MiVoice 5000 Server and Cluster Server – Redundancy

12/2024

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CONTENTS

1 ABOUT THIS DOCUMENT

1.1 PURPOSE OF THIS DOCUMENT

This document describes how to install redundancy on MiVoice 5000 Server. This mechanism prevents hardware failures on a MiVoice 5000 Server and Cluster Server platform.

Flow separation is no longer treated in this document.

For redundant systems with flow separation, refer to the document on Mitel.com, MiVoice 5000 Telephony Flow Separation and Administration.

1.2 SCOPE

As of R8.0, the operating system Rocky Linux must first be installed before installing the MiVoice 5000 Server application.

Rocky Linux can only be used for a first installation.

When upgrading to R8.x from a version below R8.0, it is necessary to upgrade the OS.

Reference documents for the installation of the OS, the application and the update:

- Rocky Linux and Double Attachment
- MiVoice 5000 Server/Manager – Upgrading to R8.0
- MiVoice 5000 Server - Implementation
- MiVoice 5000 Server - Operating Manual
- Updating by Repository
- Updating Rocky Linux Security Patch

2 PRINCIPLES OF AND RECOMMENDATIONS ON HOW TO IMPLEMENT REDUNDANCY

Redundancy is a functional security mode based on the use of two servers:

- A main (Master) server for nominal operation,
- A secondary (Slave) server for resuming the operation if the main server fails (resulting in a switchover from Master to Slave).

Only one virtual address must be defined while installing the redundancy which allows the connected devices to communicate with the active machine only.

If the two servers are on the same network (LAN), redundancy is LAN type redundancy.

If the two servers are not on the same network, redundancy is WAN type redundancy.

The link to the ETHERNET network of these servers can be set up either:

- Through **simple attachment**: only one interface connected by a single cable. In this case, the physical interface "**eth** " of each server is used.
- Through **double attachment**: two interfaces linked together by two separate cables. In this case, the virtual interface "**bondx**" (bonding mode) is used; this is the only network view which allows a switchover from one physical interface to the other if any of them fails.

Note: The name of these interfaces may vary according to server type (emx instead of ethx, for instance).

Configuration in double attachment is handled in the document “Rocky Linux and Double attachment”.

To facilitate the procedure, it is advisable to set each server (main and secondary server) to double attachment. This is the default configuration (factory configuration) of the servers provided by Mitel.

However, the user can work in simple attachment mode by deactivating the virtual interface **bond0** and reconfiguring the **eth0** interface on each server.

In summary, the rules for and order of implementation are:

- In all cases, start by installing the operating system on each server.
- In case of redundancy with double attachment:
  - Double attachment must always be configured first before implementing redundancy.
  - Redundancy must then be installed with the **bond0** interface on each server.

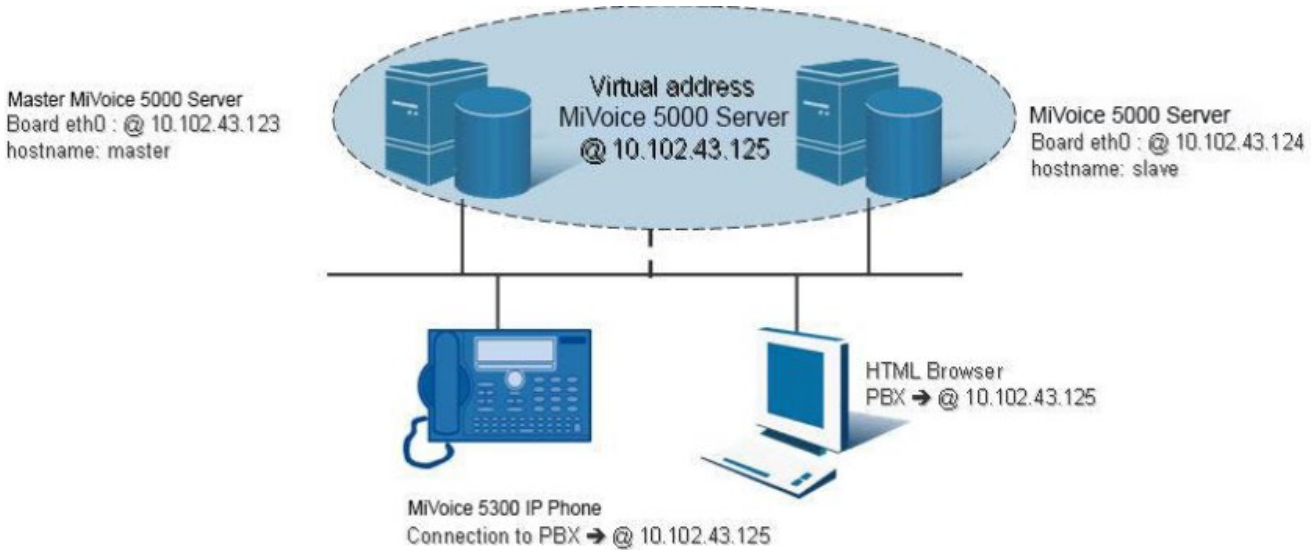
Note: For virtual machines, double attachment is not required.

- In case of redundancy without double attachment:
  - Redundancy must be implemented with the **eth0** interface on each server.

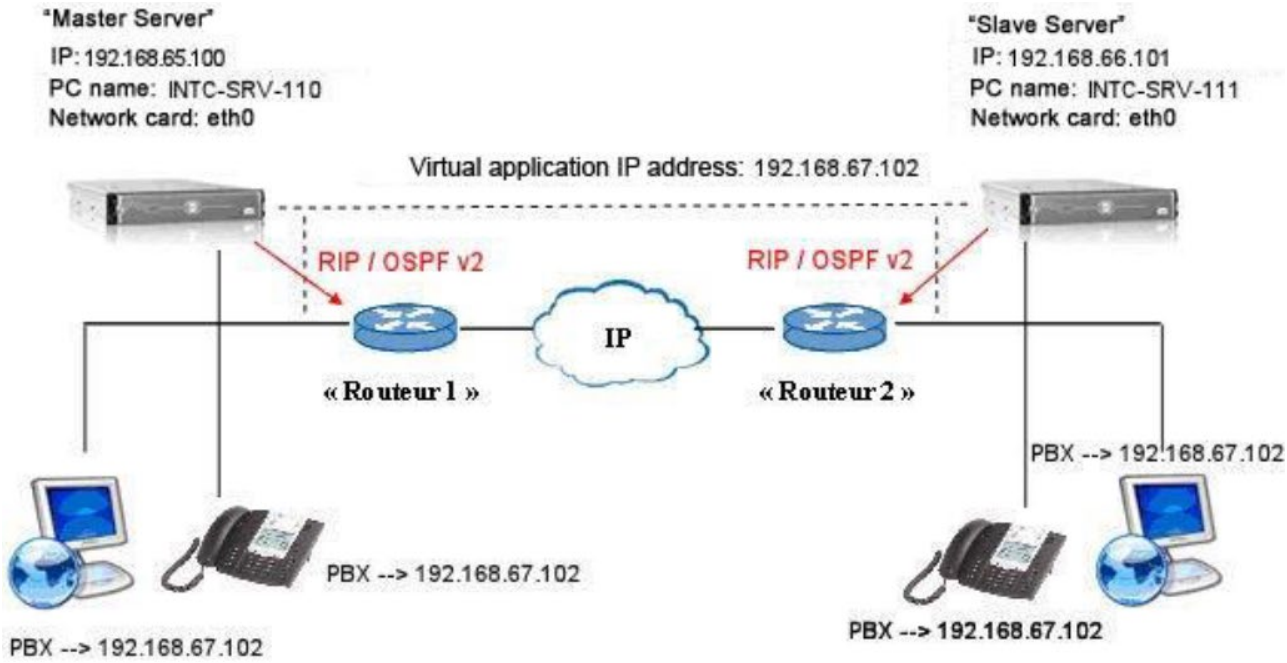
Example of environments

For each of these environments, refer to the section concerned for details of the procedure.

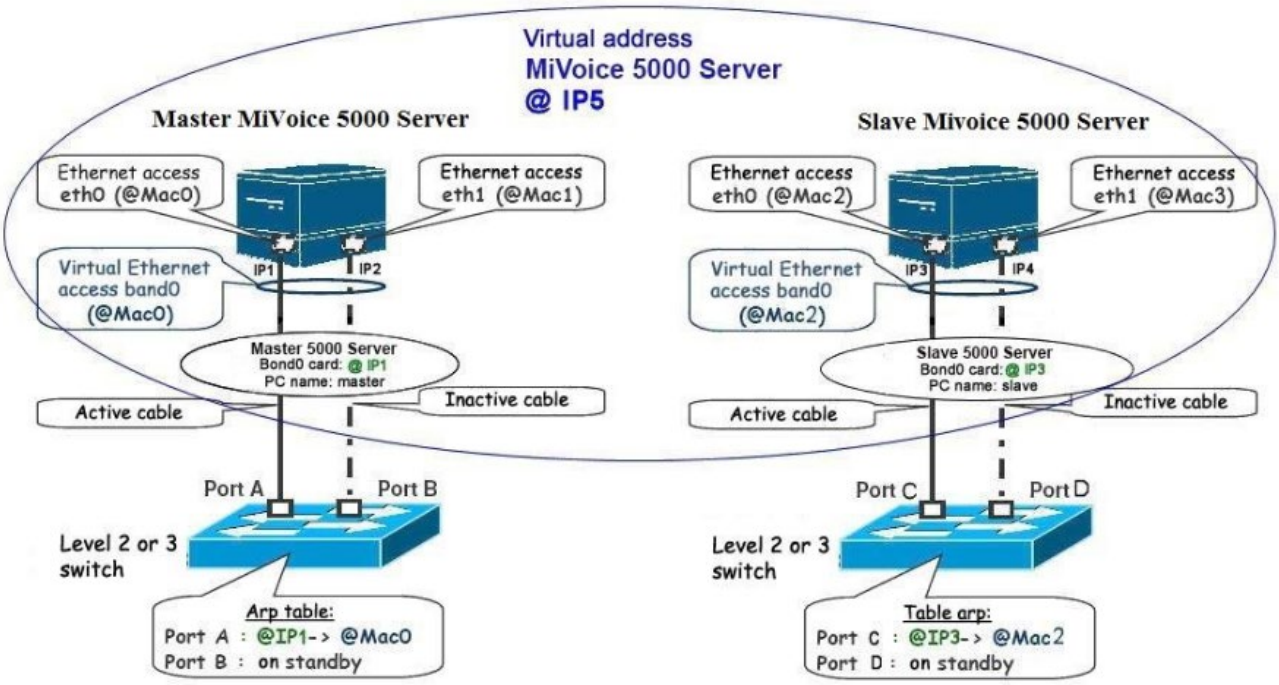
LAN redundancy without double attachment



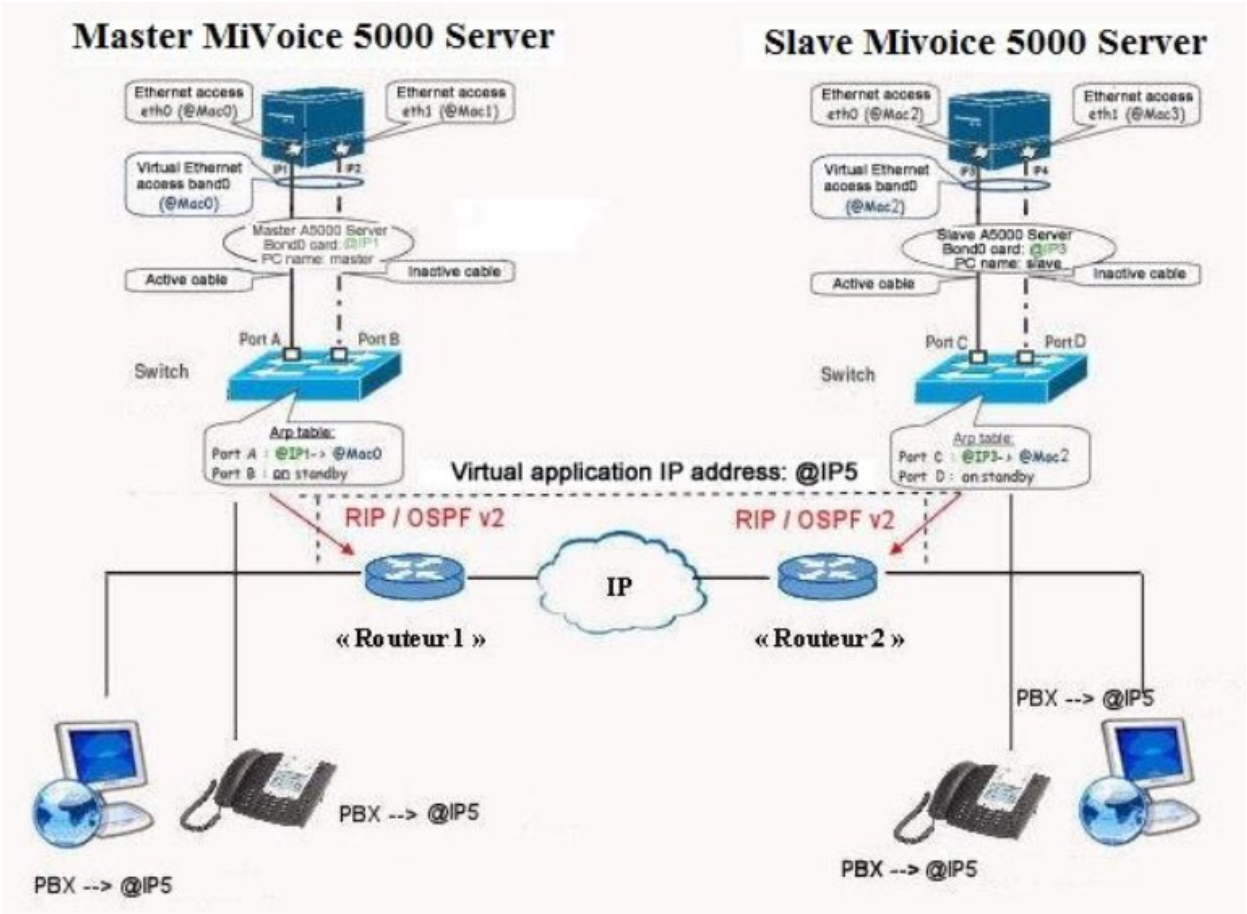
WAN redundancy without double attachment



LAN redundancy with double attachment



WAN redundancy with double attachment



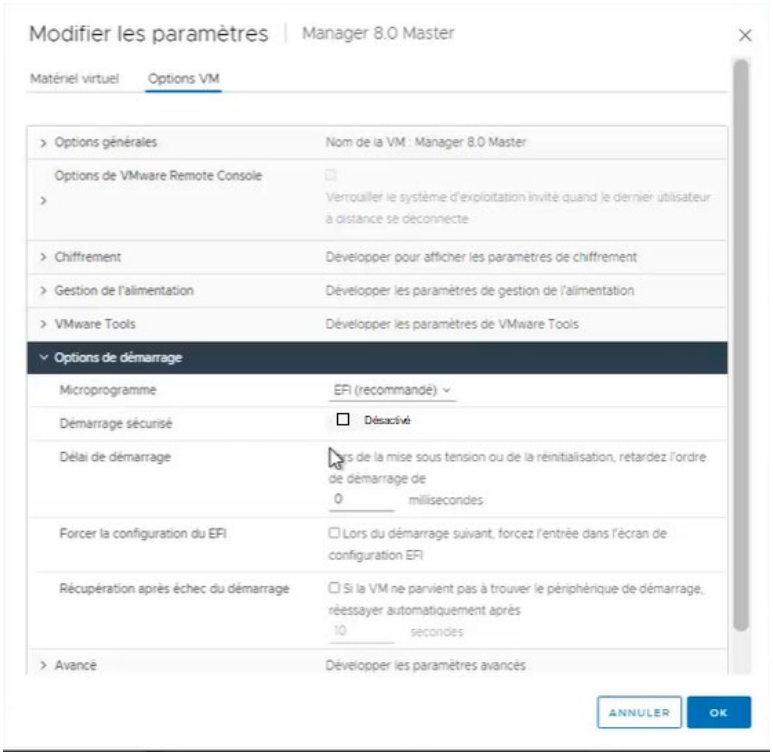
3 INSTALLING REDUNDANCY

WARNING: Network interface names

In this chapter, the basic or standby Ethernet access will be called ethx. This name must be adapted to the type of server or working mode used:

- **emx for certain types of servers.**
- **bond0 in case of double attachment.**
- **eth0 should therefore be replaced with em1, bond0 or br0 if necessary.**
- **eth1 must be replaced with em2 where necessary.**

Disable boot in the Boot Options menu: Secure Boot > Disabled



In this document, the installation of redundancy will only be described with double attachment; Mitel recommends this configuration to facilitate the procedure.

This is the default configuration (factory configuration) of the servers provided by Mitel.

However, the user can work in simple attachment mode by deactivating the virtual interface **bond0** and reconfiguring the **eth0** interface on each server.

The following configuration is described in this chapter:

- The two MiVoice 5000 Server PCs are located on the same LAN at the client's.
- Each MiVoice 5000 Server PC has two Ethernet accesses.
- The virtual IP address used must be on the same subnet as the physical addresses of the two MiVoice 5000 Server PCs.
- The physical and virtual IP addresses must be fixed.

3.1 GENERAL INFORMATION

Redundancy ensures service continuity in case the active server fails or becomes inaccessible.

The solution is based on the use of the software Corosync and DRBD in a ROCKY Linux environment.

- Corosync for mutual PC monitoring and switchover management
- DRBD for data replication.

Only one virtual IP address is used to address the active PC; this virtual IP address is assigned dynamically to the active PC. This way, systems (telephones, applications, etc.) always use a single IP address (the virtual IP address) and the same IP address, no matter the active address.

3.1.1 DEFENCE MECHANISMS FOLLOWING A HARDWARE FAILURE

Defence mechanisms:

The master MiVoice 5000 Server PC has a hardware failure:

- The virtual IP address becomes active on the slave MiVoice 5000 Server PC.
- The services are started on the slave MiVoice 5000 Server PC.

The master MiVoice 5000 Server PC starts working again:

- If Failback mode = ON
  - The virtual IP address becomes automatically active on the slave MiVoice 5000 Server PC.
  - The services are automatically started on the slave MiVoice 5000 Server PC.
- If Failback mode = OFF
  - If manually activated by the administrator, the virtual IP address becomes active on the master MiVoice 5000 Server PC.

3.1.2 DEFENCE MECHANISMS IN CASE OF NETWORK DISCONNECTION

In case of network disconnection (behaviour not dependent on Failback mode), the behaviour of redundancy depends on ping configuration and redundancy type (LAN or WAN).

3.1.2.1 USING COROSYNC WITH THE PING FUNCTION: GENERAL PRINCIPLE

Upgrading to Corosync allows you to use the system's ping function.

The ping function is used to test the connection to the default gateway (router):

- If the ping is working: nominal case
- If the ping function does not work from the master MiVoice 5000 Server PC, Corosync deactivates the master MiVoice 5000 Server (the services are stopped, the virtual IP address is disabled) and the slave MiVoice 5000 Server PC becomes active (the services are started, and the virtual IP address is enabled).

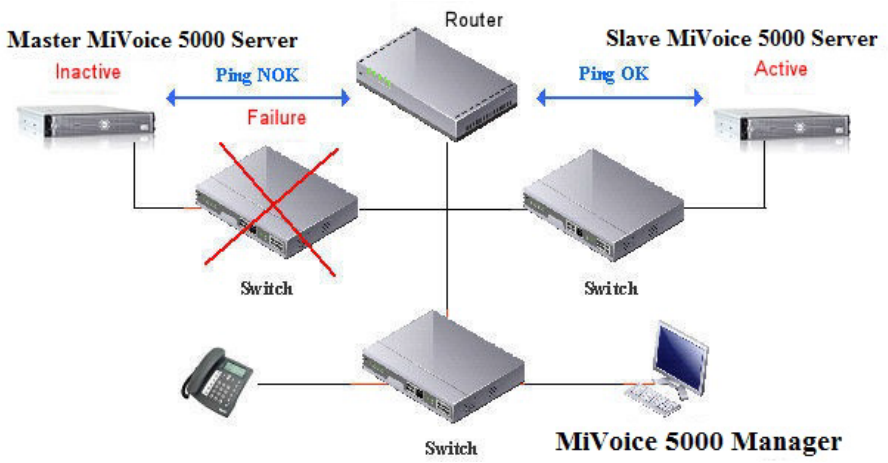
Note: A MiVoice 5000 Server PC without access to the router can never be active.

- If none of the two MiVoice 5000 Server PCs has access to its router, this means that MiVoice 5000 Server is no longer working on any of the two PCs (the services are stopped, the virtual IP address becomes inactive). This case is not really a problem because the loss of default gateway isolates the MiVoice 5000 Server PC VLAN from the rest of the network.

3.1.2.2 USING COROSYNC WITH THE PING FUNCTION: LAN REDUNDANCY

Before the failure, the master MiVoice 5000 Server PC had been active, and the slave MiVoice 5000 Server PC passive (inactive).

After the failure:



The master MiVoice 5000 Server PC was deactivated upon a ping NOK. The slave MiVoice 5000 Server PC became active after 10 seconds of network failure.

The services (here the master MiVoice 5000 Server PC) are deactivated 20 seconds after the router connection is lost.

Introducing this ping helps avoid having two active MiVoice 5000 Server PCs on a LAN configuration. In fact, without this test the master MiVoice 5000 Server PC would also be active when the network fails.

There are two possibilities after a network failure:

- One MiVoice 5000 Server PC is active and the other passive (inactive): in this case, when the network connection is restored, the passive MiVoice 5000 Server PC automatically synchronises with the MiVoice 5000 Server PC that is active after the network failure. In the above example the data on the master MiVoice 5000 Server PC will be overwritten by the data on the slave MiVoice 5000 Server PC.

- The two MiVoice 5000 Server PCs are passive (inactive): the services restart normally on any of the two PCs when the network connections are restored.

3.1.2.3 USING COROSYNC WITH THE PING FUNCTION: WAN REDUNDANCY

Introducing this ping helps avoid having two active MiVoice 5000 Server PCs at the same time on a WAN configuration, unless the failure occurs between the 2 routers, on the WAN link.

Before the failure, the master MiVoice 5000 Server PC had been active, and the slave MiVoice 5000 Server PC passive (inactive).

There are three possibilities after a network failure:

- One MiVoice 5000 Server PC is active and the other passive (inactive): in this case, when the network connection is restored, the passive MiVoice 5000 Server PC automatically synchronises with the MiVoice 5000 Server PC that is active after the network failure. In our example, the data on the master MiVoice 5000 Server PC will be overwritten by the data on the slave MiVoice 5000 Server PC.
- The two MiVoice 5000 Server PCs are passive (inactive): the services restart normally on any of the two PCs when the network connections are restored.
- Both MiVoice 5000 Servers are active (case of network failure on the WAN link between the two routers): services restart normally on the master MiVoice 5000 Server when the network connection is restored and the data of the slave MiVoice 5000 Server is overwritten by that of the master MiVoice 5000 Server.

Therefore, all cases of network failure are not fully managed through this "ping" option in WAN redundancy.

3.1.2.4 USING COROSYNC WITHOUT THE PING FUNCTION

In case of network disconnection:

- The virtual IP address becomes active both on the master and slave MiVoice 5000 Server PCs.
- The services are started on the master and slave MiVoice 5000 Server PCs.

Network connections are restored:

- The virtual IP address becomes automatically active on the master MiVoice 5000 Server PC.
- The services are automatically restarted on the master MiVoice 5000 Server PC.
- The services are stopped on the slave MiVoice 5000 Server PC.

WARNING: The data status may differ between the master and slave MiVoice 5000 Server PCs. The data kept is the data on the active MiVoice 5000 Server PC prior to the network disconnection.

3.2 INSTALLING REDUNDANCY

The procedure is described for the different cases mentioned above, indicating their respective specific features, if necessary:

- **LAN Configuration without double attachment**
  - The two MiVoice 5000 Server PCs are located on the same LAN at the client's.
  - Each MiVoice 5000 Server PC has a single network card.
- **LAN Configuration with double attachment**
  - The two MiVoice 5000 Server PCs are located on the same LAN at the client's.
  - Each MiVoice 5000 Server PC has two network cards.
- **WAN configuration without double attachment**
  - The two MiVoice 5000 Server PCs are located on two different networks.
  - Each MiVoice 5000 Server PC has a single network card.
  - The virtual IP address must have at most a 30 bits mask.
- **WAN configuration with double attachment**
  - The two MiVoice 5000 Server PCs are located on two different networks.
  - Each MiVoice 5000 Server PC has two network cards.
  - The virtual IP address must have at most a 30 bits mask.

In all cases:

- The physical and virtual IP addresses must be fixed.

Note: For virtual machines, double attachment is not required.

3.2.1 REDUNDANCY INSTALLATION PREREQUISITES

Before installing redundancy on the two machines:

- Install the operating system.
- Configure double attachment if necessary.
- Configure the firewall.
- Collect the information needed to install redundancy.

These steps are described in detail in the following sections.

3.2.1.1 INSTALLING THE OS AND CONFIGURING DOUBLE ATTACHMENT

Before installing redundancy, first install the operating system on each MiVoice 5000 Server PC. Refer to the document **Rocky Linux and Double attachment**.

Check that time-stamping is the same on the two machines, or that both machines are pointing to the same NTP server.

For virtual machines (VM) provided by Mitel, the names of the master and slave PCs must be modified so they do not have the same name. Refer to the document **ROCKY Linux and Double attachment**.

WARNING: The size of the partition to be made redundant must be the same on the master and slave MiVoice 5000 Server PCs.

In case of double attachment for PCs with two interfaces/network cards, configure double attachment by referring to the document “**Rocky Linux and Dual attachment”**.

3.2.1.2 CONFIGURING THE FIREWALL

If the firewall is activated, the following ports must be open on each machine:

- TCP Port 7788: DRBD
- UDP Port 5405: Corosync

To know the current configuration of the firewall:

systemctl status iptables

To configure the firewall:

- Log in as **root**.
- Configure the file **iptables** in the directorry **/etc/sysconfig**.

To disable the firewall:

Type in the following commands:

systemctl stop iptables

systemctl disable iptables

3.2.1.3 COLLECTING THE INFORMATION NEEDED TO INSTALL REDUNDANCY.

The following information must be collected and available before running the local redundancy installation scripts:

- The licences associated with the master MiVoice 5000 Server PC dongle (functions sold to the client)
- The redundancy licence associated with the slave MiVoice 5000 Server PC
- The IP address of the master MiVoice 5000 Server PC
- The IP address of the slave MiVoice 5000 Server PC
- The IP address of the redundancy MiVoice 5000 Server PC
- The prefix of the mask associated with the virtual IP address

WARNING: Enter the prefix value of the mask. For example, the prefix 24 corresponds to Mask 255.255.255.0. Refer to Section **6.2 Mask/address prefix conversion**.

- The name of the master MiVoice 5000 Server PC
- The name of the slave MiVoice 5000 Server PC
- The IP address of the gateway (router) to be pinged (connectivity test).

WARNING: The PC name should not start with a number. The name of the Master PC must be different from that of the Slave PC. To rename the PCs, refer to the document **ROCKY Linux and Double attachment**.

- The label of the master MiVoice 5000 Server PC Ethernet interface for the Corosync link
- The label of the slave MiVoice 5000 Server PC Ethernet interface for the Corosync link
- The label of the master MiVoice 5000 Server PC Ethernet interface for the virtual IP address
- The label of the slave MiVoice 5000 Server PC Ethernet interface for the virtual IP address
- The name of the partition to be made redundant on the master MiVoice 5000 Server PC
- The name of the partition to be made redundant on the slave MiVoice 5000 Server PC
- The operating mode of redundancy, after a hardware failure: the master PC can be reactivated, and the slave PC returned to standby mode, automatically (Failback set to ON) or manually (Failback set OFF). Mitel recommends setting this mode to OFF.

WARNING: The size of the partition to be made redundant must be the same on the master and slave MiVoice 5000 Server PCs.
The label of the Ethernet interface used by the virtual IP address must be the same on the master and slave MiVoice 5000 Server PCs.

3.2.1.4 NAME INPUT AND RESOLUTION ON THE MASTER PC

- Log in to the **root** account with the password **Mitel5000 on the master PC.**
- Upon **#** prompt, type in the command below to give a name to the master PC:

  # hostnamectl set-hostname master-miv5000

With this command the prompt is used to check the name, by typing in the command:

[root@miv5000-master ~]# **hostname**

master-miv5000

- Go to the /**etc.** directory, edit the **hosts** file, add to this file the IP addresses / name of the master and slave MiVoice 5000 as follows:

```
127.0.0.1      localhost  localhost.localdomain  localhost4
localhost4.localdomain4
192.168.0.200  master-miv5000
192.168.0.201  slave-miv5000
::1             localhost localhost.localdomain localhost6
localhost6.localdomain6
```

- Check that the resolution is actually working by typing in the command:

  # ping slave-miv5000

3.2.1.5 COLLECT THE NAME OF THE PARTITION TO BE MADE REDUNDANT ON THE MASTER PC.

- Upon **#** prompt, type in the **mount** command.
- Check the device name of the partition to be made redundant **(/opt/a5000**) on the master MiVoice 5000 Server PC: **sda3** (this name may be different depending on the PC).

3.2.1.6 NAME INPUT AND RESOLUTION ON THE SLAVE PC

- Log on to the **root** account with the password **Mitel5000** on the slave PC**.**
- Upon **#** prompt, type in the command below to give a name to the **slave** PC:

  # hostnamectl set-hostname slave-miv5000

With this command the prompt checks the name.

- Check by typing in the command:

  [root@**miv5000-slave** ~]# **hostname**

  slave-miv5000

- Go to the **etc** directory, edit the **hosts** file, add to this file the IP addresses / name of the master and slave MiVoice 5000 as follows:

```
127.0.0.1      localhost  localhost.localdomain  localhost4
localhost4.localdomain4
192.168.0.200  master-miv5000
192.168.0.201  slave-miv5000
::1             localhost localhost.localdomain localhost6
localhost6.localdomain6
```

- Check that the resolution is actually working by typing in the command:

  # ping master-miv5000

3.2.1.7 COLLECT THE NAME OF THE PARTITION TO BE MADE REDUNDANT ON THE SLAVE PC.

- Type in the **mount** command then check the device name of the partition to be made redundant **(/opt/a5000**) on the slave MiVoice 5000 Server PC: **sda3** (this name may be different depending on the PC).

WARNING: The size of the partition to be made redundant must be the same on the master and slave MiVoice 5000 Server PCs (40 GB or above).

WARNING: The name of the Ethernet interface must be the same on the master and slave MiVoice 5000 Server PCs.

3.2.2 INSTALLING AND CONFIGURING REDUNDANCY ON THE MASTER PC

- Log in **to the master PC** as **root** using the password **Mitel5000.**
- Mount the iso image (**ACS_A5000_R8.0_RC_AXYY.iso**) provided on Mitel site. Refer to Section 6.1.
- Go to the directory **/cdutils/redhat/utils/bin/dupliv2**
- Run the installation script with the command **./install_redondance.script**

Note: The values in brackets [ ] are the default values. The values to be filled in are indicated in bold, some of them are recommended by Mitel.

```
Master PC (1) or Slave PC (0)? []: 1
Master IP Address? []: IP address of the master PC
Master Hostname? []: Master PC name
Slave IP Address? []: IP address of the slave PC
Slave Hostname? []: Slave PC name
Virtual IP address? []: Virtual IP address
Virtual IP netmask? []: Mask virtual IP address: 24
Do you want a 2nd IP address: Yes(1) or No(0) ? [0]: 0
Redundancy LAN(0) or WAN(1)? [0] : 0 or 1
```

Network configuration type:

- **LAN configuration:** Enter the value **0**.
- **WAN configuration:** Enter the value **1**.

```
DRBD Protocol (A or C)? [A]: A or C
```

- For WAN: A or C , depending mainly on the bandwidth (A = low, C high)
- For LAN: The question is not asked. (Value C)

```
DRBD resynchronisation rate (30% bandwidth, in kByte/sec)? [200] : 80M
```

- **The value is in KB/s:** Enter the required value.
  Example: 375

Note: In a distance-based redundancy, the bandwidth may be insufficient. To avoid bandwidth problems, limit the bandwidth used for the DRDB resynchronisation. The resynchronisations occur after network outages between the servers or after one of the machine's crashes. The expected value is in Kb/s and represents 30% of the bandwidth of the WAN link.

Example: For a 10Mb/s (megabits per second), enter the value 375 (KB/s, or kilobytes per second).

The calculation to obtain the value is 10000 x 0.3 ÷ 8.

Type of attachment:

- **Single attachment (1 network card):**

```
Master Ethernet board for redundancy? [eth0]: eth0
Slave Ethernet board for redundancy? [eth0]: eth0
Ethernet board for applications? [eth0]: eth0
```

- **Double attachment (2 network cards):**

```
Master Ethernet board for redundancy? [eth0]: bond0
Slave Ethernet board for redundancy? [eth0]: bond0
Ethernet board for applications? [eth0]: bond0
```

```
Do you want to ping an IP address: Yes(1) or No(0) ? [0]: 1 or 0
```

- **1 if** there is a gateway IP address
- **0** if there is no gateway IP address

```
Master: IP address to ping? [eth0] : IP address of the gateway for the master PC
Slave: IP address to ping? [ ]: IP address of the gateway for the slave PC
```

`Master partition? []:` **sda3** (this name may be different depending on the PC)
`Slave partition? []:` **sda3** (this name may be different depending on the PC)
`Redundancy deadtime (in seconds)? [10] :` **10**
`Failback auto = ON/OFF? [OFF]:` **OFF**

WAN-specific settings:

`Routing Protocol: RIP or OSPF? [RIP]:` **RIP or OSPF**

- **For the OSPF protocol only:**

`OSPF Area ? [0] :` To define according to the number of OSPF zones
`OSPF Hello Interval ? [10] :` In seconds, the time for an interval for hello packets
`OSPF Dead Interval ? [40]:` In seconds, the time without any hello packet before declaring a neighbor dead
`OSPF Priority (0-255) [0]:` Order of protocol priority:
  - **0** if there is no priority to apply.
  - **1 to 255** to define a priority.

`Routing Authentication: Yes(1) or No(0) ? [0] :` **0**

- After checking the redundancy configuration settings, answer **1** to the question: **`Do you want to apply these settings: Yes(1) / No(0)`**

- Check that the installation scripts are running correctly.
  Wait for the end of the initialisation.

- Check the synchronisation status on the master PC:
  - Type in this command:
    #drbdsetup status

  The following **Primary** information must appear for the master PC:

```
[root@guymv5000m ~]# drbdsetup status
r0 role:Primary
disk:UpToDate
guymv5000e role:Secondary
peer-disk:UpToDate
```

THE INSTALLATION AND CONFIGURATION OF REDUNDANCY ON THE MASTER PC HAVE BEEN COMPLETED.

3.2.3 INSTALLING AND CONFIGURING REDUNDANCY ON THE SLAVE PC

WARNING: The size of the partition to be made redundant must be the same on the master and slave MiVoice 5000 Server PCs.
The label of the Ethernet interface used by the virtual IP address must be the same on the master and slave MiVoice 5000 Server PCs.

- Log in **to the slave PC** as **root** using the password **Mitel5000.**
- Mount the iso image (ACS_A5000_R8.0_RC_AXYY.iso) provided on the Mitel site. Refer to Section 6.1.
- Run the installation script with the command **./install_redondance.script**

Note: The values in brackets [ ] are the default values. The values to be filled in are indicated in bold, some of them are recommended by Mitel.

`Master PC (1) or Slave PC (0)? []:` **0**
`Master IP Address? []:` **IP address of the master PC**
`Master Hostname? []:` **Master PC name**
`Slave IP Address? []:` **IP address of the slave PC**

`Slave Hostname? []:` **Slave PC name**
`Virtual IP address? []:` **Virtual IP address**
`Virtual IP netmask? []:` **Mask virtual IP address: 24** (Refer to the conversion equivalence in Section **Erreur ! Source du renvoi introuvable.**).
`Do you want a 2nd IP address: Yes(1) or No(0) ? [0]:` **0**
`Redundancy LAN(0) or WAN(1)? [0] :` **0** or **1**

Network configuration type:

- **LAN configuration:** Enter the value **0**.
- **WAN configuration:** Enter the value **1**.

`DRBD Protocol (A or C)? [A]:` **A** or **C**

- For WAN: A or C , depending mainly on the bandwidth (A = low, C high)
- For LAN: The question is not asked. (Value C)

`DRBD resynchronisation rate (30% bandwidth, in kByte/sec)? [200] :` **80M**

Type of attachment:

- **Single attachment (1 network card):**

`Master Ethernet board for redundancy? [eth0]:` **eth0**
`Slave Ethernet board for redundancy? [eth0]:` **eth0**
`Ethernet board for applications? [eth0]:` **eth0**

- **Double attachment (2 network cards):**

`Master Ethernet board for redundancy? [eth0]:` **bond0**
`Slave Ethernet board for redundancy? [eth0]:` **bond0**
`Ethernet board for applications? [eth0]:` **bond0**
`Do you want to ping an IP address: Yes(1) or No(0) ? [0]:` **1** or **0**

- **1 if** there is a gateway IP address
- **0** if there is no gateway IP address

`Master: IP address to ping? [eth0] :` **IP address of the gateway for the master PC**
`Slave: IP address to ping? [ ]:` **IP address of the gateway for the slave PC**
`Master partition? []:` **sda3 (**this name may be different depending on the PC). (This is the name of the **/opt/a5000** partition defined while installing the OS on the master machine).
`Slave partition? []:` **sda3** (this name may be different depending on the PC). (This is the name of the **/opt/a5000** partition temporarily defined for the slave PC's OS. This value should be confirmed and changed if necessary when updating the redundancy settings on the master and slave PCs.
`Redundancy deadtime (in seconds)? [10] :` **10**
`Failback auto = ON/OFF? [OFF]:` **OFF**

WAN-specific settings:

`Routing Protocol: RIP or OSPF? [RIP]:` **RIP or OSPF**

- **For the OSPF protocol only:**

`OSPF Area ? [0] :` To define according to the number of OSPF zones
`OSPF Hello Interval ? [10] :` In seconds, the time for an interval for hello packets
`OSPF Dead Interval ? [40]:` In seconds, the time without any hello packet before declaring a neighbor dead
`OSPF Priority (0-255) [0]:` Order of protocol priority:

- **0** if there is no priority to apply
- **1 to 255** to define a priority

`Routing Authentication: Yes(1) or No(0) ? [0] :` **0**

- After checking the redundancy configuration settings, answer **1** to the question: **`Do you want to apply these settings: Yes(1) / No(0)`**

- Check that the installation scripts are running correctly.
  Wait for the end of the initialisation.

- Check that the installation is working well:
  - Check that the synchronisation operation is working well:

- Check on the **master** MiVoice 5000 Server PC that the partition **/opt/a5000** has actually been mounted (**mount** command).
- Check the synchronisation status on the **master** server:
- Type in the command **#drbdsetup status**.
- The result below must appear:

```
[root@guymv5000e ~]# drbdsetup status
r0 role:Primary
disk:UpToDate
guymv5000m role:Secondary
peer-disk:UpToDate
```

- Check the virtual address on the **master** PC (command: **ifconfig (example with bonding bond0:0)**.

THE INSTALLATION AND CONFIGURATION OF REDUNDANCY ON THE SLAVE PC AND THE SYNCHRONISATION OF THE MASTER AND SLAVE PC HAVE BEEN COMPLETED.

3.3 INSTALLING AND CONFIGURING THE MIVOICE 5000 SERVER APPLICATION

3.3.1 INTRODUCTION

The configuration made while installing the application must be identical on both PCs (master and slave).

3.3.2 INSTALLING RELEASE R8.2 OR MORE ON THE MASTER MIVOICE 5000 SERVER PC

- Check on the slave MiVoice 5000 Server PC that the partition **/opt/a5000** has actually been mounted thanks to the **mount** command.
- Go to the root of the CD-ROM tree.
- Run the MiVoice 5000 software installation script:

./install_a5000_server.sh

3.3.3 INSTALLING RELEASE R8.2 OR MORE ON THE SLAVE MIVOICE 5000 SERVER PC

Switching to the Slave machine:

- On the slave machine:
- Position yourself in the **/cdutils/redhat/utils/bin/dupliv2/files** directory

Type the command: **./hb_takeover**

- Check that the failover has taken place.
- Type the command drbdsetup status
- The following information should appear:

```
[root@guymv5000m ~]# drbdsetup status
r0 role:Primary
disk:UpToDate
guymv5000e role:Secondary
peer-disk:UpToDate
```

- Go to the root of the CD-ROM tree structure
- Launch the MiVoice 5000 software installation script:

./install_a5000_server.sh

- Check the correct execution of the installation scripts: **OK** report on each line.

3.3.4 RUNNING THE REDUNDANCY START SCRIPT ON THE SLAVE PC

- Log in **to the slave PC** as **root** using the password **Mitel5000**.
- Go to the directory **/cdutils/redhat/utils/bin/dupliv2**
- Run the script:

./**start_redondance.script**

WARNING: **At the end of its execution, this script switches automatically to the master MiVoice 5000 Server PC which becomes active. The virtual address of the master MiVoice 5000 Server PC becomes active and the virtual address on the slave A5000 Server PC becomes inactive.**

Remove the CD or DVD:

#cd

#umount /mnt/iso

THE RUNNING OF THE REDUNDANCY START SCRIPT ON THE SLAVE PC HAS BEEN COMPLETED.

3.3.5 RUNNING THE REDUNDANCY START SCRIPT ON THE MASTER PC

- Log in **to the master PC** as **root** using the password **Mitel5000**.
- Check that the change to the master PC (following the running of the redundancy start script on the slave PC) has taken place correctly:
  - Type in the command **drbdsetup status**.
  - The following information must be displayed:

```
[root@guymv5000m ~]# drbdsetup status
r0 role:Primary
disk:UpToDate
guymv5000e role:Secondary
peer-disk:UpToDate
```

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2**
- Run the script:

  ./start_redondance.script

Remove the CD or DVD:

#cd
#umount /mnt/iso

THE RUNNING OF THE REDUNDANCY START SCRIPT ON THE MASTER PC HAS BEEN COMPLETED.

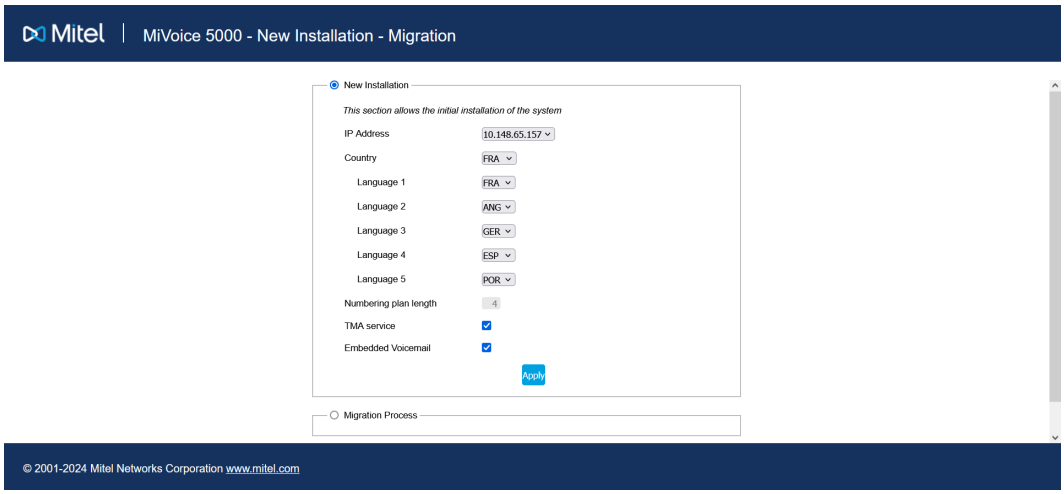
3.3.6 CONFIGURING THE MASTER AND SLAVE PCS THROUGH THE QUICK INSTALL WEB PAGE

The remaining installation operation should be carried out using the MiVoice 5000 Quick Install, accessible at **http://IP_Address** where **IP_Address** is the virtual IP address of the master PC.

For more information, refer to the document MiVoice 5000 Server – Implementation Manual.

- In the **New installation** section, fill the displayed fields.
- Click **Apply** to start installing with the settings entered. The installation takes a few minutes.
- After installation, the tool automatically launches the Web Admin of MiVoice 5000 Call Server.

Repeat the configuration steps with the slave PC.



WARNING: **After installation, the quick install tool is no longer accessible.**

3.4 OS SECURITY PATCHES

Refer to the document **Rocky Linux OS Security Patch Update**.

Main phases:

- Install the security patches iso image provided by Mitel on the slave PC.
- Run the installation script on the slave PC.
- Restart the slave PC (**Shutdown -r now)**.
- Install the security patch iso image provided by Mitel on the master PC.
- Run the installation script on the master PC.
- Restart the master PC (**Shutdown -r now)**.

3.5 DECLARING LICENCES

3.5.1 PRECAUTIONS FOR USE

The installation code is unique, and the generated keycode can only work with an installation code.

If an installation code is generated without obtaining a new keycode, the functions subject to a licence are closed within one hour.

To manage different cases requiring a change of installation code during the system's service life, especially for cases during 24/7 working period, it is now possible to change the installation code without first asking Mitel for permission.

After this change, you will no longer have the right to make any modification, you must contact Mitel to indicate your reasons for this change (user modification, physical replacement of the platform, network modification, etc.).

After analysing your request, you will again be authorised to modify the installation code.

During a consultation on the licence server ("search for a key"), the right to modify the installation code on the identification number concerned is indicated via the following information:

- Modification of installation code allowed
- Modification of installation code not allowed

Reminder: the IID number is the installation number, and you must check that it is regularly called up. If this is not the case, some error messages appear in the logbook after one month then the functions are locked.

Note: The data entered on the master MiVoice 5000 Server PC is automatically updated on the slave MiVoice 5000 Server PC. The slave Licence tab is used to view the licences for the slave PC.

CAUTION: If the master MiVoice 5000 Server PC is active, the redundancy licence is not seen as open on it.

If the slave MiVoice 5000 Server PC becomes active after a switchover, the licences are only valid for 30 days. As from D-7, a message is displayed daily in the PC logbook reminding the administrator that the licences will soon expire.

In case of switchover to the slave MiVoice 5000 Server PC, all licences, including the redundancy licence, are seen as open on this PC.

The message “Duplex operation in slave mode” appears on the welcome page of the slave MiVoice 5000 Server PC when this latter is active.

Checking the validity of the virtual dongle

A periodic check is made on the activity passing through the IP access and the IID number for the ID of this dongle type.

As from the 30th day, the logbook gives a message about inactivity on any of these accesses.

If no activity is detected for the next 30 days, the licence is cancelled.

3.5.2 ENTERING LICENCES IN THE MASTER MIVOICE 5000 SERVER PC.

Note: From Web Admin, check that the IP address of the PTx is the virtual IP address.

From Web Admin of the **master** PC

Preliminary operations:

- Regenerate the installation code from the IP address, and IID from Menu **System>info>Licences**.
- Log in to the MITEL licence server to regenerate the licences.

Then on the **master** PC:

- On the master MiVoice 5000 Server PC, in Menu **System>Info>Licences**, enter the licence needed by the client.

The functions in question are then authorised on the **master** PC.

It is advisable to make a call from outside to check the validity of the key immediately.

It is advisable to store this licence in a text file.

3.5.3 ENTERING LICENCES IN THE SLAVE MIVOICE 5000 SERVER PC.

Note: From Web Admin, check that the IP address of the PTx is the virtual IP address.

On the **master** PC, perform a **switchover to slave:**

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2/files**
- Type in the command **./hb_standby**.

From Web Admin of the **slave** PC

Preliminary operations:

- Regenerate the installation code from the IP address, and IID from Menu **System>info>Licences** - **Slave** tab.
- Log in to the MITEL licence server to regenerate the licences.

Then on the **slave** PC:

- On the **slave** MiVoice 5000 Server in Menu **System>Info>Licences** enter the redundancy licence.

It is advisable to make a call from outside to check the validity of the key immediately.

It is advisable to store this licence in a text file.

3.5.4 SWITCHING TO THE MASTER PC

- On the slave PC:
- Go to the directory **/cdutils/redhat/utils/bin/dupliv2/files**
- Type in the command **./hb_takeover**.
- Check that the switchover has been successfully completed.

3.5.5 SWITCHOVER TESTS

- Access Web Admin via the url **https://192.168.0.202**

Note: If a message **"Secure connection failure"** is displayed, add an exception, click **Obtain the certificate** then **confirm the security exception.**

- MiVoice 5000 Server login screen:
  - Enter the default access login: **admin**
  - Enter the default access password: **admin**
  - The MiVoice 5000 Web Admin welcome screen is displayed.

- Go to Menu

Telephony service>System>Configuration>Cards>Duplex

Type must be set to **"master"**.

Status must be set to **"synchronised"**.

- Select "**switch** ".

After switching, reconnect to Web Admin.

- Enter the default access login: **admin**
- Enter the default access password: **admin**

- Select Menu **Telephony Service**, then click the link **Duplex in slave mode**.
- Check that the status is **"synchronised"** and that "type" has been changed**: slave**.
- Select **Switch**.

THE INSTALLATION OF A REDUNDANT MiVOICE 5000 SERVER HAS BEEN COMPLETED.

4 UPGRADING A REDUNDANT MIVOICE 5000 SERVER

4.1 TYPES OF UPGRADES - MIGRATION OR UPGRADE BY REPOSITORY

The different types of upgrades to R6.4 considered are:

- Upgrading a configuration from ≥ R8.0 to higher releases (with or without updating the patches)

  The recommended update is Update by Repository. Refer to the document **Updating by repository**.

- Upgrading a configuration from < R8.0 to releases ≥ R8.0. In this case, an upgrade is mandatory with full re-installation of Rocky Linux operating system. Refer to the document **MiVoice 5000 Server/Manager - Upgrading to R8.0**.

4.2 CASE OF UPGRADE REQUIRING A REMOTE ACCESS

When the installer cannot intervene locally on the physical or virtual PCs, it is necessary to set up an SSH session with the master and slave PCs.

Any command or execution must then be performed on command lines (Linux).

These are also indicated in the various procedures if necessary.

For a remote access, connection must be via the IP address of the physical PC, and not via the virtual IP address which remains inaccessible.

4.3 UPGRADING A CONFIGURATION FROM ≥ R8.0 TO HIGHER RELEASES

This procedure applies, if necessary, on an already operational redundant MiVoice 5000 Server ≥ R8.0 platform; upgrade this latter, in the same range, with a new MiVoice 5000 Server software containing some anomaly corrections or functional upgrades.

The application is upgraded while retaining the installed operating system.

Initial status

- Rocky Linux
- MiVoice 5000 Server ≥ R8.0
- Active master server

Final status

- Operating system not changed
- MiVoice 5000 Server (new release in a higher range)
- Active master server

Reminder: Update by repository is a simple method of updating the operating system or installing the latest security patches, by connecting to the Mitel public server.

Security patches:

Depending on the case:

- Not installed in the initial state > **Patches must be installed**.
- Installed in the initial state but not up to date (a more recent release is available) > Patch upgrade is optional.
- Installed in the initial state and up to date compared to the most up-to-date release available > No patch update.

4.3.1 MAIN PHASES

- Backing up the configuration.
- Checking that DRBD synchronisation is working on the master PC (command: **drbdsetup status**)
- Checking that the redundant partition is working on /dev/drbd0 on the master PC (command: **ifconfig** and **mount**).
- Upgrading the **master** MiVoice 5000 Server PC software
- Switching over to the **slave** MiVoice 5000 Server PC
- The **slave** PC software is automatically upgraded during the switchover.
- Returning to the master PC
- Checking the status of the MEDIA SERVER service
- Checking the status of licences on the **master** MiVoice 5000 Server PC
- Checking the status of licences on the **slave** MiVoice 5000 Server PC
- Upgrading the operating system security patches (if necessary)
- Entering the new licences if required

Each phase is described in detail in the sections below.

4.3.2 PRELIMINARY CHECKS ON THE MASTER PC (SYNCHRONISATION AND REDUNDANT PARTITION)

Before upgrading the software on the master MiVoice 5000 Server PC, first perform the following checks:

Check that DRBD synchronisation is up to date: run the command **drbdsetup status.**

Check the status of the virtual address, using the **ifconfig** and **mount** commands. This must be active, and the redundant partition moved to device **/dev/drbd0**.

Note: For certain server types, especially HP servers, the server needs to be restarted so the partition /dev/drbd0 on /opt/a5000 is mounted and so cat /proc/drbd becomes Primary/Unknown.

4.3.3 UPGRADING THE MASTER PC SOFTWARE

Refer to the document **Updating by repository**.

4.3.4 SWITCHING OVER TO THE SLAVE MIVOICE 5000 SERVER PC

This operation consists in activating the virtual address on the slave MiVoice 5000 Server PC and deactivating the virtual address on the master MiVoice 5000 Server PC.

On the **master** PC:

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2/files**
- Type in the command**: ./hb_standby**

This operation is used to check that the slave MiVoice 5000 Server PC is also up to date, by checking the content of Menu **System > Info > Software ID**. This operation also restarts the PBX service on the slave MiVoice 5000 Server PC if a new service is available.

Note: It is not necessary to perform a software upgrade on the slave MiVoice 5000 Server PC. This update takes place automatically during switchover.

On the **master** PC

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2/files**
- Type in the command**: ./hb_standby**

4.3.5 RETURNING TO THE MASTER PC

On the master PC:

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2/files**
- Type in the command: **./hb_takeover**.

Check the status of the MEDIA SERVER service.

Check via Web Admin (menu 2.3.1) that the MEDIA SERVER service has started correctly.

If necessary, restart the MEDIA SERVER service.

4.3.6 CHECKING THE STATUS OF LICENCES ON THE MASTER PC

Refer to Section **3.5**.

4.3.7 CHECKING THE STATUS OF LICENCES ON THE SLAVE PC

Refer to Section **3.5**.

4.3.8 UPGRADING THE OPERATING SYSTEM SECURITY PATCHES.

If new patches have been provided on the Extranet, update the security patches on the master and slave PCs.

Refer to the document **Rocky Linux OS Security Patch Update**.

The upgrade process has been completed.

Some switchover tests are highly recommended.

4.4 CONDITIONS FOR SWITCHING OVER

4.4.1 SWITCHING OVER MANUALLY VIA WEB ADMIN

Switch over to the master or slave MiVoice 5000 Server PC.

This operation consists in activating the virtual address on the slave MiVoice 5000 Server PC and deactivating the virtual address on the master MiVoice 5000 Server PC.

On the master or slave MiVoice 5000 Server PC, start the Firefox browser with the virtual IP address:

- Enter the default access login: **admin**
- Enter the default access password: **admin**
- Go to Menu **System>Configuration>Cards> Duplex**.
- Check that the master and slave PCs are synchronised, in the **Status** field.
- Click **Switchover** to start switching over manually.

4.4.2 AUTOMATIC SWITCHOVER

Reminder: Corosync is based on an exchange of heartbeats between two MiVoice 5000 Server PCs.

In the event of a hardware failure on the active master MiVoice 5000 Server PC, the Corosync software available on the slave MiVoice 5000 Server PC detects it (depending on the value defined for the Redundancy deadtime setting) and automatically starts a switchover procedure that is fully transparent to the user.

The slave MiVoice 5000 Server PC performs a set of actions (obtaining the virtual IP address, establishing the file system and reactivating the services) to take over and become the active PC.

If Corosync V3 is used with the ping option, losing the router connection for 20 seconds automatically deactivates the services on the MiVoice 5000 Server PC concerned. The following parameters are used to configure the ping option:

- Do you want to ping an IP address: Yes (1) or No (0)?
- IP address to ping?

WARNING: There is no MiVoice 5000 Server application supervision. Only a hardware failure (PC stop or network disconnection) is supervised.

4.5 MODIFYING THE GENERAL REDUNDANCY SETTINGS

If necessary, this procedure applies on an already operational redundant MiVoice 5000 Server platform; modify one or more redundancy configuration settings.

This enables the following settings to:

- Change the **Failback** mode configuration
- Change the switchover timeout in case of failure (Redundancy deadtime)
- Reconfigure redundancy if the IP address and/or name of both PCs change(s)
- Reconfigure redundancy if the name of the PCs changes
- Modify the virtual IP address and associated subnet mask.

WARNING: The modifications must be made on both PCs. The final execution of the redundancy parameters modification script on the active PC restarts the server (service interruption) possibly with a switchover to the other PC.

The procedure for this is described below, using as example a modification of the **Failback** mode.

4.5.1 MODIFYING REDUNDANCY SETTINGS ON THE MASTER PC

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2**

Run the redundancy modification script:

 # ./update_redondance.script

The software DRBD and Corosync are stopped then restarted at the end of the script, which triggers an automatic return to the master MiVoice 5000 Server PC if **Failback** mode is set to **ON**.

Each current configuration setting is displayed gradually and can be modified by entering the new value for this setting. The value remains unchanged if the operator presses "Enter".

In the example below, **Failback** mode is set to **ON**.

```
************************
* Update configuration *
************************
Master PC (1) or Slave PC (0)? [1] :
Master IP Address? [10.102.43.123] :
Master Hostname [master] :
Slave IP Address? [10.102.43.124] :
Slave Hostname? [slave] :
Virtual IP address? [10.102.43.125] :
Virtual IP netmask? [24] :
```

WARNING: Enter the prefix value of the mask. For example, the prefix 24 corresponds to mask 255.255.255.0. Refer to the section Mask/prefix conversion for the table of correspondence.

```
Do you want a 2nd IP address?: Yes(1) or No(0) ? [0] :
Redundancy: LAN(0) or WAN(1)? [0] :
```

```
Master Ethernet board for redundancy? [eth0] :
Slave Ethernet board for redundancy? [eth0] :
Ethernet board for applications? [eth0] :
Do you want to ping an IP address: Yes(1) or No(0) ? [1] :
IP address to ping? [10.102.43.254] :
Master partition? [hda5] :
Slave partition? [hda5] :
Redundancy deadtime (in seconds)? [10] :
Failback auto = ON/OFF? [OFF] :ON
Stop system log recorder:           [  OK  ]
Start system log recorder :       [  OK  ]
************************
* Stop Corosync       *
************************
Stopping High-Availability services: Done.
************************
* Starting DRBD *
************************
Reloading DRBD configuration: .
************************
* Starting Corosync   *
************************
Starting High-Availability services: Done.
Please wait Corosync initialization ....
Configuring Corosync / Corosync ...
-> Edit CRM config
-> Edit all resources
-> Edit all constraints
```

Note: Stopping the Corosync service may take several minutes. This update takes place automatically during switchover.

4.5.2 MODIFYING REDUNDANCY SETTINGS ON THE SLAVE MIVOICE 5000 SERVER PC

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2**
- Run the redundancy modification script:

  # ./update_redondance.script

The **DRBD** and **Corosync** software are stopped then restarted at the end of the script, which may trigger an automatic return to the master MiVoice 5000 Server PC if **Failback** mode is set to **ON**.

Each current configuration setting is displayed gradually and can be modified by entering the new value for this setting. The value remains unchanged if the operator presses "**Enter**".

In the example below, **Failback** mode is set to **ON**.

```
************************
* Update configuration *
************************
Master PC (1) or Slave PC (0)? [0] :
Master IP Address? [10.102.43.123] :
Master Hostname [master] :
Slave IP Address? [10.102.43.124] :
Slave Hostname? [slave] :
Virtual IP address? [10.102.43.125] :
Virtual IP netmask? [24] :
```

WARNING: **Enter the prefix value of the mask. For example, the prefix 24 corresponds to mask 255.255.255.0. Refer to the section Mask/prefix conversion for the table of correspondence.**

```
Do you want a 2nd IP address?: Yes(1) or No(0) ? [0] :
Redundancy: LAN(0) or WAN(1)? [0] :
Master Ethernet board for redundancy? [eth0] :
Slave Ethernet board for redundancy? [eth0] :
Ethernet board for applications? [eth0] :
Do you want to ping an IP address: Yes(1) or No(0) ? [1] :
IP address to ping? [10.102.43.254] :
Master partition? [hda5] :
Slave partition? [hda5] :
Redundancy deadtime (in seconds)? [10] :
Failback auto = ON/OFF? [OFF] :ON
Stop system log recorder:           [  OK  ]
Start system log recorder :       [  OK  ]
************************
* Stop Corosync       *
************************
Stopping High-Availability services: Done.
************************
```

```
* Starting DRBD *
************************
Reloading DRBD configuration: .
************************
* Starting Corosync   *
************************
Starting High-Availability services: Done.
Please wait Corosync initialization ....
Configuring Corosync / Corosync ...
-> Edit CRM config
-> Edit all resources
-> Edit all constraints
```

4.5.3 CHECKING THE REDUNDANCY STATUS OF THE MASTER MIVOICE 5000 SERVER PC

The following checks must be made on the **master** PC:

- Check that **DRBD** synchronisation is up to date: run the command **drbdsetup status**.
- Check the status of the virtual address, using the **ifconfig** command. This latter must be activated.
- Check the mounting of the partition to be made redundant using the **mount** command, which must be implemented on the device **/dev/drbd0**.

4.5.4 REGENERATING THE INSTALLATION CODE AND LICENCE

This phase must be implemented for systems with a virtual (logical) dongle if the virtual IP address has been modified.

Refer to Section **3.5.**

4.6 MODIFYING THE PHYSICAL IP ADDRESSES OR HOST NAME OF MIVOICE 5000 SERVER PCS

This procedure allows you to adapt the network settings of an already working redundant MiVoice 5000 Server platform to any configuration change (for example). The procedure consists in:

- Modifying the physical and/or virtual IP addresses
- The PC host names.

Modifying the IP settings of the Ethernet access consists in modifying the network interface configuration text files, by entering:

- The IP address
- The Subnet mask
- The Gateway IP address.

The PC hostname is modified in the OS settings. Refer to the document **ROCKY Linux and Double attachment**.

Before making any modification, first stop the MiVoice 5000 Server resources (stop Corosync).

Stop redundancy

- **pcs cluster stop --force**

Once the modifications have been made, follow the procedure described in Section **4.5 Modifying the general redundancy settings**.

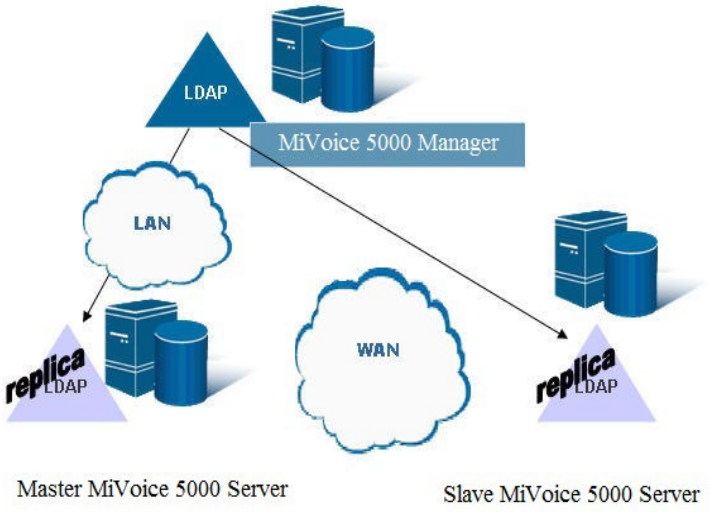
4.7 UPDATING THE LDAP CONFIGURATION

WARNING: **The LDAP configuration can only be updated on a MiVoice 5000 PC or on a MiVoice 5000 PC for which full reinstallation of the PC and redundancy has been made.**

4.7.1 ARCHITECTURE OF LDAP DIRECTORY DATABASES IN A REDUNDANT WAN CONFIGURATION

The WAN redundancy of MiVoice 5000 Server PCs, with its directory configuration, requires the availability of a MiVoice 5000 Manager (redundant or not on the LAN). In this case, the LDAP directory of MiVoice 5000 Manager is the reference master directory database on which the modifications are made. Two replicas are configured in MiVoice 5000 Manager, one on each MiVoice 5000 Server PC. These replicas are LDAP directory databases, accessible in read-only mode and stored under /opt/dirldap.

The architecture is as follows:



4.7.2 UPDATING THE LDAP CONFIGURATION ON THE MASTER MIVOICE 5000 SERVER PC

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2**
    - Run the redundancy modification script:

      ./ldap_standalone.script

4.7.3 SWITCHING OVER TO THE SLAVE MIVOICE 5000 SERVER PC

- On the master PC:
- Go to the directory **/cdutils/redhat/utils/bin/dupliv2/files**
- Type in this command: **./hb_standby**

4.7.4 UPDATING THE LDAP CONFIGURATION ON THE SLAVE MIVOICE 5000 SERVER PC

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2**
- Run the redundancy modification script:

  ./ldap_standalone.script

4.7.5 SWITCHING OVER TO THE MASTER MIVOICE 5000 SERVER PC

On the master PC:

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2/files**
- Type in the command: **./hb_takeover**.

4.7.6 CREATING REPLICAS IN MIVOICE 5000 MANAGER (OPTIONAL)

4.7.6.1 CASE OF LAN AND WAN CONFIGURATION AS OF R8.0

In Menu **Administration>Network topology**:

- Select the multi-site concerned then click **Setting**.
- Click **Directory** then **Replicate**.
- Click the **Add** button to create a replica.

4.7.6.2 CASE OF WAN CONFIGURATION BEFORE R8.0

WARNING: After deleting a replica, to add a new replica, first open a terminal on the slave MiVoice 5000 Server and type in the following commands:

- **service ldap stop**
- **service ldap initdb**
- **service ldap start**

It is then possible to add and configure a new replica with MiVoice 5000 Manager.

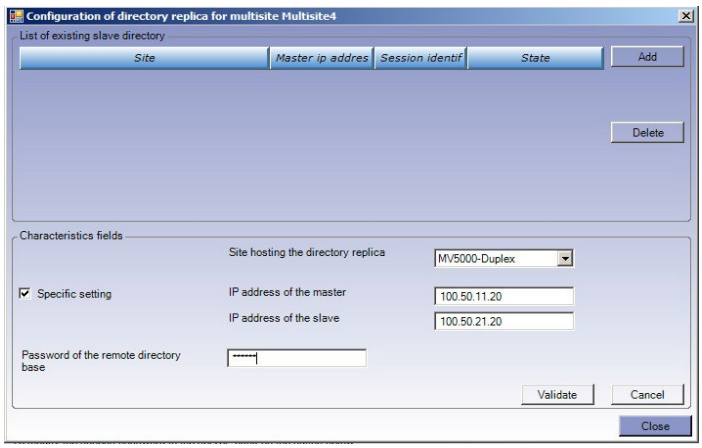
In Menu **Administration>Network topology**:

- Select the multi-site concerned then click **Setting**.
- Click **Directory** then **Replicate**.
- Click **Add** to create a replica with a specific configuration (tick the **Specific configuration** box) used to have the master and slave MiVoice 5000 Server PCs as simultaneous destinations.

4.7.6.3 CHECKING THAT THE REPLICAS ARE WORKING IN MIVOICE 5000 MANAGER

In Menu **Administration>Network topology**:

- Select the multi-site concerned then click **Setting**.
- Click **Directory** then **Replicate**.
- Check the status of replication which must be active.
- In the Site field check that the IP addresses used by the replica correspond to the redundant MiVoice 5000 Server PCs.



The LDAP configuration update procedure has been completed.

5 REINSTALLING A REDUNDANT SYSTEM

5.1 REINSTALLING THE SLAVE SERVER

Back up MV5000 (from Web Admin).

Disconnect the SLAVE server from the network.

Install the Rocky Linux OS.

Install MV5000 redundancy

- **./install_redondance.script**
- In master mode
- No ping

Install MV5000 Server.

Start redundancy

- **./start_redondance.script**

Update redundancy

- **./update_redondance.script**
- Reset to slave mode
- Enable pinging if needed

Stop redundancy

- **pcs cluster stop --force**

Reset DRBD

- **drbdadm create-md r0**
- **drbdadm invalidate r0**

Reconnect the network.

Start redundancy

- **pcs cluster start**
- Check the DRBD synchronisation with the command **drbdsetup status**.
- Check that duplication is working, with the command **crm_mon**

Finalisation

- Once synchronisation is completed, switch to the slave server.
- Generate the new installation code and enter the licence.
- Return to the master.

5.2 REINSTALLING THE MASTER SERVER

Back up MV5000 (from Web Admin or MiVoice 5000 Manager).

Disconnect the MASTER server from the network.

Install the Rocky Linux OS.

Install MV5000 redundancy

- **./install_redondance.script**
- No ping
- Installing MV5000 Server

Start redundancy

- ./start_redondance.script

Update redundancy (optional)

- **./update_redondance.script**
- To enable pinging if needed

Stop redundancy

- pcs cluster stop --force

Reset DRBD

- **drbdadm create-md r0**
- **drbdadm invalidate r0**

Reconnect the network.

Start redundancy

- **pcs cluster start**

Check the DRBD synchronization with **drbdsetup status**.

Check that duplication is working, with **crm_mon**

Finalisation

Once synchronisation is completed, switch to the master server:

On the slave PC, perform a switchover to master:

- Go to the directory **/cdutils/redhat/utils/bin/dupliv2/files**
- Type in the command: **./hb_standby**.

Generate the new installation code and enter the licence.

6 APPENDICES

6.1 MOUNTING AN ISO IMAGE

The mounting point must exist.

- Enter the following commands:
  mkdir /mnt/iso
- Copy iso under /tmp
  mount /tmp/CD** /mnt/iso**

6.2 MASK/ADDRESS PREFIX CONVERSION

Netmask Address	Prefix Length
255.255.255.255	/32
255.255.255.254	/31
255.255.255.252	/30
255.255.255.248	/29
255.255.255.240	/28
255.255.255.224	/27
255.255.255.192	/26
255.255.255.128	/25
255.255.255.0	/24 (Class C)
255.255.254.0	/23
255.255.252.0	/22
255.255.248.0	/21
255.255.240.0	/20
255.255.224.0	/19
255.255.192.0	/18
255.255.128.0	/17
255.255.0.0	/16 (Class B)
255.254.0.0	/15
255.252.0.0	/14
255.248.0.0	/13
255.240.0.0	/12
255.224.0.0	/11
255.192.0.0	/10
255.128.0.0	/9
255.0.0.0	/8 (Class A)
254.0.0.0	/7
252.0.0.0	/6
248.0.0.0	/5
240.0.0.0	/4
224.0.0.0	/3
192.0.0.0	/2
128.0.0.0	/1
0.0.0.0	/0 (The Internet)

Mitel
Powering connections