



## MPEG Gearbox™ Quick Start Guide



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## Introduction:

MPEG Gearbox™ is DVEO's new product line of broadcast quality, multichannel, real time, standard or high definition (up to 1080p), MPEG-2 to H.264 transcoders or MPEG-2 to MPEG-2 scalers. The MPEG Gearbox will transcode and process multiple streams up to CPU limitations. Typical dedicated transcodes are up to 15 SD streams, 3 1080i or 1080p streams, or 4 to 6 720p streams.

## Network Setup:

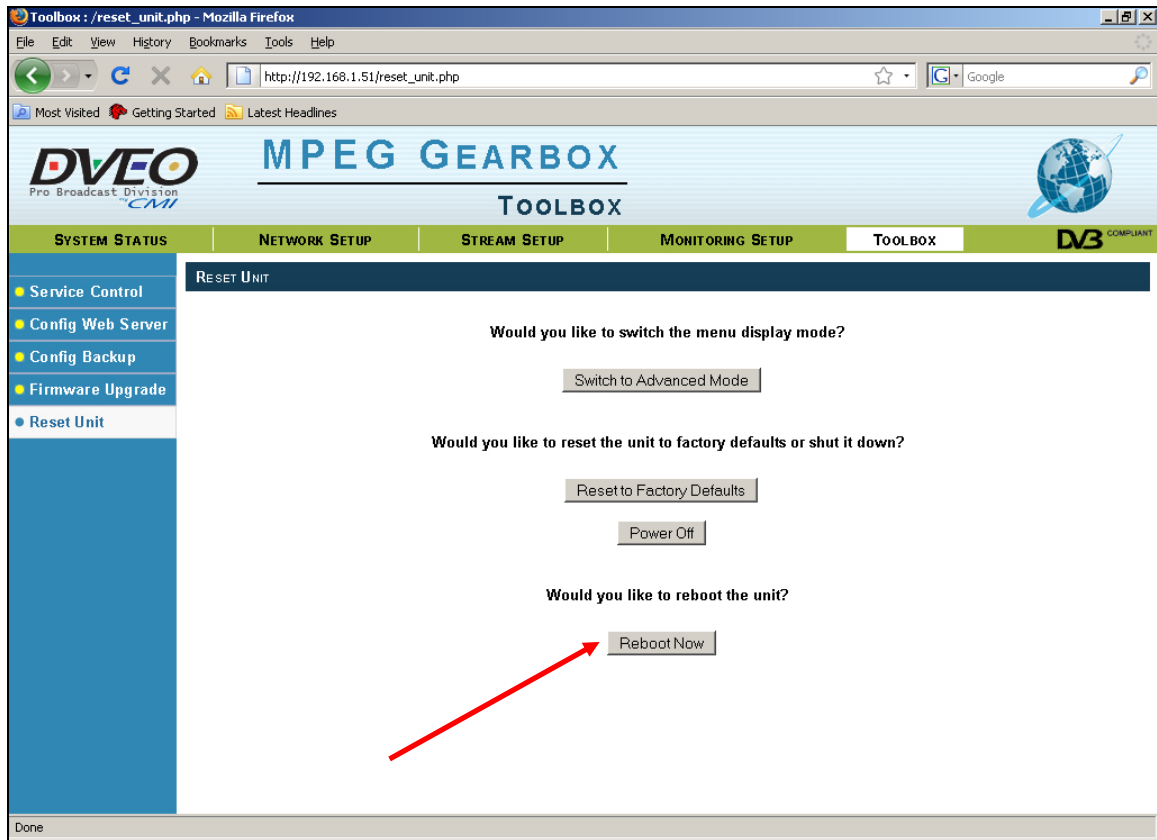
- 1) Unpack your MPEG Gearbox, power it up and connect two network cables from the MPEG Gearbox to a switch.
- 2) Connect your PC to the same switch (alternatively, you could use a crossover cable between your computer and the MPEG Gearbox).
- 3) Configure the network adapter on your PC with a static IP of **192.168.123.55**.
- 4) Using your web browser go to <http://192.168.123.1> and login using **admin** as username and **admin** as password.
- 5) Go to the "Network Setup" tab (the second from right tab) and configure all the network adapters on the MPEG Gearbox. Select **Update**.

ITEM	VALUE
Use DHCP	<input type="checkbox"/>
Hostname:	ammux <input type="checkbox"/> Show in Header
Domain:	local
WAN IP Address:	66 . 27 . 62 . 228
WAN Net Mask:	255 . 255 . 255 . 248
WAN Gateway:	66 . 27 . 62 . 225
Primary DNS Server:	209 . 18 . 47 . 61
Secondary DNS Server:	209 . 18 . 47 . 62
Enable IP Forward	<input type="checkbox"/>

Update

- 6) Once you have changed all the settings, go to **Toolbox ->Reset Unit** and click on **Reboot Now**.

**NOTE:** Always reboot after changing the Network setup.

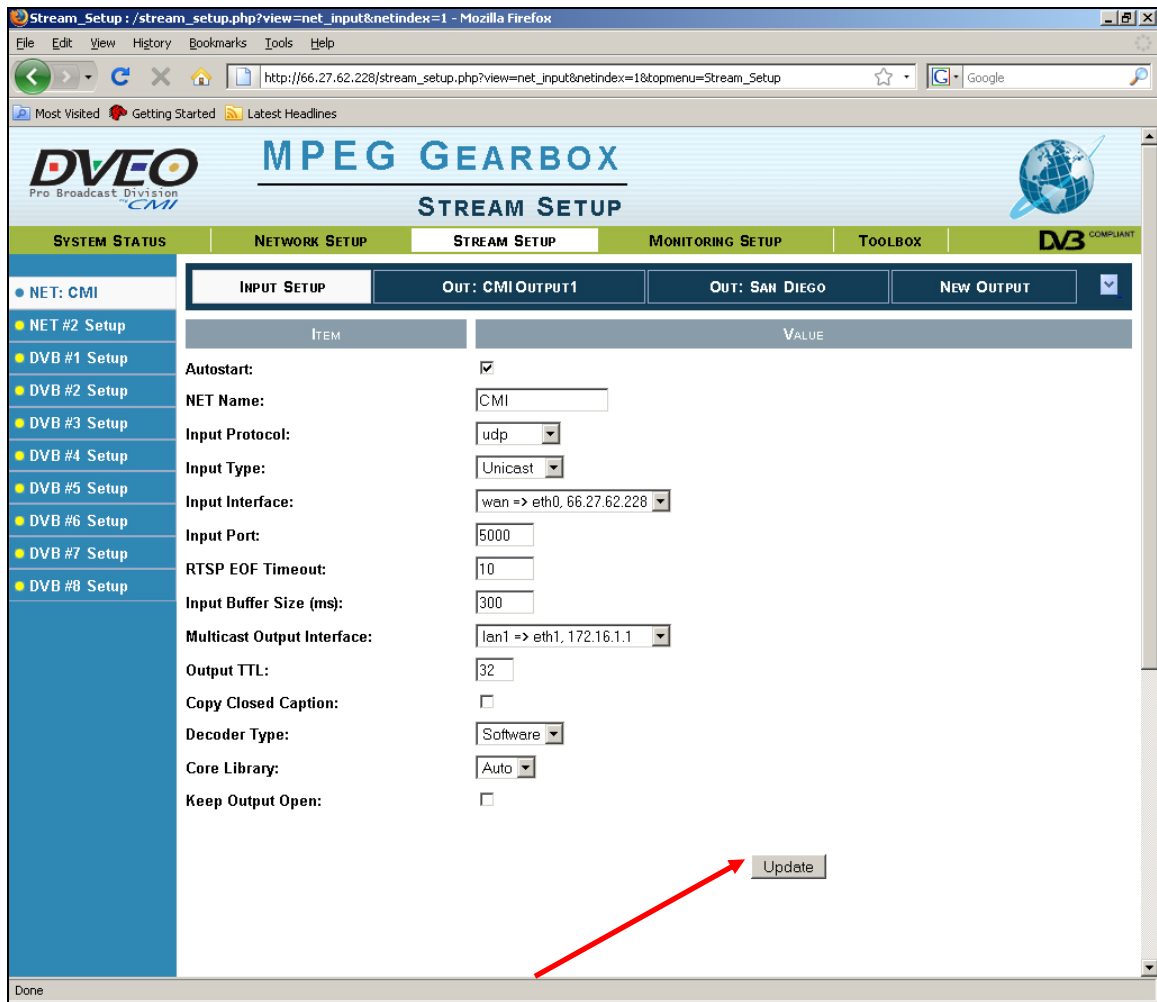


- 7) Re-configure the network adaptor on your PC to match what you configured on the MPEG Gearbox and connect to the web menus again.
- 8) If you ever lose connectivity with the unit and cannot get back in, you can use a keyboard and monitor to get access to the emergency recovery menu to lookup the current IP address and/or reset the machine to factory defaults.

## Stream Setup – IP Input:

(See page 6 for ASI Input)

- 9) Go to the **STREAM SETUP** tab, **INPUT SETUP**, and define an input. The example below shows IP input. (Inputs and outputs will vary depending on which MPEG Gearbox system you have purchased.) Be sure to specify a name, enable the **Autostart**, and select Update.



The screenshot shows the 'STREAM SETUP' web interface for 'MPEG GEARBOX'. The 'STREAM SETUP' tab is active, and the 'INPUT SETUP' sub-tab is selected. The interface displays various configuration options for a network input, with a red arrow pointing to the 'Update' button at the bottom right.

ITEM	VALUE
Autostart:	<input checked="" type="checkbox"/>
NET Name:	CMI
Input Protocol:	udp
Input Type:	Unicast
Input Interface:	wan => eth0, 66.27.62.228
Input Port:	5000
RTSP EOF Timeout:	10
Input Buffer Size (ms):	300
Multicast Output Interface:	lan1 => eth1, 172.16.1.1
Output TTL:	32
Copy Closed Caption:	<input type="checkbox"/>
Decoder Type:	Software
Core Library:	Auto
Keep Output Open:	<input type="checkbox"/>

Update

- 10) Go to the **New Output** tab to the right of **Input Setup**. Select **Enabled**. Enter the **Stream Name** of the input you just defined.
- 11) At **Input Program(s)**, input the program number for the program desired. (For single program transport streams, enter the program number.)



- 12) At **Video Transcoding Format**, select the pulldown menu and choose from the following video transcoding methods:
  - No Video Transcoding
  - H.264 Video
  - MPEG-2 Video

- 13) At **Audio Transcoding Format**, select the pulldown menu and choose from the following audio transcoding methods:
  - No Audio Transcoding (Embedded pass-through)
  - Ogg Vorbis Audio
  - AAC Audio
  - MP3 (license required)
- 14) Edit all the remaining parameters of your output stream and select Update.
- 15) You can repeat steps 9 and 10 for all the output streams associated to a particular input.
- 16) Skip to page 10 for further instructions.

## Stream Setup – Tuner/ASI Input:

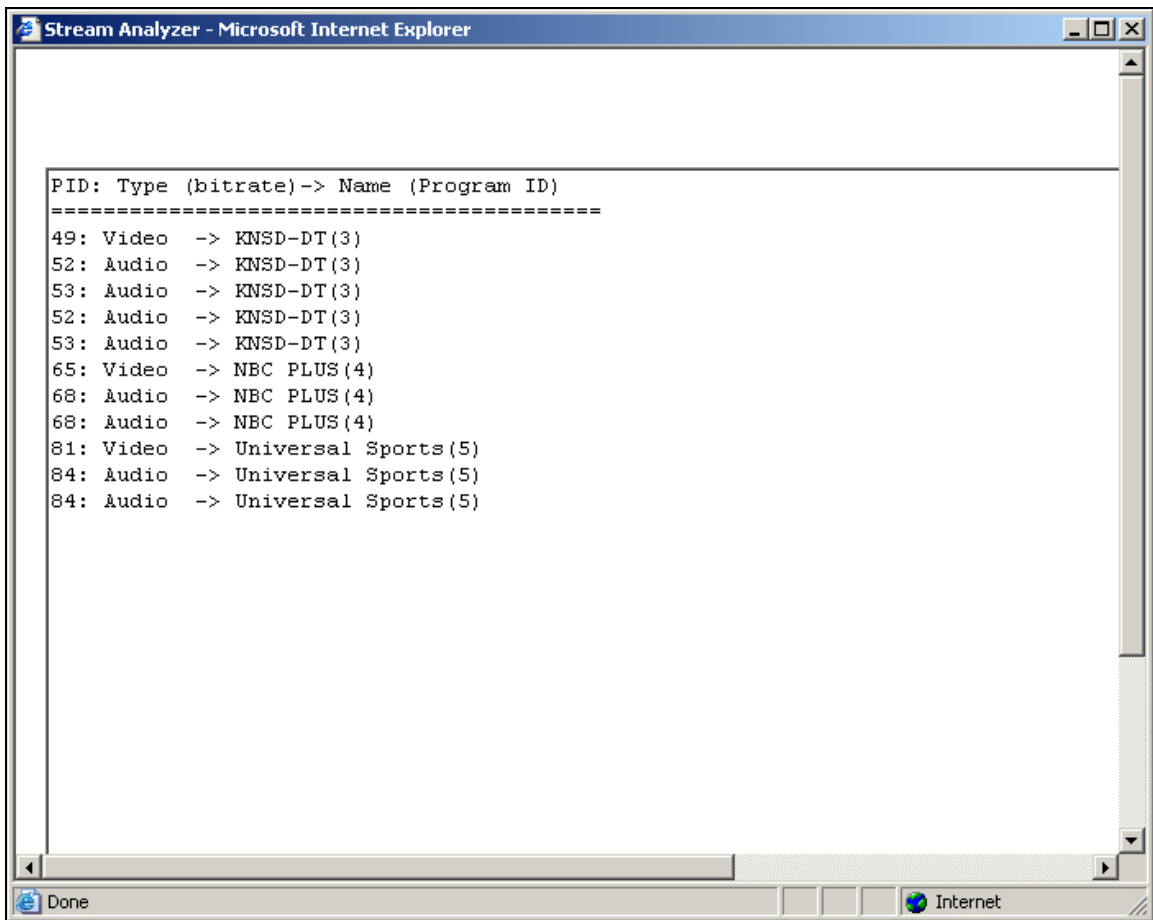
(See page 3 for IP input)

- 17) Go to **SYSTEM STATUS** and click on **Tuner Status**. Select **Analyze Stream**.

The screenshot displays the 'SYSTEM STATUS' page of the MPEG Gearbox interface. The page is organized into several sections for monitoring different tuners. A red arrow points to the 'Analyze Stream' button for the first tuner, '#1: DVB: CHANNEL40'. The status for this tuner is as follows:

Tuner	Service	Quality	Signal	Buttons
#1: DVB: CHANNEL40	/service/dvbmonitor1: up (pid 3022) 265 seconds -View Log- Signal=250, Verror=0, SNR=250, BlockErrors=0, Status 1f, (SIGNAL LOCK CARRIER VITERBI SYNC)	83%	83%	Analyze Stream, Signal Scanner
#2: TUNER #2 STATUS	/service/dvbmonitor2: up (pid 1902) 2231 seconds -View Log- Signal=130, Verror=0, SNR=130, BlockErrors=0, Status 00, (NO_LOCK)	0%	43%	Analyze Stream, Signal Scanner
#3: TUNER #3 STATUS	/service/dvbmonitor3: up (pid 1899) 2231 seconds -View Log- Signal=130, Verror=0, SNR=130, BlockErrors=0, Status 00, (NO_LOCK)	0%	43%	Analyze Stream, Signal Scanner
#4: TUNER #4 STATUS	/service/dvbmonitor4: up (pid 1919) 2271 seconds -View Log- Signal=130, Verror=0, SNR=130, BlockErrors=0, Status 00, (NO_LOCK)	0%	43%	Analyze Stream, Signal Scanner

- 18) The **Stream Analyzer** screen will appear. Make a note of the program ID number(s) you wish to transcode, and then close the Stream Analyzer screen.



- 19) Go to **STREAM SETUP**, then **ASI #1 Setup, INPUT SETUP**. Define your input parameters. Be sure to specify a name, enable the **Autostart**, and select Update.

The screenshot shows the 'STREAM SETUP' configuration page for 'ASI: AS1in'. The 'INPUT SETUP' sub-tab is active, displaying the following parameters:

ITEM	VALUE
Autostart:	<input checked="" type="checkbox"/>
ASI Name:	AS1in
ASI Buffer Count:	54
ASI Buffer Size (bytes):	38352
Input Buffer Size (ms):	300
Multicast Output Interface:	wan => eth0, 192.168.1.51
Output TTL:	32
Copy Closed Caption:	<input type="checkbox"/>
Decoder Type:	Software

A red arrow points to the 'Update' button located at the bottom right of the configuration area.

20) Next, select **NEW OUTPUT**. Select Enabled. Enter the Stream Name of the input you just defined.

21) At **Input Program(s)**, input the number of the program desired.

ITEM	VALUE
Enabled:	<input checked="" type="checkbox"/>
Stream Name:	ASIn
Output Format:	UDP with Transport Stream (TS) envelope
Demux Mode:	Use PATs Program IDs
Input Program(s):	3
Multicast Output Interface:	
Destination IP:	224 . 1 . 1 . 5
Destination Port:	10000
Output Buffer Size (ms):	300 <a href="#">What's this?</a>
Valid Input Video Codecs:	MPEG-1, MPEG-2, MPEG-4, H264V
Valid Input Audio Codecs:	MPEG-1, MPEG-2, MPEG-3, AC3, MPEG4A (H264A), Vorbis (only for Ogg)
Output PID Control:	Auto Assign
Video Transcoding Format:	H264 Video
Audio Transcoding Format:	AAC Audio

Update

22) Edit all the parameters of your output stream.

23) At **Video Transcoding Format**, select the pulldown menu and choose from the following video transcoding methods:

- No Video Transcoding
- H.264 Video
- MPEG-2 Video

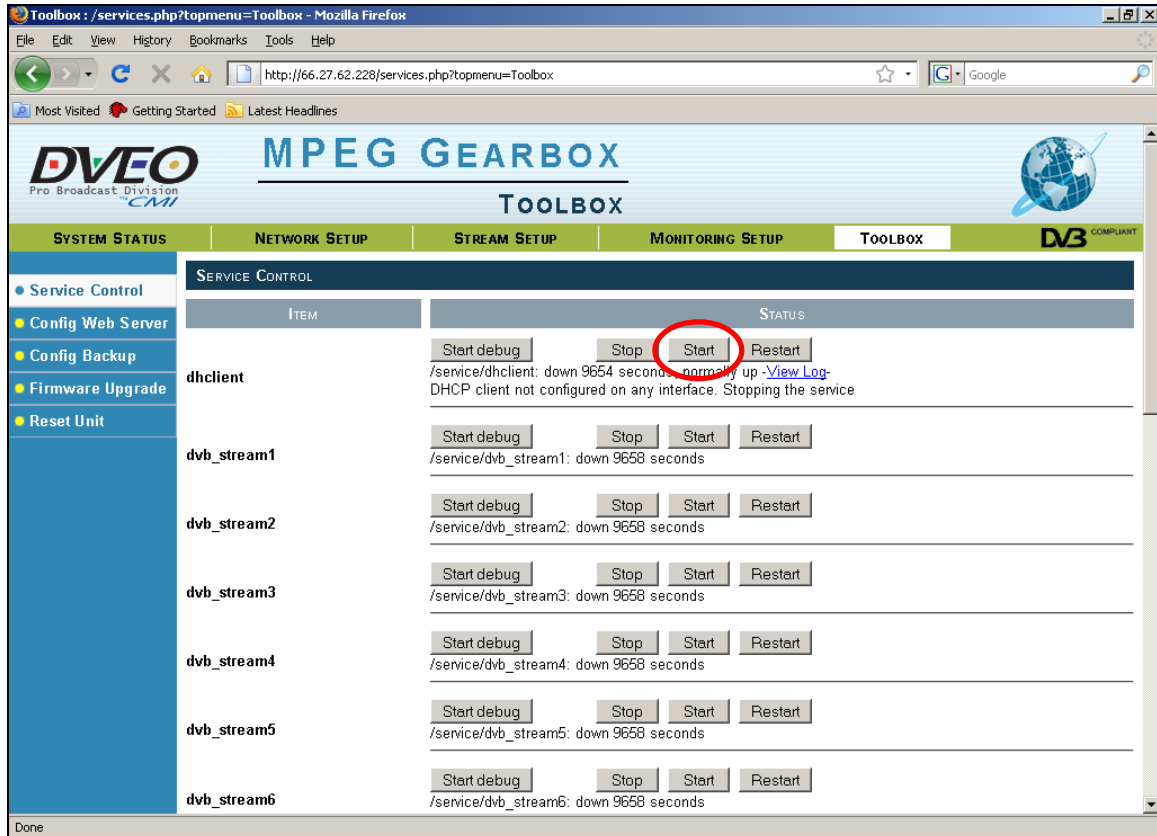
24) At **Audio Transcoding Format**, select the pulldown menu and choose from the following audio transcoding methods:

- No Audio Transcoding (Embedded pass-through)
- Ogg Vorbis Audio
- AAC Audio
- MP3 (license required)

25) Select Update.

## Streaming:

- 26) When all the output streams have been defined, go to **TOOLBOX** and click on the **Service Control** icon. Select one or more streams and select **Start**.



The screenshot shows a web browser window titled "Toolbox : /services.php?topmenu=Toolbox - Mozilla Firefox". The address bar shows "http://66.27.62.228/services.php?topmenu=Toolbox". The page header includes the DVEO logo (Pro Broadcast Division CMI) and the text "MPEG GEARBOX TOOLBOX". A navigation bar contains tabs for "SYSTEM STATUS", "NETWORK SETUP", "STREAM SETUP", "MONITORING SETUP", and "TOOLBOX". The "TOOLBOX" tab is active, and a sub-menu on the left shows "Service Control" selected. The main content area is titled "SERVICE CONTROL" and contains a table with columns "ITEM" and "STATUS".

ITEM	STATUS
dhclient	<input type="button" value="Start debug"/> <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Restart"/> /service/dhclient: down 9654 seconds, normally up - <a href="#">View Log</a> DHCP client not configured on any interface. Stopping the service
dvb_stream1	<input type="button" value="Start debug"/> <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Restart"/> /service/dvb_stream1: down 9658 seconds
dvb_stream2	<input type="button" value="Start debug"/> <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Restart"/> /service/dvb_stream2: down 9658 seconds
dvb_stream3	<input type="button" value="Start debug"/> <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Restart"/> /service/dvb_stream3: down 9658 seconds
dvb_stream4	<input type="button" value="Start debug"/> <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Restart"/> /service/dvb_stream4: down 9658 seconds
dvb_stream5	<input type="button" value="Start debug"/> <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Restart"/> /service/dvb_stream5: down 9658 seconds
dvb_stream6	<input type="button" value="Start debug"/> <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Restart"/> /service/dvb_stream6: down 9658 seconds

Done

- 27) You should be able to see all the output streams on the network now.

28) You can check the status of the streams using the **System Status** tab. You should be able to see the throughput in the appropriate network adaptors.

The screenshot shows the 'System Status' page of the MPEG Gearbox interface. The page is divided into several sections:

- System Information:**
  - WAN IP Address: 66.27.62.228
  - LAN IP Address: 172.16.1.1
  - Hostname: ammux - 00:25:90:26:D8:DA
  - Device Up Time: 0 days, 2 hours, 3 mins
  - Load Averages: ( 1 min => 0.62 ) ( 5 min => 0.66 ) ( 15 min => 0.37 )
- CPU Utilization:** Six horizontal bar charts showing utilization for CPU #1 through #6 at 3466 Mhz.
 

CPU	Utilization	Frequency
CPU #1	10%	3466 Mhz
CPU #2	5%	3466 Mhz
CPU #3	3%	3466 Mhz
CPU #4	22%	3466 Mhz
CPU #5	14%	3466 Mhz
CPU #6	21%	3466 Mhz
- Throughput:** A table showing network interface statistics.
 

Interface	Rx	Tx	Total
lo:	0.00 Kb/s	0.00 Kb/s	0.00 Kb/s
eth0:	19503.46 Kb/s	0.84 Kb/s	19504.30 Kb/s
eth1:	0.00 Kb/s	5294.10 Kb/s	5294.10 Kb/s
total:	19503.46 Kb/s	5294.94 Kb/s	24798.40 Kb/s
- Memory Consumption:** A table showing memory usage details.
 

Type	Percent	Free	Used	Size
Total	15%	2.52 Gb	455.07 Mb	2.96 Gb
- App	12%		370.94 Mb	
- Buffers	1%		17.19 Mb	
- Cached	2%		66.94 Mb	
- Mounted Storage:** /dev/sda3 1.3G 129.1M 1.1G 10% /data