

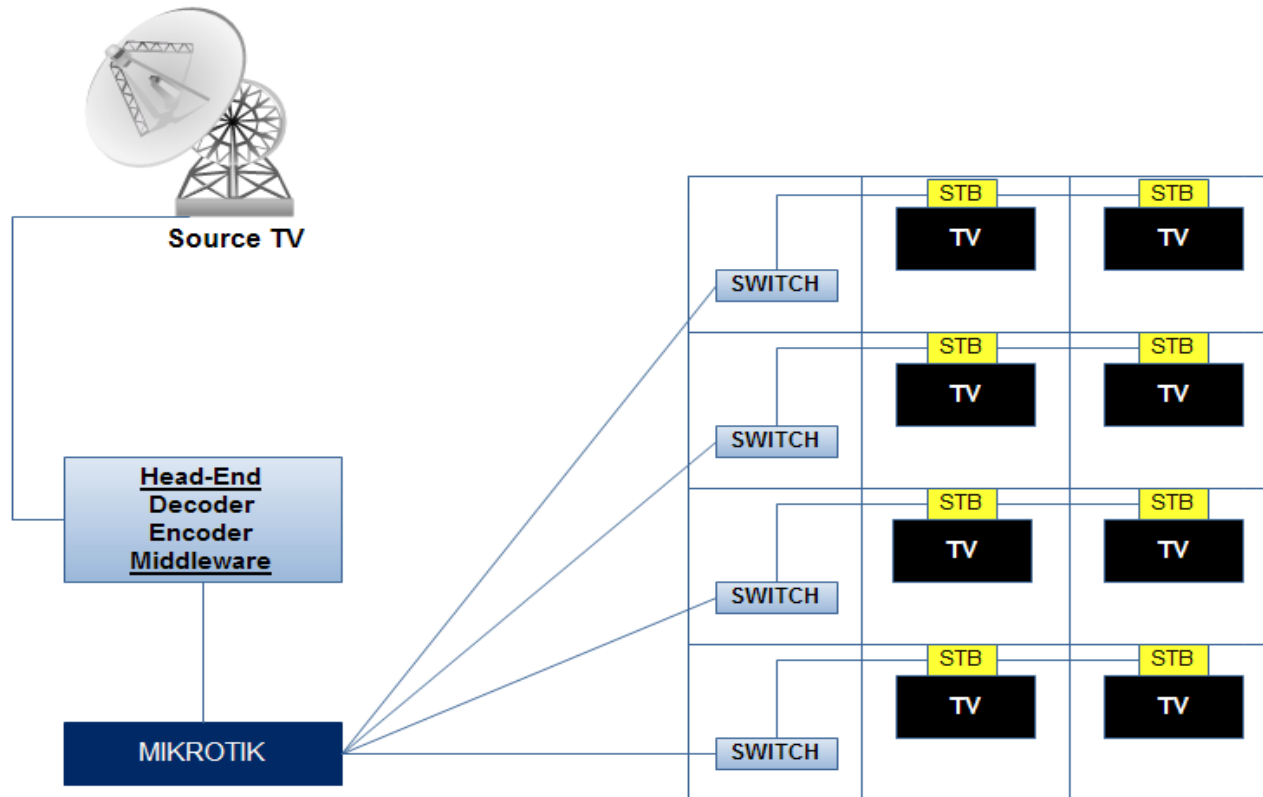
# **IPTV & MIKROTIK**

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# Introducing

- *IPTV is a multimedia service as television, video, audio, text and data which sent through the network and managed by IP which provides a quality of service, experience, security, interactivity and reliability*
- *In general, IPTV services are as follows :*
  - *Broadcast Service (e.g . Broadcast TV)*
  - *On Demand Service (e.g. Video On Demand, Music On Demand)*
  - *Interactive Service (e.g. T-Information, T-Commerce)*
  - *Portal Service (e.g. Data Portal)*

# NETWORK IPTV



- *Content live TV can come from local content or from satellite, which in the Head End device will be encoded and sent it to Middleware. and Middleware will manage based on database to send to End User over IP Network*
- *Head End consist of IRD ( Integrated Receiver Decoder ) that serves as TV Channel receiver through the satellite, end Encoder that serves to change the video format into MPEG4/H246 to get through the IP network*
- *Middleware is main controler for IPTV Service and integrated with VOD server, Content Management System/Delivery System (CMS/CDS), End User Terminal and NMS.*

# Can Mikrotik Manage the Multicast Traffic?

- *What's Unicast , Broadcast and Multicast ?*
- *Unicast is the term to describe communication where a piece of information is sent from one point to another point. In this case there is one sender and one receiver.*
- *Broadcast is the term to describe communication where a piece of information is sent from one point to all other points. In this case there is just one sender, but the information is sent to all connected receiver.*
- *Multicast is the term to describe communication where a piece of information is sent from one or more point to set of other points*

# Can Mikrotik Manage the Multicast Traffic?

-Internet Group Management Protocol (IGMP) proxy can be used to implement multicast routing. It is forwarding IGMP frames and commonly is used when there is no need for more advanced protocol like PIM

-IGMP-Proxy doesn't support more than one upstream interface and routing loops are not detected or avoided

- Protocol Independent Multicast – Sparse Mode enables routerOS to support multicast streaming over network area where routers have pim set up. Several configured pim routers together will make multicast cloud where client device can use IGMP to manage subscriptions to streams.

- PIM Should be used when network topology is complex or stream sources are connected to multicast cloud

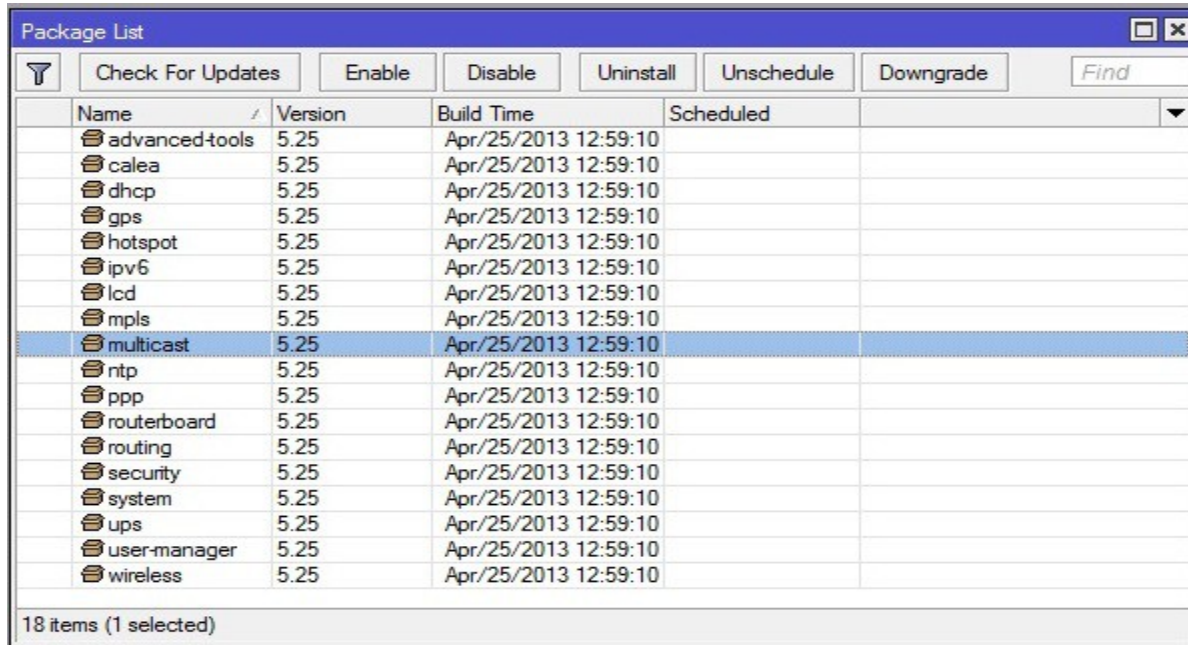
# Router Configuration

**ETHER2 : 192.168.9.1/24 (Upstream Interface)**

**ETHER3 : 192.168.10.1/24 (To Middleware)**

**ETHER4 : 192.168.165.1/24 (To IPTV Network )**

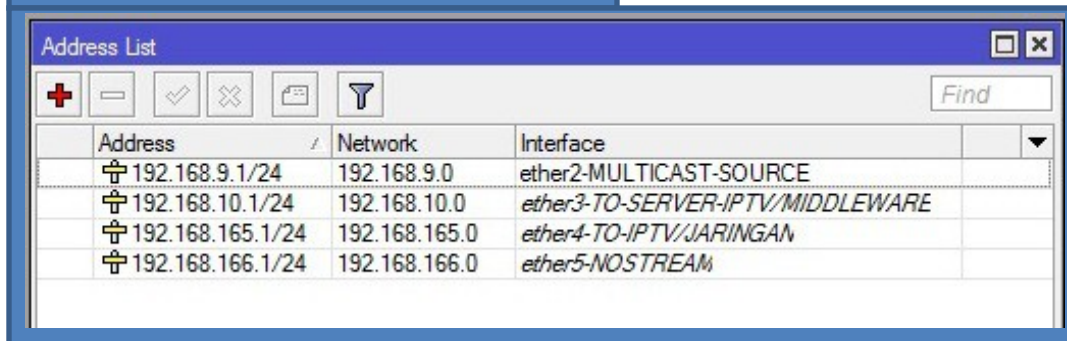
**ETHER5 : 192.168.166.1/24 (No Stream)**



The screenshot shows a window titled "Package List" with a search bar and several action buttons: "Check For Updates", "Enable", "Disable", "Uninstall", "Unschedule", "Downgrade", and "Find". Below the buttons is a table with the following columns: "Name", "Version", "Build Time", and "Scheduled". The table lists 18 packages, with "multicast" selected. The status bar at the bottom indicates "18 items (1 selected)".

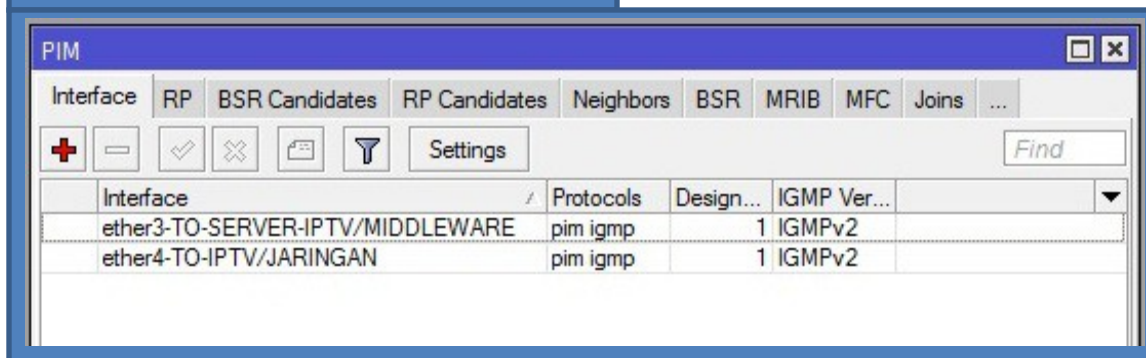
Name	Version	Build Time	Scheduled
advanced-tools	5.25	Apr/25/2013 12:59:10	
calea	5.25	Apr/25/2013 12:59:10	
dhcp	5.25	Apr/25/2013 12:59:10	
gps	5.25	Apr/25/2013 12:59:10	
hotspot	5.25	Apr/25/2013 12:59:10	
ipv6	5.25	Apr/25/2013 12:59:10	
lcd	5.25	Apr/25/2013 12:59:10	
mpls	5.25	Apr/25/2013 12:59:10	
multicast	5.25	Apr/25/2013 12:59:10	
ntp	5.25	Apr/25/2013 12:59:10	
ppp	5.25	Apr/25/2013 12:59:10	
routerboard	5.25	Apr/25/2013 12:59:10	
routing	5.25	Apr/25/2013 12:59:10	
security	5.25	Apr/25/2013 12:59:10	
system	5.25	Apr/25/2013 12:59:10	
ups	5.25	Apr/25/2013 12:59:10	
user-manager	5.25	Apr/25/2013 12:59:10	
wireless	5.25	Apr/25/2013 12:59:10	

## SET UP THE IP ADDRESS



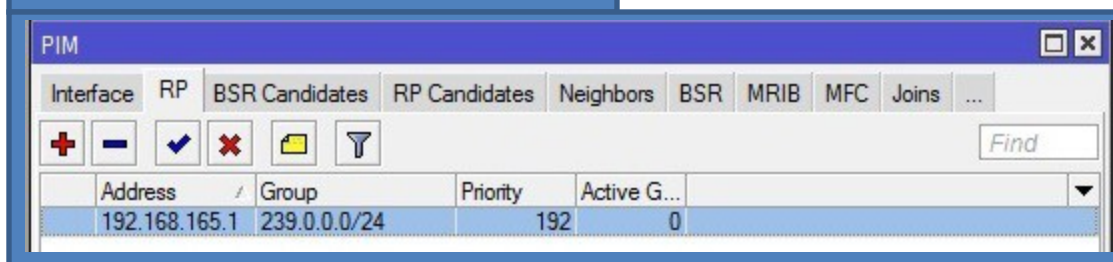
Address	Network	Interface
192.168.9.1/24	192.168.9.0	ether2-MULTICAST-SOURCE
192.168.10.1/24	192.168.10.0	ether3-TO-SERVER-IPTV/MIDDLEWARE
192.168.165.1/24	192.168.165.0	ether4-TO-IPTV/JARINGAN
192.168.166.1/24	192.168.166.0	ether5-NOSTREAM

## SET UP PIM



Interface	Protocols	Design...	IGMP Ver...
ether3-TO-SERVER-IPTV/MIDDLEWARE	pim igmp		1 IGMPv2
ether4-TO-IPTV/JARINGAN	pim igmp		1 IGMPv2

## SET UP PIM-RP



Address	Group	Priority	Active G...
192.168.165.1	239.0.0.0/24	192	0



# Runing your multicast traffic

Interface List

Interface **Ethernet** EoIP Tunnel IP Tunnel GRE Tunnel VLAN VRRP Bonding LTE



Find

Name	Type	L2 MTU	Tx	Rx	Tx Pac...	Rx Pac...
ether1	Ethernet	1520	0 bps	0 bps	0	0
R ether2-MULTICAST-SOURCE	Ethernet	1520	85.8 kbps	17.5 Mbps	10	1 611
ether3-TO-SERVER-IPTV/MIDDLEWARE	Ethernet	1520	0 bps	0 bps	0	0
ether4-TO-IPTV/JARINGAN	Ethernet	1520	0 bps	0 bps	0	0
ether5-NOSTREAM	Ethernet	1520	0 bps	0 bps	0	0

Torch (Running)

- Basic

Interface: ether2-MULTICAST-SOURCE

Entry Timeout: 00:00:03 s

- Collect

- Src. Address
- Dst. Address
- MAC Protocol
- Protocol
- Src. Address6
- Dst. Address6
- Port
- VLAN Id

- Filters

Src. Address: 0.0.0.0/0

Dst. Address: 0.0.0.0/0

Src. Address6: ::/0

Dst. Address6: ::/0

MAC Protocol: all

Protocol: any

Port: any

VLAN Id: any

Start

Stop

Close

New Window

Et... /	Prot...	Src.	Dst.	VLAN Id	Tx Rate	Rx Rate	Tx Pack...	Rx Pack...
800 (ip)		192.168.9.254	239.0.0.3		0 bps	3.7 Mbps	0	345
800 (ip)		192.168.9.254	239.0.0.2		0 bps	8.6 Mbps	0	800
800 (ip)		255.255.255.255	0.0.0.0		85.9 kbps	0 bps	11	0
800 (ip)		192.168.9.254	255.255.255.255		0 bps	3.1 kbps	0	4

The background of the image is a dense, repeating pattern of light blue water droplets of various sizes, creating a textured, bubbly effect. The droplets are rendered with soft highlights and shadows, giving them a three-dimensional appearance.

**Thank You**