Rocky Linux and Double Attachment

⋈ Mitel®

CONTENTS

1 ABOUT THIS DOCUMENT

1.1 PURPOSE OF THIS DOCUMENT

This document describes the main installation phases for the Rocky Linux operating system. It indicates the minimum configuration required to use MiVoice 5000 applications with Linux.

1.2 SCOPE

64 bits Rocky Linux must first be installed (64 bits machine) before installing Mitel applications running with Linux.

Rocky Linux can only be used for a first installation.

Reference documents for the installation of the OS:

- MiVoice 5000 Server/Manager – Upgrading to R8.0

- MiVoice 5000 Server - Implementation

- MiVoice 5000 Manager – Installation and Configuration

- MiVoice 5000 Server - Operating Manual

- Updating by Repository

- Updating Rocky Linux Security Patch

1.3 TERMINOLOGY

- BOND0 : Virtual network interface

- DRBD : Distributed Replicated Block Device

- ETH0 or EM1 : Main network interface

- ETH1 or EM2 : Secondary or backup network interface

- IP : Internet Protocol

- LAN : Local Area Network

- WAN : Wide Area Network

2   INSTALLING ROCKY LINUX

This chapter explains how to install Rocky Linux from the DVD provided by Mitel.

📝   **IMPORTANT NOTE: Installing the OS on a virtual machine is the same as installing it on a physical machine. The "Firmware" parameter must be set to "EFI (recommended)" in the system's Boot Options menu.**

YOU WILL NEED A DISK with:

> 90 GB space minimum for a redundant or non-redundant MiVoice 5000 Server

> 150 GB space minimum for a redundant or non-redundant MiVoice 5000 Manager.

2.1   INSTALLING FROM THE DVD

- To install Rocky Linux, place the DVD in your DVD/CD-ROM drive and reboot your system from the DVD/CD-ROM.

- The installation program then checks your system and tries to identify and boot from your DVD/CD-ROM drive.

📝   **Note: It may be necessary to edit the BIOS in order to first boot from the DVD/CD-ROM and boot in legacy BIOS mode instead of UEFI mode.**

- Wait for the welcome screen to open (do not press any key until this screen opens).
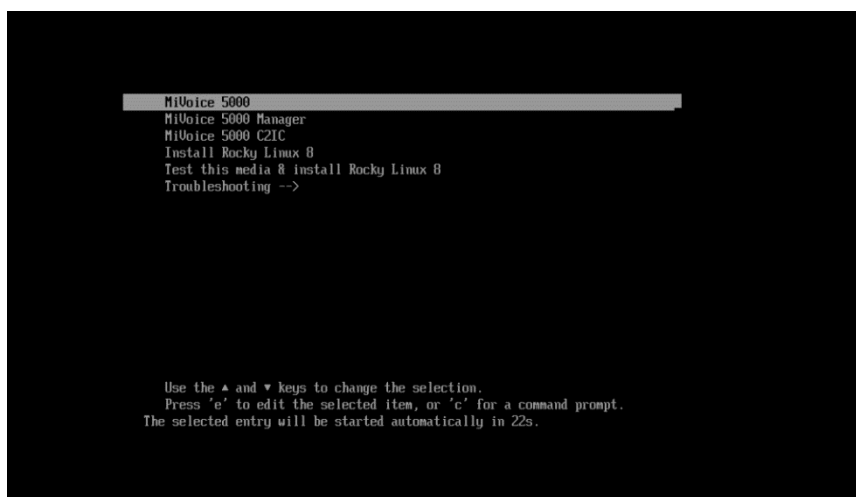
- Using the arrows, select:

   For a MiVoice 5000 Server:
   - ➢ **MiVoice 5000**

   For a MiVoice 5000 Manager:
   - ➢ **MiVoice 5000 Manager**

   For a MiVoice C2IC:
   - ➢ **MiVoice C2IC**

⚠️   **WARNING: Do not select any other option. If no action is taken for (about) 2 minutes, the system automatically starts on the first MiVoice 5000 line.**

- Then click **Enter**.

The procedure in the example below will be described for MiVoice 5000 Server.

- Select the installation language (English by default).
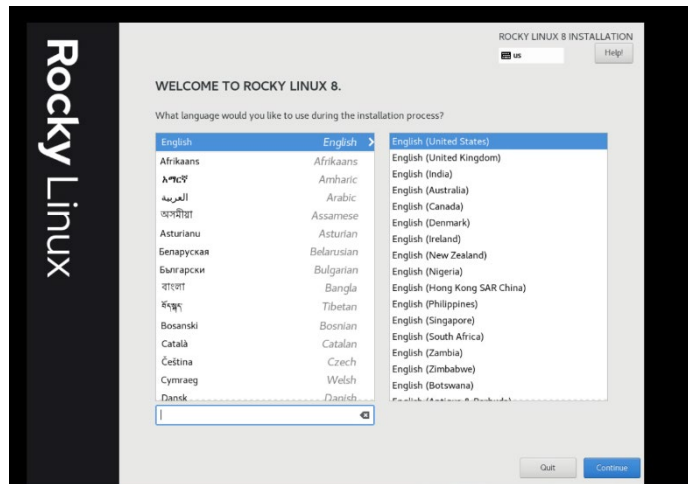
- Click **Continue**.

The following windows opens.
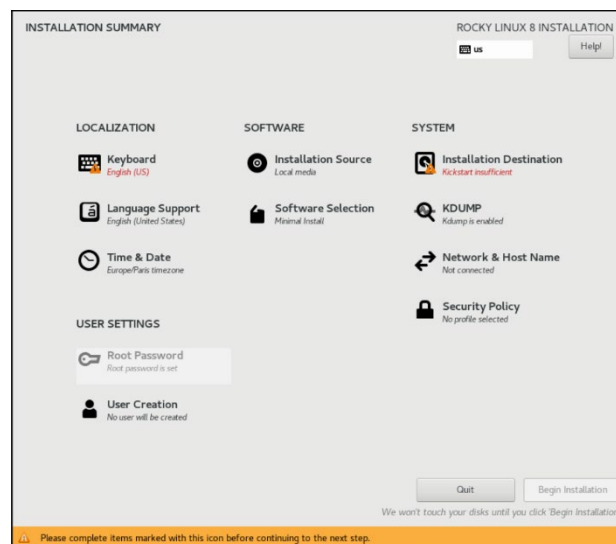
- Choose the Keyboard type by clicking the **Keyboard** icon with a small orange **Warning** icon:

- On the keyboard selection screen, click the **+** button.
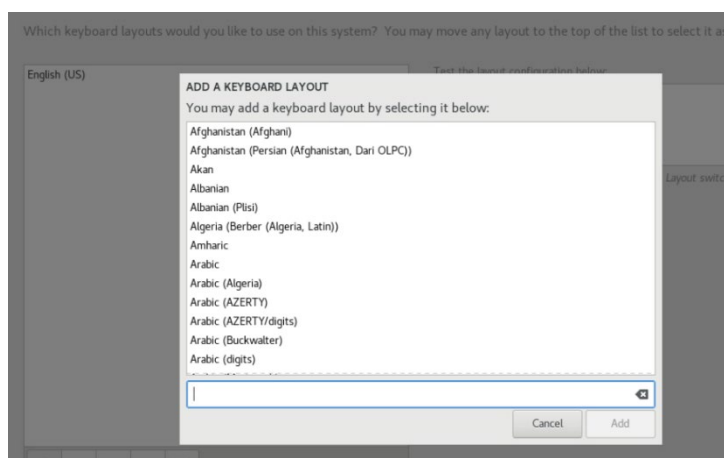
Use the scroll bar on the right to select the keypad type concerned.

Click **Add**.
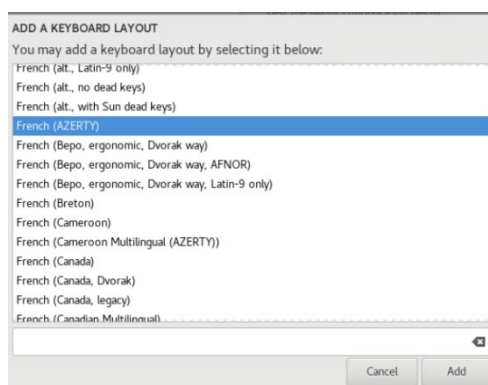
The options list is updated:
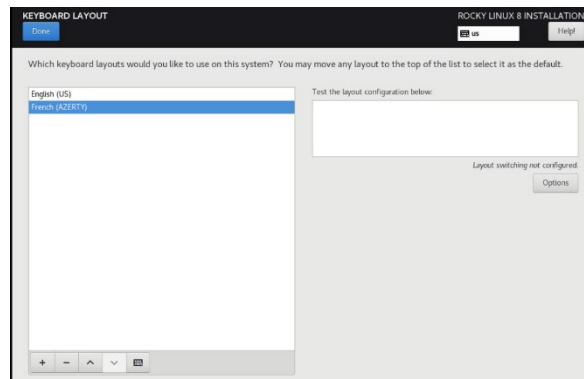
- Select type > (French (AZERTY) in the example).

- Click **Done** on the top left side.

  The main setup screen re-opens:

- Click the **SYSTEM** icon with a small orange **Warning** icon.

📝 **Note: The small orange Warning icons indicate the configurations that must be made.**

The next screen is for selecting the disk on which the installation will be made.

In the **Storage configuration** area:

- Select **Customised**.

- Click **Done**.

On the manual partitioning screen:

- Choose the new mounting points which will use the following partitioning pattern: **Standard partition**

- Select the link (Click here to create them automatically).

The screen shows the automatically created partitions.

- Then, depending on the type of system, adapt the mounting points and associated capacities by clicking the ➕ or ➖ buttons.

Some will have to be deleted, others created or modified.

> **Tips:**
> - Respect the order indicated in the left column for partitioning (Partition 1, 2, etc.) in the tables.
> - The unit for the capacity can be entered regardless of the installation language chosen (Mio or Mib, Gio or Gib).
> - Do not use the Device type and File System fields, as the selection is made automatically.

The partitioning procedure is similar for the other systems with the respective values shown:
- For a redundant or non-redundant MiVoice 5000 Server, see Section 2.1.1.
- For a non-redundant MiVoice 5000 Manager, see Section 0.
- For a redundant MiVoice 5000 Manager, see Section 2.1.3.

Example of partitioning for MiVoice 5000 Server which should be as follows:

Recommended partitioning for a (redundant or non-redundant) MiVoice 5000 Server

	Mounting point	Type	Size
Partition 1	**/boot**	xfs	1000 Mib
Partition 2	**/boot/efi**	EFI system partition	600 Mib
Partition 3	**/**	xfs	40 000 Mib (40 Gib)
Partition 4		Swap	4 000 Mib (4 Gib)
Partition 5	**/var/log**	xfs	4 000 Mib (4 Gib)
Partition 6	**/opt/a5000**	xfs	40 000 Mib (40 Gib)

Therefore, the **/home** line must be deleted, the **Swap** and **/** lines adjusted by modifying them and the **/var/log** and **/opt/a5000** partitions created.

Removing the **/home** line:

- Select this line then click ➖.
- Click again on the left in the list:
- The line is deleted.
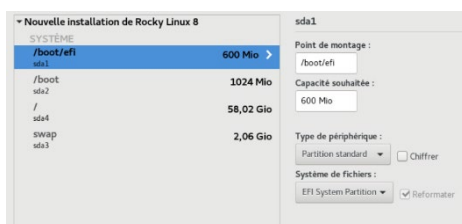
Result >:

Modifying the **Swap** line:
- Select the **Swap** line.

In the **Capacity** area, enter the recommended value of **4 GiB**.
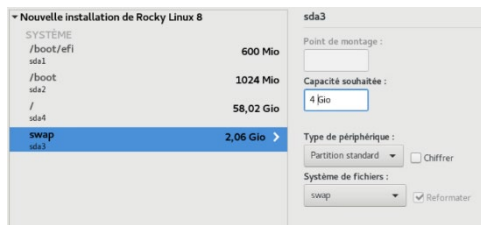
- Click again on the left in the list:
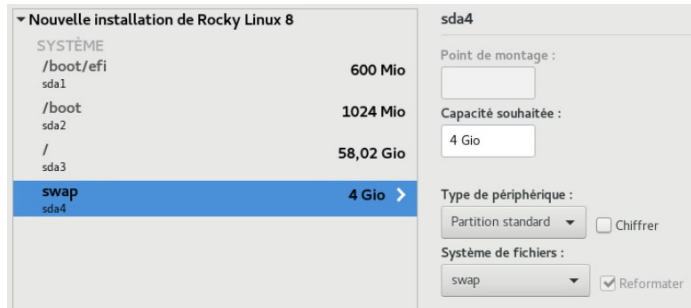
Result >:

Modifying the **/** line:

- Repeat the previous operation for this partition.
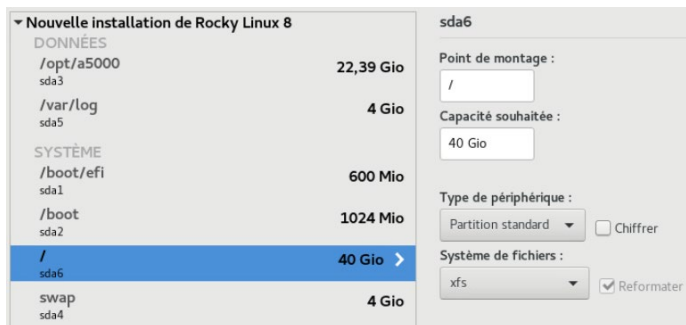
Result:

Note: If another line is to be modified, use the same procedure**.**

Creating the **/var/log** partition:

Click **+** to add a mounting point.

Enter the name and the recommended capacity in the window that opens:
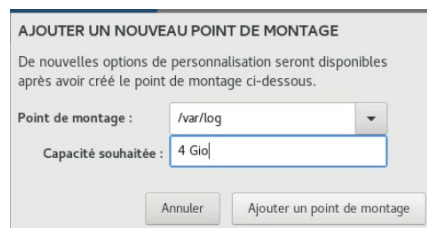
Click **Add mounting point**.

The line is created:

Creating the **/opt/ a5000** partition:

- Repeat the previous operation for this partition.

As the partitions have all been processed, the result is as follows:

If the result is correct, click **Done**.

Partition creation starts.

Wait for the summary of the modifications to be displayed:

- Check the configuration of the different partitions:

IMPORTANT: For a redundant system, note the system name of the redundant partition **/opt/a5000** as this will be required when installing redundancy.

- Click **Accept modifications**.

The welcome screen is displayed:
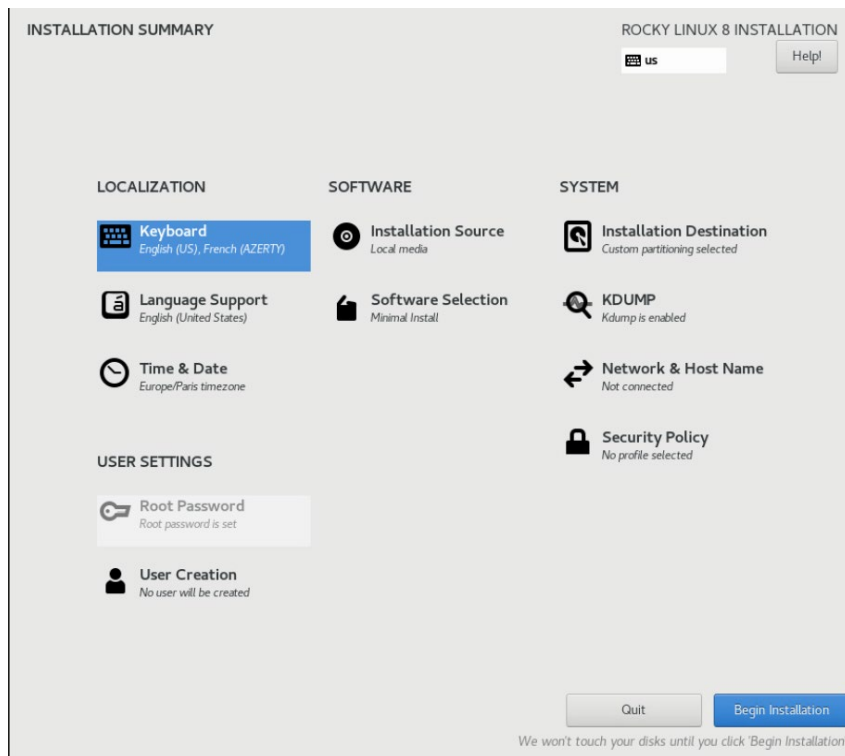
If other items still need to be configured, they are indicated by an orange **Warning** icon.

Then see Section **2.2** Starting the installation.

2.1.1 SYSTEM PARTITIONING FOR REDUNDANT AND NON-REDUNDANT MIVOICE 5000 SERVER

This partitioning also applies to a Cluster Server.

Recommended partitioning for a (redundant or non-redundant) MiVoice 5000 Server

	Mounting point	**Type**	**Size**
Partition 1	**/boot**	xfs	1000 Mib
Partition 2	**/boot/efi**	EFI System partition	600 Mib
Partition 3	**/**	xfs	40 000 Mib (40 Gib)
Partition 4		Swap	4 000 Mib (4 Gib)
Partition 5	**/var/log**	xfs	4 000 Mib (4 Gib)
Partition 6	**/opt/a5000**	xfs	40 000 Mib (40 Gib)

Since the procedure is the same as for MiVoice 5000 Server, see Section 2.1.

At the end of the partitioning operation, see Section 2.2.

2.1.2 PARTITIONING A NON-REDUNDANT MIVOICE 5000 MANAGER SYSTEM

Recommended partitioning for a non-redundant MiVoice 5000 Manager

	Mounting point	Type	Size
Partition 1	**/boot**	xfs	1000 Mib (created automatically > OK)
Partition 2	**/boot/efi**	EFI System partition	600 Mib (created automatically > OK)
Partition 3		Swap	4 000 Mib (4 Gib) (To be adjusted)
Partition 4	**/var/log**	xfs	4 000 Mib (4 Gib) (To be created)
Partition 5	**/**	xfs	Fill up to the maximum permissible size equivalent to the rest of the disk (To be adjusted).

Since the procedure is the same as for MiVoice 5000 Server, see Section 2.1.

At the end of the partitioning operation, see Section 2.2.

2.1.3 PARTITIONING A REDUNDANT MIVOICE 5000 MANAGER SYSTEM

Recommended partitioning for a redundant MiVoice 5000 Manager

	Mounting point	Type	Size
Partition 1	**/boot**	xfs	1000 Mib (created automatically > OK)
Partition 2	**/boot/efi**	EFI System partition	600 Mib (created automatically > OK)
Partition 3	**/**	xfs	40 Gib (To be adjusted)
Partition 4		Swap	4 000 Mib (4 Gib) (To be adjusted)
Partition 5	**/var/log**	xfs	4 000 Mib (4 Gib) (To be created)
Partition 6	**/opt/a5000**	xfs	See Ordering Guide. The disk space must be evaluated according to the configuration.

Since the procedure is the same as for MiVoice 5000 Server, see Section 2.1.

At the end of the partitioning operation, see Section 2.2.

2.2   STARTING THE INSTALLATION

At the end of the partitioning operation carried out in the previous sections, the welcome screen opens:
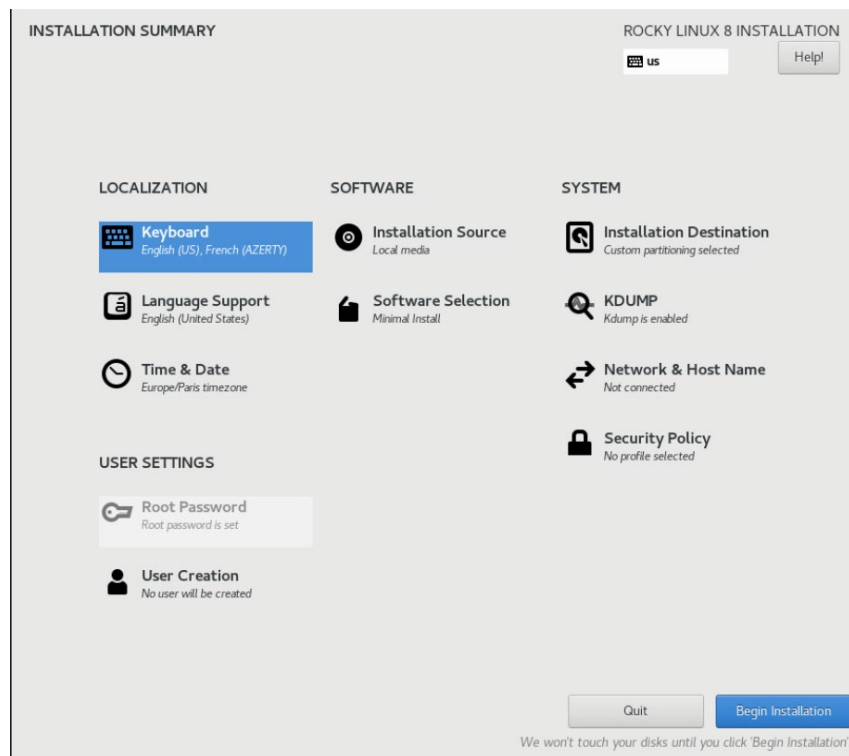
- Click **Begin installation**.

The installation starts.

During the installation phase:

- The previously created partitions are formatted.

- The packages are transferred and installed automatically.

At this stage, you can no longer do anything until all the packages are installed.

The duration of the installation depends on the number of packages installed and the capacity of your PC.

At the end of the installation; A screen opens with the message **Finished**.

CAUTION: If the installation has been made from a DVD, remove the DVD before rebooting.

- Click **Reboot System**.

Note: For some types of servers, it may be necessary to perform a hard boot (ON/Off).

Then see Section 2.3.

2.3   LOGGING IN AS ROOT ON THE OS

- After the start sequence, the login screen appears:

```
Rocky Linux 8.5 (Green Obsidian)
Kernel 4.18.0-348.el8.0.2.x86_64 on an x86_64

miv5000 login:
```

- Enter the **User name** (by default **root**)

- Enter the **Password** (by default **Mitel5000**).

Additional configurations, the configuration of Dual Attachment and the installation of the application itself are described in the following paragraphs.

2.4   CHANGING THE NETWORK CONFIGURATION AFTER INSTALLING THE OS

⚠️   **WARNING: Never use the network administration tool.**

To change the (static) network configuration after the installation:

- Log in as **root**.
- Go to the directory **/etc/sysconfig/network-scripts**.
- Edit the file **ifcfg-eth0**.
  - Modify the IP addresses of the parameters **GATEWAY, IPADDR, NETMASK**
- Back up these modifications.

⚠️   **WARNING: For a redundant MiVoice 5000 Cluster Server or MiVoice 5000 Manager, the IP addresses must be fixed.**

2.5   CHANGING THE DNS CONFIGURATION

- Log in as **root**.
- Edit the file **resolv.conf** in the **/etc/** directory (or create it if it does not exist).
  - Add a line indicating the new name and IP address concerned.

    Example: `nameserver 8.8.8.8`

If there are several DNS servers, create as many lines as there are servers.

- Back up these modifications.

2.6   CHANGING THE HOSTNAME

⚠️   **WARNING: While configuring the MiVoice 5000 Manager network, the PC name (hostname) should not contain the character "." (the character "period"). Example: the name "host" can then be used whereas the name host.domain.com should not be used.**

- Log in to the **root** account with the password **Mitel5000**.
- In the terminal window, type in the following command to give a name to the machine (for instance **miv5000**):

    hostnamectl set-hostname miv5000

- As a result of this command the prompt can be used to check the name, by typing in the hostname command:

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

    miv5000

2.7   CHANGE THE ROOT PASSWORD CONFIGURATION AFTER INSTALLING THE OS

To change a root password:

- Enter the **passwd** command.
- Enter the new password.

2.8   CONFIGURING THE FIREWALL (OPTIONAL)

To configure the firewall:

Create an **iptables.conf** files with all the required ports open. Refer to the document **MiVoice 5000 solution - List of TCP and UDP ports**.

To implement the new **iptables.conf** file:

- Log in to the Linux terminal in **root**.

- Go to the **/tmp/** directory.

- Copy the new **iptables.conf** file in the **tmp** folder.

- Enter the **dos2unix iptables.conf** command to convert the **iptables.conf** file to a Unix format.

- Enter the **iptables-restore iptables.conf** command to apply the configuration of the **iptables.conf** file.

- Enter the **iptables-save > /etc/sysconfig/iptables** command to save the new **iptables.conf** file in the proper directory.

- Enter the **systemctl enable iptables** command to activate **iptables** when Linux launches.

3 CONFIGURING DOUBLE ATTACHMENT ON MIVOICE 5000 SERVER

This procedure is applicable to both redundant and non-redundant systems. For redundant systems, this procedure must be followed on each PC (master and slave PC).

In double attachment, the (Master and Slave) machines are connected to two networks and, therefore, have two network cards.

3.1 CREATING THE FILE IFCFG-BOND0

- Go to the directory **/etc/sysconfig/network-scripts**.

- Copy the file **ifcfg-eth0** to **ifcfg-bond0**.

- Then modify the **file ifcfg-bond0** as follows (modifications in bold): The lines in bold must be added or modified):

NAME=bond0
DEVICE=bond0
TYPE=bond
ONBOOT=yes
BOOTPROTO=none
IPADDR=12.1.1.61
NETMASK=255.255.0.0
GATEWAY=12.1.1.1
DEFROUTE=yes
PEERDNS=no
PEERROUTES=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_PEERDNS=yes
IPV6_PEERROUTES=yes
IPV6_FAILURE_FATAL=no
BONDING_OPTS="miimon=100 mode=1 primary=eth0"

- For other parameters not listed above, leave the default values.

- Save the modifications made in the file **ifcfg-bond0**.

3.2   MODIFYING THE FILE IFCFG-ETH0

- Modify the file IFCFG-ETH0 as follows (modifications in bold). The lines in bold must be added or modified:

  NAME=eth0
  DEVICE=eth0
  TYPE=Ethernet
  ONBOOT=yes
  BOOTPROTO=none
  MASTER=bond0
  SLAVE=yes

Note: It is not necessary to indicate the network configuration (IP address, subnet mask, etc.) in the files ifcfg-eth0 and ifcfg-eth1.
- For other parameters not listed above, leave the default values.

- Save the modifications made in the file **ifcfg-eth0**.

3.3   CREATING THE FILE IFCFG-ETH1

- Copy the file **ifcfg-eth0** to **ifcfg- eth1**.

- Then modify the file **ifcfg-eth1** as follows (modifications in bold). The lines in bold must be added.

- Save the modifications made in the file **ifcfg-eth1**.

  NAME=eth1
  DEVICE=eth1
  TYPE=Ethernet
  ONBOOT=yes
  BOOTPROTO=none
  MASTER=bond0
  SLAVE=yes

Note: **It is not necessary to indicate the network configuration (IP address, subnet mask, etc.) in the files ifcfg-eth0 and ifcfg-eth1.**

- For other parameters not listed above, leave the default values.

- Save the modifications made in the file **ifcfg-eth1**.

Taking into account the network configuration > Rebooting the system by running the command:

      shutdown -r now

Or the commands:

      nmcli c reload

- And then for each modified network card, run the commands (here example for eth0):

      nmcli dev eth0

      nmcli con up eth0

3.4 CHECKING THE WORKING OF DOUBLE ATTACHMENT

The following points must be checked:

- The four items bond0, eth0, eth1 and Lo must be listed.
- The three interfaces bond0, eth0 and eth1 must have the same Mac address, that of Ethernet access eth0.
- Only interface bond0 is associated with the virtual IP address used by the MiVoice 5000 Server software and works in "MASTER" mode.
- The two interfaces eth0 and eth1 now work in "SLAVE" mode.
- Upon prompt, type in the **ifconfig** command.
- Check the above information, displayed below in bold:

Example

bond0: flags=5187<UP,BROADCAST,**RUNNING,MASTER**,MULTICAST> mtu 1500
    inet 10.1.1.251 netmask 255.255.0.0 broadcast 10.1.255.255
    inet6 fe80::1618:77ff:fe45:bea7 prefixlen 64 scopeid 0x20<link>
    ether 14:18:77:45:be:a7 txqueuelen 0 (Ethernet)
    RX packets 10697720 bytes 3815773003 (3.5 GiB)
    RX errors 0 dropped 1476 overruns 0 frame 0
    TX packets 31741430 bytes 11469804817 (10.6 GiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth0: flags=6147<UP,BROADCAST,SLAVE,MULTICAST> mtu 1500
    ether 14:18:77:45:be:a7 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 18

eth1: flags=6211<UP,BROADCAST,RUNNING,SLAVE,MULTICAST> mtu 1500
    ether 14:18:77:45:be:a7 txqueuelen 1000 (Ethernet)
    RX packets 10698880 bytes 3815908347 (3.5 GiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 31742719 bytes 11470162921 (10.6 GiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 19

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 0 (Local loop)
    RX packets 24094972 bytes 10685725721 (9.9 GiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 24094972 bytes 10685725721 (9.9 GiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

3.5 INSTALLING THE MIVOICE 5000 APPLICATION

Install the application in question using the following documents on Mitel.com:

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