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INDEX

VitalPBX Application Server Setup

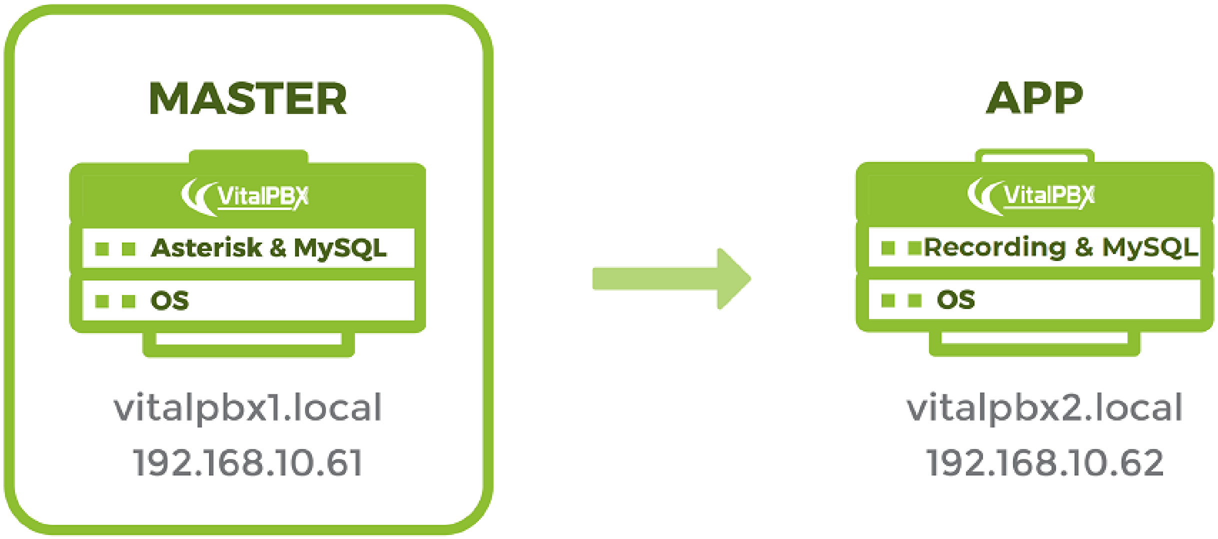
1.- Introduction

1.1.- VitalPBX High Availability

Sometimes it is necessary to have certain applications on a server that is not the same one that handles phone calls. For example, if we want the Sonata Suite to be on a separate server.

In this manual we will explain the steps to follow to achieve this goal.

Example



1.2.- Prerequisites

In order to install VitalPBX the App Server you need the following:

a.- 2 IP addresses.
b.- Install VitalPBX version 3 or higher on two servers.
c.- MariaDB (include in VitalPBX 3)
d.- Lsyncd.

2.- Configurations

2.1- IP Configuration and Hostname.

We will configure in each server the IP address and the host name.

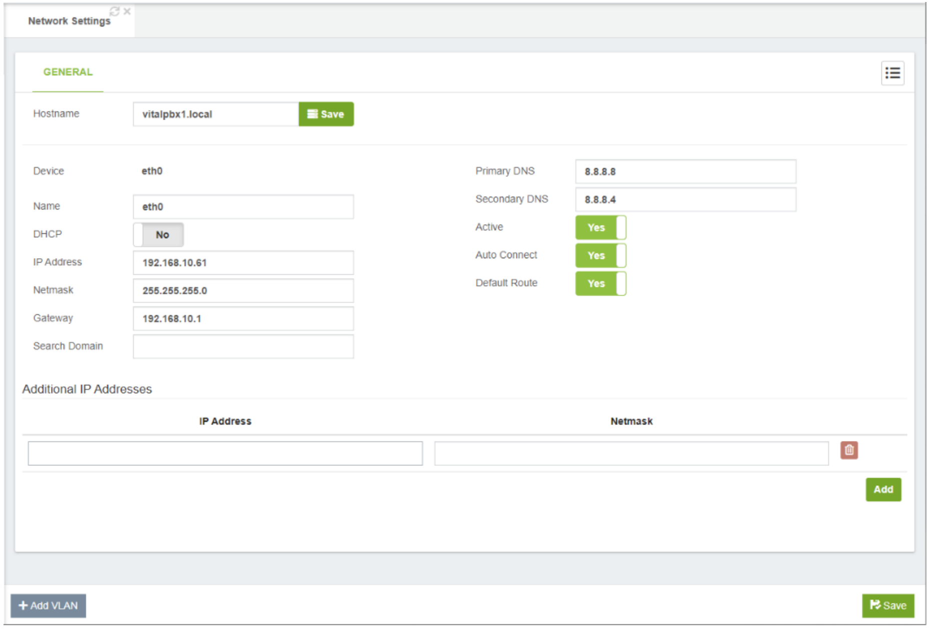
First, we will go to the web interface under:
Admin>System Settings>Network Settings

Disable DHCP and configure the selected IP and hostname. In our example we will use the following values.

Name	**Master**	**App**
Hostname	vitalpbx1.local	vitalpbx2.local
IP Address	192.168.10.61	192.168.10.62
Netmask	255.255.255.0	255.255.255.0
Gateway	192.168.10.1	192.168.10.1
Primary DNS	8.8.8.8	8.8.8.8
Secondary DNS	8.8.4.4	8.8.4.4

First change the Hostname, remember press the **Save button (Save)** next to it to apply the new hostname.

Server 1 (Master)



Network Settings

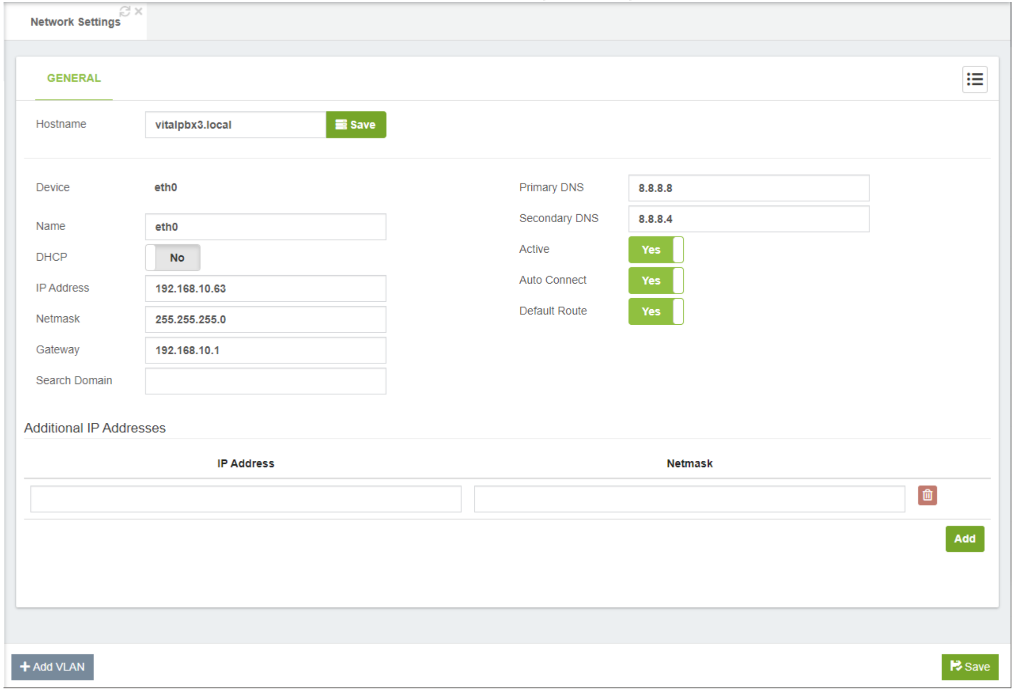
GENERAL

Hostname	vitalpbx1.local
Device	eth0
Name	eth0
DHCP	No
IP Address	192.168.10.61
Netmask	255.255.255.0
Gateway	192.168.10.1
Search Domain	
Primary DNS	8.8.8.8
Secondary DNS	8.8.4.4
Active	Yes
Auto Connect	Yes
Default Route	Yes

Additional IP Addresses

IP Address	Netmask

Server 2 (APP)



Hostname: vitalpbx3.local

Device: eth0
Name: eth0
DHCP: No
IP Address: 192.168.10.63
Netmask: 255.255.255.0
Gateway: 192.168.10.1
Search Domain:

Primary DNS: 8.8.8.8
Secondary DNS: 8.8.4.4
Active: Yes
Auto Connect: Yes
Default Route: Yes

Additional IP Addresses

IP Address	Netmask

You can also change the hostname from the console using the following command:

Server 1

```
[root@ vitalpbx ~]# hostnamectl set-hostname vitalpbx1.local
```

Server 2

```
[root@ vitalpbx ~]# hostnamectl set-hostname vitalpbx2.local
```

2.2.- Installing the necessary software dependencies

We will constantly make copies of files from the Server 1 to the application server. For this we need to install lsync in Server 1. The information from Server 1 will be copied to Server 2.

```
[root@ vitalpbx1 ~]# yum install lsyncd -y
```

2.3.- Create Authorization Key

Create authorization key for the Access from the Server 1 to Server 2 without credentials.

Create key in Server 1 to access Server 2.

```
[root@ vitalpbx1 ~]# ssh-keygen -f /root/.ssh/id_rsa -t rsa -N '' >/dev/null
[root@ vitalpbx1 ~]# ssh-copy-id root@192.168.10.62
Are you sure you want to continue connecting (yes/no)? yes
root@192.168.10.62's password: (remote server root's password)

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'root@192.168.10.62'"
and check to make sure that only the key(s) you wanted were added.

[root@vitalpbx1 ~]#
```

2.4.- Installing from Scripts

If you want to continue step by step go to step 2.6, but if you want to create the configuration automatically, run the following script in Server 1:

```
[root@ vitalpbx1 ~]# mkdir /usr/share/vitalpbx/appserver
[root@ vitalpbx1 ~]# cd /usr/share/vitalpbx/ appserver
[root@ vitalpbx1 ~]# wget https://raw.githubusercontent.com/VitalPBX/vitalpbx_add_application_server/master/vpbxappserver.sh
[root@ vitalpbx1 ~]# chmod +x vpbxappserver.sh
[root@ vitalpbx1 ~]# ./ vpbxappserver.sh

************************************************************
*      Welcome to the VitalPBX App Server installation     *
*                All options are mandatory                 *
************************************************************
IP Master................ > 192.168.10.61
IP App Server............ > 192.168.10.62
************************************************************
*                   Check Information                      *
*        Make sure you have internet on both servers      *
************************************************************
Are you sure to continue with this settings? (yes,no) > yes
```

This process may take a couple of minutes, and once it is done, VitalPBX APP Server will be ready to use.

2.5.- Installing Sonata Switchboard in Server 2

Now we are going to connect to Server 2 to install Sonata Switchboard, for which we are going to Admin/Add-Ons/Add-Ons.

In Server 1 we are going to create an Api Key through which Sonata Switchboard will be connected, for which we are going to Admin/Admin/Application Keys. We create the API Key that works in all Tenants and then we edit it to copy the value.

In the Server 2 console we are going to execute the following command to update the connection values of Sonata Switchboard:

```
[root@ vitalpbx2 ~]# mysql -uroot astboard -e "UPDATE pbx SET host='192.168.10.60', remote_host='yes',
api_key='babf43dbf6b8298f46e3e7381345afbf '"
[root@ vitalpbx2 ~]# sed -i -r 's/localhost/192.168.10.60/' /usr/share/sonata/switchboard/monitor/config.ini
[root@ vitalpbx2 ~]# systemctl restart switchboard
```

Remember to change the Api Key for the value copied in the previous step.

Notes:

- The Sonata Switchboard license must be installed on the Master Server. This is because Sonata Switchboard connects directly to the Master Server via API and it needs to display the information in real time.
- You can install Sonata Recording, Sonata Billing, and Sonata Stats on the application server. In this case the license must be on the application server. No additional configuration is necessary.

2.6.- Pairing the two Servers (Continuing with the step by step)

Now, we will pair the two servers because we need them to have the same main Tenant ID.

Server 1

```
[root@ vitalpbx1.local ~]# mysql -uroot ombutel -e "select path from ombu_tenants" | awk 'NR==2'
af739029bb237e9e
```

Remember this ID.

Server 2

```
[root@ vitalpbx2.local ~]# mysql -uroot ombutel -e "select path from ombu_tenants" | awk 'NR==2'
633225cc70d86221
```

Next, in Server 2 Update the Tenant ID with the value of Server 1

```
[root@ vitalpbx2.local ~]# mysql -uroot ombutel -e "update ombu_tenants set path='af739029bb237e9e'"
```

And rename the main Tenant path in Server 2

```
[root@ vitalpbx2.local ~]# mv /var/lib/vitalpbx/static/633225cc70d86221 /var/lib/vitalpbx/static/af739029bb237e9e
```

2.7.- Firewall

In both Servers.
In VitalPBX GUI go to Admin>Firewall>Services and add the following Services.

Server Name	Port	Protocol
MariaDB Client	3306	TCP

Then, go to Admin>Firewall>Rules and add the Rules for the services created and in the Source for security use the local network (In my case is: 192.168.10.0/24). Then remember to apply changes in both servers. Also, for more security you can add the rules with the two servers IP address.

2.8.- Hostname

Next, we will connect through ssh to each of the servers and we configure the hostname of each server in the /etc/hots file, so that the three servers see each other with the hostname.

```
[root@vitalpbx1-2.local ~]# echo -e "192.168.10.61 \tvitalpbx1.local" >> /etc/hosts
[root@vitalpbx1-2.local ~]# echo -e "192.168.10.62 \tvitalpbx2.local" >> /etc/hosts
```

Remember to change the IP addresses to your IP addresses

2.9.- Configure the AMI client

For Sonata Switchboard to connect from the application server it is necessary to have access to an AMI account without restrictions, for this reason we must create a user as shown below.

```
[root@vitalpbx1.local ~]# nano /etc/asterisk/vitalpbx/manager__50-astboard-user.conf
[astboard]
secret = astboard
deny = 0.0.0.0/0.0.0.0
permit= 0.0.0.0/0.0.0.0
read = all
write = all
writetimeout = 5000
eventfilter=!Event: RTCP*
eventfilter=!Event: VarSet
eventfilter=!Event: Cdr
eventfilter=!Event: DTMF
eventfilter=!Event: AGIExec
eventfilter=!Event: ExtensionStatus
eventfilter=!Event: ChannelUpdate
eventfilter=!Event: ChallengeSent
eventfilter=!Event: SuccessfulAuth
eventfilter=!Event: NewExten
EOF
[root@vitalpbx1.local ~]#
```

2.10.- Configure MariaDB Master-Master Replication.

In Server 1 add this 2 line in file /etc/my.cnf.d/vitalpbx.cnf

server-id=1
log-bin=mysql-bin
report_host = master

```
[root@ vitalpbx1.local ~]# nano /etc/my.cnf.d/vitalpbx.cnf
[mysqld]
server-id=1
log-bin=mysql-bin
report_host = master

innodb_buffer_pool_size = 64M
innodb_flush_log_at_trx_commit = 2
innodb_log_file_size = 64M
innodb_log_buffer_size = 64M
bulk_insert_buffer_size = 64M
max_allowed_packet = 64M
```

2.10.1.- In Server 2

```
server-id=2
log-bin=mysql-bin
report_host = replica
```

```
[root@ vitalpbx2.local ~]# nano /etc/my.cnf.d/vitalpbx.cnf
[mysqld]
server-id=2
log-bin=mysql-bin
report_host = replica

innodb_buffer_pool_size = 64M
innodb_flush_log_at_trx_commit = 2
innodb_log_file_size = 64M
innodb_log_buffer_size = 64M
bulk_insert_buffer_size = 64M
max_allowed_packet = 64M
```

In Server 1 and 2 restart mariadb service

```
[root@ vitalpbx1-2 ~]# systemctl restart mariadb
```

2.10.2.- Create User for Replication in Server 1

Afterwards, in Server 1 create a user for replication slave followed by flush privileges.

```
[root@ vitalpbx1 ~]# mysql -uroot -e "grant replication slave on *.* to vitalpbx_replica@'%' identified by 'vitalpbx_replica';"
[root@ vitalpbx1 ~]# mysql -uroot -e "flush privileges;"
[root@ vitalpbx1 ~]# mysql -uroot -e "flush tables with read lock;"
```

You can change the username and password for your own

2.10.3.- Get the File Info In Server 1

At this point, if you do a show master status, you need to have a file with the mysql-bin incrementing number as well a position number. **Please write these two values**.

```
[root@ vitalpbx1 ~]# mysql -uroot -e "show master status" | awk 'NR==2 {print $1}'
[root@ vitalpbx1 ~]# mysql -uroot -e "show master status" | awk 'NR==2 {print $2}'
```

2.10.4.- Make all database copy In Server 1 and restore In Server 2

```
[root@ vitalpbx1 ~]# mysqldump -u root --all-databases > all_databases.sql
[root@ vitalpbx1 ~]# scp all_databases.sql root@192.168.10.62:/tmp/all_databases.sql
[root@ vitalpbx2 ~]# cd /tmp
[root@ vitalpbx2 ~]# mysql mysql -u root <  /tmp/all_databases.sql
```

2.10.5.- Create the Replication in Server 2

Stop the slave, add Master-1 to the Master-2 and start slave.

```
[root@ vitalpbx2 ~]# mysql -uroot -e "stop slave;"
[root@ vitalpbx2 ~]# mysql -uroot -e "change master to master_host='192.168.10.61',
master_user='vitalpbx_replica', master_password='vitalpbx_replica',
master_log_file='file_server_1', master_log_pos=position_server_1;"
[root@ vitalpbx2 ~]# mysql -uroot -e "start slave;"
```

You need to change the value of **file_server_1** and **position_server_1** for the value that you wrote in the step 2.10.3.

2.10.7.- Get the File Info In Server 2

Now In Server 2, if you do a show master status, you need to have a file with the mysql-bin incrementing number as well a position number. **Please write these two values**.

```
[root@ vitalpbx2 ~]# mysql -uroot -e "show master status" | awk 'NR==2 {print $1}'
[root@ vitalpbx2 ~]# mysql -uroot -e "show master status" | awk 'NR==2 {print $2}'
```

2.10.8.- Create the Replication in Server 1

Now make the las change in Server 1

```
[root@ vitalpbx1 ~]# mysql -uroot -e "unlock table;"
[root@ vitalpbx1 ~]# mysql -uroot -e "change master to master_host='192.168.10.62',
master_user='vitalpbx_replica', master_password='vitalpbx_replica',
master_log_file='file_server_2', master_log_pos=position_server_2;"
[root@ vitalpbx1 ~]# mysql -uroot -e "start slave;"
```

You need to change the value of **file_server_2** and **position_server_2** for the value that you wrote in the step 2.10.6.

2.11.- Configure lsync

2.11.1.- In Server 1

Remember to change the IP addresses to your IP addresses

```
[root@ vitalpbx1 ~]# nano /etc/lsyncd.conf
----
-- User configuration file for lsyncd.
--
-- Simple example for default rsync.
--
settings {
        logfile    = "/var/log/lsyncd/lsyncd.log",
        statusFile = "/var/log/lsyncd/lsyncd-status.log",
        statusInterval = 20,
        nodaemon   = true,
        insist = true,
}

sync {
        default.rsync,
        source="/var/spool/asterisk/monitor",
        target="192.168.10.62:/var/spool/asterisk/monitor",
        rsync={
                owner = true,
                group = true
        }
}

sync {
        default.rsync,
        source="/var/lib/asterisk/",
        target="192.168.10.62:/var/lib/asterisk/",
        rsync = {
                binary = "/usr/bin/rsync",
                owner = true,
                group = true,
                archive = "true",
                _extra = {
                         "--include=astdb.sqlite3",
                         "--exclude=*"
                          }
                }
}

sync {
        default.rsync,
        source="/var/lib/asterisk/agi-bin/",
        target="192.168.10.62:/var/lib/asterisk/agi-bin/",
        rsync={
                owner = true,
                group = true
        }
}
```

```
sync {
    default.rsync,
    source="/var/lib/asterisk/priv-callerintros/",
    target="192.168.10.62:/var/lib/asterisk/priv-callerintros",
    rsync={
        owner = true,
        group = true
    }
}

sync {
    default.rsync,
    source="/var/lib/asterisk/sounds/",
    target="192.168.10.62:/var/lib/asterisk/sounds/",
    rsync={
        owner = true,
        group = true
    }
}

sync {
    default.rsync,
    source="/var/lib/vitalpbx",
    target="192.168.10.62:/var/lib/vitalpbx",
    rsync = {
        binary = "/usr/bin/rsync",
        owner = true,
        group = true,
        archive = "true",
        _extra = {
                  "--exclude=*.lic",
                  "--exclude=*.dat",
             "--exclude=dbsetup-done",
                  "--exclude=cache"
              }
        }
}

sync {
    default.rsync,
    source="/etc/asterisk",
    target="192.168.10.62:/etc/asterisk",
    rsync={
        owner = true,
        group = true
    }
}
```

3.0.- Some sources of information

1.- https://tunnelix.com/simple-master-master-replication-on-mariadb/
2.- https://www.digitalocean.com/community/tutorials/how-to-mirror-local-and-remote-directories-on-a-vps-with-lsyncd
3.- Google Search