exponential, Pareto, Cauchy, Normal, Poisson, Gamma, Weibull
- ✓ Optional: Integrated Packet Crafter/ Packet Viewer
- ✓ 2U Front Load Rack Mount Enclosure, 90-240VAC

DESCRIPTION

The Stateful Traffic Generator® model STG-10G is based on the well known traffic generation engine D-ITG™. The STG-10G is composed of a Graphical User Interface (GUI) that wraps the D-ITG™ engine, INTEL® DPDK Fast Packet Technology and other test tools.

Using D-ITG™, the STG-10G is capable of producing IPv4 and IPv6 traffic by accurately replicating the workload of current Internet or typical user applications. The platform supports 8-Ports 10/100/1000 and 4-Ports of 10GbE traffic generation managed via the easy to use GUI. This allows users to perform load tests on hardware prior to deployment and to simulate wired or wireless network traffic behavior.

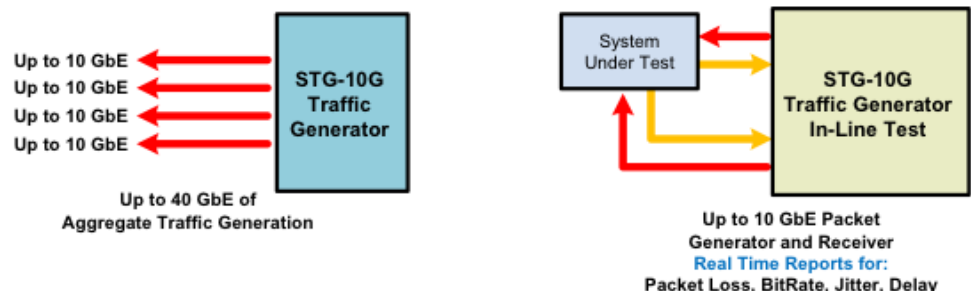
The D-ITG™ generation engine provides many interesting and unique features. Thanks to it the STG-10G is also a network measurement tool able to measure the most common performance metrics such as throughput, delay, jitter and packet loss at the packet level. The STG-10G can generate traffic following stochastic models for packet size (PS) and inter departure time (IDT) that mimic application-level protocol behavior. By specifying the distributions of IDT and PS random variables, it is possible to choose different renewal processes for packet generation: by using characterization and modeling results from literature, STG-10G is able to replicate statistical properties of traffic of different well-known applications such as Telnet, VoIP - G.711, G.723, G.729, Voice Activity Detection, Compressed RTP - DNS, network games.

At the transport layer, the STG-10G currently supports UDP, TCP, ICMP, DCCP, SCTP and soon to be released support for IGMP. Additionally an FTP-like passive mode is also supported to conduct experiments in the presence of NATs, and it is possible to set the TOS (DS) and TTL IP header fields. The STG-10G also supports replay of Pcap files with an easy to use Pcap player that allows cyclic repetition and speed scaling.

INTEL® DPDK Fast Packet Technology was integrated into the STG-10G that allows wire line rates even for tiny 64byte packets. The combination of D-ITG™ and INTEL® DPDK technology allows the STG-10G to generate traffic at comparable rates to FPGA based proprietary systems at half the price.

The STG-10G Stateful Traffic Generator® is able to generate multiple unidirectional flows, many senders toward many receivers. The STG-10G supports two modes of packet transmission. One being the Standard Mode for realistic traffic simulation allowing adjustable data rates. The Turbo Mode allows line rate transmission utilizing INTEL® DPDK drivers with Pcap files containing any type of traffic.

STG-1G & STG-10 APPLICATION BLOCK DIAGRAMS: 1G to 10GbE IP Traffic Generator & IP Packet Checker



SPECIFICATIONS

Application

Designed to generate and monitor IP traffic from clients to servers to stress test routers, servers and firewalls capable of producing extreme network loads. Can also generate and receive traffic to itself to perform network testing at various levels.

Data Interface

Up to 4-Ports 10GbE Copper or Fiber
Up to 8-Ports 1GbE Copper or Fiber
10/100/1000 Copper: GUI Management

Configuration Ports

10/100/1000 Ethernet Port, Supervisor Port and Management Port

Data Rates

Up to 10GbE per port, 4-Ports 10GbE capable

Supported Layer-3 Features

IPv4, IPv6

Supported Protocols

UDP, TCP, ICMP, DCCP, SCTP and Pcap Files for Play Back with Statistics

Application Layer Protocols

DNS, Telnet, VoIP (G.711.1, G.711.2, G.723.1, G.729.2, G.729.3) CSa, CSi and Quake3

Supported Distributions

Distributions: Uniform, Constant, Exponential, Pareto, Cauchy, Normal, Poisson, Gamma, Weibull

Packet level QoS metrics

TX/RX Packets, Delay, BitRate, Packet Loss

Permission Keys

Sold individually Per Unit
Demo and 30 Day Lease keys also available

Surge Protection

Main power supply

Power Source

AC Mains: 100-240VAC @ 10%, 50/60Hz, 0.16/0.08A, Auto Range

Environmental

Operating Temperature.....32° to 104° F (0° to 40° C)
Relative Humidity.....5 to 85% Non-Condensing
Altitude.....0 to 10,000 feet

Dimensions

Height 3.5 inches (49 mm)
Width 17.20 inches (437 mm)
Length 14.50 inches (369 mm)

Weight

28 Pounds (12.7kg)

Warranty

Three Years, Return To Factory

Regulatory Approvals

UL, CSA, CE, CCC, FCC and RoHS

Web Browser Compatibility

Explorer, FireFox, Opera, Google Chrome, Safari

ORDERING INFORMATION

Part Number: 214000

Model: STG-10G_4

Description: STG-10, Stateful Traffic Generator, 4-Core

Part Number: 215000

Model: STG-10G_6

Description: STG-10, Stateful Traffic Generator, 6-Core

Part Number: 226000

Model: 4-Port 1G Copper

Description: 4-Port 10/100/1000 Copper Interface

Part Number: 226001

Model: 2-Port 1G Fiber

Description: 2-Port 10/100/1000 Fiber Interface

Part Number: 226002

Model: 2-Port 10G Copper

Description: 2-Port 10G Copper Interface

Part Number: 226003

Model: 2-Port 10G Fiber(SFP Included)

Description: 2-Port 10G Fiber Interface

INCLUDED WITH EACH UNIT:

- 1) Operations Manual
- 2) U.S.A. Grounded Power Cord, Part # 713015
- 3) Rackmount Kit Ears
- 5) Two Ethernet Cables
- 6) One Ethernet Cross Over Cable

Optional Power Cords

- A) United Kingdom, Part # 713016
- B) Continental Europe, Part # 713017
- C) Other: Specify Country on Purchase Order

Other East Coast Datacom Products

EDS-1G, Ethernet Delay Simulator
RDS-PLUS, Serial Data / Telco Delay Simulator

EAST COAST DATACOM, INC.

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WEB SITE: www.ecdata.com

FAX: (321) 637-9980

OVERVIEW: STG-10G GUI BASIC SCREEN BY SCREEN OVERVIEW

End Points Screen

EAST COAST DATA.COM, INC. Stateful Traffic Generator STG-10G STG-F4B46D5E-B16C [Logout](#)

Home **End Points** Experiment Analyzer Settings / Upgrade About

Local Box [Export](#) Control TCP Port: 9000 Default Gateway: 192.168.1.99

Local Port Name	Connection Speed		DHCP	IP Address / Netmask	
Control port	1 Gbit/s Link up	+ Add IP Address	<input type="checkbox"/>	192.168.100.1/24	Delete Settings
Data port #1	10 Gbit/s Link up	+ Add IP Address	<input type="checkbox"/>	10.1.1.3/24	Delete Settings
				fe80::92e2:baff:fe4c:60ec/64	
				2001:1::1/64	Delete Settings
Data port #2	10 Gbit/s Link up	+ Add IP Address	<input type="checkbox"/>	10.2.2.3/24	Delete Settings
				fe80::92e2:baff:fe4c:60ed/64	
				2001:2::1/64	Delete Settings
Data port #3	1 Gbit/s Link up	+ Add IP Address	<input type="checkbox"/>	10.3.3.3/24	Delete Settings
				fe80::a236:9fff:fe1b:4f14/64	
				2001:3::1/64	Delete Settings
Data port #4	1 Gbit/s Link up	+ Add IP Address	<input type="checkbox"/>	10.4.4.3/24	Delete Settings
				fe80::a236:9fff:fe1b:4f15/64	
				2001:4::1/64	Delete Settings
Data port #5	1 Gbit/s Link up	+ Add IP Address	<input type="checkbox"/>	10.5.5.3/24	Delete Settings
				fe80::a236:9fff:fe1b:4f16/64	
				2001:5::1/64	Delete Settings
Data port #6	1 Gbit/s Link up	+ Add IP Address	<input type="checkbox"/>	10.6.6.3/24	Delete Settings
				fe80::a236:9fff:fe1b:4f17/64	
				2001:6::1/64	Delete Settings

Experiments Management

EAST COAST DATA.COM, INC. Stateful Traffic Generator STG-10G STG-F4B46D5E-B16C [Logout](#)

Home End Points **Experiment** Analyzer Settings / Upgrade About

New Experiment

Create a new experiment [+ Create](#)

Import an experiment [Select file](#) [Import](#)

Experiments management

- UDP [Open](#) [Delete](#)
- TCP [Open](#) [Delete](#)
- ICMP [Open](#) [Delete](#)
- DCCP [Open](#) [Delete](#)
- SCTP [Open](#) [Delete](#)
- Loopback Testing [Open](#) [Delete](#)
- Pcap Standard [Open](#) [Delete](#)
- Turbo [Open](#) [Delete](#)

OVERVIEW: STG-10G GUI BASIC SCREEN BY SCREEN OVERVIEW

Flow Management

Add new flow

Name: Local Control Address: Loopback: Remote Box:

General flow-level options

Initial Delay: msec Duration: msec Packets to generate: pkts KBytes to generate: KBytes Meter:

Data options

Header Options

L3 Protocol: Local Data Port: Remote Data Port: TTL: TOS:

L4 Protocol: Local UDP Port: Remote UDP Port:

Application options Mode: Synthetic PCAP Based

Predefined Stochastic Profile: Seed: Payload Content:

Payload Sizes

Profile: Payload Size Distribution: Size: bytes **Resulting Mean Packet Size**: bytes

Bandwidth

Profile: Bitrate: Mbps

Packet Rate

Profile: Inter Departure Time Distribution: Rate: pkts **Resulting Mean Packet Rate**: pkts

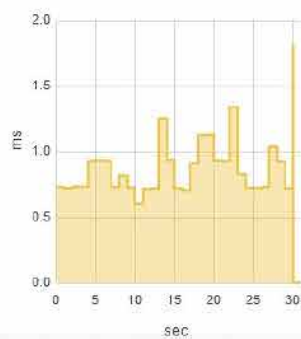
Experiment Results

Per-flow results

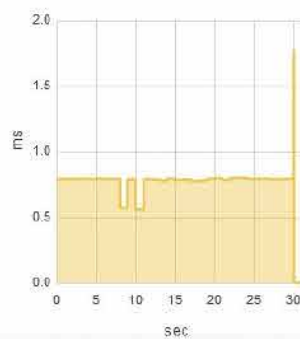
Flow #	Packets		Delay [ms]			Jitter [ms]			Bitrate [Mbps]			Packet Loss [pps]		
	Tx	Rx	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
▶ UDP	258264	258216	0.000	0.175	0.294	0.000	0.225	0.250	3.963	597.193	617.363	0.000	1.548	14.000
▶ TCP	142799	142799	0.327	0.512	1.814	0.483	0.535	1.763	19.054	149.037	153.457	0.000	0.000	0.000
▶ ICMP	4920	4920	0.000	0.201	0.218	0.000	0.050	0.060	0.076	1.945	2.013	0.000	0.000	0.000
† Aggregate	403983	403935	0.601	0.887	1.814	0.561	0.810	1.763	22.963	748.046	772.656	0.000	1.548	14.000

Aggregate timeseries

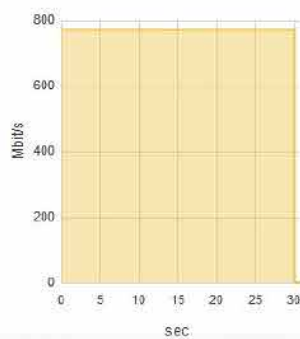
Delay



Jitter



Bitrate



Packet-loss

