

Instalação do Minix3 com Interface Gráfica

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Relatório da Instalação do Sistema Operacional Minix3 para a disciplina de Laboratório de Sistemas Operacionais do Curso de Ciência da Computação da Universidade Tecnológica do Paraná (UTFPR-MD)

1. Materias e Métodos

1.1. Imagem do MINIX

Para realizar a atividade de instalar o MINIX3 eu fiz uma pesquisa no [site do do minix](#) onde está disponível a versão estável 3.3.0 para download. Porém como eu preciso de uma iso com interface gráfica, havia uma observação que dizia que a versão 3.4.0 vinha o Xorg instalado e configurado. Então pesquisando nos repositórios achei as [imagem do MINIX 3.4.0](#). Então fiz o download da versão 3.4.0rc6.

1.2. Oracle VM VirtualBox

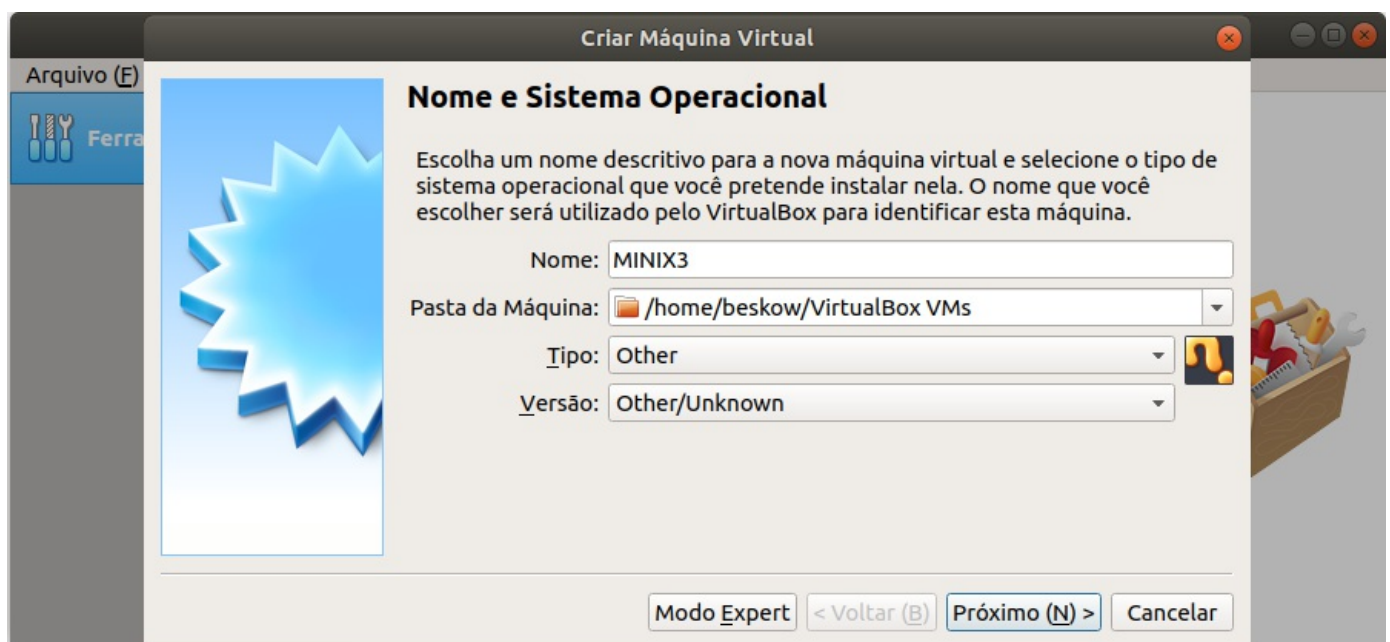
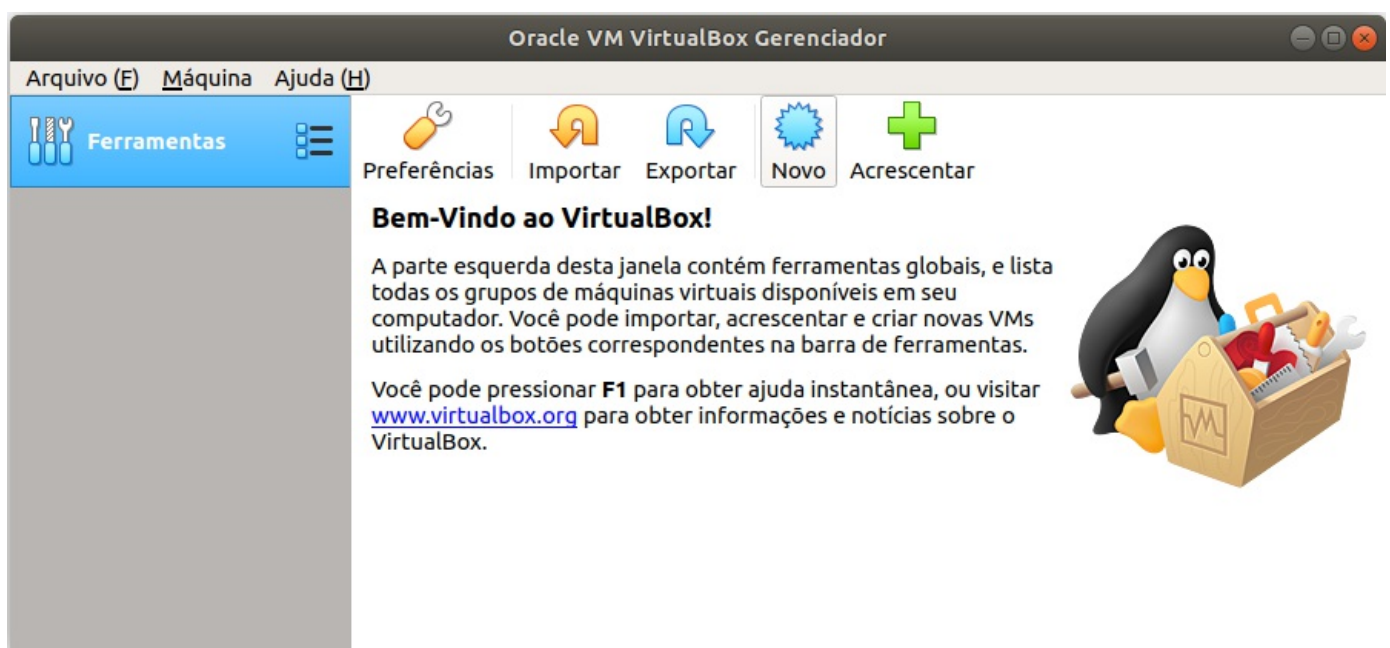
Para poder rodar o Minix,

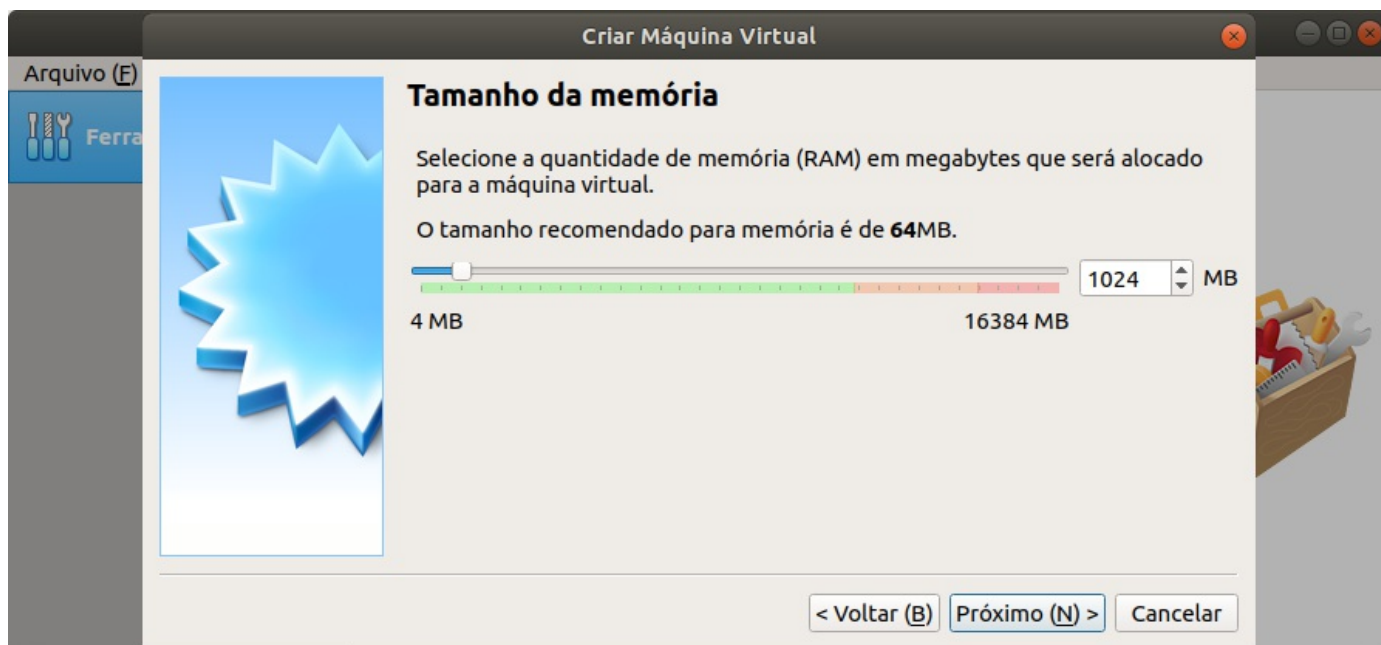
2. Implementação

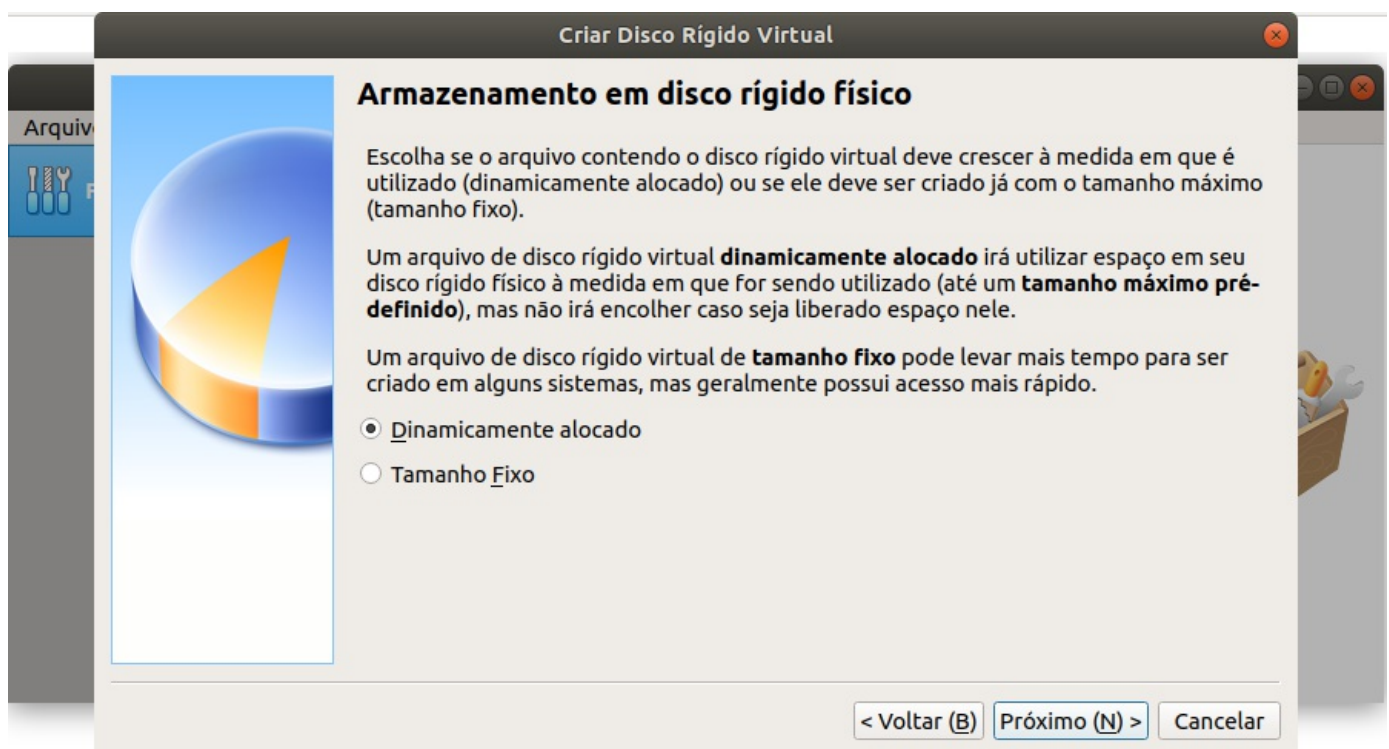
Inicialmente o SO MINIX3 foi feito para rodar em uma máquina física e

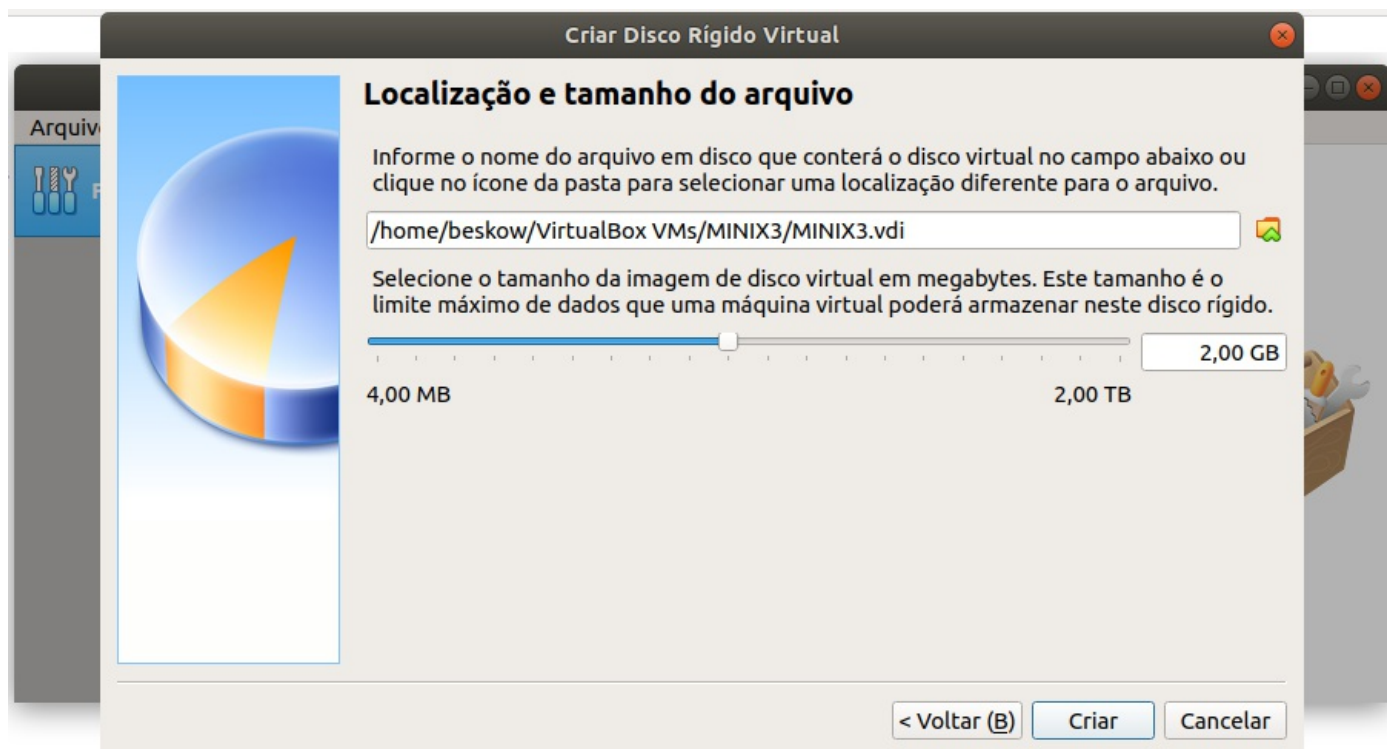
real, ou seja, não virtualizada. Mas como eu não disponho de uma máquina física a qualquer momento para fazer isso, eu preferi seguir usando o [Oracle VM VirtualBox](#). Olhando a [documentação](#), configurei o VirtualBox.

2.1. Configuração do Ambiente de Virtualização



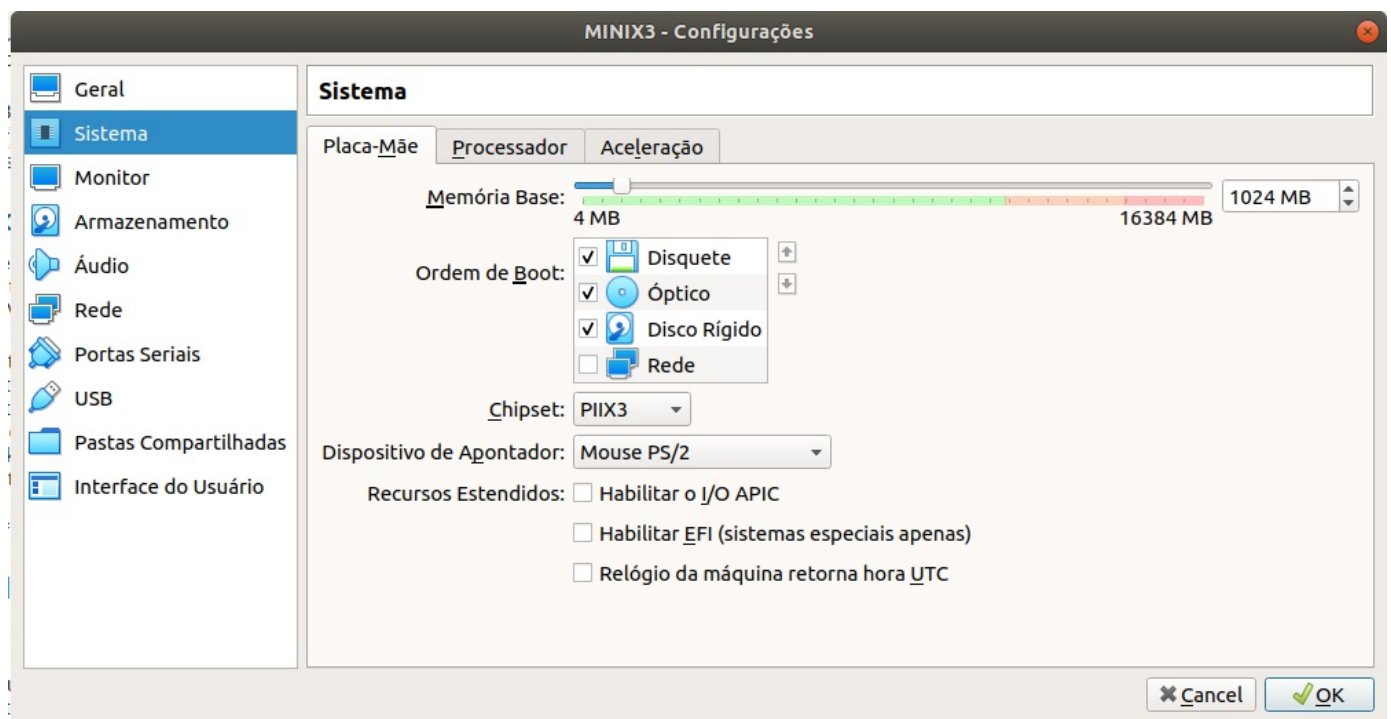
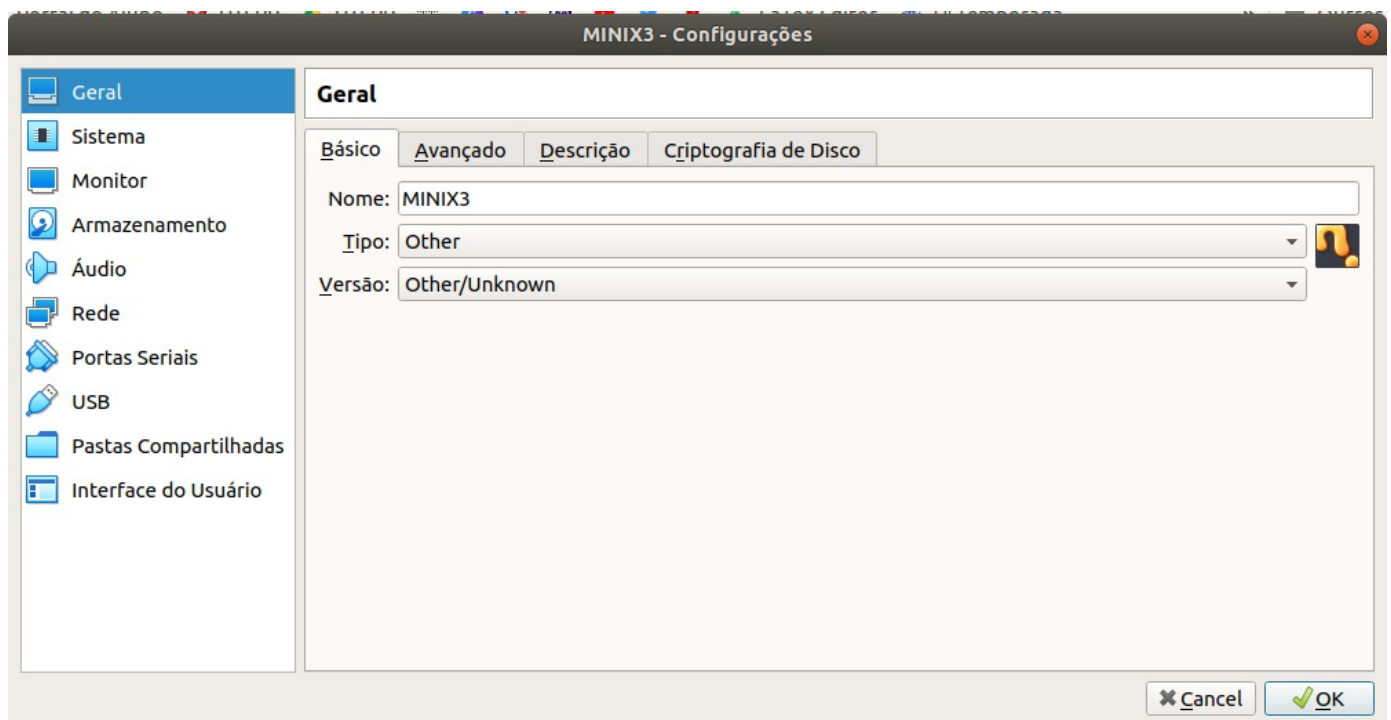


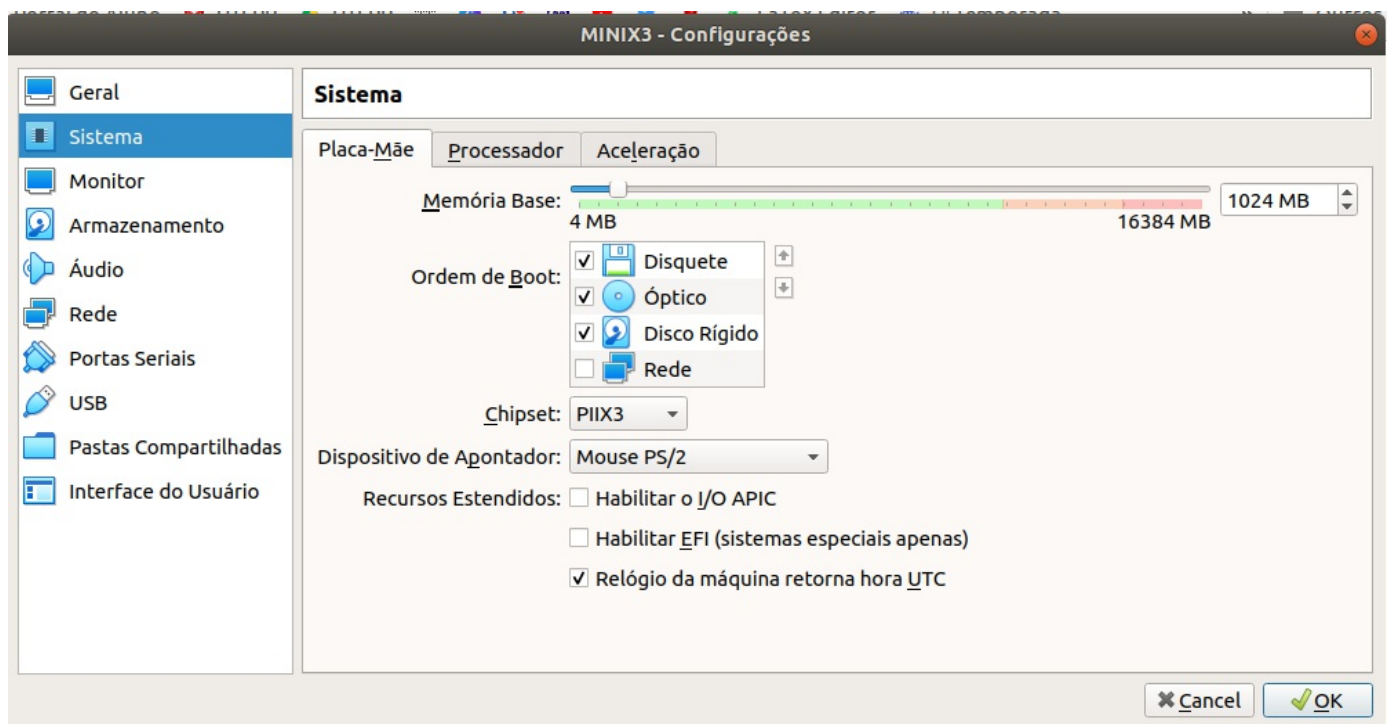




Para não ter problemas com a hora errada, irei habilitar fornecer o horário por UTC:







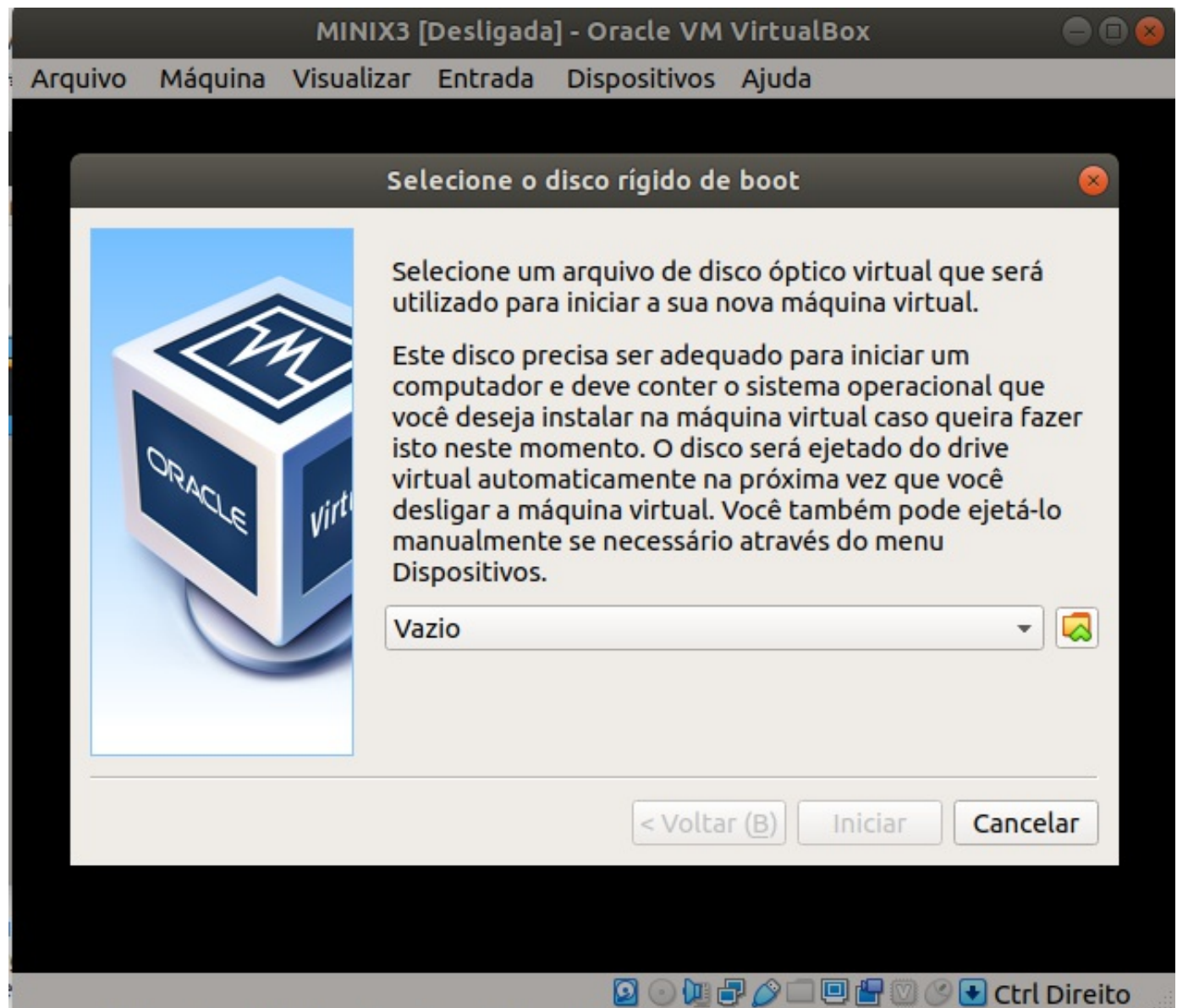
2.2 Instalação básica do sistema

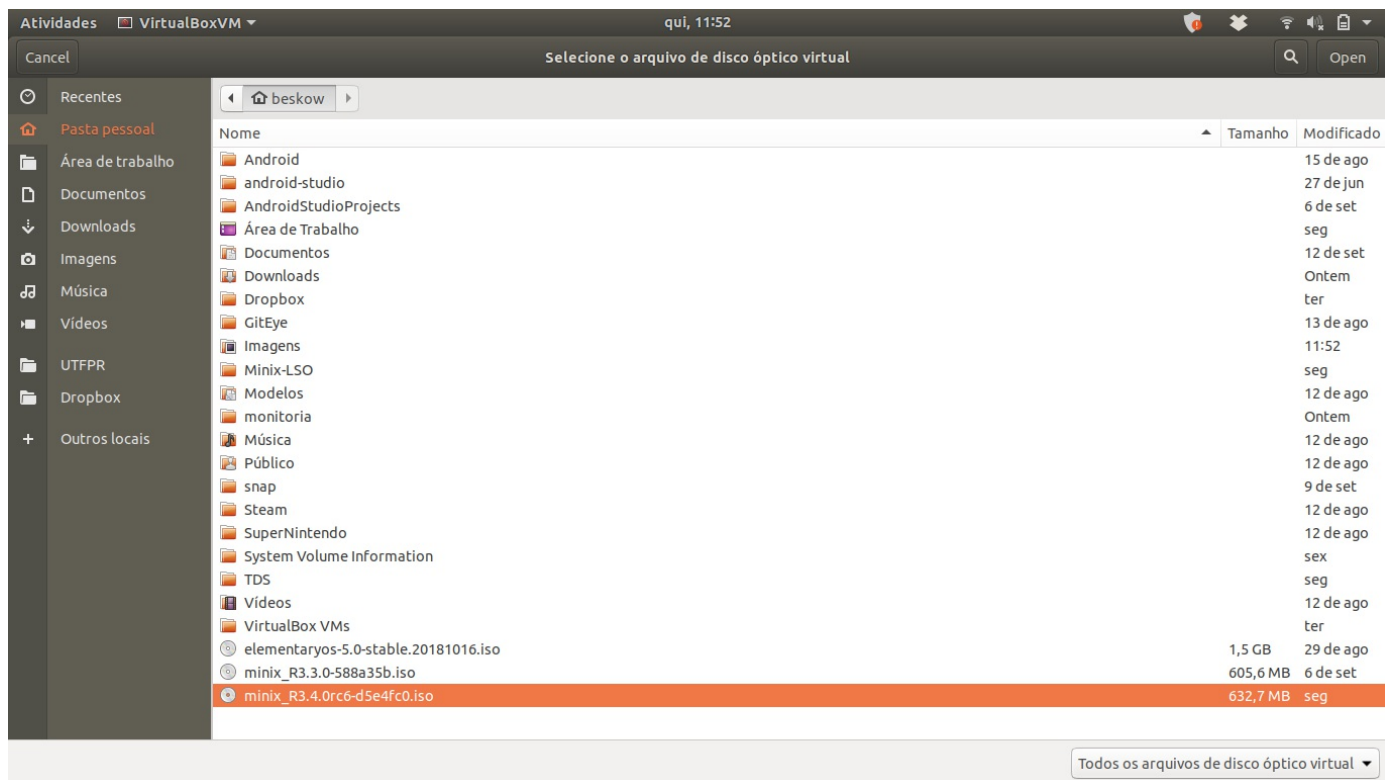
Após feita as configurações básicas, iremos começar a Instalação. Por isso iniciemos a máquina virtual:

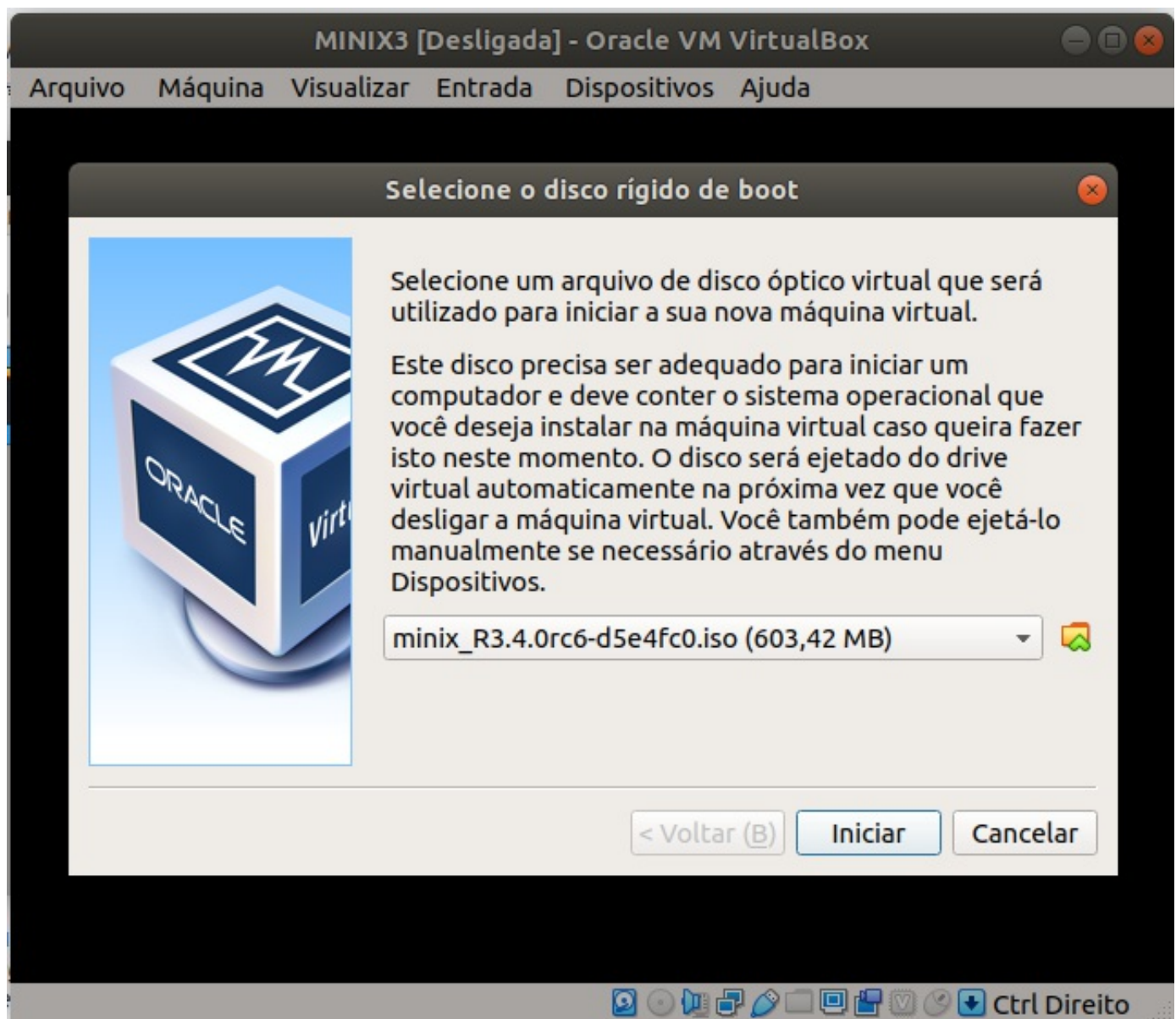


Ao aparecer essa tela, o virtualbox pede para adicionar uma imagem do

sistema operacional. Então adicionemos a ISO [Minix 3.4rc6](#).







Após isso iremos iniciar a máquina virtual e ela irá dar o boot pela ISO. A primeira tela que aparecerá será a abaixo, apenas aperte enter:

Welcome to the MINIX 3 installation CD

=====

1. Regular MINIX 3
2. Regular MINIX 3 (with AHCI)
3. Edit menu option
4. Drop to boot prompt

Choose an option; RETURN for default; SPACE to stop countdown.

Option 1 will be chosen in 10 seconds.

Fazemos o login no usuário root. Não precisa de senha:

```
Multiuser startup in progress ...
Starting hotplugging infrastructure... done.
Starting services: random lance pty lwip uds ipc log printer vbox.
Starting daemons: update cron.

Welcome to MINIX.

The system is now running and many commands work normally. To use MINIX
in a serious way, you need to install it to your hard disk.

Type "root" at the login prompt, and hit enter.
Then type "setup" and hit enter to start the installation process.
Starting network.
IPv6 mode: host
Configuring network interfaces:.
Adding interface aliases:.
Waiting for DAD to complete for statically configured addresses...
Building databases: dev, services.
Starting syslogd.
Starting inetd.
Thu Sep 19 14:53:15 GMT 2019

Minix/i386 (minix) (console)

login: _
```

Logo você estará logado como root:

```
Waiting for DAD to complete for statically configured addresses...
Building databases: dev, services.
Starting syslogd.
Starting inetd.
Thu Sep 19 14:53:15 GMT 2019

Minix/i386 (minix) (console)

login: root
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
The NetBSD Foundation, Inc. All rights reserved.
Copyright (c) 1982, 1986, 1989, 1991, 1993
The Regents of the University of California. All rights reserved.

For post-installation usage tips such as installing binary
packages, please see:
http://wiki.minix3.org/UsersGuide/PostInstallation

For more information on how to use MINIX 3, see the wiki:
http://wiki.minix3.org

We'd like your feedback: http://minix3.org/community/

minix#
```

Entre com o comando setup para começar a instalação:

```
Waiting for DAD to complete for statically configured addresses...
Building databases: dev, services.
Starting syslogd.
Starting inetd.
Thu Sep 19 14:53:15 GMT 2019

Minix/i386 (minix) (console)

login: root
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
The NetBSD Foundation, Inc. All rights reserved.
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http://wiki.minix3.org

We'd like your feedback: http://minix3.org/community/

minix# setup
```

O resto da instalação será apenas seguindo o default:

```
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
The NetBSD Foundation, Inc. All rights reserved.
Copyright (c) 1982, 1986, 1989, 1991, 1993
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We'd like your feedback: http://minix3.org/community/

minix# setup

Welcome to the MINIX 3 setup script. This script will guide you in setting up
MINIX on your machine. Please consult the manual for detailed instructions.

Note 1: If the screen blanks, hit CTRL+F3 to select "software scrolling".
Note 2: If things go wrong then hit CTRL+C to abort and start over.
Note 3: Default answers, like [y], can simply be chosen by hitting ENTER.
Note 4: If you see a colon (:) then you should hit ENTER to continue.
:_
```


We'd like your feedback: <http://minix3.org/community/>

minix# setup

Welcome to the MINIX 3 setup script. This script will guide you in setting up MINIX on your machine. Please consult the manual for detailed instructions.

Note 1: If the screen blanks, hit CTRL+F3 to select "software scrolling".

Note 2: If things go wrong then hit CTRL+C to abort and start over.

Note 3: Default answers, like [y], can simply be chosen by hitting ENTER.

Note 4: If you see a colon (:) then you should hit ENTER to continue.

:

--- Step 1: Select keyboard type -----

What type of keyboard do you have? You can choose one of:

abnt2	italian	russian-cp1251	ukraine-koi8-u
colemak	japanese	russian-cp866	us-std
dvorak	latin-america	russian	us-swap
french	norwegian	scandinavian	
german	polish	spanish	
hungarian	portuguese	uk	

Keyboard type? [us-std] abnt2_

colemak	japanese	russian-cp866	us-std
dvorak	latin-america	russian	us-swap
french	norwegian	scandinavian	
german	polish	spanish	
hungarian	portuguese	uk	

Keyboard type? [us-std] abnt2

--- Step 2: Selecting full distribution -----

--- Step 3: Create or select a partition for MINIX 3 -----

Now you need to create a MINIX 3 partition on your hard disk.
You can also select one that's already there.

If you have an existing installation, reinstalling will let you keep your current partitioning and subpartitioning, and overwrite everything except your s1 subpartition (/home). If you want to reinstall, select your existing minix partition.

Unless you are an expert, you are advised to use the automated step-by-step help in setting up.

Press ENTER for automatic mode, or type 'expert':

--- Step 3: Create or select a partition for MINIX 3 -----

Now you need to create a MINIX 3 partition on your hard disk.
You can also select one that's already there.

If you have an existing installation, reinstalling will let you keep your current partitioning and subpartitioning, and overwrite everything except your s1 subpartition (/home). If you want to reinstall, select your existing minix partition.

Unless you are an expert, you are advised to use the automated step-by-step help in setting up.

Press ENTER for automatic mode, or type 'expert':

--- Substep 3.1: Select a disk to install MINIX 3 -----

Probing for disks. This may take a short while..... Probing done.
The following disk was found on your system:

Disk [0]:	/dev/c0d0, 2048 MB
Free space	(2047 MB)

Enter the disk number to use: [0] 0

Unless you are an expert, you are advised to use the automated step-by-step help in setting up.

Press ENTER for automatic mode, or type 'expert':

--- Substep 3.1: Select a disk to install MINIX 3 -----

Probing for disks. This may take a short while..... Probing done.
The following disk was found on your system:

Disk [0]:	/dev/c0d0, 2048 MB
Free space	(2047 MB)

Enter the disk number to use: [0] 0

--- Substep 3.2: Select a disk region -----

Please select the region that you want to use for the MINIX 3 setup.
If you select an in-use region it will be overwritten by MINIX. The following region were found on the selected disk:

[0] Free space	(2047 MB)
----------------	-----------

Enter the region number to use or type 'delete': [0] 0_

Probing for disks. This may take a short while..... Probing done.
The following disk was found on your system:

Disk [0]: /dev/c0d0, 2048 MB
Free space (2047 MB)

Enter the disk number to use: [0] 0

--- Substep 3.2: Select a disk region -----

Please select the region that you want to use for the MINIX 3 setup.
If you select an in-use region it will be overwritten by MINIX. The
following region were found on the selected disk:

[0] Free space (2047 MB)

Enter the region number to use or type 'delete': [0] 0

--- Substep 3.3: Confirm your choices -----

This is the point of no return. You have selected to install MINIX 3
into region 0 of disk /dev/c0d0. Please confirm that you want
to use this selection to install MINIX 3.

Are you sure you want to continue? Please enter 'yes' or 'no': yes_

If you select an in-use region it will be overwritten by MINIX. The
following region were found on the selected disk:

[0] Free space (2047 MB)

Enter the region number to use or type 'delete': [0] 0

--- Substep 3.3: Confirm your choices -----

This is the point of no return. You have selected to install MINIX 3
into region 0 of disk /dev/c0d0. Please confirm that you want
to use this selection to install MINIX 3.

Are you sure you want to continue? Please enter 'yes' or 'no': yes

--- Step 4: Reinstall choice -----

No old /home found. Doing full install.

rmdir: /mnt: Function not implemented

--- Step 5: Select the size of /home -----

MINIX will take up 884 MB, without /home.

How big do you want your /home to be in MB (0-1162) ? [232] 232_

```
[0] Free space          (2047 MB)

Enter the region number to use or type 'delete': [0] 0

--- Substep 3.3: Confirm your choices -----

This is the point of no return.  You have selected to install MINIX 3
into region 0 of disk /dev/c0d0.  Please confirm that you want
to use this selection to install MINIX 3.

Are you sure you want to continue?  Please enter 'yes' or 'no': yes

--- Step 4: Reinstall choice -----

No old /home found.  Doing full install.

rmdir: /mnt: Function not implemented

--- Step 5: Select the size of /home -----

MINIX will take up 884 MB, without /home.
How big do you want your /home to be in MB (0-1162) ? [232] 232

232 MB Ok? [Y] Y
```

```
This is the point of no return.  You have selected to install MINIX 3
into region 0 of disk /dev/c0d0.  Please confirm that you want
to use this selection to install MINIX 3.

Are you sure you want to continue?  Please enter 'yes' or 'no': yes

--- Step 4: Reinstall choice -----

No old /home found.  Doing full install.

rmdir: /mnt: Function not implemented

--- Step 5: Select the size of /home -----

MINIX will take up 884 MB, without /home.
How big do you want your /home to be in MB (0-1162) ? [232] 232

232 MB Ok? [Y] Y

--- Step 6: Select a block size -----

The default file system block size is 4 kB.

Block size in kilobytes? [4] 4_
```

```
pax: ustar vol 1, 180 files, 25579520 bytes read, 0 bytes written in 2 secs (1
Done.
```

```
Creating device nodes...
```

```
Saving random data..
```

```
1+0 records in
```

```
1+0 records out
```

```
1024 bytes transferred in 0.001 secs (1024000 bytes/sec)
```

```
--- Step 8: Select your Ethernet chip -----
```

The following network interfaces are available for configuration. These are interfaces corresponding to network drivers that are currently running. If no interface is listed for your network card here, then either MINIX 3 does not support your card, or, if it is not a plug-and-play device, it may require manual configuration first.

Please choose the interface you would like to configure, or another option.

1. le0
2. Manually configure an ethernet driver
3. Quit

```
Interface choice? [1] 1_
```

Please choose the interface you would like to configure, or another option.

1. le0
2. Manually configure an ethernet driver
3. Quit

```
Interface choice? [1] 1
```

Configure interface le0 using DHCP or manually?

For now, the choice here is primarily about IPv4. With DHCP it is possible to enable IPv6 as well. Even if the local network has no IPv6 facilities, enabling IPv6 should do no harm. For IPv6-only mode or any other configuration that is not supported here, you will have to edit /mnt/etc/ifconfig.le0 yourself.

1. Automatically using DHCP (IPv4 + IPv6)
2. Automatically using DHCP (IPv4 only)
3. Manually (IPv4 only)
4. Go back to interface selection
5. Quit

```
Configuration choice? [1] 1
```



```
For now, the choice here is primarily about IPv4. With DHCP it is possible to enable IPv6 as well. Even if the local network has no IPv6 facilities, enabling IPv6 should do no harm. For IPv6-only mode or any other configuration that is not supported here, you will have to edit /mnt/etc/ifconfig.le0 yourself.
```

1. Automatically using DHCP (IPv4 + IPv6)
2. Automatically using DHCP (IPv4 only)
3. Manually (IPv4 only)

4. Go back to interface selection
5. Quit

```
Configuration choice? [1] 1
```

```
Interface le0 configured for DHCP (IPv4 + IPv6).
```

```
Do you want to configure additional interfaces?
```

```
You can also invoke the 'netconf' command as root at any later time.
```

1. Go back to interface selection
2. Quit

```
Menu choice? [2] 2
```

Após a instalação iremos reiniciar e remover a ISO:

```
First steps before using pkgin.
```

- . Modify /usr/pkg/etc/pkgin/repositories.conf to suit your platform
- . Initialize the database :

```
# pkgin update
```

```
=====
/dev/c0d0p0s1 unmounted from /mnt/home
Unmounted c0d0p0s1
/dev/c0d0p0s2 unmounted from /mnt/usr
Unmounted c0d0p0s2
/dev/c0d0p0s0 unmounted from /mnt
Unmounted c0d0p0s0
```

```
Please type 'shutdown -r now' to exit MINIX 3 and reboot. To boot into your new system, you might have to remove the installation media.
```

```
This ends the MINIX 3 setup script. You may want to take care of post installation steps, such as local testing and configuration.
```

```
Please consult the user manual for more information.
```

```
minix# shutdown -r now
```

2.3. Inicializar o Minix pós instalação

Ao iniciar o Minix ele irá aparecer a seguinte imagem:

```
--- Welcome to MINIX 3. This is the boot monitor. ---
Memory: 639/1047552 k

    1. Start MINIX 3
    2. Start latest MINIX 3
    3. Start latest MINIX 3 in single user mode
    4. Edit menu option
    5. Drop to boot prompt
    6. Start MINIX 3 (.temp)

Choose an option; RETURN for default; SPACE to stop countdown.
Option 2 will be chosen in 5 seconds.
```

Assim que iniciar, poderemos fazer o login:

```
Started UFS: 9 worker thread(s)
Root device name is /dev/c0d0p0s0
/dev/c0d0p0s0: clean
/dev/c0d0p0s0 is mounted on /
none is mounted on /proc
/dev/c0d0p0s2: clean
/dev/c0d0p0s1: clean
size on /dev/imgrd set to 0kB
Multiuser startup in progress ...
Starting hotplugging infrastructure... done.
Starting services: random lance pty lwip uds ipc log printer vbox.
Starting daemons: update cron.
Starting network.
IPv6 mode: host
Configuring network interfaces: le0.
Adding interface aliases:.
Waiting for DAD to complete for statically configured addresses...
Building databases: dev, services.
Starting syslogd.
Starting inetd.
Thu Sep 19 16:48:12 GMT 2019

Minix/i386 (minix) (console)

login:
```

O usuário é root, mas ainda não tem senha:

```
Started UFS: 9 worker thread(s)
Root device name is /dev/c0d0p0s0
/dev/c0d0p0s0: clean
/dev/c0d0p0s0 is mounted on /
none is mounted on /proc
/dev/c0d0p0s2: clean
/dev/c0d0p0s1: clean
size on /dev/imgrd set to 0kB
Multiuser startup in progress ...
Starting hotplugging infrastructure... done.
Starting services: random lance pty lwip uds ipc log printer vbox.
Starting daemons: update cron.
Starting network.
IPv6 mode: host
Configuring network interfaces: le0.
Adding interface aliases:.
Waiting for DAD to complete for statically configured addresses...
Building databases: dev, services.
Starting syslogd.
Starting inetd.
Thu Sep 19 16:48:12 GMT 2019

Minix/i386 (minix) (console)

login: root
```

```
Waiting for DAD to complete for statically configured addresses...
Building databases: dev, services.
Starting syslogd.
Starting inetd.
Thu Sep 19 16:48:12 GMT 2019

Minix/i386 (minix) (console)

login: root
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
    2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
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Copyright (c) 1982, 1986, 1989, 1991, 1993
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For more information on how to use MINIX 3, see the wiki:
http://wiki.minix3.org

We'd like your feedback: http://minix3.org/community/

minix#
```

Como não tem senha, vamos definir uma senha:

```
Waiting for DAD to complete for statically configured addresses...
Building databases: dev, services.
Starting syslogd.
Starting inetd.
Thu Sep 19 16:48:12 GMT 2019

Minix/i386 (minix) (console)

login: root
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
    2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
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Copyright (c) 1982, 1986, 1989, 1991, 1993
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We'd like your feedback: http://minix3.org/community/

minix# passwd
```

```
Starting syslogd.
Starting inetd.
Thu Sep 19 16:48:12 GMT 2019

Minix/i386 (minix) (console)

login: root
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
    2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
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http://wiki.minix3.org

We'd like your feedback: http://minix3.org/community/

minix# passwd
Changing local password for root.
New password:_
```

```
Minix/i386 (minix) (console)
```

```
login: root
```

```
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,  
2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
```

```
The NetBSD Foundation, Inc. All rights reserved.
```

```
Copyright (c) 1982, 1986, 1989, 1991, 1993
```

```
The Regents of the University of California. All rights reserved.
```

```
For post-installation usage tips such as installing binary  
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```
http://wiki.minix3.org/UsersGuide/PostInstallation
```

```
For more information on how to use MINIX 3, see the wiki:
```

```
http://wiki.minix3.org
```

```
We'd like your feedback: http://minix3.org/community/
```

```
minix# passwd
```

```
Changing local password for root.
```

```
New password:
```

```
Please don't use an all-lower case password.
```

```
Unusual capitalization, control characters or digits are suggested.
```

```
New password:
```

```
Retype new password: _
```

```
login: root
```

```
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,  
2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
```

```
The NetBSD Foundation, Inc. All rights reserved.
```

```
Copyright (c) 1982, 1986, 1989, 1991, 1993
```

```
The Regents of the University of California. All rights reserved.
```

```
For post-installation usage tips such as installing binary  
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```

```
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```

```
http://wiki.minix3.org
```

```
We'd like your feedback: http://minix3.org/community/
```

```
minix# passwd
```

```
Changing local password for root.
```

```
New password:
```

```
Please don't use an all-lower case password.
```

```
Unusual capitalization, control characters or digits are suggested.
```

```
New password:
```

```
Retype new password:
```

```
minix#
```

Vamos fazer então o logoff e login de novo, só que dessa vez iremos precisar da senha que definimos antes


```
login: root
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
The NetBSD Foundation, Inc. All rights reserved.
Copyright (c) 1982, 1986, 1989, 1991, 1993
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For more information on how to use MINIX 3, see the wiki:
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We'd like your feedback: http://minix3.org/community/

minix# passwd
Changing local password for root.
New password:
Please don't use an all-lower case password.
Unusual capitalization, control characters or digits are suggested.
New password:
Retype new password:
minix# exit
```

```
Copyright (c) 1982, 1986, 1989, 1991, 1993
The Regents of the University of California. All rights reserved.

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packages, please see:
http://wiki.minix3.org/UsersGuide/PostInstallation

For more information on how to use MINIX 3, see the wiki:
http://wiki.minix3.org

We'd like your feedback: http://minix3.org/community/

minix# passwd
Changing local password for root.
New password:
Please don't use an all-lower case password.
Unusual capitalization, control characters or digits are suggested.
New password:
Retype new password:
minix# exit

Minix/i386 (minix) (console)

login: root
Password: _
```

```
Unusual capitalization, control characters or digits are suggested.
New password:
Retype new password:
minix# exit

Minix/i386 (minix) (console)

login: root
Password:
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
    2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
    The NetBSD Foundation, Inc. All rights reserved.
Copyright (c) 1982, 1986, 1989, 1991, 1993
    The Regents of the University of California. All rights reserved.

For post-installation usage tips such as installing binary
packages, please see:
http://wiki.minix3.org/UsersGuide/PostInstallation

For more information on how to use MINIX 3, see the wiki:
http://wiki.minix3.org

We'd like your feedback: http://minix3.org/community/

minix#
```

2.4. Interface Gráfica

A iso do Minix 3.4.0rc6 já vem com uma interface gráfica instalada, porém não inicia junto com o sistema. Para inicia-la basta apenas chamar o comando para iniciar o Xorg:

```
Unusual capitalization, control characters or digits are suggested.
New password:
Retype new password:
minix# exit

Minix/i386 (minix) (console)

login: root
Password:
Copyright (c) 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,
    2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
    The NetBSD Foundation, Inc. All rights reserved.
Copyright (c) 1982, 1986, 1989, 1991, 1993
    The Regents of the University of California. All rights reserved.

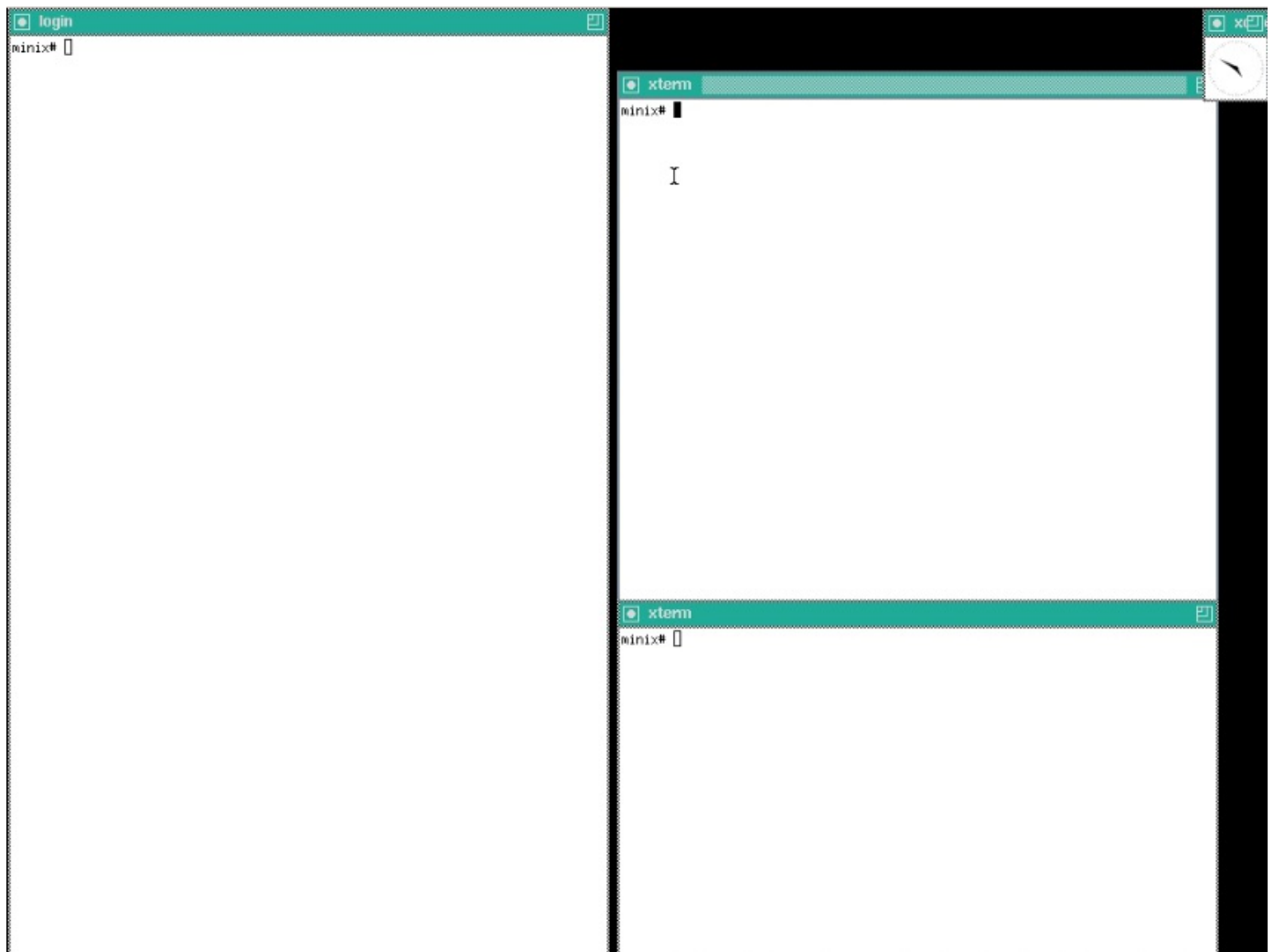
For post-installation usage tips such as installing binary
packages, please see:
http://wiki.minix3.org/UsersGuide/PostInstallation

For more information on how to use MINIX 3, see the wiki:
http://wiki.minix3.org

We'd like your feedback: http://minix3.org/community/

minix# startx_
```

Após isso, a sua tela terá uma interface gráfica bem básica, onde poderá usar três terminais e um relógio.



3. Conclusões

O Sistema Operacional Minix tem simplesmente um propósito maravilhoso que é mostrar os conceitos básicos de SO num sistema POSIX. Mas não senti muitas dificuldade ao fazer sua instalação, ainda mais que a documentação do SO é muito bem detalhada, e o próprio te dá dica nas execuções.

Para consultar na integra, o relatório estará disponível no [GitHub](#).