

OPERATIONS MANUAL

ETHERNET DELAY SIMULATOR

EDS-1G

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SAFETY WARNING



WARNING

Always observe standard safety precautions during installation, operation and maintenance of this product. **To avoid the possibility of electrical shock, be sure to disconnect the power cord from the power source before servicing the device.** Line voltages are present within the device when the power cord is attached to the device.

DO NOT attempt to repair this device. Only qualified service personnel can service this device.



WARNING

For AC powered devices which have 3 conductor power plugs (L1, L2 & GND or Hot, Neutral & Safety/Protective Ground), the wall outlet (or socket) must have an earth ground.

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1 Introduction

The EDS-1G is an **E**thernet **D**elay **S**imulator allowing users to test/stage critical network equipment by altering bandwidth, latency, packet loss, congestion and other important link impairments over 10/100/1000 Ethernet. The EDS-1G can emulate two individual links simultaneously at rates up to 2 GbE, making it ideal for multiple test configurations. Typical UDP 1500 byte packets are passed at Full Line Rates.

The EDS-1G is a must have test tool for product development / demonstrations, network validation, VoIP, benchmark testing, video / IPTV simulation and website performance.

The EDS-1G hardware based architecture is a powerful processor and is coupled with custom software presenting an easy to use GUI interface. No confusing software to load as all software is contained in the EDS-1G.

The EDS-1G can act as a bridge or a router in the users network. The user configures the unit via the GUI interface using Firefox or Explorer. The GUI is fast and simple to use. All commands and settings are displayed prominently. Simply set the band width, delay and any traffic congestion if required. The user is presented with the results in real time and in a graph.

By using the EDS-1G in place of or in series with a real data link (WAN) a wide variety of error conditions can be introduced under controlled and testable conditions. The unit is an excellent choice for validating and evaluating new products and technologies.

The EDS-1G is housed in a sturdy 1U high metal enclosure which can be rack mounted. It is powered by an integrated 90-240V 50/60Hz power supply. The EDS-1G has a three year warranty and a 24 hour turnaround on warranty repairs.



Figure 1 **Product View**

2 Pre-Requisites

The EDS-1G utilizes custom proprietary software for emulation. Great care has been put into developing a Ethernet Delay Simulator that is very user friendly and reliable.

What you will need

The following are required to install the EDS-1G

- 1/ A PC with a Ethernet port to configure and control the EDS-1G
- 2/ CAT-5 or CAT-6 cables(3-6 cables)
- 3/ You may need a cross over cable if your PC NIC CARD does not support auto negotiation
- 4/ Web Browser Compatible with: Explorer, Firefox, Opera, Chrome or Safari
- 5/ Routers or other equipment supporting 10/100/1000 Ethernet

FAST LOGIN

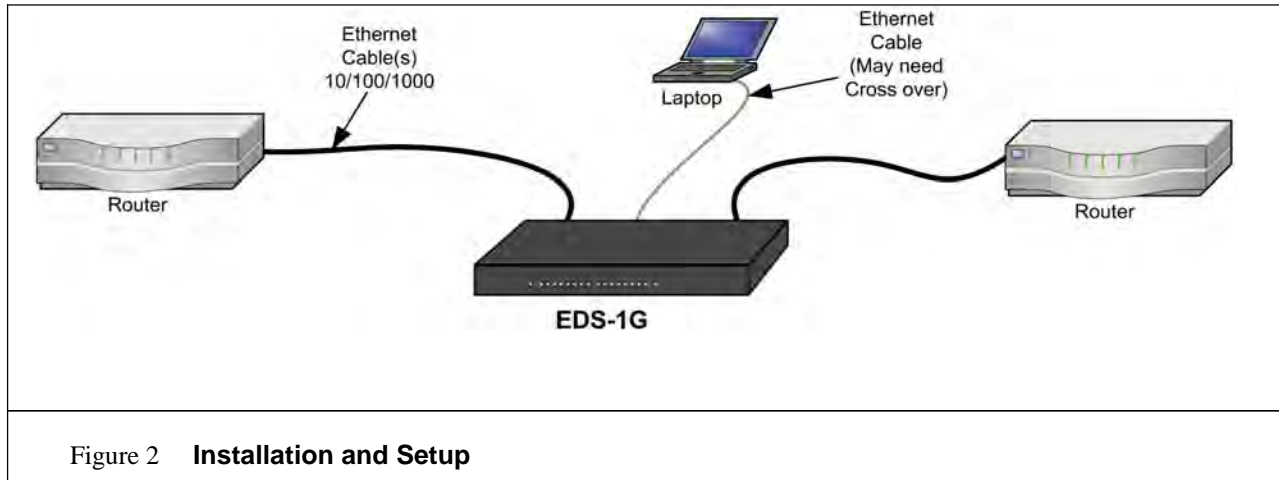
The login IP Address is: <http://192.168.1.1>

Username: root

Password: ecdata

3 Installation

The EDS-1G implements Bandwidth, Delay, Packet Loss, Background Traffic, Re-Ordering, Packet Duplication and Adjustable Queue Depth. To test all these features the required set-up is shown in the below diagram. The user may configure the EDS-1G in Route Mode(All IP Addresses required) or Bridge Mode(only end point IP Addresses).



3.1 Connect Cables and Power On

Install all user CAT-5 cabling and then install the power cord. Plug the power cord into a grounded AC outlet supplying voltage between 90-240VAC 50/60Hz. Turn on the EDS-1G using the power switch located on the front panel(largest **RED** button). The EDS-1G will begin its power up sequence, self condition check and when complete(about 1-2 minutes) the IP address 192.168.1.1 will be available on a web browser.

Cabling Information conforming to EDS-1G Front panel markings:

CONFIGURATION PORTS

MGMT 1 - Primary 10/100 LAN port to users PC to configure the EDS-1G

MGMT 2 - Secondary 10/100 port to alternative user PC to configure EDS-1G

(**If two users utilize the EDS-1G it is recommended user 1 use Mgmt1 for Ports 1-2 and user 2 use Mgmt2 for Ports 3-4)

***After powering down the EDS-1G, the MGMT Ports revert back to factory settings to prevent lock-out of the IP MGMT Ports.

DELAY PATHS (two independent paths supported on the EDS-1G)

LAN 1 to LAN 2

LAN 2 to LAN 1

LAN 3 to LAN 4

LAN 4 to LAN 3

4 System Configuration Settings

The user can access the EDS-1G GUI web page via any browser by giving the IP address of **management Port 1 (Mgmt1)** through which user is connected. The Display as shown in Figure 12 shall pop-up on the screen the first time assessed or in case the user has done Firmware upgrade and is logging in for the very first time.

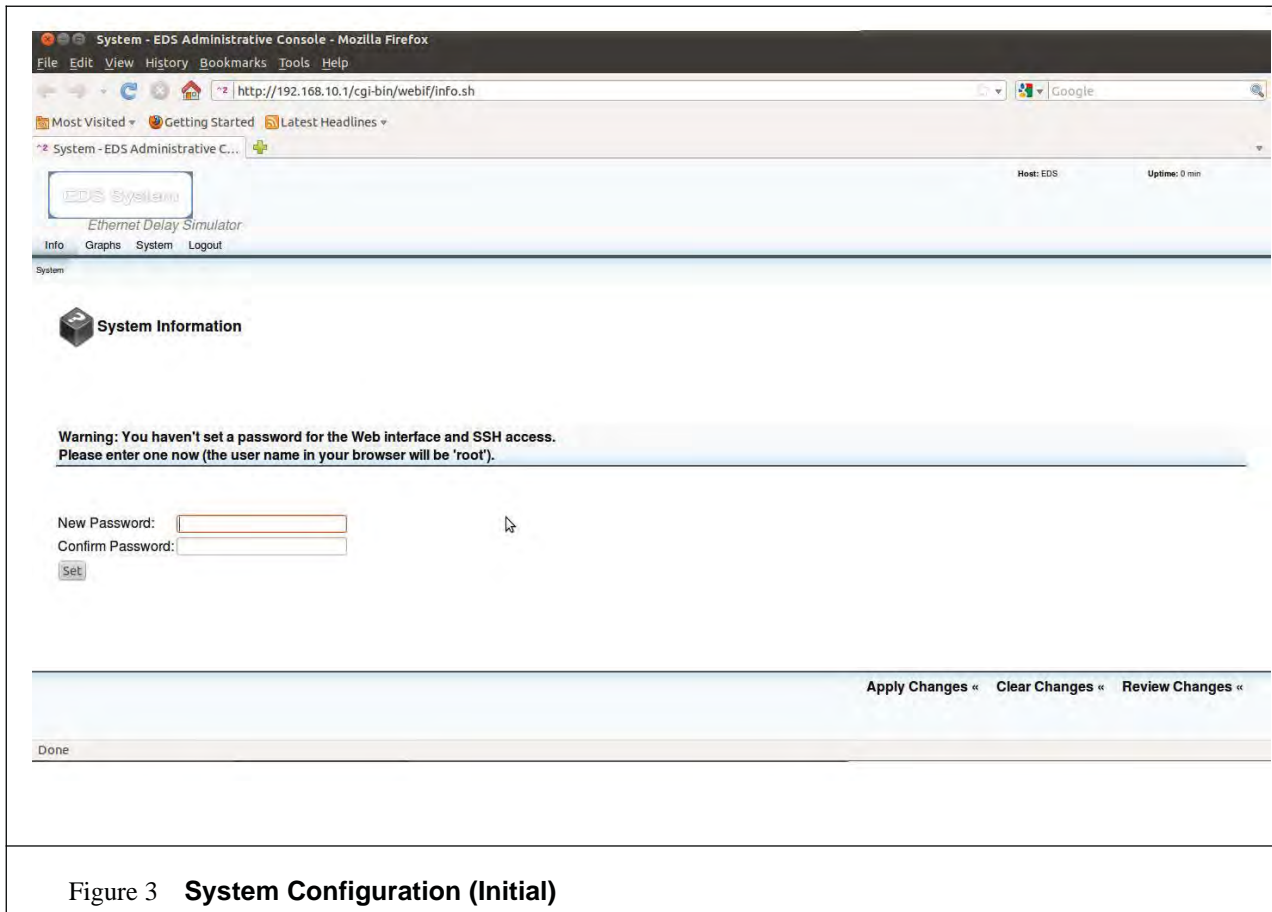


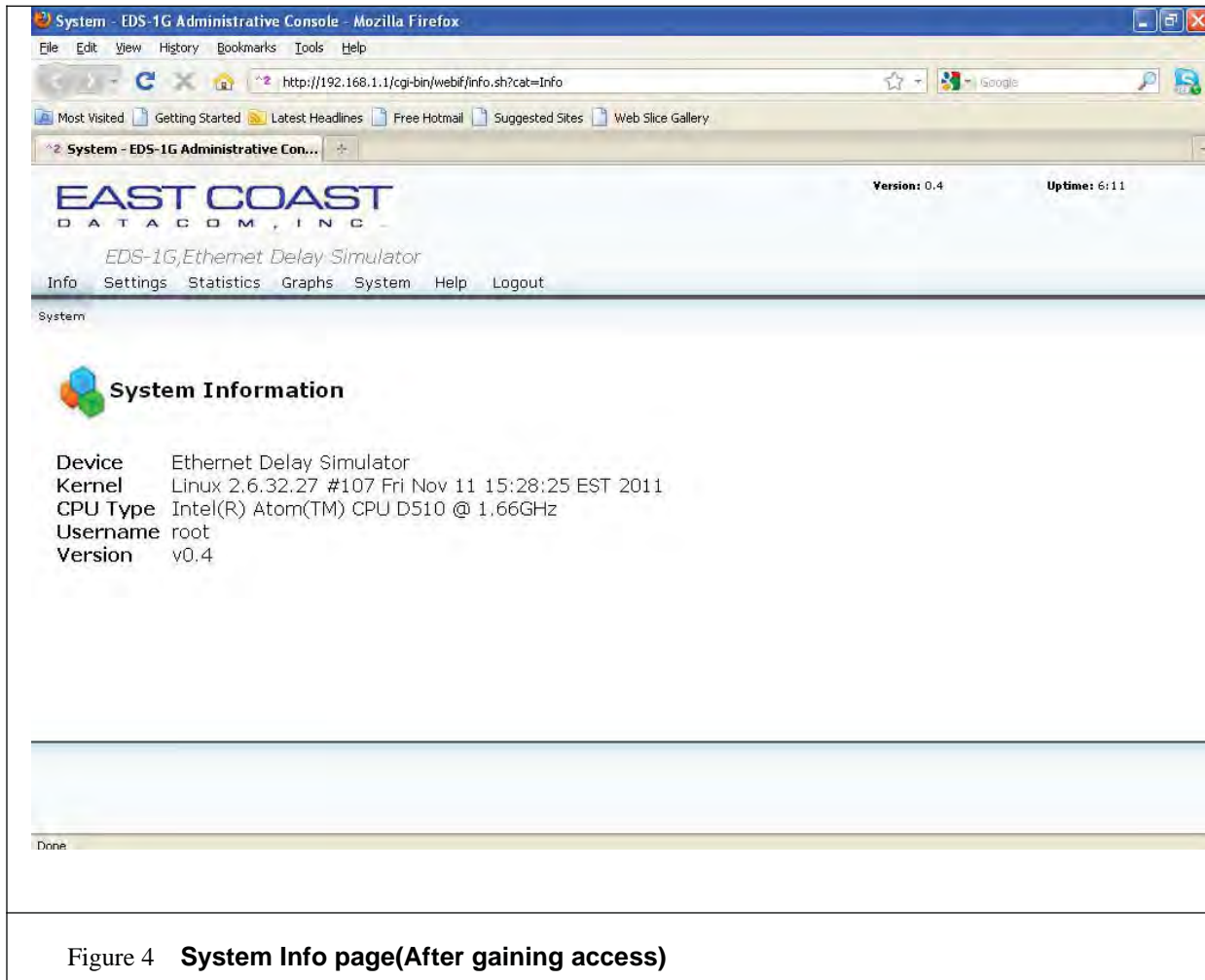
Figure 3 System Configuration (Initial)

The login IP Address is: http://192.168.1.1

Username: root

Password: ecdata

System Info Display



The Info tab provides EDS-1G system information like kernel version, Device name, Board, CPU Model, username and EDS-1G version

4.1 Configure IP address to Management interface

IP address of the management port can be configured via GUI

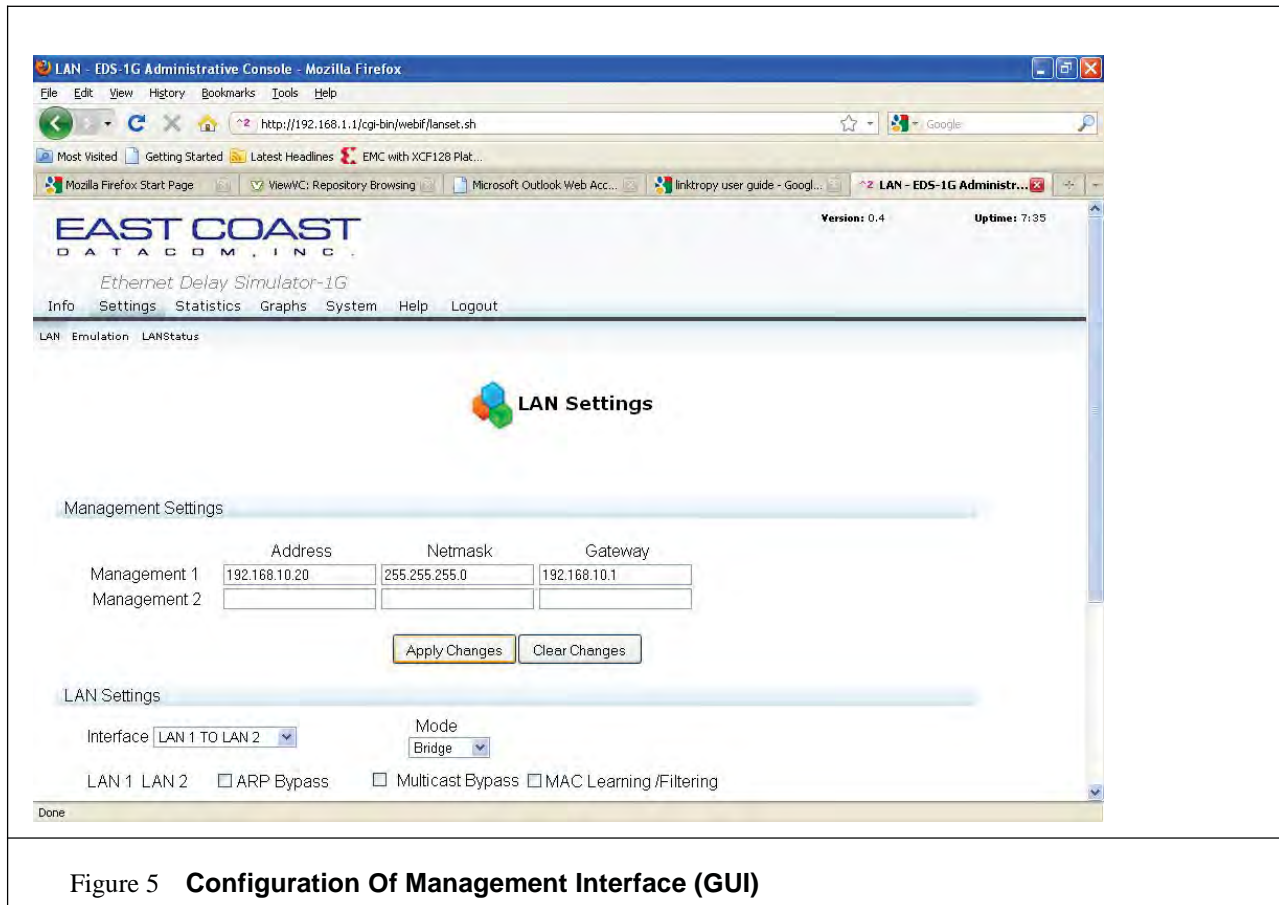
Configure IP address using GUI

Click on the "Settings Tab" in the Home page of EDS-1G, By default LAN settings submenu is selected. Here the user can enter the IP settings for both Management 1 and 2. After making the necessary changes user must click 'Apply Changes' button for changes to take place.

User can verify the Changes made by selecting the LAN Status page which display's the present configuration.

For Ex: IP of Mgmt1:	192.168.10.20	System IP:	192.168.10.xxx
Net mask:	255.255.255.0	Net mask:	255.255.255.0
Gateway:	192.168.10.1	Gateway:	192.168.10.xxx

After values are entered on the page, click on 'apply changes' tab will ensure that new values are set.



Note: User should ensure that System IP should be in the same Subnet Mask (domain) As that of Management port IP, and then only user can connect to management port.

Management port 2 setting

Unlike Mgmt 1 which restores its IP setting to factory default on system reboot, Mgmt2 port will retain its IP addressing even after power-cycle if user has set some IP address on that port this is special feature provided on Management 2 port of the EDS device.

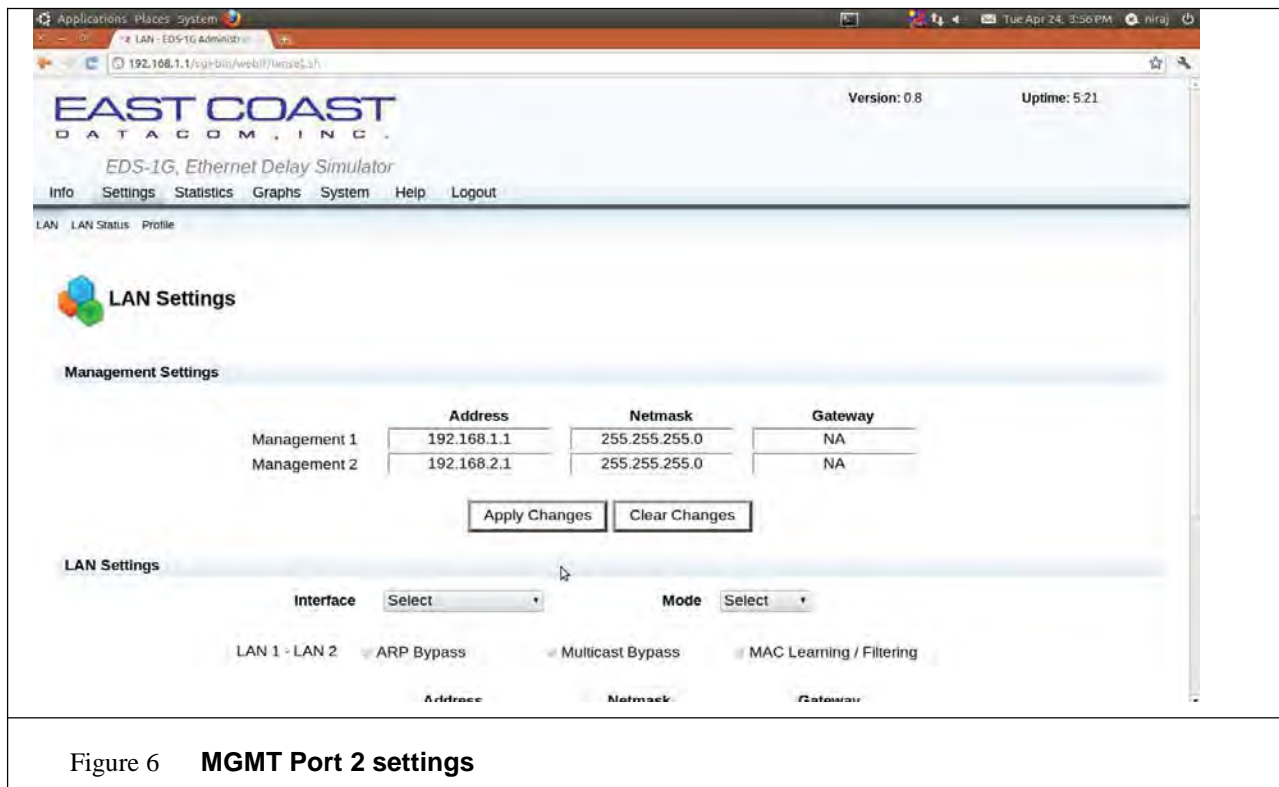


Figure 6 **MGMT Port 2 settings**

The figure above displays that IP settings retained for MGMT Port 2 after the power-cycle where as MGMT Port 1 resets itself to factory default setting.

5 Selection Of LAN

The GUI settings page is common for both LAN and Management settings. LAN ports can be configured only as pairs i.e. LAN1 & LAN2 as a pair similarly LAN3 & LAN4.

Based on routing options each pair can be configured either in **Bridge mode** or **Route mode**.

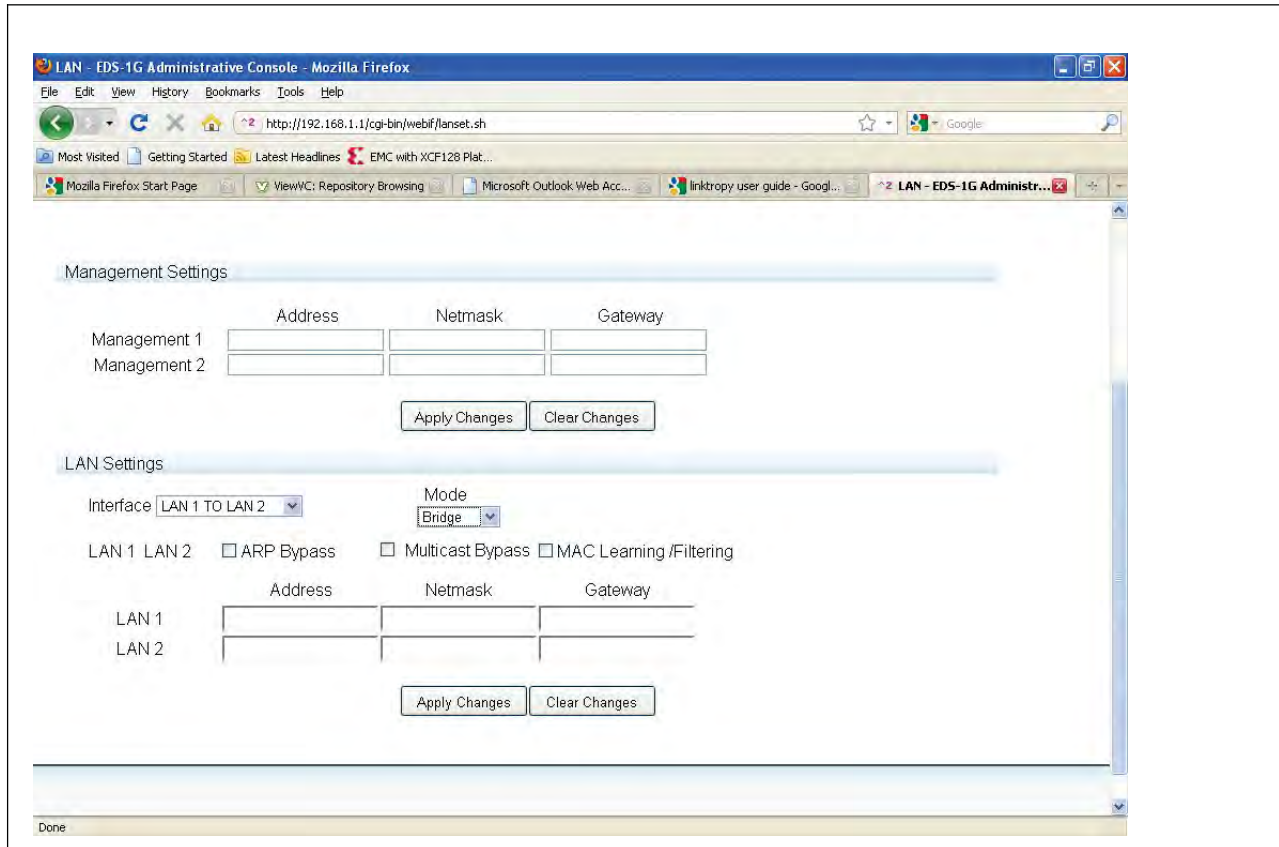


Figure 7 LAN & MGMT settings page

5.1 Bridge Mode

In Bridge Mode EDS-1G functions as bridge between the Ethernet segments connected to LAN 1 and 2 or LAN 3 and 4 ports. In this mode, it can forward any Ethernet based frame regardless of network layer.

By Default all frames from EDS-1G are assumed to be part of WAN traffic which includes ARP and Multicast.

ARP Emulation Bypass

By default all ARP packets emulation bypass is disabled, which means it will be part of emulated traffic link, but if user enables this "ARP Bypass tab" by checking the box, Frames will bypass the emulated link and be passed directly between the two interfaces (ex: LAN1 and LAN2)

Multi Cast Bypass

By default all Multi Cast packets bypass is disabled, which means it will be part of emulated traffic link, but if user enables this "Multicast Bypass tab" by checking the box, Frames will bypass the emulated link and be passed directly between the two interfaces (ex: LAN3 and LAN4)

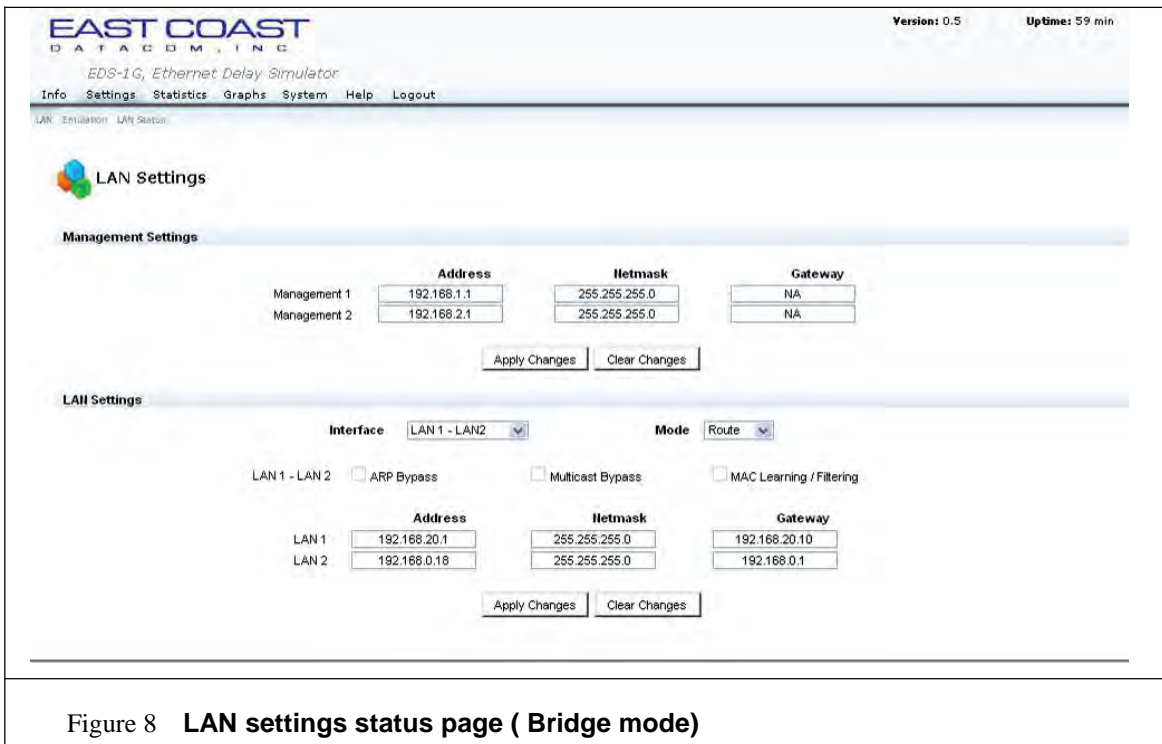
In both the cases frames that bypass the WAN emulation are not subjected to loss or delay and do not consume emulated link Bandwidth.

Mac Learning/Filtering

Learning Bridge functionality is not enabled by default, EDS-1G forwards all frames received on LAN X and LAN Y interfaces to the opposite side providing the fastest packet handling rates and highest throughputs.

When the box labeled "Mac Learning/Filtering" is checked the device examines the source MAC address of received frames to learn the network segment on which each directly connected device is located.

Frames are discarded in case if source and destination devices are on the same network segment.



The webpage above shows the LAN status page for the case where ARP, Multicast, MAC L/F is enabled.

Note: In this mode there is no need to manually configure IP settings for the ports, and to emphasize this 'IP settings Tab' are made inactive once Bridge mode is selected. All the previous configuration made before power on would re-appear for LAN settings.

5.2 Route Mode

In Route Mode EDS-1G function as a router between Ethernet segments connected to LAN 1 and 2 or LAN 3 and 4.

- 1/ User has to give configuration first for LAN 1 -> LAN 2 then LAN 2 -> LAN 1(Or same applies for LAN 3 and 4 Pair also). For selected pair consider for example: LAN 1-> LAN 2 , LAN 2 acts as WAN port.
- 2/ User has to configure the IP address, NETMASK and Gateway for each direction. If user enters wrong format of IP address or NETMASK or Gateway then error message will pop up on webpage.
- 3/ Configured IP address and Gateway should be in same subnet otherwise user will get the error message on the webpage.

NOTE: In this mode ARP, Multicast, MAC L/F tabs are disabled since they are not applicable.

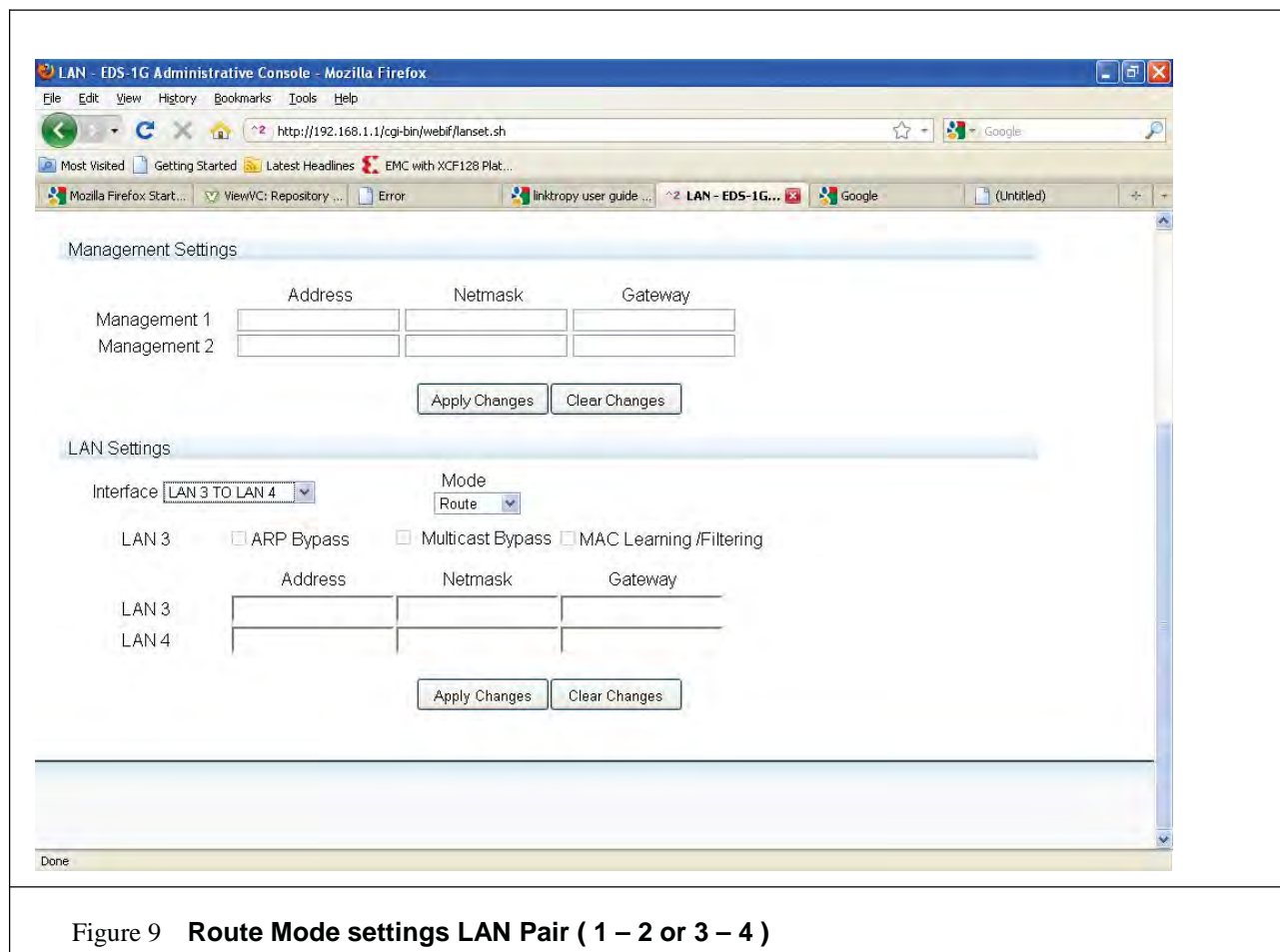


Figure 9 Route Mode settings LAN Pair (1 – 2 or 3 – 4)

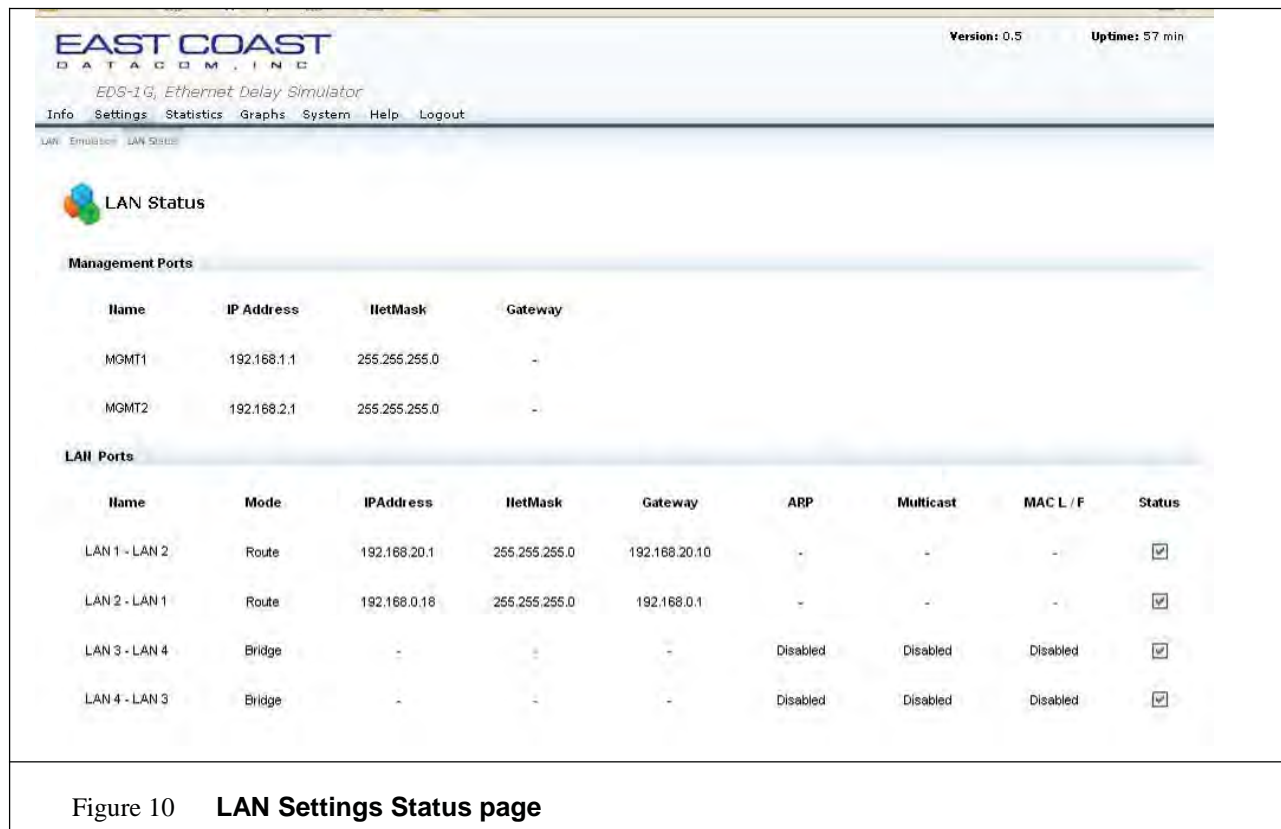


Figure 10 LAN Settings Status page

The above page displays an example LAN Status Page once after configuration.

6 Emulation Parameter Setting

Through GUI User can manipulate the EDS-1G Emulate options, depending on setting of options user would be able to control the LAN traffic between the selected LAN ports.

In settings page user should click on the 'Profile sub tab' of settings page to change in the values for Emulation parameters.

There is one emulation profile named as "Standard" will always be default applied emulation profile on LAN pair.

The default parameters of emulation settings for a single LAN port are

Delay: 0 ms

Background traffic: LAN utilization:0%:Burst Size:0 bytes

Packet Loss: 0 %

Reordering: 0%

Packet Duplication: 0 %

Queue Depth: 10,000 Packets

Bandwidth: 1Gbps (maximum value)

Note: Background traffic feature will work only when the device is in route mode.

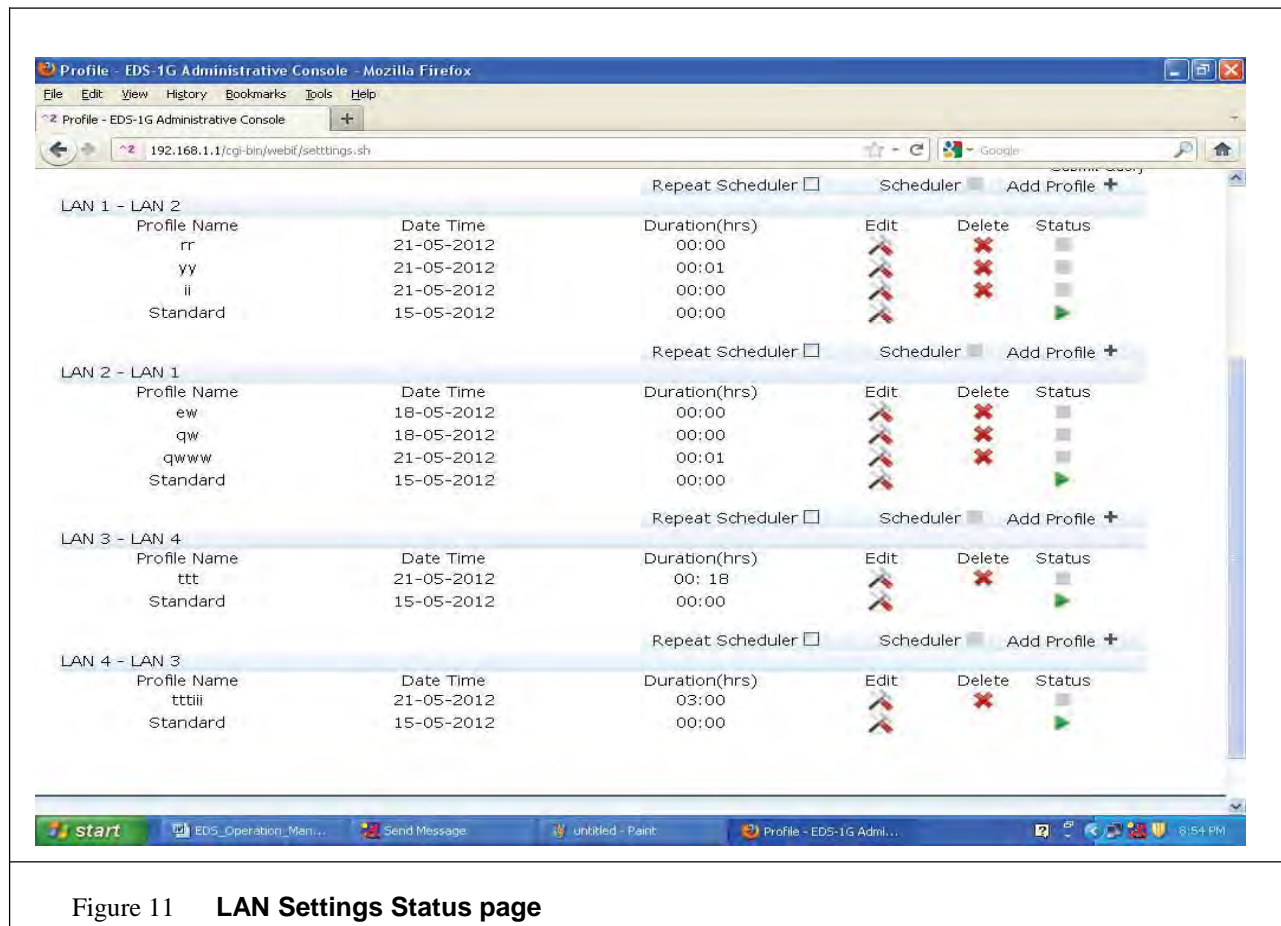


Figure 11 LAN Settings Status page

Profile sub tab has following features.

6.1 ADD / EDIT profile:-

User can add/edit profile by clicking on add/edit button. As user will click on add/edit button a popup window will come to user.

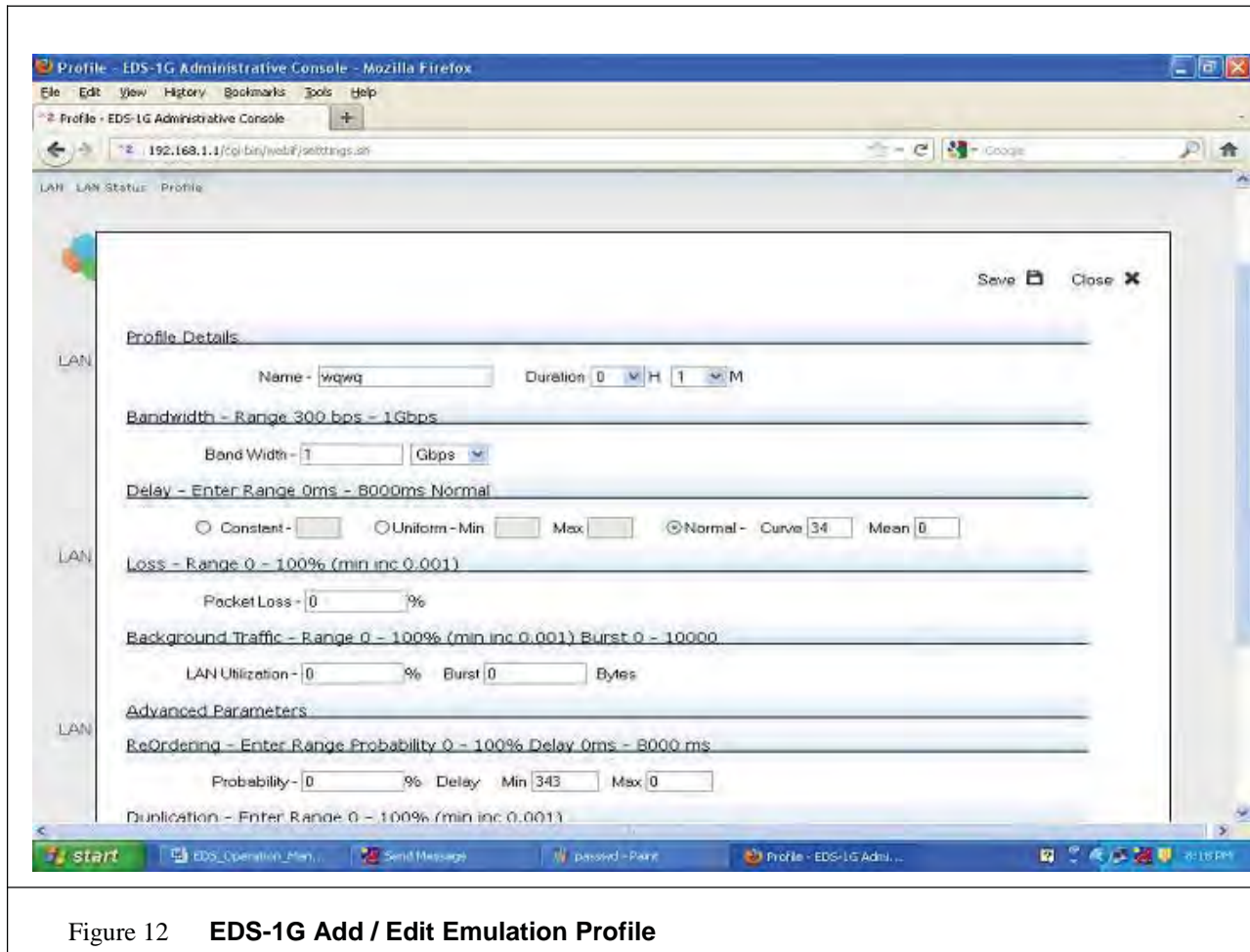


Figure 12 EDS-1G Add / Edit Emulation Profile

The Parameters setting available in profile emulation page are explained below.

Name of Profile

User can configure or edit name of emulation profile in corresponding field.

Time Duration

User can configure time duration (hours and minutes) , for which emulation profile will be applied on LAN pair. User can configure time duration as zero also. It means that profile will be skipped at time of scheduler "ON" on corresponding LAN pair.

Bandwidth

The bandwidth row displays the configured link rate of emulated WAN. The Minimum bandwidth is set to 300 bps. Link rate is set independently in each direction. The link rate is set in units of bps, kbps, Mbps or Gbps. If the entered value is greater than the physical limitation of the link, then pop up will be shown specifying the limits.

Delay and Jitter

The user delay parameter specifies the link delay in milliseconds. The delay is set independently in each direction by the user. The user can set the Delay from 0 milliseconds to 8 seconds. Entered values are rounded to the nearest 0.1 millisecond.

*Enter the Delay into the provided window

Constant Delay: A single, fixed value for delay.

Uniform Delay: A uniform distribution of delay between the configured minimum and maximum values entered. ***This varied delay will add Jitter***

Normal Delay: A truncated normal distribution curve, with a specified minimum, mean and standard deviation.

If the entered minimum delay is greater than the entered maximum (for a uniform distribution) or mean (for a normal distribution), a popup window appears on the page 'please enter proper values' when they **Apply Changes** button is pressed or the changes will not be applied.

Loss

The Data loss rates are configured as packet loss rates, bit rate errors or both. Losses due to packet loss and bit errors are emulated independently and may be combined to emulate links with physical layer corruption as well as congestion induced packet loss.

The default setting is for a lossless link, and for a lossless link packet loss rate and bit error rate is zero. Packet loss rates can be from 0-100% in increments of 0.001%.

Reordering

The Reordering option specifies the probability that each frame is reordered and the amount of time that reordered frames are delayed from their original position. This behavior is controlled by two parameters:

Probability: Specifies the likelihood that each individual frame will be held for reordering. Probability can be set from 0 – 100% in increments of 0.001%.

Delay: specifies how long each reordered frame is held before being reinserted into the data stream. Selected frames are delayed for a random amount of time between the specified minimum and maximum values using a uniform distribution. Minimum and maximum reordering delay can be set from 0 milliseconds to 10 seconds. Entered values are rounded to the nearest 0.1 millisecond.

For a constant reordering delay, set the minimum and maximum reordering delay to the same value.

Note: Reordering is disabled by default. To disable reordering set the probability to 0%.

Duplication

The Duplication parameter specifies the probability that a frame will be duplicated.

Duplicate frames are inserted into the data stream immediately after the original frame. Duplicate frames are then subjected to rate control, delay, loss, and reordering independently of the original frame.

The duplication probability can be set from 0 – 100% in increments of 0.001%. To disable frame duplication, set the duplication probability to 0%. Duplication is disabled by default.

Background Traffic

The background traffic feature enables the user to introduce traffic that will compete for bandwidth when the EDS-1G device is in route mode the background traffic is modeled by two parameters.

i . LAN Utilization

The link utilization field specifies how much bandwidth of the link should be utilized by the background traffic. It is specified in percentage and can take values in 0-100% range. It can be applied in increments of 0.001%.

ii. Burst Size.

Burst size parameter specifies the packet size generated by background traffic. It is specified in bytes and can take values from 0-10000 bytes.

Background traffic needs IP address to generate the traffic, hence is supported in Route Mode only, In Bridge mode since the IP addresses are absent and disabled.

Queue Depth (Especially for TCP Traffic)

The Queue Depth row allows the user to specify the maximum amount of data that can be buffered when data is received at a rate exceeding the emulated link rate. Frames that arrive when the queue is full are discarded by the system.

The Queue depth has a minimum value of 64 packets. The queue depth can be set as a maximum numbers of packets, maximum amount of data in kilobytes, or a maximum queuing delay in milliseconds. The queue depth is specified separately for each direction. Valid entries are limited to 100,000 packets, KB, or milliseconds. ****Heavy TCP Traffic, set to 100,000****

NOTE: User should click on '**Apply changes**' tab after values are entered for required parameters, so that changes are applied. 'Clear changes' on the other hand will remove the latest settings (in case they are not applied) and restore with the previously applied configuration.

Framing Overhead

Framing overhead feature adds extra overhead to the frame other than payload which will result in drop of packets for significant overhead values. By default "Default" overhead option will be selected on any profile.

User can select from three options as to what frame-overhead is getting applied over the LAN Pair when any of option is selected

1. Default (HDR +FCS): selecting this option type will add a total of 18 bytes of frame overhead which includes FCS (Frame check sequence) of 4 bytes and HDR (Header) of 14 bytes.
2. Standard (HDR + FCS + PRE + PAD): when user selects Standard as option, it will result in a total of 25 bytes of frame overhead. PRE (preamble) and PAD(padding) together will incur a additional overhead of 7 bytes.
3. Custom: This option enables the user to select a frame overhead of up to 300 bytes (0 - 300) bytes, this option should be selected only when the user has knowledge of underlying Link layer technology.

6.2 View Profile

User can view a emulation profile by clicking on name of profile. As user click on name of profile a popup window will come to user with all information.

Ex: Name of profile, Time duration, Bandwidth and all other emulation parameters.

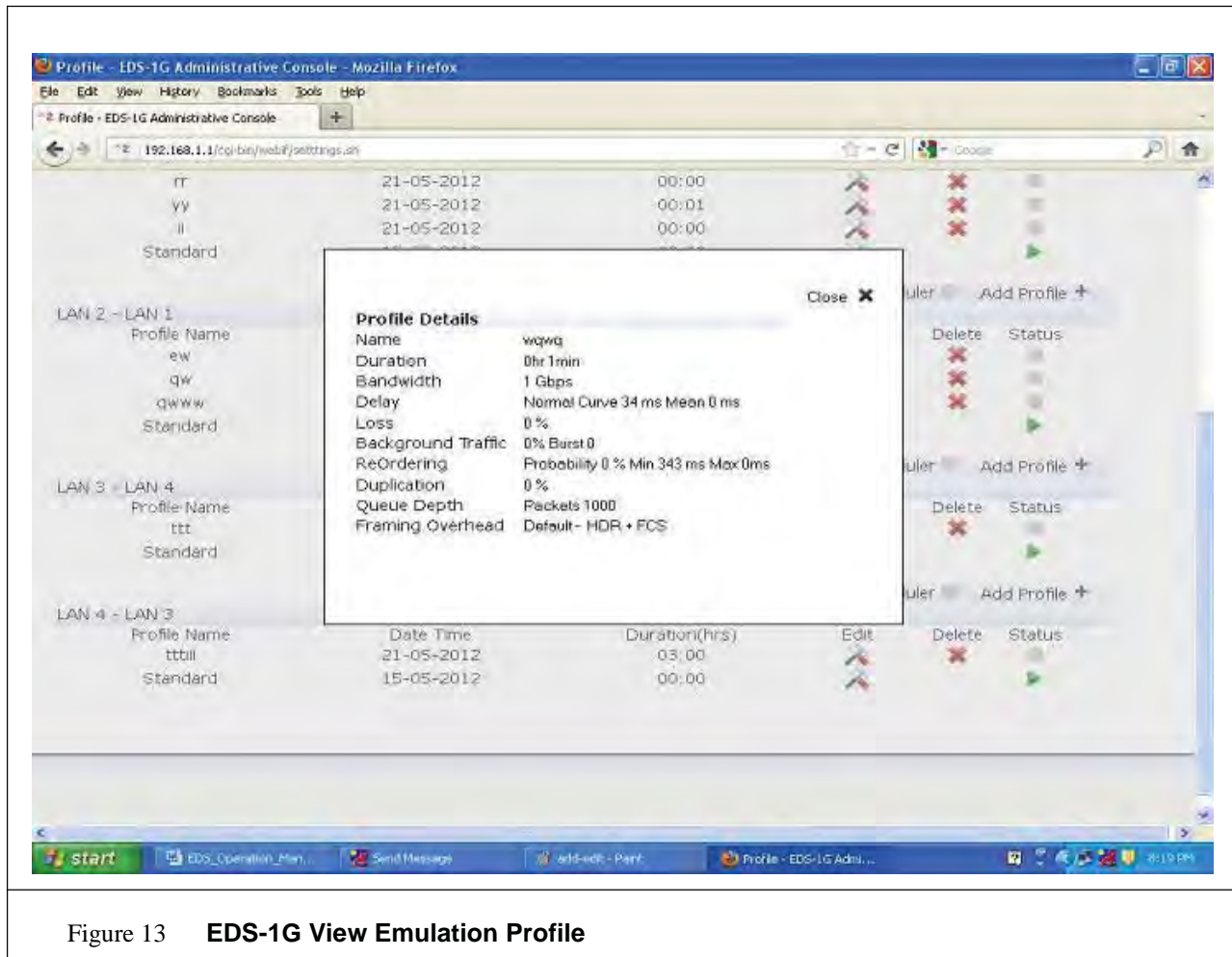


Figure 13 EDS-1G View Emulation Profile

6.3 Delete Profile

User can delete individual emulation profile by clicking on delete button.

User can not delete an emulation profile, if user has started emulation scheduler on particular LAN pair.

“Standard ” emulation profile cannot be deleted.

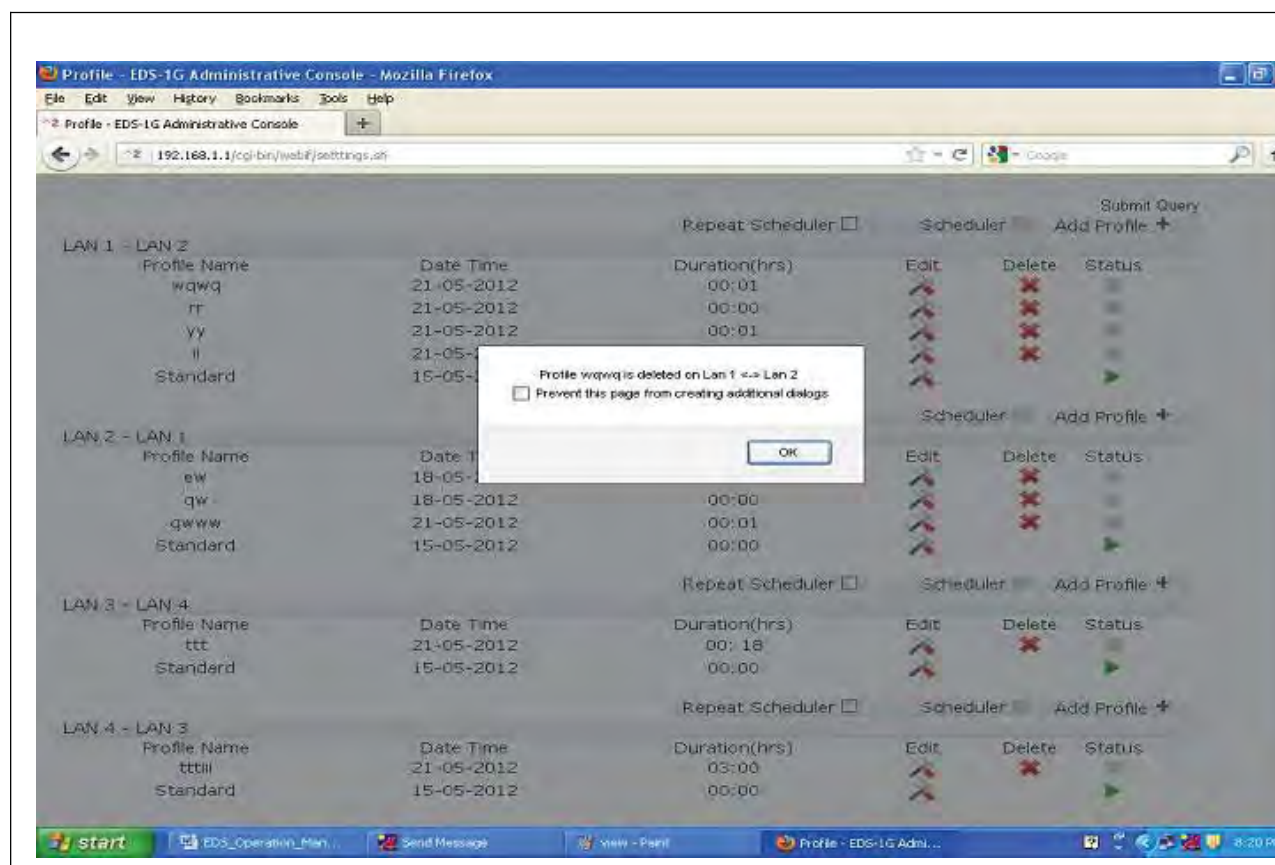


Figure 14 EDS-1G Delete Emulation Profile

6.4 Emulation Scheduler On / Off

User can start emulation scheduler on each LAN pair individually. Once a emulation scheduler is on user can see the "green" signal showing current status of scheduler.

When scheduler is on, as time passes one by one each emulation profile will change automatically, according to given time duration on each emulation profile.

Currently running emulation profile will show "green" signal as currently running status.

When user start the scheduler on LAN pair, then according to repeat scheduling status that emulation scheduler will run.

If Repeat scheduling is "checked" this means, all emulation profiles will run sequentially in an endless loop or scheduler will never go "off" until the user will turn it "off" intentionally.

If Repeat scheduling is "unchecked" this means, all emulation profiles will run sequentially only one time and after that automatically "standard" profile will start to execute.

Whenever user needs to, the scheduler can be switched off on each LAN pair individually.



Figure 15 EDS-1G Emulation Profile Scheduler On/Off

6.5 Emulation Parameter Units

Delay is entered in ms (Kindly refer the Limitations section).

Loss in Percentage (%).

Packet Duplication in Percentage (%).

Bandwidth in bps (Kindly refer the Limitations section).

Queue Depth can be configured in No of Packets. (By default queue length is 64 packets).

Reordering in Probability percentage (%).

Framing Overhead.

Background Traffic (%) Burst size (bytes).

(Kindly refer the Limitations section).

7 Statistics

Under statistics tab there are two sub-tabs are present.

7.1 Statistics

In statistics option user can see following statistics for all configured LAN directions.

Forwarded Bytes.

Packet duplication.

Forwarded No of Frames.

Re-ordering

Duplicated No of Frames.

Queue Statistics.

Packet-drop.

Loss No of Frames.

Background Traffic.

Profile (Currently active profile).

Bandwidth (Configured By User on corresponding profile).

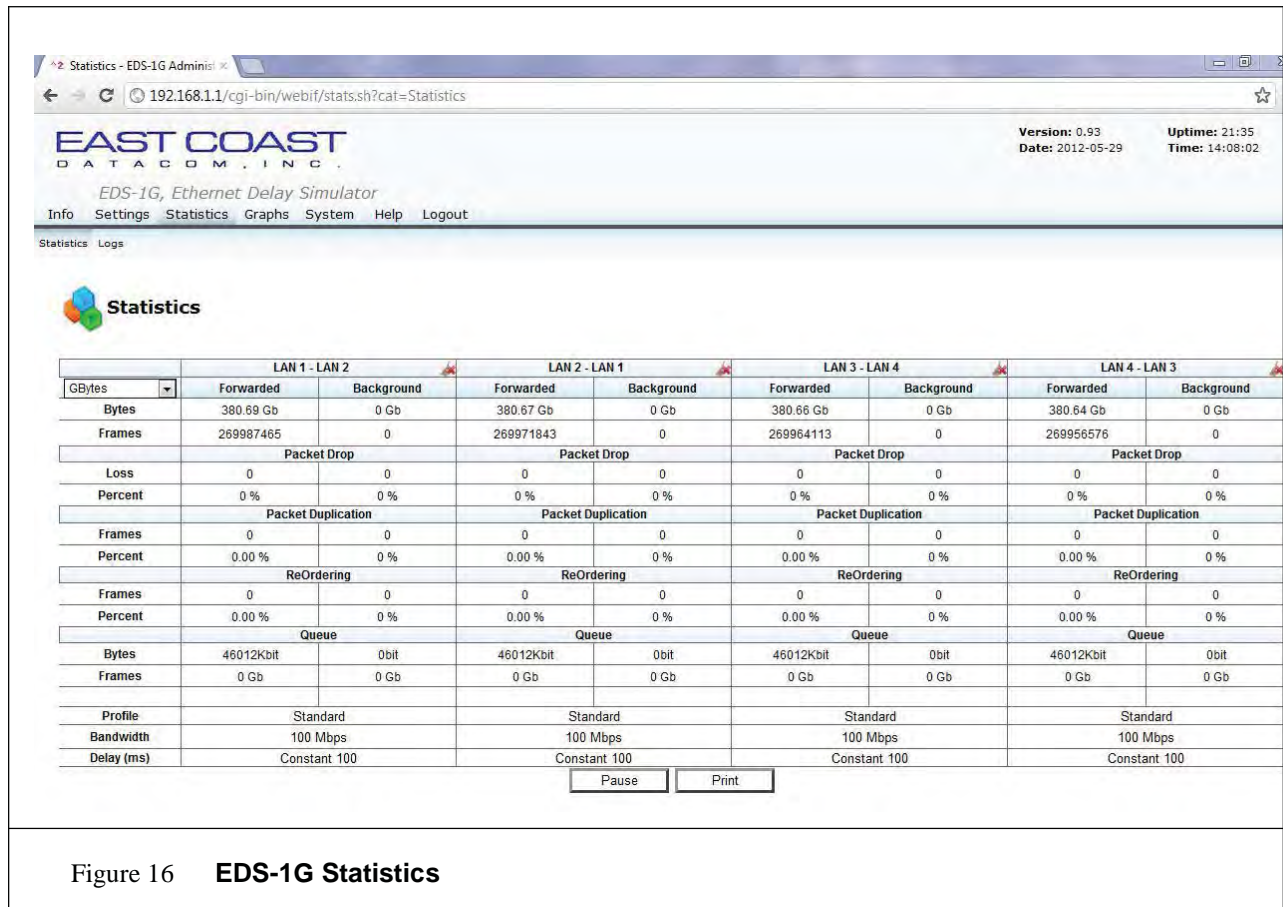


Figure 16 EDS-1G Statistics

The statistics page displays various network traffic parameters like Forwarded bytes and packets, Packet-drop, Duplication, Reordering, Queue-depth and background traffic statistics. Their variation depending on live traffic and emulation parameters settings.

There are two buttons provided for analysis of statistics.

PAUSE : This feature will freeze the statistics till the user will press the start button again.

START: This feature is enabled only when, user has already pressed the pause button. This will start the real time statistics again.

PRINT: User can get a print of statistics at any instance by using this feature.

For each LAN pair there is clear control provided on statistics page.

CLEAR: This feature will clear statistics on each LAN pair and start the statistics from 0 again for corresponding LAN pairs.

Note: User can see Background statistics if LAN pair is in route mode, LAN utilization and burst are non zero for same LAN pair.

7.2 Logs

Log feature is available for individual LAN pair. User can save up to 24 hrs log in one time. Maximum 7 days Logs can be saved and downloaded for each LAN pair. There are two features in this Log page.

8.2.1 Log Settings

In "Log settings ", **user** can configure the logging event on each LAN pair. There are controls as follows.

Instant Logging

If user wants to start Instant logging (Immediately) on LAN pair, then there is a checkbox (Real-time Logging) on GUI, user has to check it or uncheck it to enable/disable.

When the user enables the instant logging then user will not be able to choose start time and start date, but user can configure end time (Time, till which user wants to continue logs).

After all configurations, the user has to start Logs from status column by clicking on it, on corresponding LAN pair. The status Green signal will indicate that instant logging has started on corresponding LAN pair.

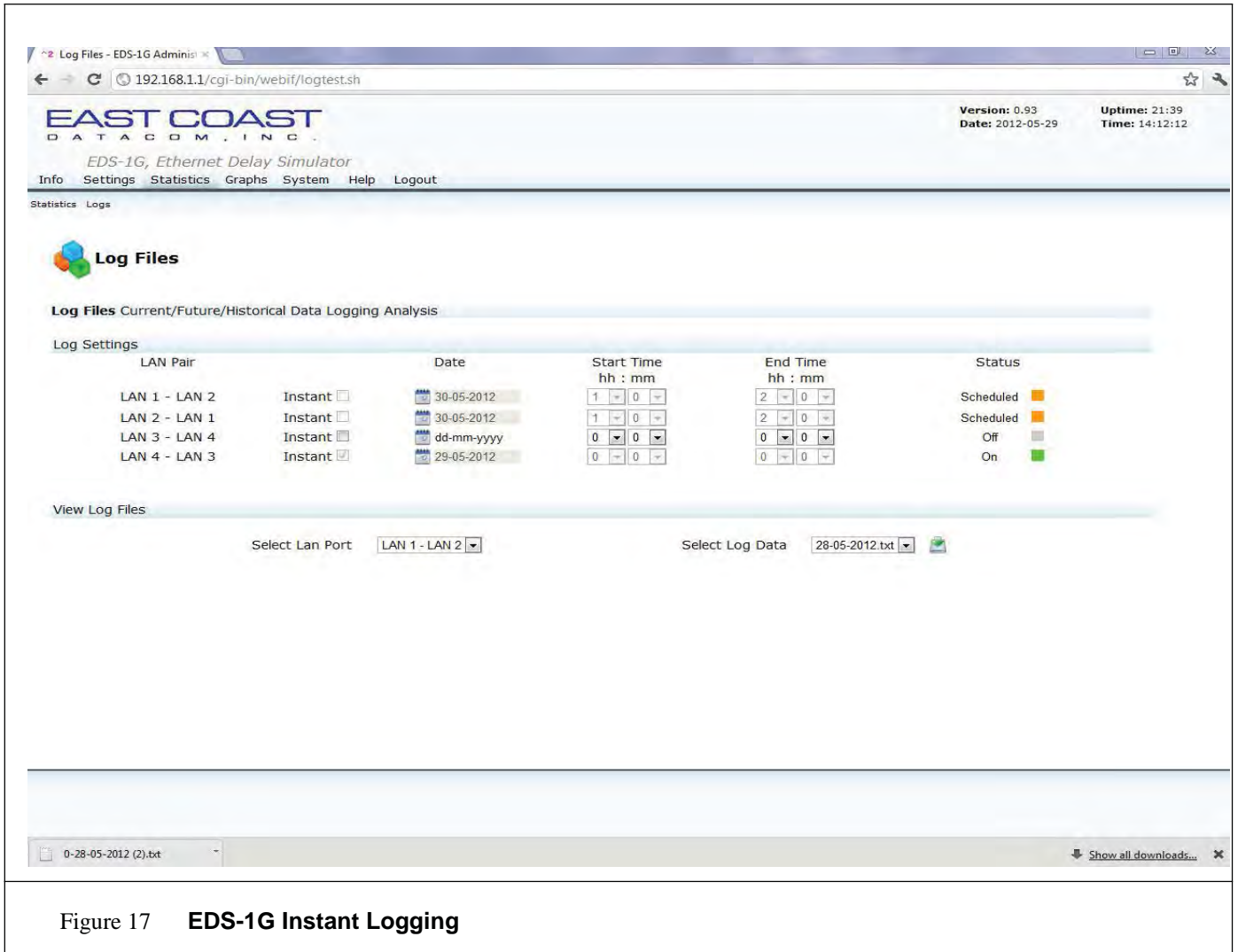


Figure 17 EDS-1G Instant Logging

Future Logging Event

If the user wants to schedule a logging event in future time on a LAN pair, then the user can configure the start date (Date at which log will start on that LAN pair), start time (Time, at which user want to start logs), and end time (Time, till which user want to continue logs) for the corresponding LAN pair.

A status orange signal will indicate that logging has scheduled for given date and time on LAN pair.

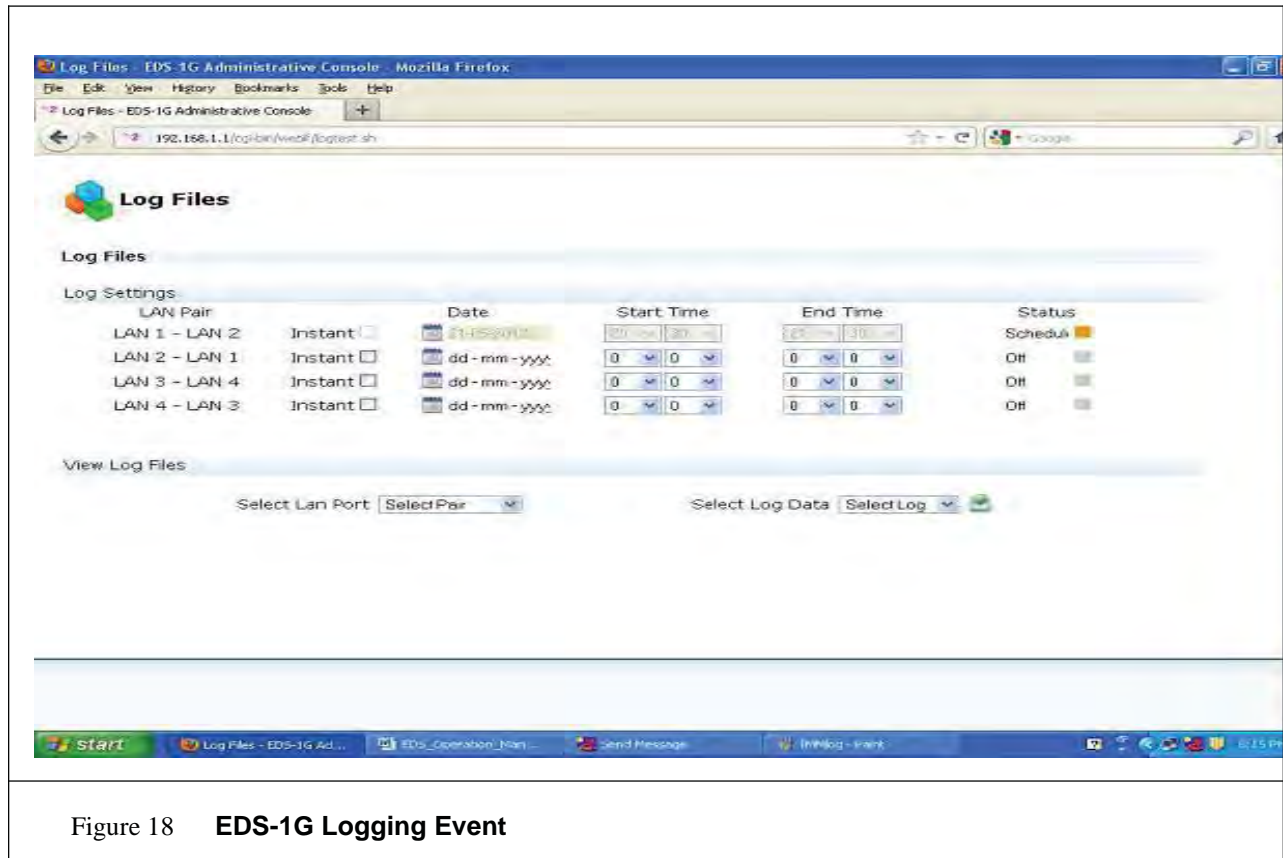


Figure 18 EDS-1G Logging Event

The user can intentionally stop real-time logging or cancel future event of logging, by disabling the already "green or orange" status (by clicking on status).

8.2.2 View Logs

In "View Logs" User can select LAN pair and corresponding date to Download Logs on the users host system. If there are no logs available on that LAN pair then user will get message, "No logs exist".

9 GRAPHS Menu

EDS-1G web interface also provides user the provision of graphs for checking the traffic on all 4 LAN ports, 2 MGMT ports and also the CPU traffic. User can access these through the sub tabs provided in Graphs tab.

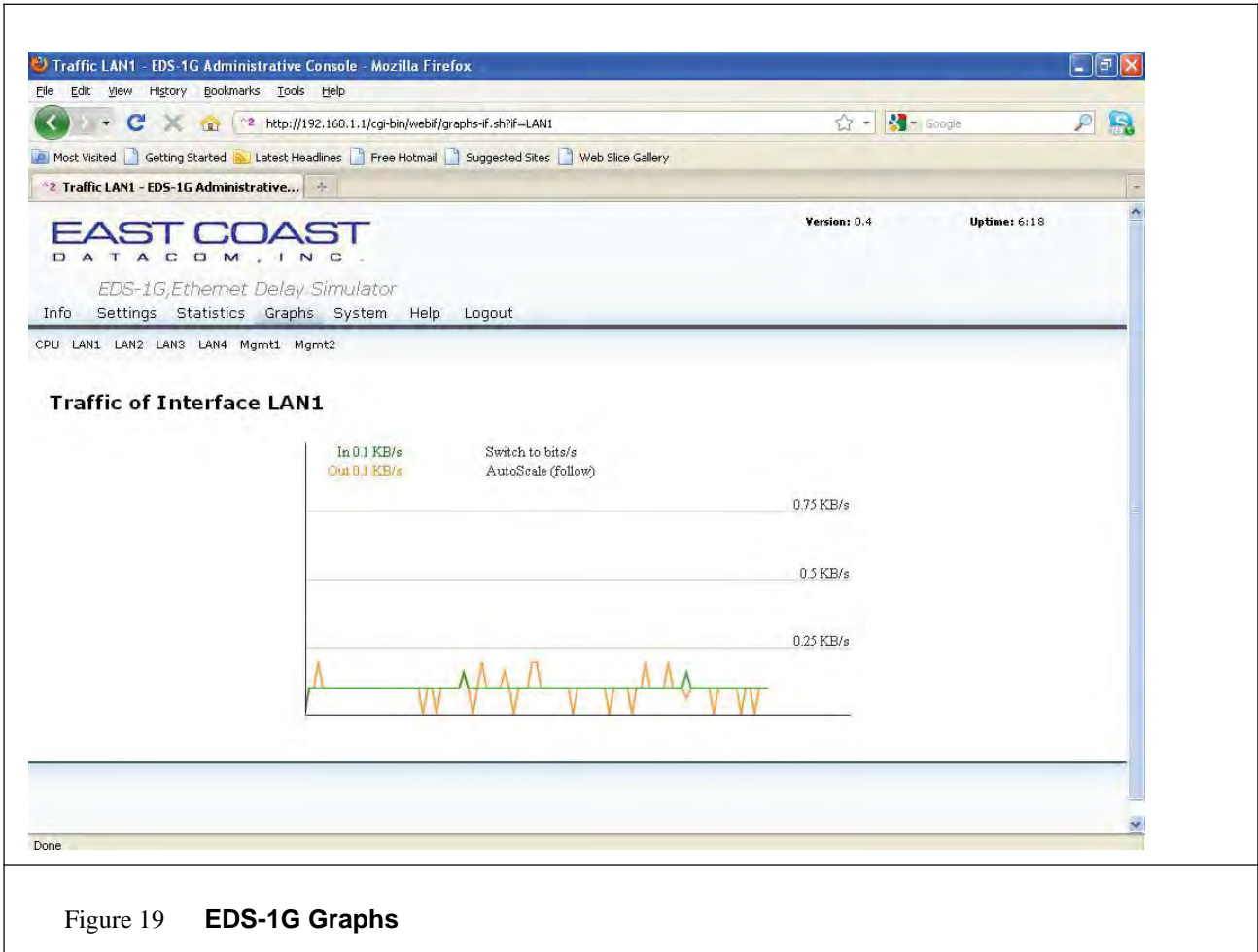


Figure 19 EDS-1G Graphs

10 System Tab

10.1 Password Change Menu



Figure 20 EDS-1G Password

System tab provides user with features supported in EDS-1G system like backup & restore and Firmware Upgrade. It also provides user with provisions for password change and also reboot.

10.2 Backup & Restore

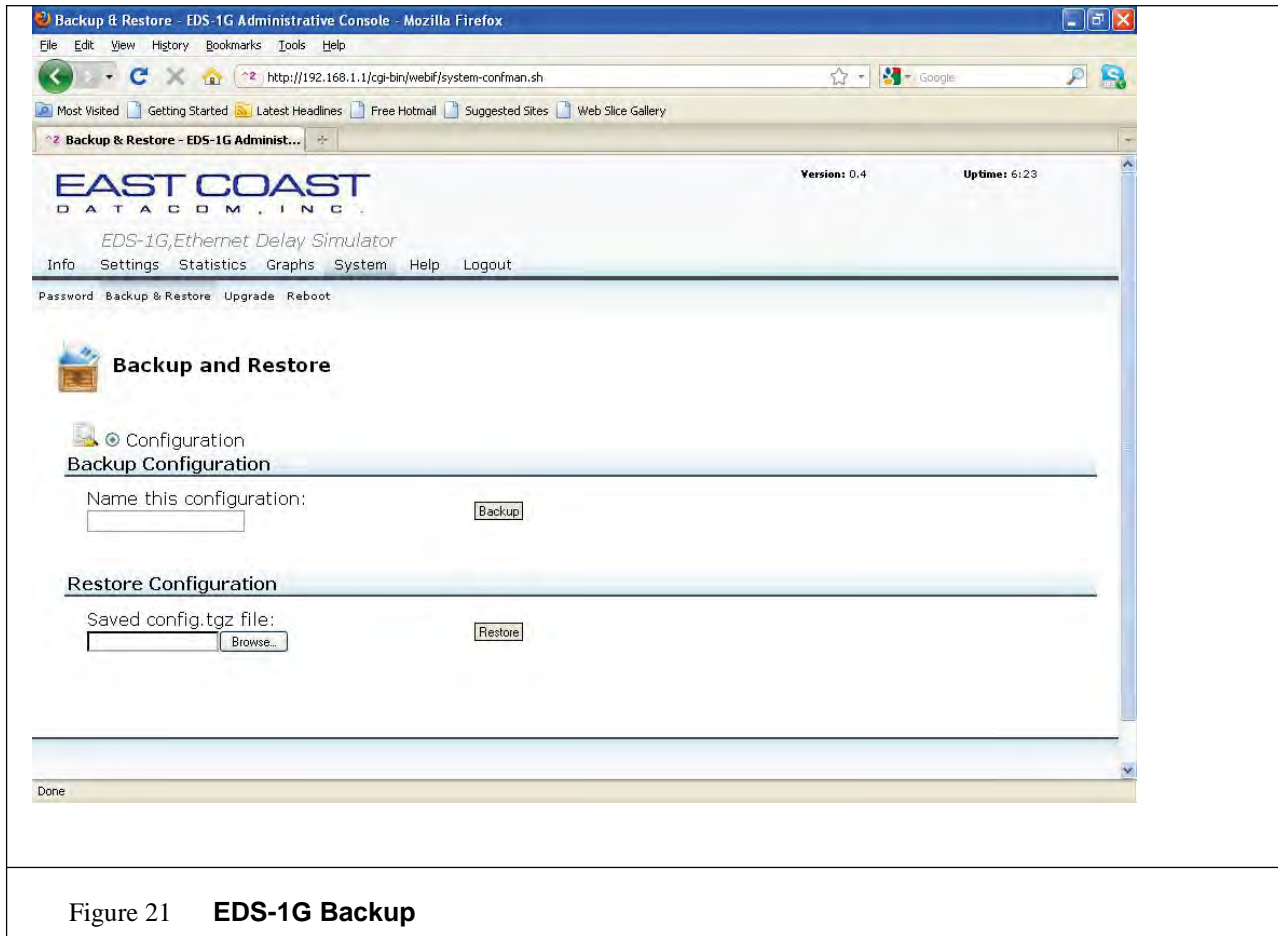


Figure 21 EDS-1G Backup

EDS-1G system provides the user with the provision of backup through which he can backup all the data in the system and restore it later. User can backup all data in system by providing a name to it in 'Name of Configuration' and clicking 'Backup' button. On this User will be prompted with a download window (figure 18) can click 'save file' and on clicking 'ok' and then providing the path to save in the next window that appears. Now the backup can be seen in the path provided.

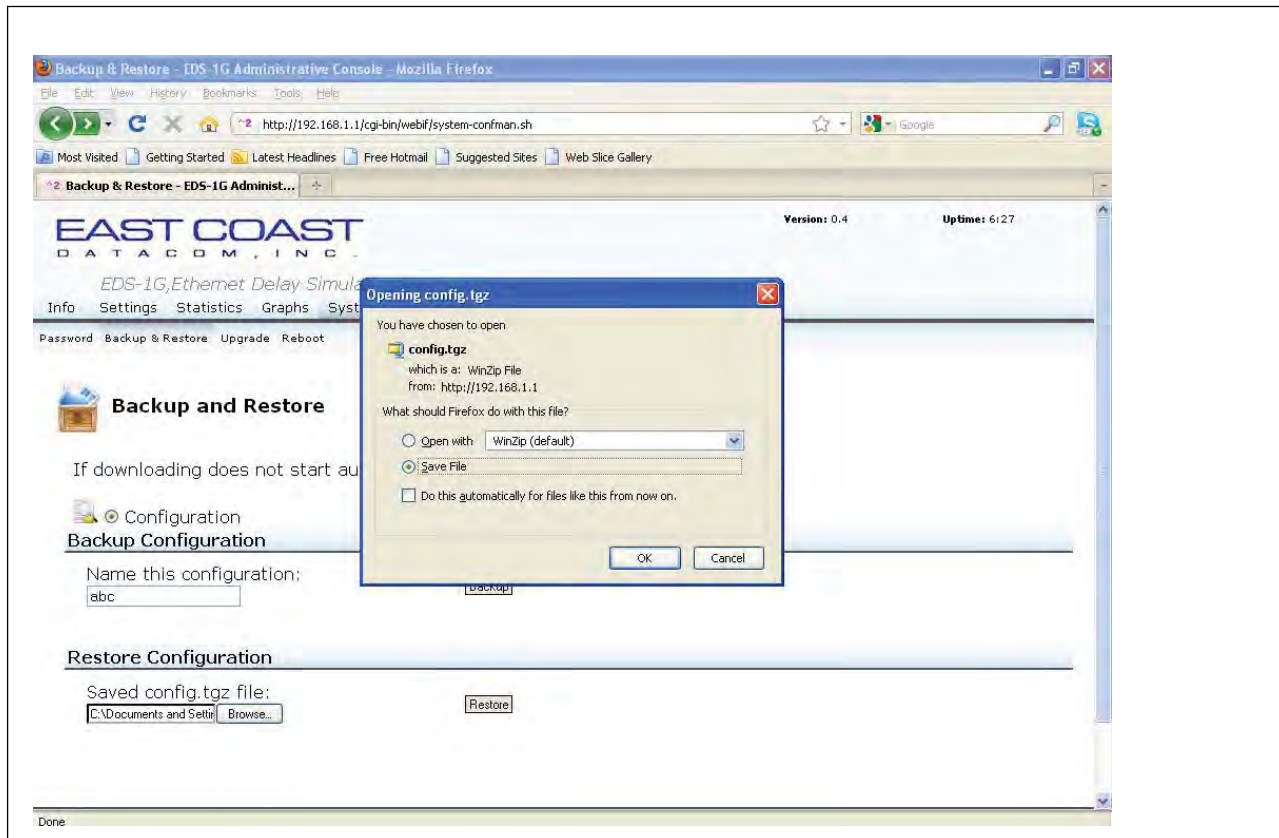


Figure 22 EDS-1G Restore

User can restore his saved configuration at any point of time by selecting configuration file by using 'Browse' button and clicking 'Restore'.

7.3 Firmware Upgrade

User can upgrade firmware at any point of time using the firmware upgrade tab. By providing the path of image file on your system through 'Browse' and clicking 'Upgrade' button the firmware upgrade message (figure 19) appears on the window and system will be automatically rebooted with the new firmware running. After completion of up gradation , GUI will automatically redirected to info page.

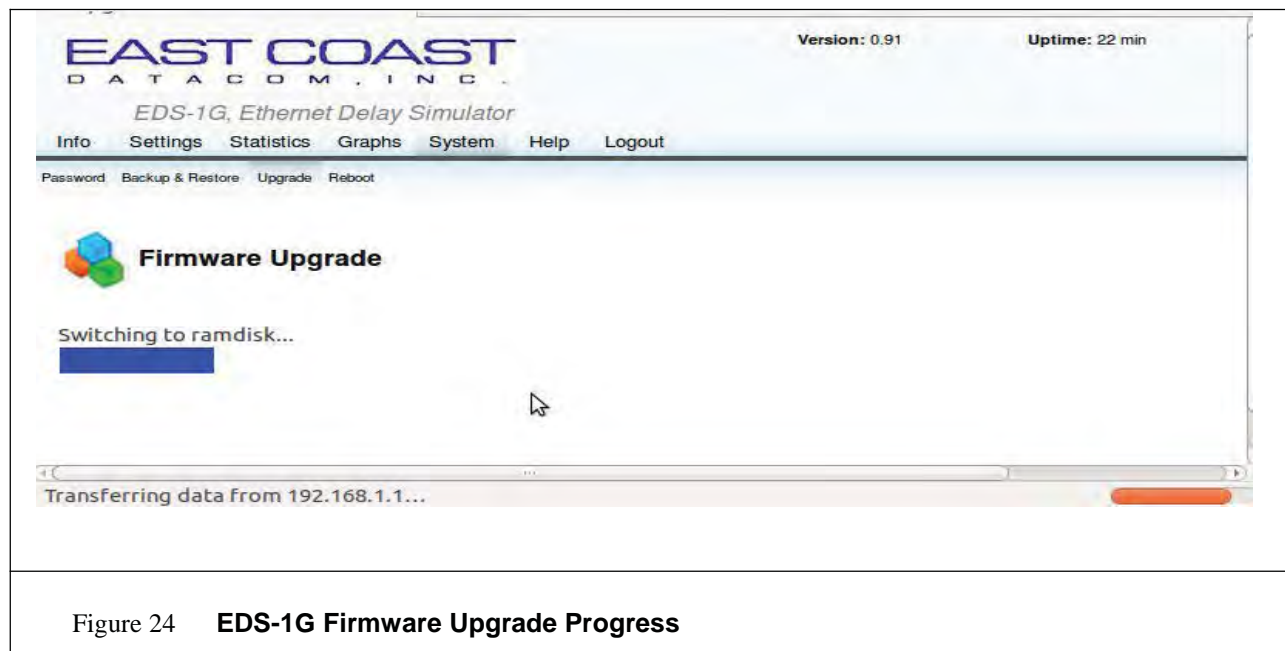
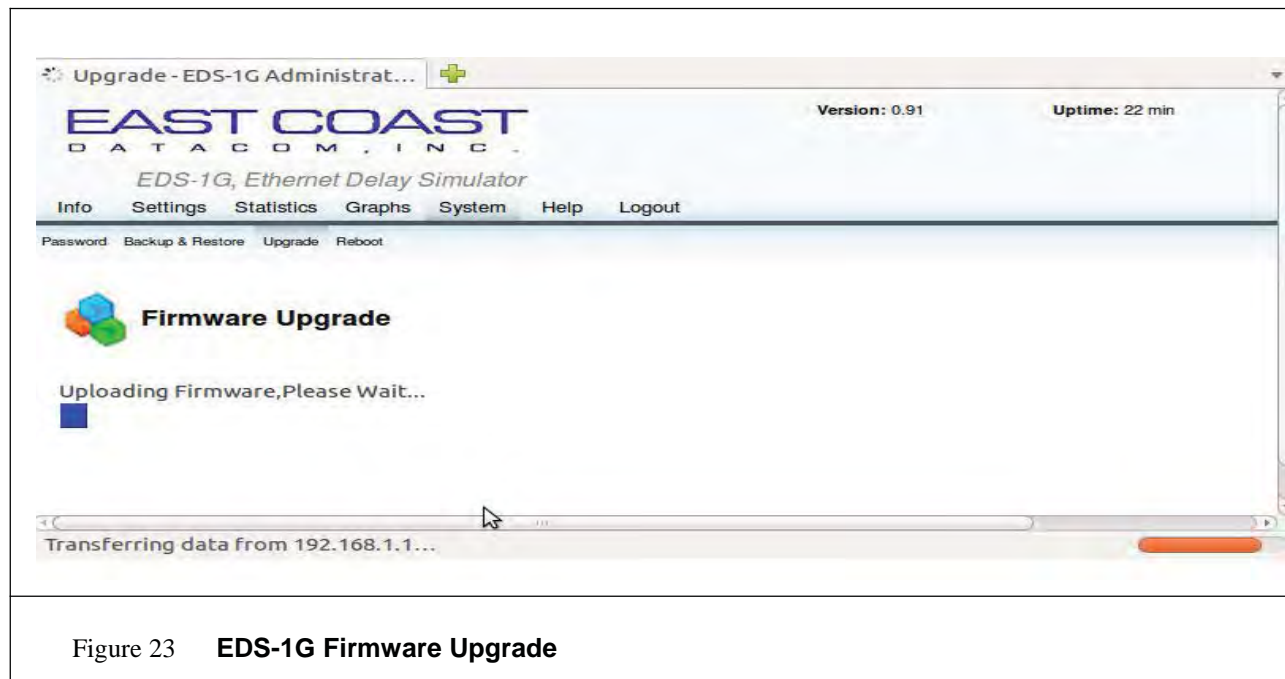
*****CRITICAL NOTICE*****

* *

ALLOW 3-4 Minutes for EDS-1G SYSTEM TO COMPLETE

The system may **REBOOT** several times during this process

DO NOT MANUALLY INTERVEN as this can cause the EDS-1G system to be corrupt



7.4 Master Key password

This feature provides the user the access to change the root password. This is done through Command line Interface on either of Management Ports (i.e. On MGMT 1 or MGMT 2)

BOOT SYSTEM with Keyboard and Monitor attached to see this screen

Usage will be "syspasswd <KEY Password>"

KEY Password will be master password and it should match with the stored password, which then gives access to change the root password.

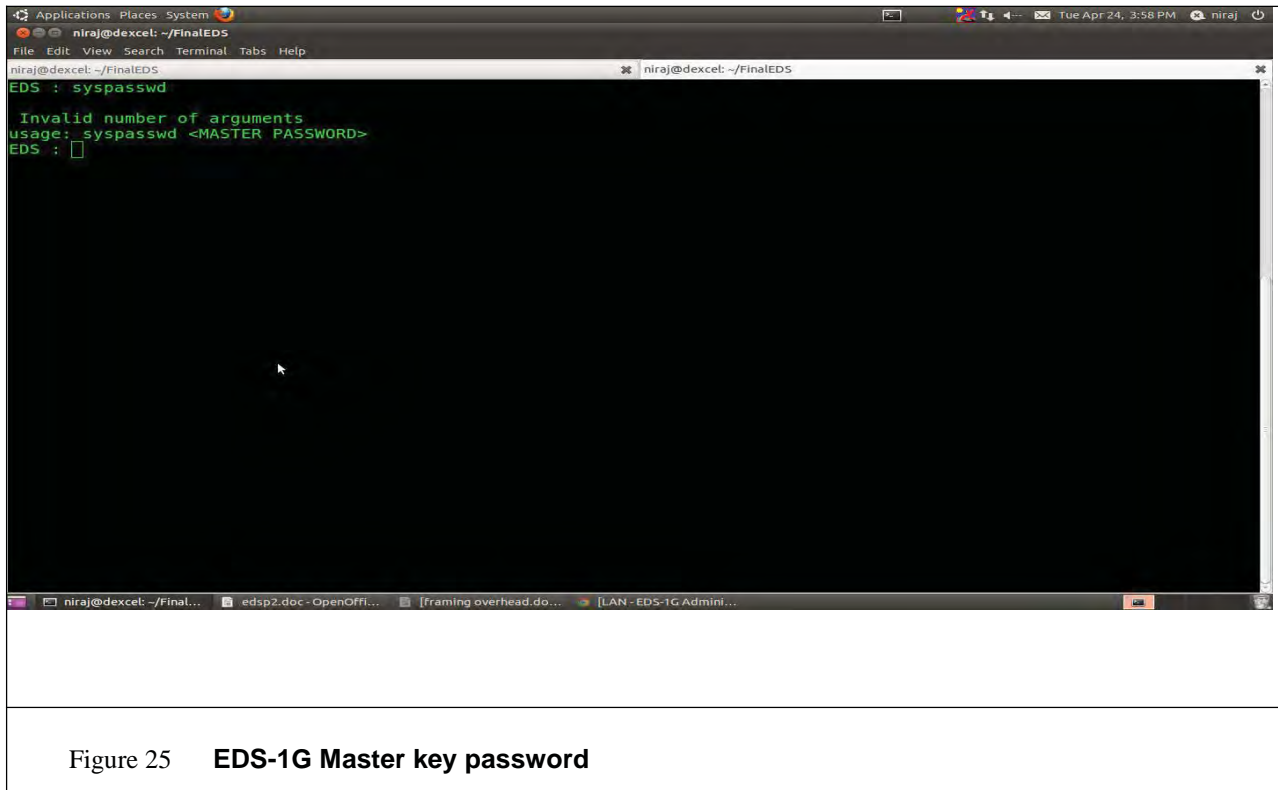


Figure 25 EDS-1G Master key password

<p>Application Interconnection of two or four 10/100/1000G Ethernet devices simulating bandwidth, latency, packet loss and congestion on two independent LAN channels</p> <p>Password Protection Implemented via the user 10/100 Management Port and factory reset via the Terminal Port</p> <p>Configuration Ports Two Independent 10/100/1000 Ethernet Ports</p> <p>Data Interface on Delay Ports 10/100/1000, 1GbE Ethernet, 4-Ports Total Two Independent Paths</p> <p>Link Rates 300bps - 1 GbE in 1bps increments, bi-directional or split speed, bps, Kbps, Mbps or Gbps</p> <p>Link Throughput Typical UDP 1500 byte packets at Full Line Rates</p> <p>Emulated Latency 0 ms to 8 sec. in 1ms increments, settings for constant, uniform or normal</p> <p>Emulation Settings Each link is capable of 5 independent delay settings via the software scheduler</p> <p>Emulation Statistics Each link is capable of independent output statistics settings via the software scheduler</p> <p>Packet Loss 0 to 100% in increments of 0.001%</p> <p>Re-Ordering Settings for Probability & Delay Min/Max</p> <p>Background Traffic 0 to 100% in increments of 0.001%, settings for LAN Utilization and Bust Size</p> <p>Roaming Delay which causes Jitter High and Low Delay coupled with bandwidth over a user defined time</p> <p>Queue Depth Settings for Packets, Kb or Ms up to 100,000</p>	<p>Front Panel Indicators Power, Hard Disk Status, LAN Port Status 10/100/1000 LED's</p> <p>Surge Protection Main power supply</p> <p>Power Source AC Mains: 100-240VAC @ 10%, 50/60Hz, 0.16/0.08A, Auto Range</p> <p>Environmental Operating Temperature....32° to 104° F (0° to 40° C) Relative Humidity.....5 to 85% Non-Condensing Altitude.....0 to 10,000 feet</p> <p>Dimensions Width 17.20 inches (437 mm) Height 1.7 inches (44 mm) Depth 16.90 inches (426 mm)</p> <p>Shipping Weight 9 Pounds.....4.082 kg</p> <p>Warranty Three Years hardware, includes software support and software feature upgrades/improvements</p> <p>Software Upgrades Administered via the 10/100 user management Port</p> <p>Regulatory Approvals UL, CSA, CE, CCC, FCC, C-Tick and RoHS</p> <p>Web Browser Compatibility Explorer, FireFox, Opera, Google Chrome, Safari</p> <p><u>ORDERING INFORMATION</u> Main Unit Part Number: 207000 Model: EDS-1G Description: EDS-1G Ethernet Delay Simulator</p> <p>INCLUDED WITH EACH UNIT: 1) Operations Manual 2) U.S.A. Grounded Power Cord, Part # 713015 3) Rackmount Kit - Ears 5) Four Ethernet Cables</p> <p><i>Optional Power Cords</i> A) United Kingdom, Part # 713016 B) Continental Europe, Part # 713017 C) Other: Specify Country on Purchase Order</p>
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TECHNICAL SUPPLIMENTS

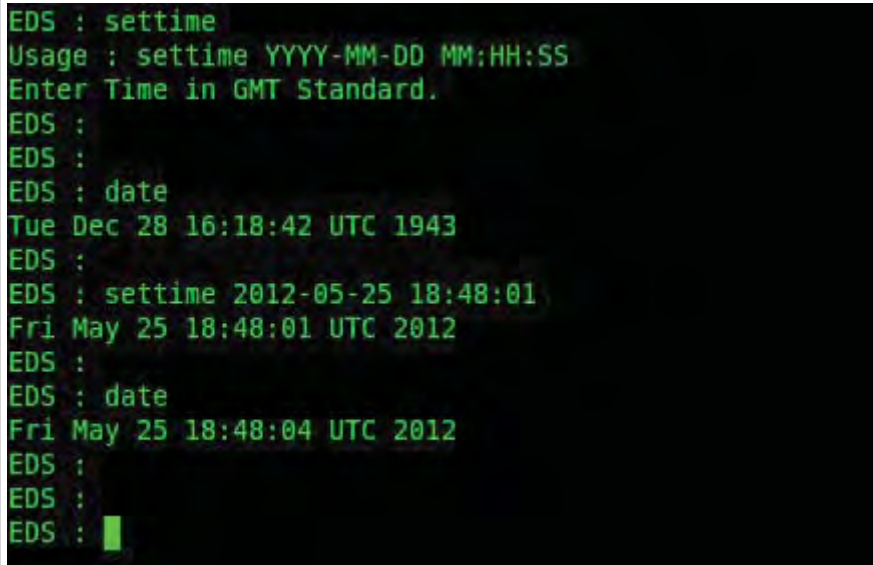
1) SET EDS-1G TIME

**Attach keyboard and monitor, then boot EDS to access this screen

Using “settime” utility, user should set the device time to standard time(GMT-standard).

The following steps explains in detail the usage of “settime” utility.

- 1 After upgrading the the latest EDS image onto the device, user needs to connect to the console through serial port.
- 2 The snapshot below shows serial console where user needs to run the utility to set device to standard time (GMT-STANDARD).
- 3 The usage of utility is “settime YYYY-MM-DD HH:MM:SS”.
- 4 The command should be entered as settime(command) < space> year(4digits)-month(2digits)-date(2digits)<space>hour(2digits):Minutes(2digits):Seconds(2digits).
- 5 User should enter time in GMT- standard.



```
EDS : settime
Usage : settime YYYY-MM-DD MM:HH:SS
Enter Time in GMT Standard.
EDS :
EDS :
EDS : date
Tue Dec 28 16:18:42 UTC 1943
EDS :
EDS : settime 2012-05-25 18:48:01
Fri May 25 18:48:01 UTC 2012
EDS :
EDS : date
Fri May 25 18:48:04 UTC 2012
EDS :
EDS :
EDS : █
```

Figure 1 : settime utility

- 6 As shown in Figure 1 Using “date”command in serial console user can know the current system (EDS-1g) time.
- 7 Then user can set the GMT-STANDARD time through “settime” utility.
- 8 For example “settime 2012-05-25 18:48:01”, here date will be set as 2012-05-25 and time as 18:48:01.

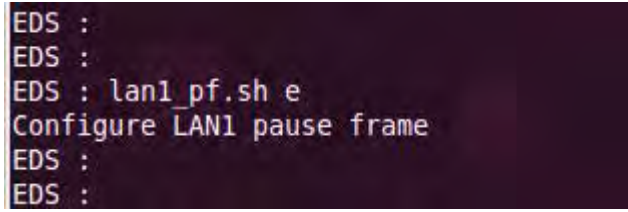
2) ENABLE PAUSE FRAMES PROCEEDURE

Pause frame configuration for each individual LAN interfaces can done as shown below

- 1/ Attach keyboard and monitor, then boot EDS to access this screen
- 2/ Telnet to EDS board over Management port (telnet 192.168.1.1) from Host system

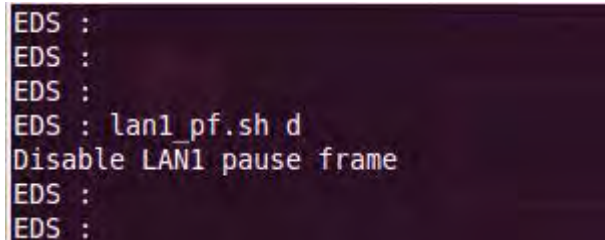
Using the below application we can configure the pause frames

- 1/ lan1_pf.sh
 - a. **lan1_pf.sh e** : To Enable pause frame support
 - b. **lan1_pf.sh d** : To Disable pause frame support
- 2/ lan2_pf.sh
 - a. **lan2_pf.sh e** : To Enable pause frame support
 - b. **lan2_pf.sh d** : To Disable pause frame support
- 3/ lan3_pf.sh
 - a. **lan3_pf.sh e** : To Enable pause frame support
 - b. **lan3_pf.sh d** : To Disable pause frame support
- 4/ lan4_pf.sh
 - a. **lan4_pf.sh e** : To Enable pause frame support
 - b. **lan4_pf.sh d** : To Disable pause frame support



```
EDS :  
EDS :  
EDS : lan1_pf.sh e  
Configure LAN1 pause frame  
EDS :  
EDS :
```

Figure 1 : LAN1 Pause Frame Enable setup



```
EDS :  
EDS :  
EDS :  
EDS : lan1_pf.sh d  
Disable LAN1 pause frame  
EDS :  
EDS :
```

Figure 2 : LAN1 Pause Frame Disable setup