# **Relay Proxy**

# **User Guide**

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#### **Relay Proxy**

Relay Proxy is a server software developed by DBL Technology. Its main purposed is to facilitate the deployment of DBL's gateways in network environment that does not support NAT or blocks VoIP traffics.

#### Two common issues encountered with VoIP deployment

Two major problems are encountered today with VoIP traffics.

1. ISP is blocking VoIP traffics in order to protect the traditional telephone services.

The rapid increase in the internet and intranet data bandwidth in the last two decades has triggered the rapid development and deployment of VoIP services. This has greatly reduced the revenues of the traditional long distance services. As a result, ISPs in certain countries are blockings VoIP traffics as shown in the diagram below.



2. VoIP traffics are not getting through due to the inability to support NAT in the Call Server when VoIP devices are installed behind a network router as shown in the diagram below. Some VoIP Call Servers only support call signaling NAT. This means that the VoIP device installed behind NAT can registered and make / receive calls. However, when a call is established, only audio stream generated from the VoIP device can reach its destination. As a result, the VoIP device end cannot hear any audio at all.



#### How can Relay Proxy solve both issues?

 Relay Proxy establishes a virtual tunnel for both VoIP signaling and voice traffics with a very small increase in the data bandwidth. This makes it more difficult for ISPs to block such data traffics. To even protect the data traffics more, Relay Proxy also offers data encryption for both VoIP signaling and voice traffics. The data traffics between Relay Proxy and VoIP Call Server are resumed to the standard VoIP data format. Therefore, they must be installed in the same LAN network or an ISP network that does not block VoIP traffics.



 Relay Proxy solves the NAT issue by re-routing data traffics from VoIP devices to the VoIP Call Server and vice versa as shown in the diagram below. All data packets now have the proper destination IP, so that they can be delivered. In general, if SIP registration is not successful or one way audio occurs when a call is established, you can try to solve the problems with Relay Proxy.



## **Installing Relay Proxy**

1. PC hardware preparation

Relay Proxy only supports Linux OS and it should run on most PC hardware today with good performance. Relay Proxy has been tested for compatibility in the following Linux platforms.

- 1) RedHat
- 2) CentOS
- 3) Debian
- 4) Ubuntu

For 64-bit OS, the following extended packages should be installed by issuing the command listed below.

a) RedHat / CentOS

yum install -y glibc.i686 zlib.i686 krb5-libs.i686

#### b) Debian / Ubuntu

dpkg --add-architecture i386 apt-get update apt-get install lib32z1-dev apt-get install libgssapi-krb5-2:i386

#### 2. Software Installation and Execution

- 1) Login to the root directory.
- 2) Type wget <u>http://dbltek.com/update/relay\_install-2.068.sh</u> to download the Proxy Server Installation package
- 3) Type chmod 744 relay\_install-2.068.sh to enable the installation property
- 4) Type ./ relay\_install-2.068.sh to execute the installation script

#### After the installation is completed

- 5) Type /root/relay/run\_relaysrv to execute the Relay Proxy
- 6) Type /root/relay/run\_sqlwebd to execute the Relay Proxy Web Interface

Please note that a Relay Proxy startup script is installed to execute both Relay Proxy and its web interface when the hardware boots up. For Dubian / Ubuntu platform, the startup script may not work properly. If this occurs, please delete the line "exit 0" in the document /etc/rc.local.

- 3. Other commands
  - 1) Killall relaysrv type this to terminate the Relay Proxy.
  - 2) Killall sqlwebd type this to terminate the Relay Proxy web interface.

#### 4. Default Ports

Relay Proxy uses the followings ports for both TCP and UDP communications. Please configure the server firewall accordingly.

TCP21080 , 1701 , 8089UDP1701 , 5000~60000

*Note: Please contact technical support at <i>support@dbltek.com* for assistance if needed.

#### **Configuring Relay Proxy**

- 1. To configure the Relay Proxy, you need to access its web interface shown below.
  - > Type http://<server hardware IP>:8089
  - > Enter "admin" as the login ID
  - > Enter "admin" as the login password

#### Relay Proxy configuration

#### Relay Proxy Manage v1.0

Agent	Username	
db1	db1	Delete Modify
	Add	

2. Click on Relay Proxy configuration to configure the Relay Proxy.

Relay Proxy Configuration		
RELAY PORT	21080	
UDP PORT	1701	

**TCP PORT** 1701

Parameter	With Sqlite authentication

 $\sim$ 

Save SaveReboo Cancel

Web Port	8089
Username	admin
Password	dbladmin

Save SaveReboo Cancel

**Relay Proxy Configuration** 

- > Modify the Relay Port, UDP Port, TCP Port if needed.
- > Parameters:
  - 1) Default No authentication
  - 2) Sql Authentication Reserved for testing.
  - Sqlite Authentication Using SQLite database for authentication (choose this one by default)

- 4) Listen Localhost Reserved for other use.
- > Press save to save the changes (not effective yet).
- Press SaveReboo to save and make the changes effective immediately. Browser displays a warning message of not be able to access the webpage. Please wait i10 seconds and then reload the webpage.
- Click Add to add a new login account. Enter the fields as required and then click "Add" to complete. Agent is used to classify the user accounts only and it is not required for GoIP configuration. In addition, the same Username is allowed for multiple logins. This means that you can use the same account to configure all your devices to login to the same Relay Proxy.

Add User			
Agent	ZhangSa	n	
Username user1			
Password password			
	Add	Cancel	

The default test account is "dbl". To delete an unwanted account, please click Delete (on the right hand side of the account name) to delete the corresponding account.

Relay Proxy configuration			
Relay Proxy Manage v1.0			
Agent	Username		
db1	db1	Delete Modify	
	Add		

## Configuring DBL's VoIP devices

Please note that all VoIP devices developed by DBL supports Relay Proxy. Either or both VoIP Signaling data and VoIP voice stream can be configured to connect to Relay Proxy.

- 1. Configuring VoIP Signaling data to use Relay Proxy
  - VoIP signaling is referring to the IP protocol used for VoIP Call establishment and management. Depending on your device, the location for its configuration varies. For GoIP, it is located under the "Advanced VoIP" as shown in the two figures below.

Locate the parameter "Signaling NAT Transversal" and select "Relay Proxy". Then the following additional parameters are displayed.

- > Address enter the IP address or domain name of the Relay Proxy
- > Port enter the **Relay Port** as configured in the Relay Proxy
- > User enter the username that is created for your device
- > Password enter the password that is defined for the username
- Click on the check box to enable encryption if it is required. Please note that additional network bandwidth is required if encryption is enabled.

01-1	Advance SIP		
Status	SIP Listening Port Mode	Fixed •	
Configurations	Port	5060	
	SIP INVITE Response	SIP 183 🔹	
Preferences	SIP Busy Code	503	
Network	Call OUT PSTN Auth Mode	IP 🔻	
Basic VoIP	Bulit-in SIP Proxy	🔍 Enable 💿 Disable	
Advance VolP	NAT Keep-alive	Enable Disable	
Media	DTMF Signaling	Inband 🔻	
O-ll Out	Signaling QoS	None 🔻	
Call Out	Signaling Encryption	None 🔻	
Call Out Auth	Signaling NAT Traversal	Relay Proxy 🔻	
Call In	Address	202.104.186.90	
Call In Auth	Port	21080	
SIM	User	user1	
Dunning Dula	Password	•••••	
Running Rule		Encryption	
SIM Forward	Backup Relay Server 1		
IMEI	Backup Relay Server 2		
SMS	Backup Relay Server 3		
GSM Carrier	Backup Relay Server 4		
CSM Bass		Advanced Timing>>	
Station		GSM-SIP Code Map>>	
Tools	Save Changes		

Endpoint Type Config Mode Config by Line Line 1 © Line 2 © Line 3 © Line 4 Phone Number 149 Phone Number 2 Display Name SiP Local Port Mode Fixed NAT Keep-alive Enable © Disple NAT Keep-alive Enable © Disple NAT Keep-alive Enable © Disple Virtual Rigback SiP Proxy 192.168.2.2 Reigster Mode Node 1 SiP Registrar Server 192.168.2.2 Reigster Mode Node 1 Virtual Rigback Mode 1 Virtual Rigback None Virtual Rigback None Virtual Rigback None Virtual Rigback None Virtual Rigback None Virtual Rigback None Virtual Relay Proxy Virtual Relay Proxy Virtual Relay Proxy Virtual Relay Proxy Virtual Relay Server 1 Backup Relay Server 1 Backup Relay Server 4 Media Settings	Call Settings					
Config Mode       Config by Line       SIP Local Port Mode       Fixed            ● Line 1       Line 2       Line 3       Line 4         Phone Number       I49       Bulit.in SIP Proxy       Enable       Disable         Display Name       Virtual Ringback       Enable       Disable         Display Name       Virtual Ringback       Enable       Disable         SIP Registrar Server       192 168 2.2       Reigster Mode       Mode 1          Register Expiry(s)       80       DTMF Signaling       Outband          Outband Droxy       Outband DTMF type       RFC 2833           Home Domain       RTP Payload Type       101            Authentication ID       144       Signaling CoS       None           Signaling Encryption       None        Signaling CoS       None          Call Forward Type       NotForward        Address       202104 186 50          Port       21080       User       User       User       Server 1          Backup Relay       Server 1       Backup Relay       Server 2           Backup Relay <td>Endpoint Type</td> <td>SIP Phone 🔹</td> <td>1</td> <td>Advanced Settings&lt;&lt;</td>	Endpoint Type	SIP Phone 🔹	1	Advanced Settings<<		
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Phone Number 2 Dispalay Name D	Phone Number	149	Bulit-in SIP Proxy	🔍 Enable 🖲 Disable		
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SIP Proxy       192.168.2.2       Reigster Mode       Mode 1 <ul> <li>Advanced Timing&gt;&gt;</li> <li>Advanced Timing&gt;&gt;</li> <li>DTMF Signaling</li> <li>Outband DTMF Fype</li> <li>RFC 2833</li> <li>RTP Payload Type</li> <li>101</li> <li>Authentication ID</li> <li>149</li> <li>Signaling QoS</li> <li>None</li> <li>Signaling NaT</li> <li>Traversal</li> <li>Relay Proxy</li> <li>Call Forward</li> <li>Traversal</li> <li>Relay Proxy</li> <li>Enable</li> <li>Disable</li> <li>Fax Line&gt;&gt;</li> </ul> <li>Backup Server</li> <li>Enable</li> <li>Disable</li> <li>Fax Line&gt;</li> <li>RTP Port Range</li> <li>16384</li> <li>22768</li> <li>PacketLength(ms)</li> <li>Signaling Settings&lt;</li> <li>Recipient Relay Proxy</li> <li>Address</li> <li>Signaling NAT</li> <li>Traversal</li> <li>Relay Proxy</li> <li>Media Settings&lt;</li> <li>Recipient Relay</li> <li>Server 1</li> <li>Backup Relay</li> <li>Server 3</li> <li>Backup Relay</li> <li>Server 4</li> <li>Media Settings&lt;</li> <li>RTP Port Range</li> <li>16384</li> <li>12768</li> <li>PacketLength(ms)</li> <li>Si</li> <li>Signaling Case</li> <li>Relay Proxy</li> <li>Address</li> <li>Signaling Settings&lt;</li> <li>Rter Port Range</li> <li>16384</li> <li>140800</li> <	Display Name		Virtual Ringback	🔍 Enable 💿 Disable		
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Port21080User Nameuser1PasswordPasswordImage: Server 1Image: Server 1Backup RelayImage: Server 2Backup RelayImage: Server 3Backup RelayImage: Server 4			Address	202.104.186.90		
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Password       Image: Constraint of the system         Image: Constraint of the system       Image: Constraint of the system         Backup Relay       Image: Constraint of the system         Server 4       Image: Constraint of the system			User Name	user1		
✓ Encryption         Relay Mode       1         Backup Relay         Server 1         Backup Relay         Server 2         Backup Relay         Server 3         Backup Relay         Server 4			Password	•••••		
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Server 3 Backup Relay Server 4			Server 2 Backup Polay			
Backup Relay Server 4			Server 3			
			Backup Relay Server 4			

Audio Codec Preference>>

2. Configuring VoIP voice stream to use Relay Proxy

When a VoIP call is established, voice stream are sent between the two VoIP devices. To configure the voice stream to use the Relay Proxy, please access your device webpage and then look for the "Media" as shown in the figure below or "Media Settings" as shown in the figure in the previous page.

Locate the parameter "Media NAT Transversal" and select "Relay Proxy". Then the following additional parameters are displayed.

- > Address enter the IP address or domain name of the Relay Proxy
- > Port enter the **Relay Port** as configured in the Relay Proxy
- > User enter the username that is created for your device
- > Password enter the password that is defined for the username
- Click on the check box to enable encryption if it is required. Please note that additional network bandwidth is required if encryption is enabled.

Chatura	Media		
Status	RTP Port Range	16384 - 32768	
Configurations	PacketLength (ms)	20	
	Jitter Buffer	Fixed •	
Preferences	Delay (ms)	60	
Network	Media QoS	None 🔻	
Basic VoIP	Media Encryption	None 🔻	
Advance VoIP		Symmetric RTP	
Media	Media NAT Traversal	Relay Proxy 🔻	
Coll Out	Address	202.104.186.90	
Call Out	Port	21080	
Call Out Auth	User Name	user1	
Call In	Password	•••••	
Call In Auth		Encryption	
SIM	Relay Mode	1 🔻	
Dunning Dula	Backup Relay Server 1		
Running Rule	Backup Relay Server 2		
SIM Forward	Backup Relay Server 3		
IMEI	Backup Relay Server 4		
SMS	RTP Disconnect Detect(s)	0	
GSM Carrier		Audio Codec Preference>>	
GSM Base Station	Save Changes		