



HELIUS MEDIAGATE ROUTER

SETUP AND CONFIGURATION MANUAL

SECTION 1

OVERVIEW

Overview

In today's complex network environment, planning is essential prior to adding a device like the Heliuss MediaGate Router. IP addressing, multicasting, and content management are examples of network components that require careful planning.

With the Heliuss MediaGate Router, content can be streamed, downloaded to a PC, used for interactive or on-demand training, video training, and delivery to a digital signage video display. Used in either a terrestrial or satellite environment, the Router can be used to receive as well as push data in a multicast or unicast environment.

This manual deals with the setup and configuration of a MediaGate Router in a single location. For information on how to setup and configure a MediaGate Server or a MediaLock Gateway device, please refer to the MediaGate Server Installation and Configuration Manual.

A complex network can consist of many parts beyond the MediaGate Server, Gateway device and multiple routers at various locations. There may be routers in between the Server and Gateway device, as well as an IP encapsulator or Ethernet switch.

The configuration of a particular network is based on the needs and requirements of each client and therefore, cannot be fully covered here. For this purpose, Heliuss provides Professional Services as part of its Warranty and Maintenance Agreements to assist with customization.

Safety



Dangerous voltage. Electric Shock Hazard.



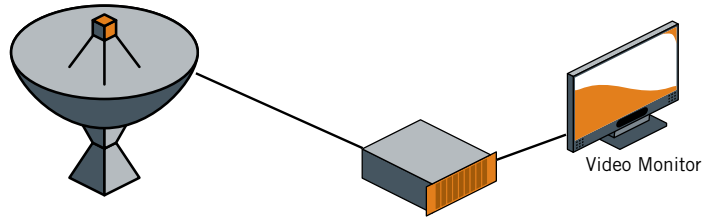
Follow the safety instructions below:

- DO NOT place the equipment close to an external source of heat such as a radiator or heating vent, or near appliances generating magnetic fields.
- DO NOT subject equipment to vibrations.
- Make all connections prior to plugging in and powering the router on.
- Always allow the temperature of the equipment to stabilize to normal room temperature before using.
- Prevent exposure to extreme hot or cold temperatures and moisture.
- Never place the equipment in direct sunlight.
- DO NOT cover ventilation openings when equipment is in use.
- Always provide enough room around equipment for air to circulate freely through the ventilation openings.
- DO NOT unplug the device unless it has been properly shut down.
- DO NOT open or expose the internal parts of the equipment. No internal parts or intended to be field serviceable.
- DO NOT allow any liquid on or in the unit.
- DO NOT place the equipment in an extremely humid or wet environment for storage or for use.

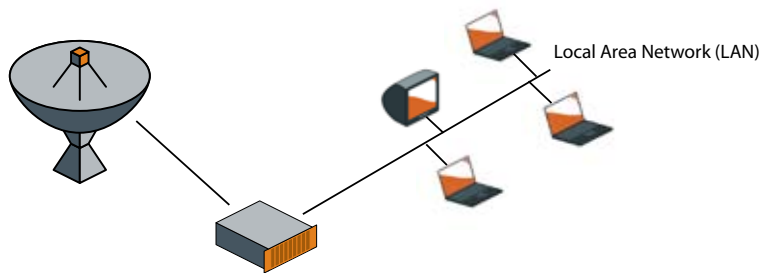
Network Schemes

The MediaGate Router receives IP data and forwards it to an output device (monitor or TV), other devices for output display or other computers.

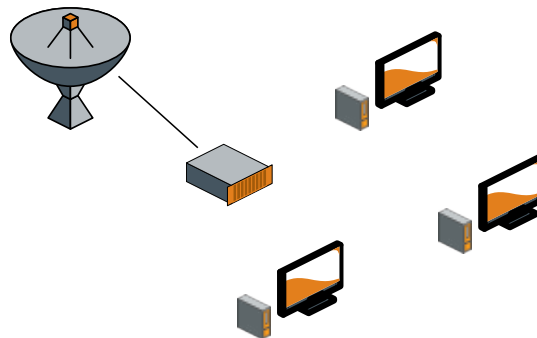
The following diagrams depict possible scenarios for the local network scheme using a MediaGate Router. For general presentation purposes, these examples show the MediaGate Router receiving data from a satellite network.



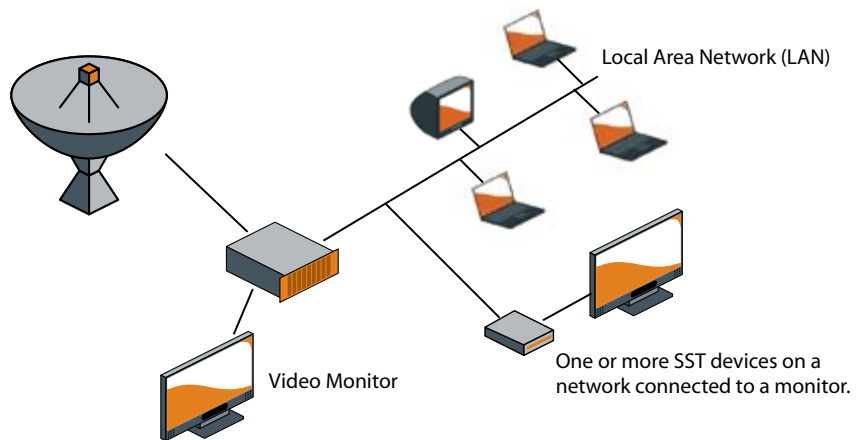
Basic video and satellite receiver that displays channels on a local monitor. This scenario can be used in conjunction with keypads for interactive distance learning or for displaying digital signage content.



Basic satellite channel receiver with delivery to a network of computers. This can be used for streaming files to the network, downloading files for the network from the router such as software upgrades, and files to be further manipulated or printed.



Satellite receiver delivering content to wireless SST-ADVs within a location for digital signage.



Basic satellite receiver with delivery to a LAN, local monitor and various remote SST devices throughout the networked location.

The MediaGate Router can receive satellite channels, and content through the satellite uplink. The Satellite Service Provider and customer determine what is available through the Router.

The MediaGate Router does not require a satellite connection to deliver video and data locally to devices on the network. The MediaGate Router works in a multicast or unicast environment.

MediaGate Routers and Options

The MediaGate Router comes in two styles: a 4550 and a 2550.



4550



2550

The MediaGate Router 4550 provides seven PCB slots and an optional site controller for interactive distance learning (IDL) features. The front cover opens and has an LCD display. The 4550 supports applications such as MediaClassroom, MediaTraining, and MediaWrite.

The MediaGate Router 2550 provides two PCB slots. The 2550 is used for data delivery, digital signage delivery and management and other non-IDL focused configurations. The 2550 does not offer an optional site controller for IDL, but can be used to send and deliver video based training options such as MediaTraining.

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SECTION 2

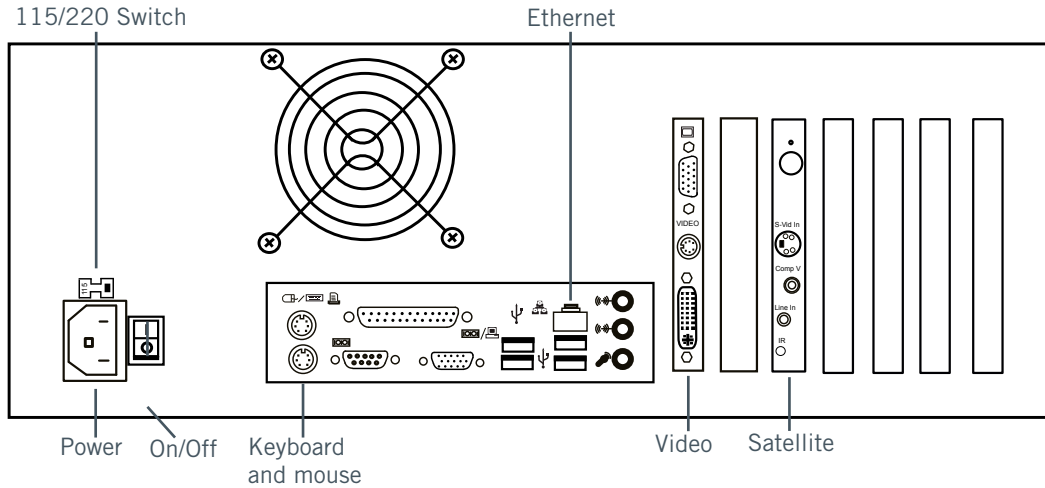
INSTALLATION

Overview

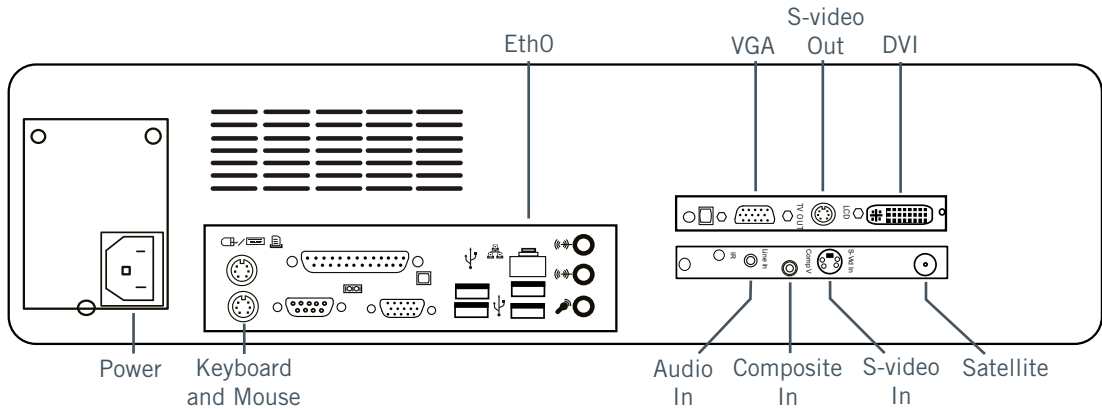
The installation chapter covers the physical connections to the network. Each network is unique and therefore may not use all the connections noted in the illustrations included in this manual.

Make all connections with the power turned off to all devices being installed.

Connections



MediaGate Router 4550 without a site controller card



MediaGate Router 2550

Your Router may have additional PCBs installed. Refer to your installation guide included with each Router for specific information on your Router connections.

SECTION 3

ROUTER CONFIGURATION

Overview

All Setup and Configuration options are accessible through a PC and an Internet browser. To configure a router the following information is required:

- A unique ethernet IP address
- A unique satellite IP address, if using the satellite option
- Satellite tuner options and PIDs

The last two settings can be provided by your Satellite Service Provider (SSP).

Not all features will require configuration on the MediaGate Router and some configurations will be set to default values. This document documents all features configurable at setup. If a feature is not selected for use on a particular network, it will not require configuration.

Once configuration is complete, reboot the Router, login and verify all settings. Refer to [Confirm Settings](#) and [Generate Report](#) in the MediaGate Router Support Manual for more information.

Please read through this document before beginning configuration of the MediaGate Router. The steps for configuration are presented in the order they should be performed for the Network setup. Specialized applications may be configured as they are needed.

Login to Router

To begin setup and configuration, the Router must be connected to a PC. To perform initial setup, the PC and the Router should be connected on the same Local Area Network (LAN) or connected directly using a cross-over cable.

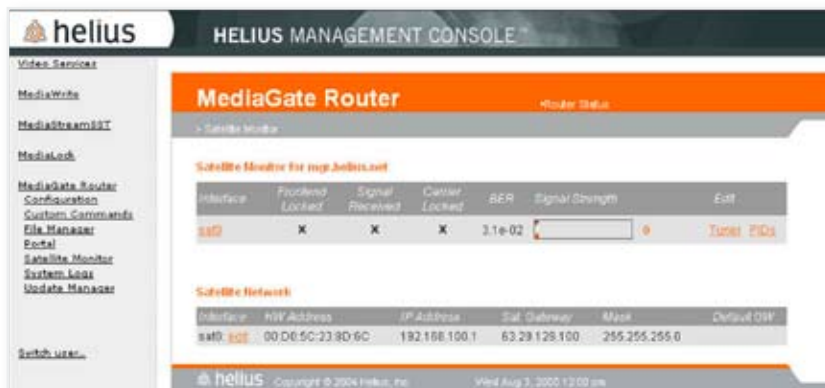
The Router comes pre-configured with a default IP address. This address will need to be modified to fit the defined network scheme for the location and network.

Login Using LAN

1. Perform installation of the Router and assure the Router and PC are connected on the same LAN. It is recommended to set the IP address of the PC to the following: IP 172.16.0.2 Mask 255.255.0.0. If there is only one Helius Router connected on the network, the steps for direct connect can also be used across the LAN.
2. Open an Internet browser window and enter the following IP address: `http://172.16.0.1:1000/`.



3. Login using the support username and password provided during technical training.
4. Select OK. The Helius Management Console will display.



Login Using Direct Connect



DO NOT use a standard ethernet cable to connect directly to the Router. Make connections before powering up the Router. A standard ethernet cable may be used if connecting using a hub, switch or auto sensing Ethernet card. Only connect a single Helius product at a time to configure.

A crossover cable should be used to connect the PC directly to the Router. A crossover cable is a specially wired network cable for connecting to 10/100BaseT devices without a hub. A crossover cable has the Transmit Data (TD) pins of one connector wired to the Receive Data (RD) pins of the other and vice versa.

1. The PC should be preconfigured before connecting to the Router with the following parameters:
IP Address: 172.18.254.2
Subnet Mask: 255.255.255.252

Reboot PC, if required.

2. Plug the crossover cable into the PC, then connect to the Router.
3. Power on the Router.
4. Launch an Internet browser on the PC and enter the following address:
`http://172.18.254.1:1000/`.




5. Login using the support username and password provided in technical training.
6. Select OK. The Helius Management Console will display.

Ethernet IP Address

All Router devices/interfaces must be configured for different subnets. For example: eth0: 10.100.0.1/255.255.0.0 and sat0: 10.0.0.1/255.0.0.0 would not work since eth0 is then a subnet of the sat0 network.

Configure Ethernet IP Address

1. Select **MediaGate Router** > **Console** > **Configuration**.



The screenshot shows the Helius Management Console interface. On the left is a navigation menu with items like Video Services, MediaWrite, MediaTrainings, MediaStreamSST, MediaLock, MediaGate Router, Console, File Manager, Portal, Satellite Monitor, System Logs, Update Manager, and MediaStorage. The main content area is titled 'MediaGate Router' and has a 'Configuration' tab selected. Below this, there's a section for 'Ethernet Interfaces' with a table:

Interface	Status	IP Addr	Broadcast	Mask
eth0	✓	172.16.0.56	172.16.255.255	255.255.0.0
eth0:0	✓	172.16.254.1	172.16.254.3	255.255.255.252

Below the table is a link '- Edit Interface Settings' which is circled with a '2'. There is also a 'Daemons' section with a table showing 'Authorizations' as 'Running' with a 'Start' button.

2. Select **Edit Interface Settings**.



The screenshot shows the 'Ethernet Interface Editor' dialog box. It contains a table with the following data:

Device	Address	Mask	Network	Broadcast	Gateway	OnBoot	Action
eth0	192.168.0.1	255.255.0.0	192.168.0.0	192.168.255.255		yes	Stop
eth0:0	172.16.254.1	255.255.255.252	172.16.254.0	172.16.254.3		yes	Stop

At the bottom of the dialog is an 'Apply Changes' button.

3. Enter an appropriate address information in the sections according to the defined network scheme.
4. Select **APPLY CHANGES**.
5. Reconnect using the new eth0 address to complete configuration of other options.



Changing the address will cause the connection to the Router to be lost. This is normal. Reconnect to the Router using the new IP address defined.

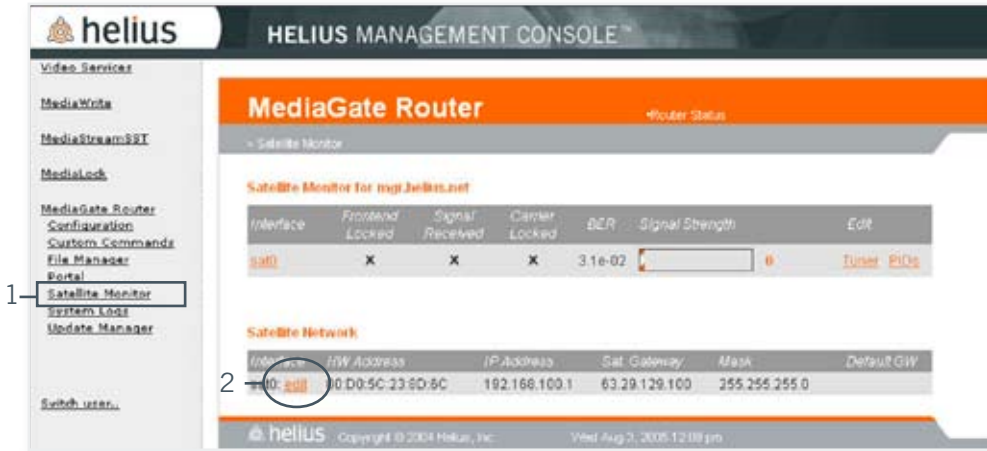


If changing the eth0:0 address, change and test the eth0 IP address before changing the eth0:0. eth0:0 is generally used as a service entrance to the Router. It is recommended that the default address not be changed. If it is necessary to change the default address, please record the new eth0:0 address for support use.

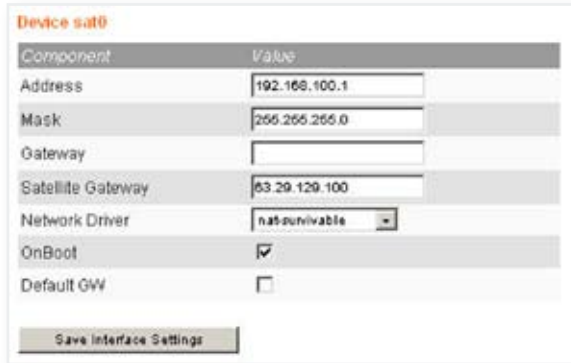
Satellite IP Address

Configure Satellite IP Address

1. Select **MediaGate Router** > **Satellite Monitor**.



2. Select **edit** next in the *Satellite Network* section of this page.



3. Assign settings as determined by the Satellite Service Provider (SSP). See graphic for more detail.
4. Select **SAVE INTERFACE SETTINGS**.

Identify Tuner Settings

Tuner settings can be obtained from your SSP.

1. Select **MediaGate Router** > **Satellite Monitor**.

The screenshot shows the Helius Management Console interface. On the left is a navigation menu with 'Satellite Monitor' selected. The main content area is titled 'MediaGate Router' and 'Satellite Monitor'. It features a table with columns: Interface, Frontend Locked, Signal Received, Carrier Locked, BER, Signal Strength, and Edit. The 'sat0' interface is listed with 'X' marks in the Frontend Locked, Signal Received, and Carrier Locked columns, a BER of 3.1e-02, and a Signal Strength of 0.2. A red circle highlights the 'Tuner ID' field in the Signal Strength column. Below the table is a 'Satellite Network' table with columns: Interface, HW Address, IP Address, Sat. Gateway, Mask, and Default GW. The 'sat0-sat1' interface is listed with HW Address 00:D0:5C:23:0D:8C, IP Address 192.168.100.1, Sat. Gateway 63.29.129.100, and Mask 255.255.255.0. The footer shows '© helius Copyright © 2004 Helius, Inc. Wed Aug 2, 2006 12:18 pm'.

2. Select **Tuner**.

The screenshot shows the 'Transponder Settings for sat0' page. It contains two tables. The first table, 'Transponder Settings for sat0', has columns 'Component' and 'Value'. The rows are: Frequency (GHz) with value 12.02; Symbol Rate (Mps) with value 40.303; Input with value LNB A; FEC Rate with value Auto; Polarization with value Horizontal; and Fixed Polarization with an unchecked checkbox. The second table, 'LNB Settings for sat0', also has columns 'Component' and 'Value'. The rows are: Ku-band Cross-over Frequency (GHz) with value 11.7; Local Oscillator Ku-band Low (GHz) with value 9.75; Local Oscillator Ku-band High (GHz) with value 10.75; and Local Oscillator C-band (GHz) with value 5.15. A 'Save Tuner' button is located at the bottom of the page.

3. Verify or change settings.
4. Select SAVE TUNER.

Identify PIDs

PIDs can be obtained from your SSP.

1. Select **MediaGate Router** > **Satellite Monitor**.

The screenshot shows the Helius Management Console interface. The main content area is titled "MediaGate Router" and "Satellite Monitor". It displays a table of satellite signal data for the "sat0" interface. The table has columns for Interface, Frontend Locked, Signal Received, Carrier Locked, BDR, Signal Strength, and Edit. The "Signal Strength" field is highlighted with a red box and labeled "2". A "Tune PID" button is located to the right of the Signal Strength field. The left sidebar shows the navigation menu with "Satellite Monitor" highlighted, labeled "1".

Interface	Frontend Locked	Signal Received	Carrier Locked	BDR	Signal Strength	Edit
sat0	X	X	X	3.1e-02	0	Tune PID

Interface	HW Address	IP Address	Sat. Gateway	Mask	Default GW
sat0-sat1	00:D0:5C:23:0D:8C	192.168.100.1	63.29.129.100	255.255.255.0	

2. Select PIDs.

The screenshot shows the "PID Definitions for sat0" page. It features a table with three columns: Index, PID, and Use. The Use column contains a dropdown menu with "Data MPE (IP)" selected. A "Save Settings" button is located at the bottom of the page.

Index	PID	Use
1		Data MPE (IP)
2		Data MPE (IP)
3		Data MPE (IP)
4		Data MPE (IP)
5		Data MPE (IP)
6		Data MPE (IP)

Save Settings

3. Modify or enter PID information.
4. Select SAVE SETTINGS.

Verify Satellite Reception Using Signal Quality Factor (SQF)

1. Select **MediaGate Router** > **Custom Commands**.



2. Select SQF.
A stream of numbers representing signal strength will display onscreen. Depending on the Internet browser, it may be necessary to continually scroll down to the bottom of the browsing window.

Start Services in Daemons Table

Certain applications services need to be started in order to function properly on the Router. The following services should be started on a basic system:

- MediaWrite
- VA

All other services are optional and based on use of the Router or licensing.

1. Select **MediaGate Router** > **Console** > **Configuration**.



The screenshot shows the Helius Management Console interface. The main content area is titled "MediaGate Router" and displays the "Router Configuration" page. It includes a status bar with "UP", "DOWN", and "N/A" indicators. Below this, there are two tables:

Ethernet Interfaces

Interface	Status	IPAddr	Broadcast	Mask
eth0	✓	192.168.0.1	192.168.255.255	255.255.0.0
eth0:0	✓	172.18.254.1	172.18.254.3	255.255.255.252

Daemons

Component	Running	Action	OnBoot
Authorizations	X	Start	<input type="checkbox"/>
DHCP	X	Start	<input type="checkbox"/>
Dial Access	X	Start	<input type="checkbox"/>
DNS	X	Start	<input type="checkbox"/>
DVB to IP	✓	Stop	<input checked="" type="checkbox"/>
IPSec	X	Start	<input type="checkbox"/>
MediaLock	X	Start	<input type="checkbox"/>
MediaWrite	✓	Stop	<input checked="" type="checkbox"/>
Samba	✓	Stop	<input checked="" type="checkbox"/>
SAPain	✓	Stop	<input checked="" type="checkbox"/>
SNMP	✓	Stop	<input checked="" type="checkbox"/>
Squid	X	Start	<input type="checkbox"/>
SST	X	Start	<input type="checkbox"/>
VA	✓	Stop	<input checked="" type="checkbox"/>

2. Select the START button in the *Action* column for the applicable services. If STOP is displayed on the button in the *Action* column, then the service has already been started.
3. Activate (✓) the checkbox in the *OnBoot* column next to the service to always start the service when reboot occurs.
4. Select SAVE ONBOOT CHANGES.

Time Settings

Refer to [Section 6: MediaGate Router](#) in the MediaGate Router Support Manual for details on setting or changing time zone and local time.



If using a Helius MediaGate Server and/or MediaLock device as part of the network setup, the time settings of the MediaGate Router must be synced with those two devices in order for MediaWrite to function properly.

MediaWrite Receiver Settings

MediaWrite Receiver Settings informs the Router which interfaces to listen to for MediaWrite catalog announcements from the MediaGate Server.

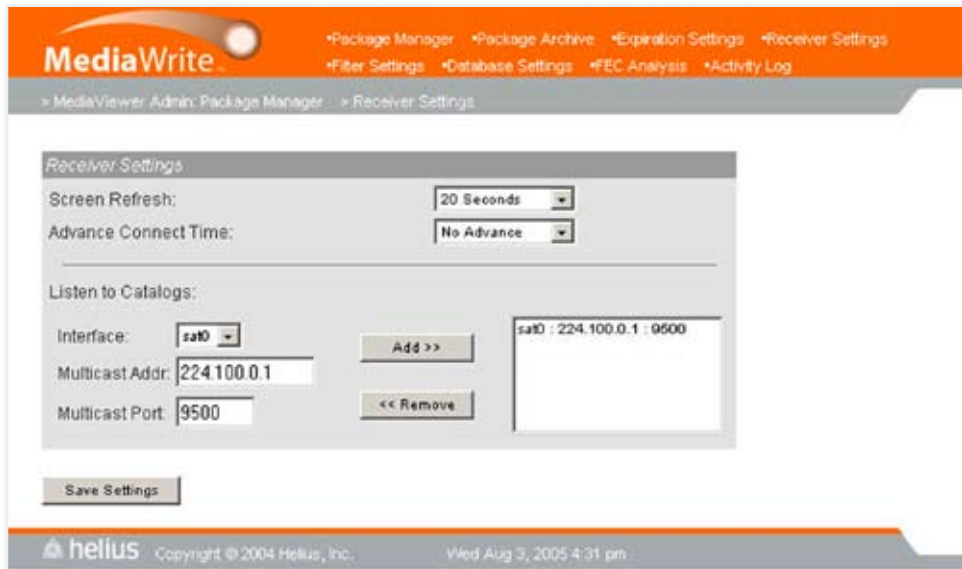
1. Select **MediaWrite** > **MediaViewer Admin**.



The screenshot shows the Helius Management Console interface. The top navigation bar includes links for Package Manager, Package Archive, Expiration Settings, Receiver Settings (circled in red), Filter Settings, Database Settings, FEC Analysis, and Activity Log. The main content area displays the Package Manager table with the following data:

Package Name	Type	Size	Date	Info	Status
Statmate.m2images test case	mpg	40.90 MB	20-Jul-2005 14:05:00	?	DELIVERED
Testatun movie	mpg	1024.00 MB	20-Jul-2005 15:30:00	?	DELIVERED

2. Select **Receiver Settings**.



The screenshot shows the MediaWrite Receiver Settings configuration page. The settings are as follows:

- Screen Refresh: 20 Seconds
- Advance Connect Time: No Advance
- Listen to Catalogs:
 - Interface: sa0
 - Multicast Addr: 224.100.0.1
 - Multicast Port: 9500

The configuration table shows the following entry:

Interface	Multicast Addr	Multicast Port
sa0	224.100.0.1	9500

3. Enter interface and address information for the MediaWrite catalog announcements.
4. Select SAVE SETTINGS.

Multicast Route Setup

If the Router is to be used to receive multicast data from the satellite network and forward to the LAN, then the multicast route needs to be configured.

- ☰ Only one device on a network segment can have multicast routing enabled.

Enable Multicast Routing

1. Select **MediaGate Router** > **Configuration** ↓ *Miscellaneous*.



Component	Running	Action
DNS Client	<input type="radio"/>	Edit
Route Config	<input type="radio"/>	Edit
Firewall	<input checked="" type="checkbox"/>	Edit
Multicast Routing	X	Enable
SendMail	X	Enable
Ntop Web	X	Enable
Transparent Cache	X	Enable
Siteadmin Password	<input type="radio"/>	Change

2. Select ENABLE in the *Action* column of Multicast Routing.
3. Select *Multicast Routing*.



Mouted Configuration

Enabled Interfaces

sat0:

Save Cancel

4. Activate (✓) the checkbox next to the multicast source interface. More than one interface may display on this page.
5. Select SAVE.

For more information on creating channels and events, identifying a SAP, or creating a DVB to IP stream on the network, please refer to Section 2: Video Services in the MediaGate Router Support Manual for more information.

DNS Client Setup

Refer to [Section 6: MediaGate Router](#) in the MediaGate Router Support Manual for details on identifying up to three DNS Servers and a new hostname.

Authorizations Setup

Refer to [Section 2: Video Services](#) in the MediaGate Router Support Manual for details on setting up authorizations on the Router.

MediaStream SST Setup

Refer to [Section 4: MediaStream SST](#) in the MediaGate Router Support Manual for details on setting up SSTs.

Routing and Firewall Setup

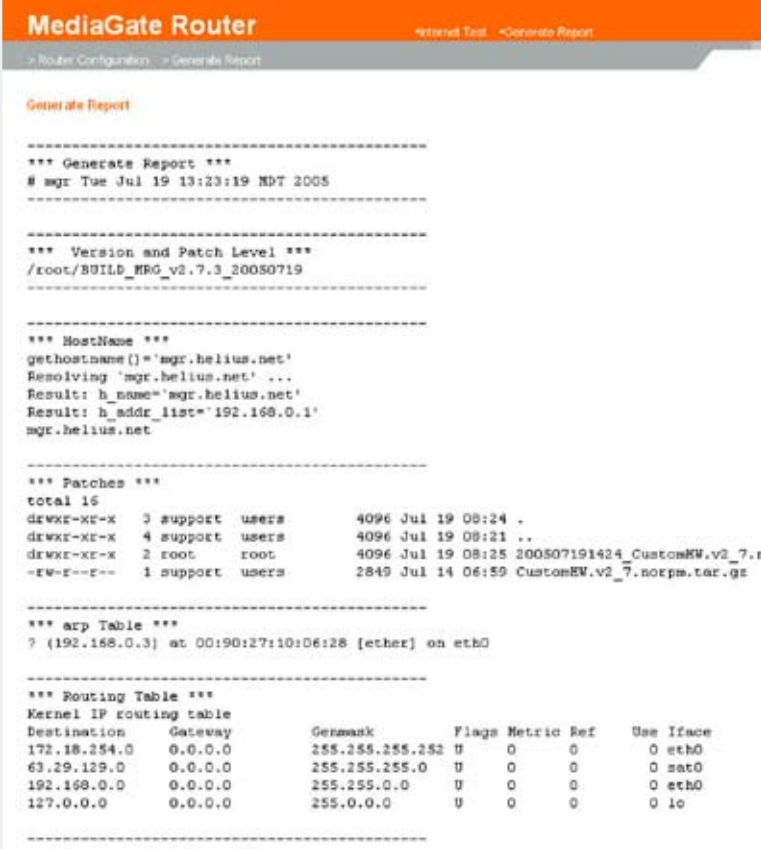
To set up routing, or firewall restrictions refer to [Section 6: MediaGate Router](#) in the MediaGate Router Support Manual.

Confirm Settings

1. Login to the Router. The default screen **MediaGate Router** > **Satellite Monitor** will display.
2. Verify there is satellite signal strength and all settings are correct.

Generate Report

Select **MediaGate Router** > **Console** > **Configuration** > **Generate Report**.



```
MediaGate Router                               returned Test  ~Generate Report
> Router Configuration  > Generate Report

Generate Report

-----
*** Generate Report ***
# mgr Tue Jul 19 13:23:19 NDT 2005
-----

*** Version and Patch Level ***
/root/BUILD_MRG_v2.7.3_20050719
-----

*** HostName ***
gethostname()='mgr.helios.net'
Resolving 'mgr.helios.net' ...
Result: h_name='mgr.helios.net'
Result: h_addr_list='192.168.0.1'
mgr.helios.net
-----

*** Patches ***
total 16
drwxr-xr-x  3 support  users      4096 Jul 19 08:24 .
drwxr-xr-x  4 support  users      4096 Jul 19 08:21 ..
drwxr-xr-x  2 root     root       4096 Jul 19 08:25 200507191424_CustomHW.v2_7.n
-rw-r--r--  1 support  users      2849 Jul 14 06:59 CustomHW.v2_7.norpm.tar.gz
-----

*** arp Table ***
? (192.168.0.3) at 00:90:27:10:D6:28 [ether] on eth0

*** Routing Table ***
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
172.18.254.0     0.0.0.0         255.255.255.252 U        0      0      0 eth0
63.29.129.0     0.0.0.0         255.255.255.0  U        0      0      0 sat0
192.168.0.0     0.0.0.0         255.255.0.0    U        0      0      0 eth0
127.0.0.0       0.0.0.0         255.0.0.0      U        0      0      0 lo
-----
```

Generate Report contains MAC (hardware) addresses, IP addresses and other configuration details of the Router. SAVE or PRINT a copy of the results for future use.

The graphical images on this page will not be preserved. The saved report file will be text only.



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