

New Rock Technologies, Inc.

MX Voice-Fax Gateway Series

High Availability Configuration Guide

HX4

MX8

MX60

MX120

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Add instruction of load balancing feature

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Add instruction of REGISTER timeout configuration

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1 Overview

1.1 Function Definition

In the deployment of VoIP network, New Rock MX-Series VoIP Gateway (referred as *gateway* below) supports **high availability** architecture with **active-standby** mode and **load balancing** mode.

Active standby mode

In this mode, one SIP proxy server (referred as SIP server) functions as the primary server while other SIP servers function as standby servers.

Either of the following conditions could trigger the failover operation of the gateway:

- Not receiving response to the OPTIONS message from the current SIP server to which the gateway sends or receives call traffic; or
- Not receiving response to the REGISTER/INVITE message from the current SIP server to which the gateway send or receives call traffic

The administrator can manually switchover the gateway from the current SIP server to the next available one.

The gateway will redirect call traffic to the designated proxy server in responding to the re-INVITE from the server.

Load balancing mode

In this mode, the clustered SIP servers are all working in active status. Under the coarse grained scheme all endpoints of a gateway are allowed to register on one of the designated servers and under the fine grained scheme the endpoints of a gateway are allowed to register on multiple servers, according to the administrator's load balancing plan. The following features are supported with load balancing:

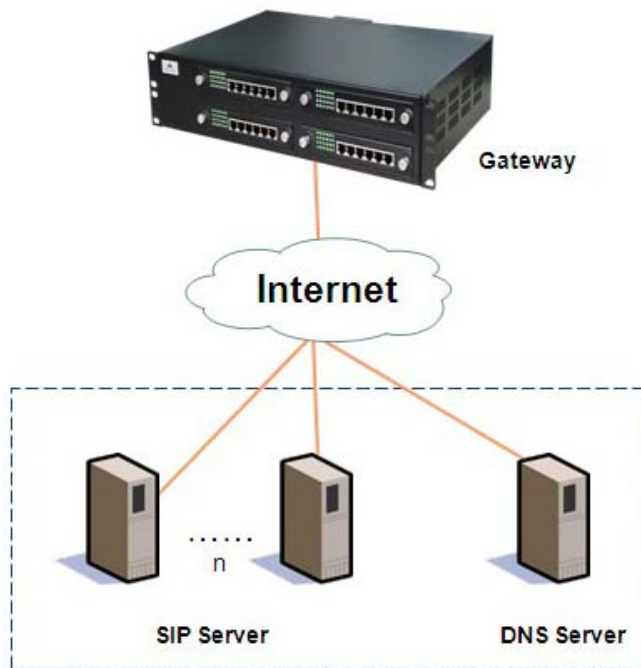
- The gateway as a whole or endpoints search for the designated sever in the server cluster (a list of servers) using REGISTER/INVITE message in forward circular scheme.
- Server failure detetion is supported by gateway sending OPTIONS to each servers, on which the gateway or endpoints are registered on.
- Upon the condition of no response to OPTIONS or REGISTER/INVITE, the gateway will search for the next available servers for the gateway or endpoints and move the calls to them accordingly

The gateway will redirect call traffic to the designated proxy server in responding to the re-INVITE from the server.

1.2 Server Cluster

The server cluster includes one primary SIP proxy server and up to *five* standby proxy servers under active-standby mode or six active servers under load balancing mode. The address of the SIP server can be configured manually by the administrator or obtained through DNS SRV record. Topology is shown as bellow:

Figure 1-1 Server cluster

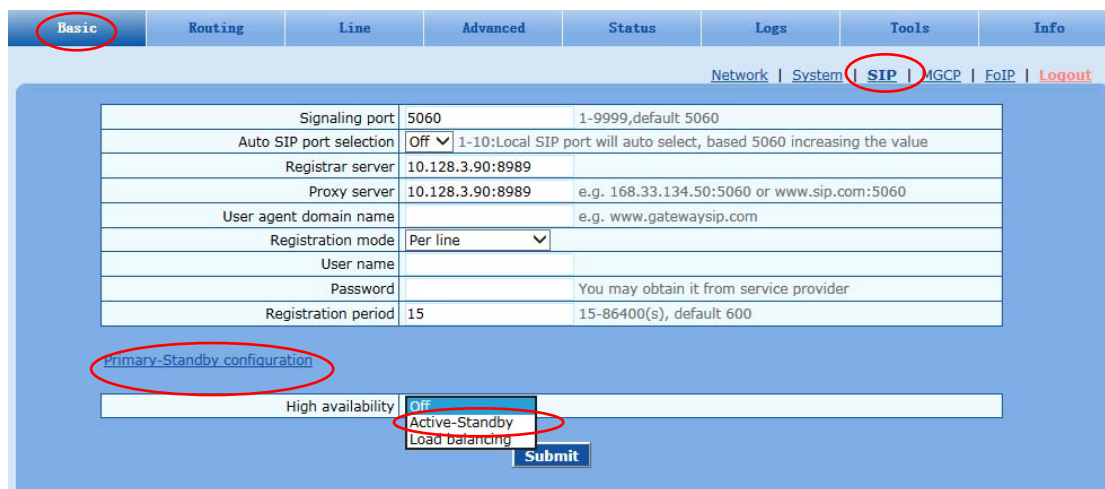


2 Configuring Active-Standby Mode

2.1 Enable Active-Standby Feature

Enter the SIP trunk setting page, and click **Basic > SIP > Primary-Standby configuration** and choose **Active-standby**, then submit.

Figure 2-1 Active-Standby configuration page



2.2 Set Standby SIP Servers

The gateway supports two ways to obtain standby SIP server address:

- IP address
- Domain name

2.2.1 Configuring the IP Address of SIP Servers

Note: the IP address of the primary SIP server is configured on the top half of the SIP page.

Here are the steps to configure the IP addresses of the standby SIP servers:

- Step1** Ensure that active-standby feature is enabled.
- Step2** Fill primary SIP server IP address in **Registrar server**, and then submit.
- Step3** Click **Add** and fill the IP addresses for the standby SIP servers in **Standby SIP servers**.

Figure 2-2 Page to set registrar server

Basic	Routing	Line	Advanced	Status	Logs	Tools	Info
Network System SIP MGCP FoIP Logout							
Signaling port	5060		1-9999,default 5060				
Auto SIP port selection	Off		1-10:Local SIP port will auto select, based 5060 increasing the value				
Registrar server	192.168.11.4						
Proxy server	192.168.11.4		e.g. 168.33.134.50:5060 or www.sip.com:5060				
User agent domain name	e.g. www.gatewaysip.com						
Registration mode	Per line						
User name							
Password	You may obtain it from service provider						
Registration period	600		15-86400(s), default 600				
Primary-Standby configuration							
High availability	Active-Standby						
SIP server cluster(standby)							
SIP proxy sever setting	Add						
Standby SIP proxy server 1	192.168.11.8:5060		e.g. 168.33.134.53:5060				
Standby SIP proxy server 2	192.168.11.106:5060		e.g. 168.33.134.53:5060				
Failover							
Fault condition	<input checked="" type="radio"/> No response to OPTIONS request <input type="radio"/> No response to REGISTER/INVITE						
OPTIONS request period	2		1-86400(s)				
OPTIONS request timeout	1000		1000-32000(ms),if the response to OPTIONS is timed out, switch to the standby server.				
Switchover							
Active SIP server	192.168.11.8:5060		<input type="button" value="Switchover"/> Switchover manually to the next available server.				
<input type="button" value="Submit"/>							

2.2.2 Configuring the Domain Name of the Primary Server

In case the primary SIP server is located through the domain name, the steps below should be follows:

- Step1** Ensure that active-standby feature is enabled.
- Step2** Fill registrar server domain name in **Registrar server**, then submit.
- Step3** Click **Basic > Network**, check **Enable** in **DNS**, fill IP address in **Primary server**, and then submit.

Figure 2-3 Page to set DNS server

Basic	Routing	Line	Advanced	Status	Logs	Tools	Info
Network System SIP MGCP FoIP Logout							
Host name	AG-VoIP-GW		Contain letter, number and "-" but must start with letter				
eth1							
MAC address	00:0E:A9:00:31:31						
IP address assignment	Fixed						
IP address	192.168.250.81						
Netmask	255.255.0.0						
Gateway IP address	192.168.2.1						
DNS							
	enable		<input checked="" type="checkbox"/>				
Primary server	192.168.2.5		e.g. 202.96.209.6				
Secondary server			e.g. 202.96.209.133				
SNTP							
Primary server	198.60.22.240						
Secondary server	133.100.9.2						
Time zone	(GMT+08:00) Beijing						
<input type="button" value="Submit"/>							

2.3 Set the Failover Condition

You should choose one of the following conditions:

- No response to OPTIONS message
- No response to REGISTER/INVITE message

2.3.1 No Response to OPTIONS

When this condition is chosen the following timers need to be configured:

- **OPTIONS request period:** The interval between receiving the response (200) from the SIP server to the previous OPTIONS and sending the next OPTIONS.
- **OPTIONS request timeout:** The period since the sending of the last OPTIONS with no response by the SIP server.

Figure 2-4 Page to set failover condition

Primary-Standby configuration

High availability	Active-Standby ▼	
SIP server cluster(standby)		
SIP proxy sever setting	+Add	
Standby SIP proxy server 1	192.168.11.8:5060	e.g. 168.33.134.53:5060
Standby SIP proxy server 2	192.168.11.106:5060	e.g. 168.33.134.53:5060
Failover		
Fault condition	<input checked="" type="radio"/> No response to OPTIONS request <input type="radio"/> No response to REGISTER/INVITE	
OPTIONS request period	2	1-86400(s)
OPTIONS request timeout	1000	1000-32000(ms),if the response to OPTIONS is timed out, switch to the standby server.
Switchover		
Active SIP server	192.168.11.8:5060	
	Switchover	Switchover manually to the next available server.

Submit

2.3.2 No Response to REGISTER/INVITE

When this condition is chosen, the gateway will failover to the standby SIP server if there is no response to the REGISTER or INVITE.



Note

When high availability feature is enabled, the PSTN failover feature in **Advanced > Trunk** should be disabled as shown in Figure 2-6.

Figure 2-5 Page to disable PSTN failover

Basic	Routing	Line	Advanced	Status	Logs	Tools	Info
System Security White list Media stream SIP Line Trunk RADIUS Encryption Tones Feature codes Logout							
Gain to IP	0(dB)		▼				
Gain to PSTN	-3(dB)		▼				
Impedance	Complex		▼				
Outplusing delay	600	0-20000(ms),default 400					
Ring relay	<input type="radio"/> FXS ring sync with FXO <input checked="" type="radio"/> FXS ring independently						
Busy line handle	<input type="radio"/> Voice prompt <input checked="" type="radio"/> Hand up						
PSTN failover	<input type="checkbox"/>						
Caller ID detection mode	After ringing A ▼						
Inbound first digit timeout	24	10-60(s), default 24. Timeout of collecting DTMF on FXO for inbound call					
Answer delay	12	10-60(s), default 12. Also see " Connect signal delay " in page " Line > Trunk "					
Off-hook for rejection	1000	500-5000(ms), default 600					
On-hook protection time	400	100-5000(ms), default 400					
Polarity detection	<input checked="" type="checkbox"/>						

2.4 How to Manually Perform Switchover

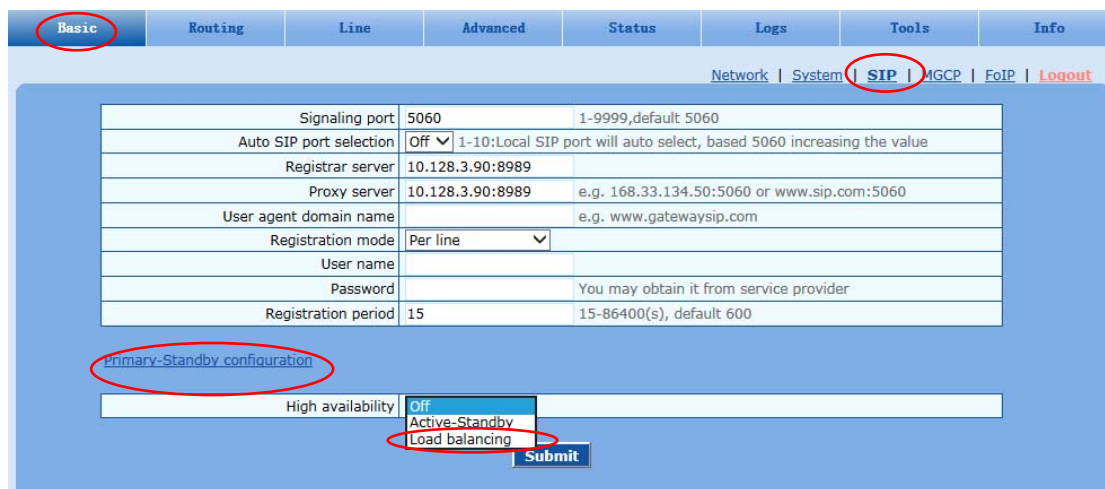
On the Wen GUI of the gateway, the **Switchover** button provides a means to manually switchover the call traffic from the current SIP server to the next available SIP server.

3 Configuring Load Balancing Mode

3.1 Enable Load Balancing Feature

Enter the SIP trunk setting page, and click **Basic > SIP > Primary-Standby configuration** and choose **Load balancing**, then submit.

Figure 3-1 Load balancing configuration page



3.2 Set SIP Servers

Refer to 2.2 Set Standby SIP Servers.

3.3 Configure OPTIONS Settings

In the active balancing mode, the following timers need to be configured:

- **OPTIONS request period:** The interval between receiving the response (200) from the SIP server to the previous OPTIONS and sending the next OPTIONS.
- **OPTIONS request timeout:** The period since the sending of the last OPTIONS with no response by the SIP server.

Figure 3-2 Page to configure OPTIONS settings

Primary-Standby configuration

High availability	Load balancing	
SIP server cluster(standby)		
SIP proxy sever setting	+ Add	
SIP proxy server1	192.168.11.8:5060	e.g. 168.33.134.53:5060
SIP proxy server2	192.168.11.106:5060	e.g. 168.33.134.53:5060
OPTIONS setting		
OPTIONS request period	2	s(rang:1-86400)
OPTIONS request timeout	1000	ms(rang:1000-32000),if the response to OPTIONS is timed out, switch to the standby server.
REGISTER setting		
REGISTER request timeout	2000	ms(rang:2000-32000),if the response to REGISTER is timed out, switch to the standby server.
Active server list		
	1	192.168.11.8:5060

Submit

3.4 Configure REGISTER Settings

In the active balancing mode, the following time need to be configured:

- **REGISTER request timeout:** The period from the sending of the first REGISTER with no response by the previous SIP server to the sending of REGISTER to the next SIP server.

Figure 3-3 Page to configure REGISTER settings

Primary-Standby configuration

High availability	Load balancing	
SIP server cluster(standby)		
SIP proxy sever setting	+ Add	
SIP proxy server1	192.168.11.8:5060	e.g. 168.33.134.53:5060
SIP proxy server2	192.168.11.106:5060	e.g. 168.33.134.53:5060
OPTIONS setting		
OPTIONS request period	2	s(rang:1-86400)
OPTIONS request timeout	1000	ms(rang:1000-32000),if the response to OPTIONS is timed out, switch to the standby server.
REGISTER setting		
REGISTER request timeout	2000	ms(rang:2000-32000),if the response to REGISTER is timed out, switch to the standby server.
Active server list		
	1	192.168.11.8:5060

Submit

3.5 Active Server List

All the SIP servers, on which the gateway or endpoints are registered on, will be listed in active server list.