实验三 文档和文本编辑器

> 课 程 名 称： Unix基础与应用
>
> 实验项目名称：实验三 文档和文本编辑器
>
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> 完 成 时 间： 2021 年 4月 12 日

3.1 Linux文档

1. 实验目的

够探索和练习man和info命令，阅读FAQ和HOWTO文档。通过完成本实验，掌握下列技能：

1. man命令
2. 使用info命令
3. 查找并使用其他Linux文档

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2. 实验环境

2.1 软件环境：

1. CentOS Linux release 7.9.2009
2. VMware Workstation Pro 15
3. MobaXterm v20.0

2.2 硬件环境：

1. 阿里云云服务器ECS，共享计算型实例，配置（CPU 1核 \ 内存 2GB \ 带宽 1Mbps）
2. 个人笔记本，配置（建议内存>4G)

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3. 实验内容和方法

3.1 手册页(man)

1. 打开终端软件ssh会话，连接云服务器ECS，登录

```
CentOS Linux 7 (Core)
Kernel 3.10.0-1160.el7.x86_64 on an x86_64

localhost login: monkeyman
Password:
Last login: Mon Apr  5 03:23:34 on tty1
[monkeyman@localhost ~]$
```

2. 显示man命令的手册页

```
MAN(1)                          Manual pager utils                          MAN(1)

NAME
       man - an interface to the on-line reference manuals

SYNOPSIS
       man  [-C  file]  [-d]  [-D]  [--warnings[=warnings]]  [-R  encoding]  [-L locale] [-m sys-
       tem[,...]] [-M path] [-S list] [-e extension] [-i|-I] [--regex|--wildcard]  [--names-only]
       [-a]  [-u]  [--no-subpages]  [-P  pager] [-r prompt] [-7] [-E encoding] [--no-hyphenation]
       [--no-justification] [-p string] [-t] [-T[device]] [-H[browser]] [-X[dpi]] [-Z] [[section]
       page ...] ...
       man -k [apropos options] regexp ...
       man -K [-w|-W] [-S list] [-i|-I] [--regex] [section] term ...
       man -f [whatis options] page ...
       man  -l  [-C  file] [-d] [-D] [--warnings[=warnings]] [-R encoding] [-L locale] [-P pager]
       [-r prompt] [-7] [-E encoding] [-p string] [-t] [-T[device]] [-H[browser]] [-X[dpi]]  [-Z]
       file ...
       man -w|-W [-C file] [-d] [-D] page ...
       man -c [-C file] [-d] [-D] page ...
       man [-?V]

DESCRIPTION
       man  is the system's manual pager. Each page argument given to man is normally the name of
       a program, utility or function.  The manual page associated with each of  these  arguments
       is  then found and displayed. A section, if provided, will direct man to look only in that
       section of the manual.  The default action is to search in all of the available  sections,
       following  a  pre-defined order and to show only the first page found, even if page exists
       in several sections.

       The table below shows the section numbers of the manual followed by  the  types  of  pages
       they contain.

       1   Executable programs or shell commands
       2   System calls (functions provided by the kernel)
       3   Library calls (functions within program libraries)
       4   Special files (usually found in /dev)
 Manual page man(1) line 1 (press h for help or q to quit)
```

3. 手册页中搜索字符串pager

```
MAN(1)                          Manual pager utils                          MAN(1)

NAME
       man - an interface to the on-line reference manuals

SYNOPSIS
       man  [-C  file]  [-d]  [-D]  [--warnings[=warnings]]  [-R  encoding]  [-L locale] [-m sys-
       tem[,...]] [-M path] [-S list] [-e extension] [-i|-I] [--regex|--wildcard]  [--names-only]
       [-a]  [-u]  [--no-subpages]  [-P  pager] [-r prompt] [-7] [-E encoding] [--no-hyphenation]
       [--no-justification] [-p string] [-t] [-T[device]] [-H[browser]] [-X[dpi]] [-Z] [[section]
       page ...] ...
       man -k [apropos options] regexp ...
       man -K [-w|-W] [-S list] [-i|-I] [--regex] [section] term ...
       man -f [whatis options] page ...
       man  -l  [-C  file] [-d] [-D] [--warnings[=warnings]] [-R encoding] [-L locale] [-P pager]
       [-r prompt] [-7] [-E encoding] [-p string] [-t] [-T[device]] [-H[browser]] [-X[dpi]]  [-Z]
       file ...
       man -w|-W [-C file] [-d] [-D] page ...
       man -c [-C file] [-d] [-D] page ...
       man [-?V]

DESCRIPTION
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       a program, utility or function.  The manual page associated with each of  these  arguments
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       2   System calls (functions provided by the kernel)
       3   Library calls (functions within program libraries)
       4   Special files (usually found in /dev)
 Manual page man(1) line 1 (press h for help or q to quit)
```

4. 使用**q**键结束man命令

```
MAN(1)                          Manual pager utils                          MAN(1)

NAME
       man - an interface to the on-line reference manuals

SYNOPSIS
       man  [-C  file]  [-d]  [-D]  [--warnings[=warnings]]  [-R  encoding]  [-L locale] [-m sys-
       tem[,...]] [-M path] [-S list] [-e extension] [-i|-I] [--regex|--wildcard]  [--names-only]
       [-a]  [-u]  [--no-subpages]  [-P  pager] [-r prompt] [-7] [-E encoding] [--no-hyphenation]
       [--no-justification] [-p string] [-t] [-T[device]] [-H[browser]] [-X[dpi]] [-Z] [[section]
       page ...] ...
       man -k [apropos options] regexp ...
       man -K [-w|-W] [-S list] [-i|-I] [--regex] [section] term ...
       man -f [whatis options] page ...
       man  -l  [-C  file] [-d] [-D] [--warnings[=warnings]] [-R encoding] [-L locale] [-P pager]
       [-r prompt] [-7] [-E encoding] [-p string] [-t] [-T[device]] [-H[browser]] [-X[dpi]]  [-Z]
       file ...
       man -w|-W [-C file] [-d] [-D] page ...
       man -c [-C file] [-d] [-D] page ...
       man [-?V]

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       section of the manual.  The default action is to search in all of the available  sections,
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       they contain.

       1   Executable programs or shell commands
       2   System calls (functions provided by the kernel)
       3   Library calls (functions within program libraries)
       4   Special files (usually found in /dev)
[monkeyman@localhost ~]$
```
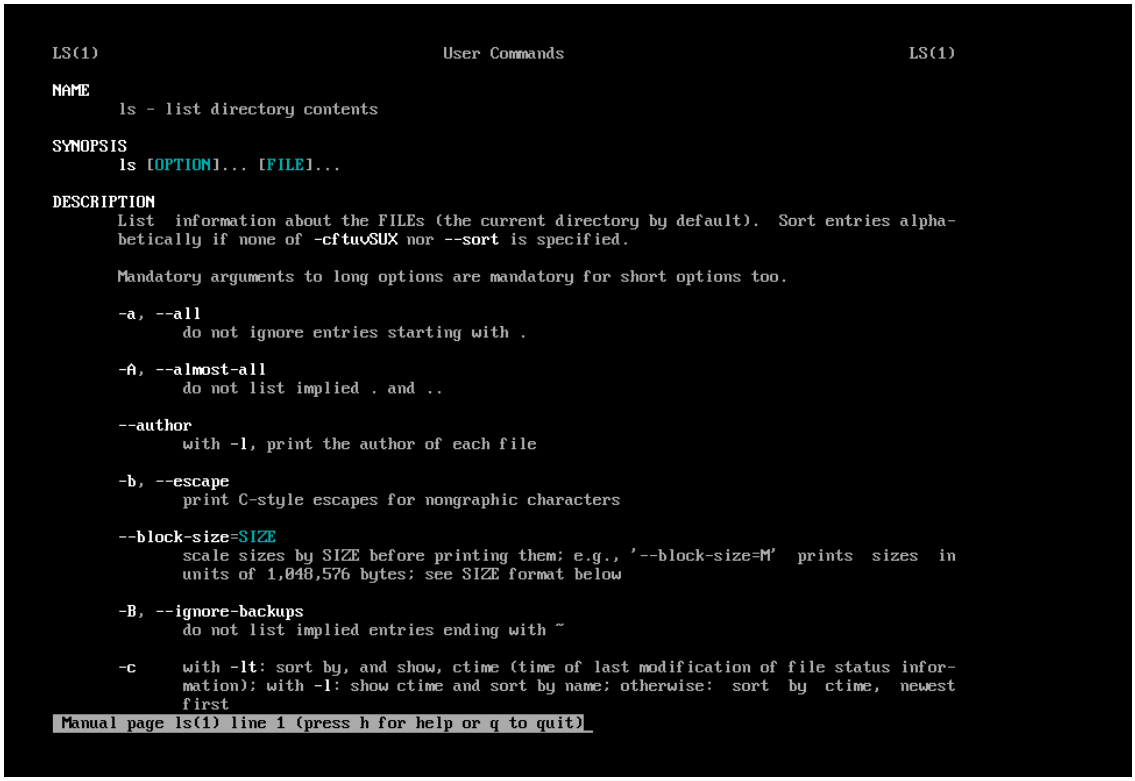

5. 显示ls命令的手册页。浏览手册页



```
LS(1)                            User Commands                            LS(1)

NAME
       ls - list directory contents

SYNOPSIS
       ls [OPTION]... [FILE]...

DESCRIPTION
       List  information about the FILEs (the current directory by default).  Sort entries alpha-
       betically if none of -cftuvSUX nor --sort is specified.

       Mandatory arguments to long options are mandatory for short options too.

       -a, --all
              do not ignore entries starting with .

       -A, --almost-all
              do not list implied . and ..

       --author
              with -l, print the author of each file

       -b, --escape
              print C-style escapes for nongraphic characters

       --block-size=SIZE
              scale sizes by SIZE before printing them; e.g., '--block-size=M' prints  sizes  in
              units of 1,048,576 bytes; see SIZE format below

       -B, --ignore-backups
              do not list implied entries ending with ~

       -c     with -lt: sort by, and show, ctime (time of last modification of file status infor-
              mation); with -l: show ctime and sort by name; otherwise:  sort  by  ctime,  newest
              first
 Manual page ls(1) line 1 (press h for help or q to quit)
```

```
       SIZE is an integer and optional unit (example: 10M is 10*1024*1024).  Units are K,  M,  G,
       T, P, E, Z, Y (powers of 1024) or KB, MB, ... (powers of 1000).

       Using  color to distinguish file types is disabled both by default and with --color=never.
       With --color=auto, ls emits color codes only when standard output is connected to a termi-
       nal.   The LS_COLORS environment variable can change the settings.  Use the dircolors com-
       mand to set it.

   Exit status:
       0      if OK,

       1      if minor problems (e.g., cannot access subdirectory),

       2      if serious trouble (e.g., cannot access command-line argument).

       GNU coreutils online help: <http://www.gnu.org/software/coreutils/> Report ls  translation
       bugs to <http://translationproject.org/team/>

AUTHOR
       Written by Richard M. Stallman and David MacKenzie.

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       later <http://gnu.org/licenses/gpl.html>.
       This is free software: you are free to change and redistribute it.  There is NO  WARRANTY,
       to the extent permitted by law.

SEE ALSO
       The  full documentation for ls is maintained as a Texinfo manual.  If the info and ls pro-
       grams are properly installed at your site, the command

              info coreutils 'ls invocation'

       should give you access to the complete manual.

GNU coreutils 8.22                    August 2019                                       LS(1)
Manual page ls(1) line 204/241 (END) (press h for help or q to quit)
```

6. 关闭man命令

```
       SIZE is an integer and optional unit (example: 10M is 10*1024*1024).  Units are K,  M,  G,
       T, P, E, Z, Y (powers of 1024) or KB, MB, ... (powers of 1000).

       Using  color to distinguish file types is disabled both by default and with --color=never.
       With --color=auto, ls emits color codes only when standard output is connected to a termi-
       nal.   The LS_COLORS environment variable can change the settings.  Use the dircolors com-
       mand to set it.

   Exit status:
       0      if OK,

       1      if minor problems (e.g., cannot access subdirectory),

       2      if serious trouble (e.g., cannot access command-line argument).

       GNU coreutils online help: <http://www.gnu.org/software/coreutils/> Report ls  translation
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       later <http://gnu.org/licenses/gpl.html>.
       This is free software: you are free to change and redistribute it.  There is NO  WARRANTY,
       to the extent permitted by law.

SEE ALSO
       The  full documentation for ls is maintained as a Texinfo manual.  If the info and ls pro-
       grams are properly installed at your site, the command

              info coreutils 'ls invocation'

       should give you access to the complete manual.

GNU coreutils 8.22                    August 2019                                       LS(1)
[monkeyman@localhost ~]$ _
```
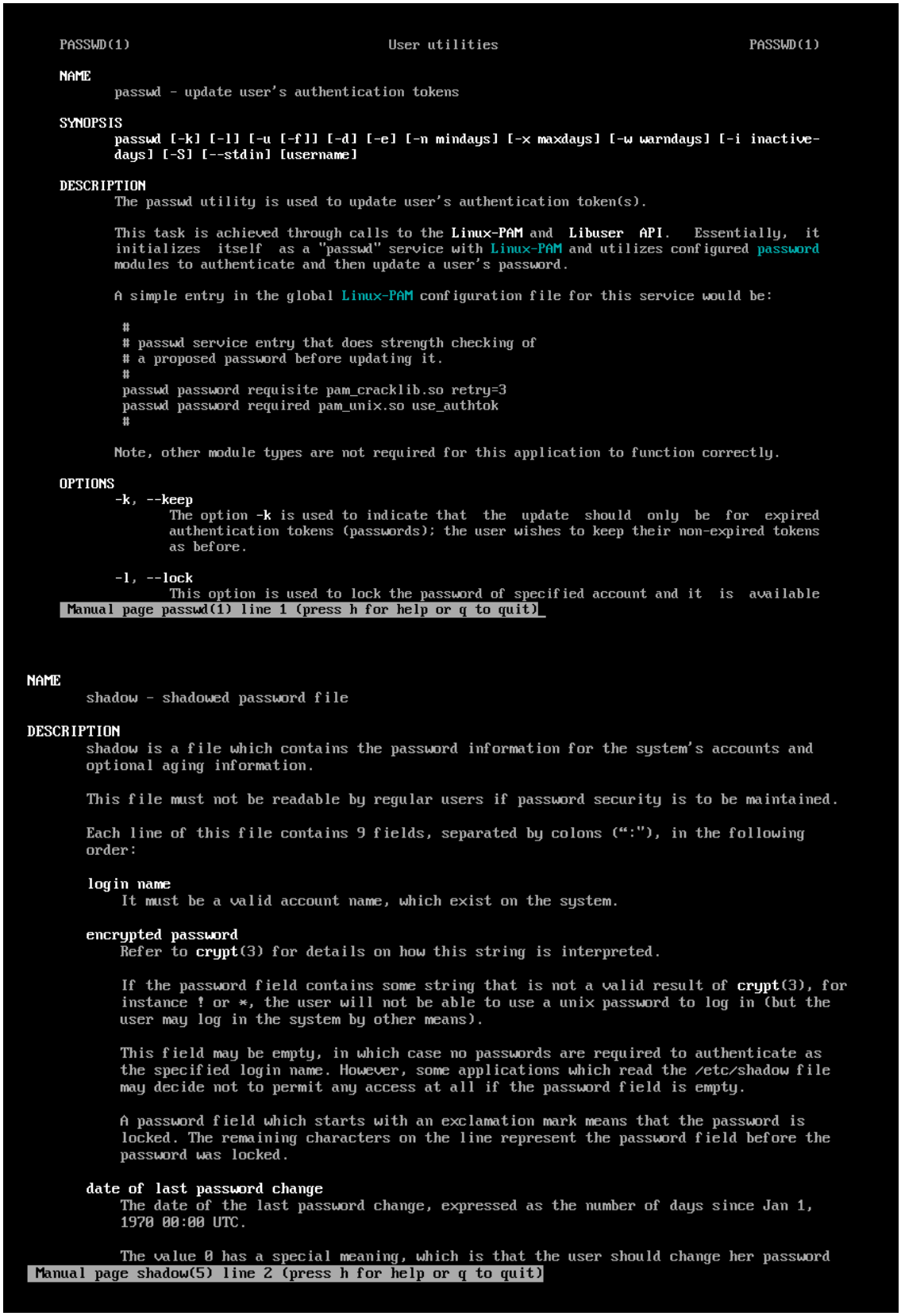

7. 查找标题中包含字 password 的手册页。然后查看每一页，并提供正确的部分编号

```
[monkeyman@localhost ~]$ make -k passwd
make: *** No rule to make target `passwd'.
[monkeyman@localhost ~]$ apropos passwd
chgpasswd (8)        - update group passwords in batch mode
chpasswd (8)         - update passwords in batch mode
gpasswd (1)          - administer /etc/group and /etc/gshadow
grub2-mkpasswd-pbkdf2 (1) - Generate a PBKDF2 password hash.
lpasswd (1)          - Change group or user password
pam_localuser (8)    - require users to be listed in /etc/passwd
passwd (1)           - update user's authentication tokens
sslpasswd (1ssl)     - compute password hashes
pwhistory_helper (8) - Helper binary that transfers password hashes from passwd or shadow to opasswd
[monkeyman@localhost ~]$ _
```

> 笔记： 如果man -k或apropos命令不起作用，则需要以root用户身份运行makewhatis命令。



3.2 info命令

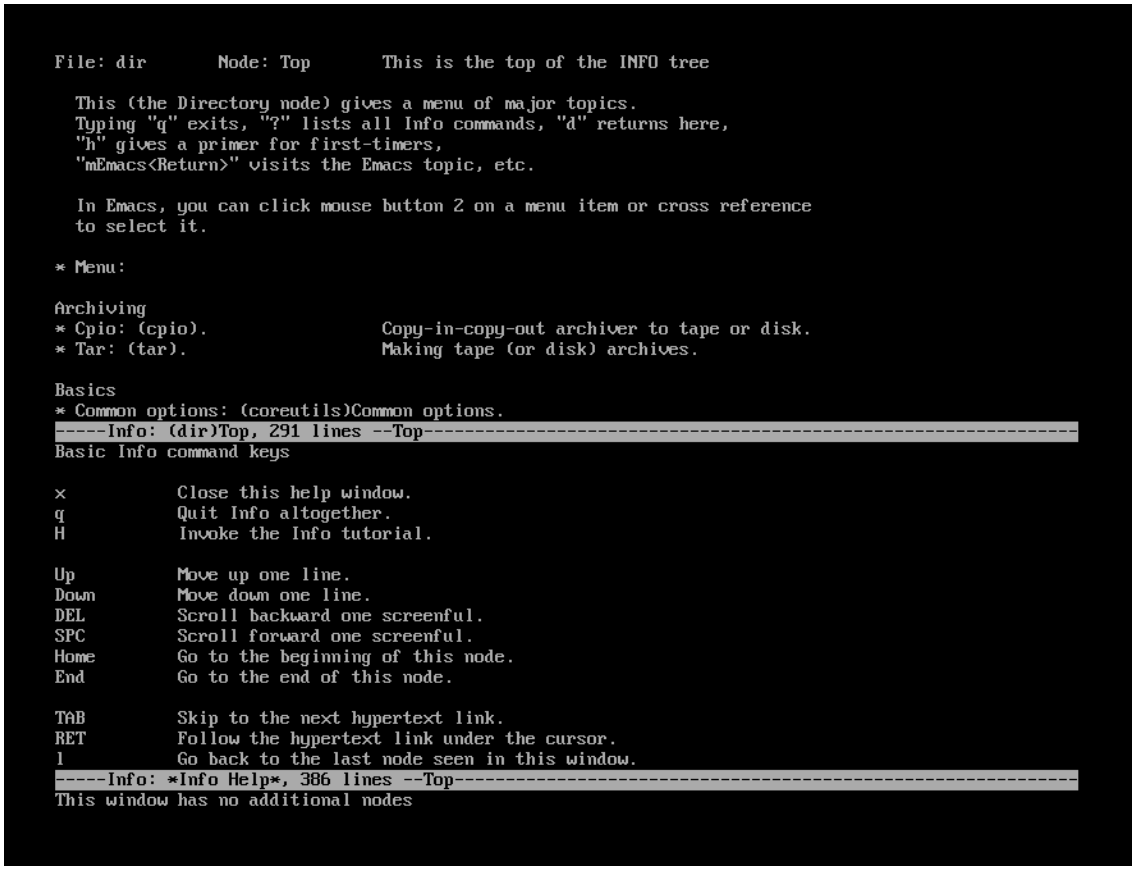
1. 查看finger命令的信息文档

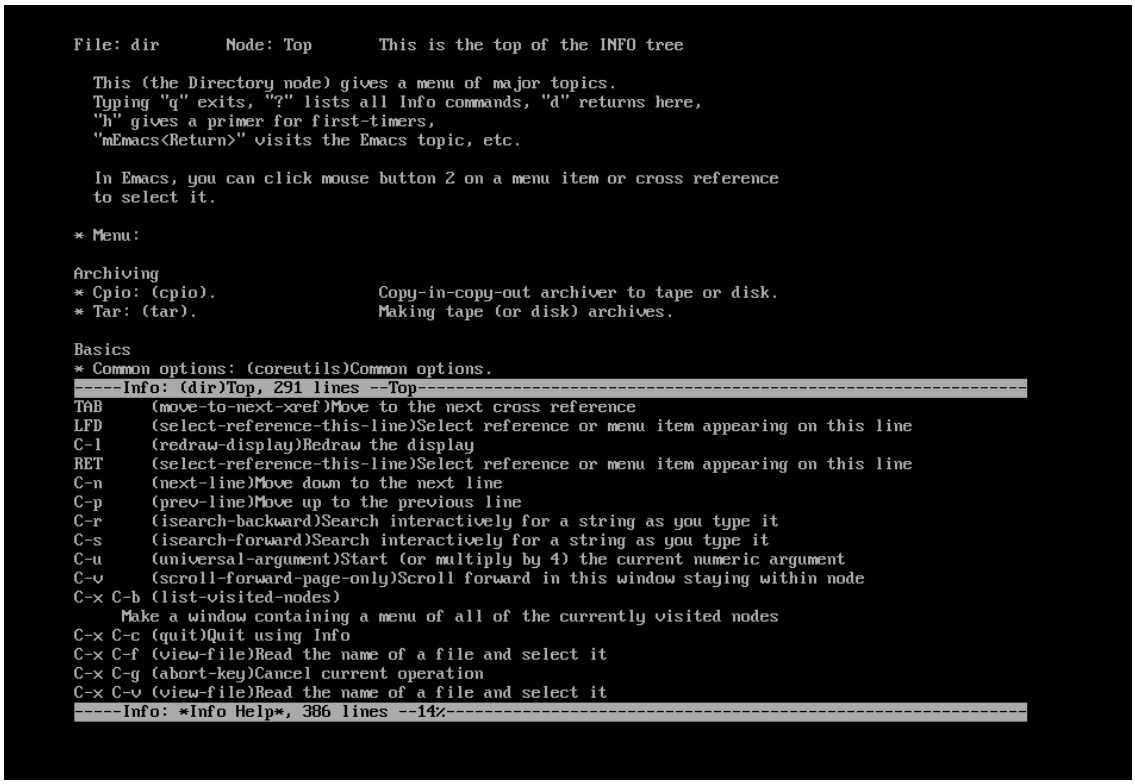
```
File: dir       Node: Top       This is the top of the INFO tree

  This (the Directory node) gives a menu of major topics.
  Typing "q" exits, "?" lists all Info commands, "d" returns here,
  "h" gives a primer for first-timers,
  "mEmacs<Return>" visits the Emacs topic, etc.

  In Emacs, you can click mouse button 2 on a menu item or cross reference
  to select it.

* Menu:

Archiving
* Cpio: (cpio).                 Copy-in-copy-out archiver to tape or disk.
* Tar: (tar).                   Making tape (or disk) archives.

Basics
* Common options: (coreutils)Common options.
* Coreutils: (coreutils).       Core GNU (file, text, shell) utilities.
* Date input formats: (coreutils)Date input formats.
* File permissions: (coreutils)File permissions.
                                Access modes.
* Finding files: (find).        Operating on files matching certain criteria.

Compression
* Gzip: (gzip).                 General (de)compression of files (lzw).

Emacs
* IDN Library: (libidn)Emacs API.
                                Emacs API for IDN functions.

GNU Gettext Utilities
* autopoint: (gettext)autopoint Invocation.
                                Copy gettext infrastructure.
* envsubst: (gettext)envsubst Invocation.
-----Info: (dir)Top, 291 lines --Top-----------------------------------------------------------------
No menu item `finger' in node `(dir)Top'.
```

2. 使用**space**和**del**键浏览此页面

```
                                Update a PO file from template.
* msgunfmt: (gettext)msgunfmt Invocation.
                                Uncompile MO file into PO file.
* msguniq: (gettext)msguniq Invocation.
                                Unify duplicates for PO file.
* ngettext: (gettext)ngettext Invocation.
                                Translate a message with plural.
* xgettext: (gettext)xgettext Invocation.
                                Extract strings into a PO file.

GNU Libraries
* libgomp: (libgomp).           GNU OpenMP runtime library

GNU organization
* Standards: (standards).       GNU coding standards.

GNU Utilities
* gpg-agent: (gnupg).           The secret key daemon.
* gpg2: (gnupg).                OpenPGP encryption and signing tool.
* gpgsm: (gnupg).               S/MIME encryption and signing tool.
* pinentry: (pinentry).         Ask securely for a passphrase or PIN.

Individual utilities
* addr2line: (binutils)addr2line.              Convert addresses to file and
                                                 line.
* ar: (binutils)ar.                            Create, modify, and extract
                                                 from archives.
* arch: (coreutils)arch invocation.            Print machine hardware name.
* awk: (gawk)Invoking gawk.                    Text scanning and processing.
* base64: (coreutils)base64 invocation.        Base64 encode/decode data.
* basename: (coreutils)basename invocation.    Strip directory and suffix.
* c++filt: (binutils)c++filt.                  Filter to demangle encoded C++
                                                 symbols.
* cat: (coreutils)cat invocation.              Concatenate and write files.
* chcon: (coreutils)chcon invocation.          Change SELinux CTX of files.
-----Info: (dir)Top, 291 lines --22%-----------------------------------------------------------------
```

3. 阅读有关info命令的帮助


File: dir Node: Top This is the top of the INFO tree
This (the Directory node) gives a menu of major topics.
Typing "q" exits, "?" lists all Info commands, "d" returns here,
"h" gives a primer for first-timers,
"mEmacs<Return>" visits the Emacs topic, etc.
In Emacs, you can click mouse button 2 on a menu item or cross reference
to select it.
* Menu:
Archiving
* Cpio: (cpio). Copy-in-copy-out archiver to tape or disk.
* Tar: (tar). Making tape (or disk) archives.
Basics
* Common options: (coreutils)Common options.
-----Info: (dir)Top, 291 lines --Top-----
Basic Info command keys
x Close this help window.
q Quit Info altogether.
H Invoke the Info tutorial.
Up Move up one line.
Down Move down one line.
DEL Scroll backward one screenful.
SPC Scroll forward one screenful.
Home Go to the beginning of this node.
End Go to the end of this node.
TAB Skip to the next hypertext link.
RET Follow the hypertext link under the cursor.
l Go back to the last node seen in this window.
-----Info: *Info Help*, 386 lines --Top-----
This window has no additional nodes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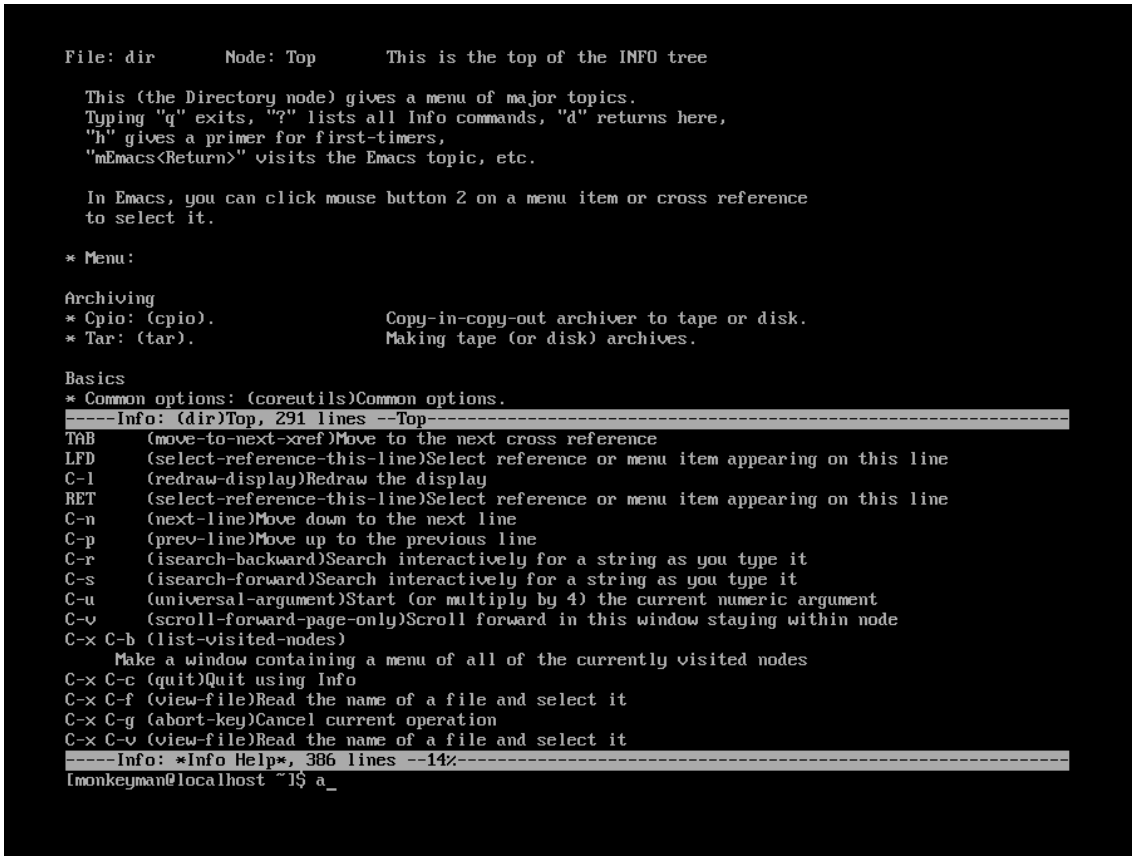
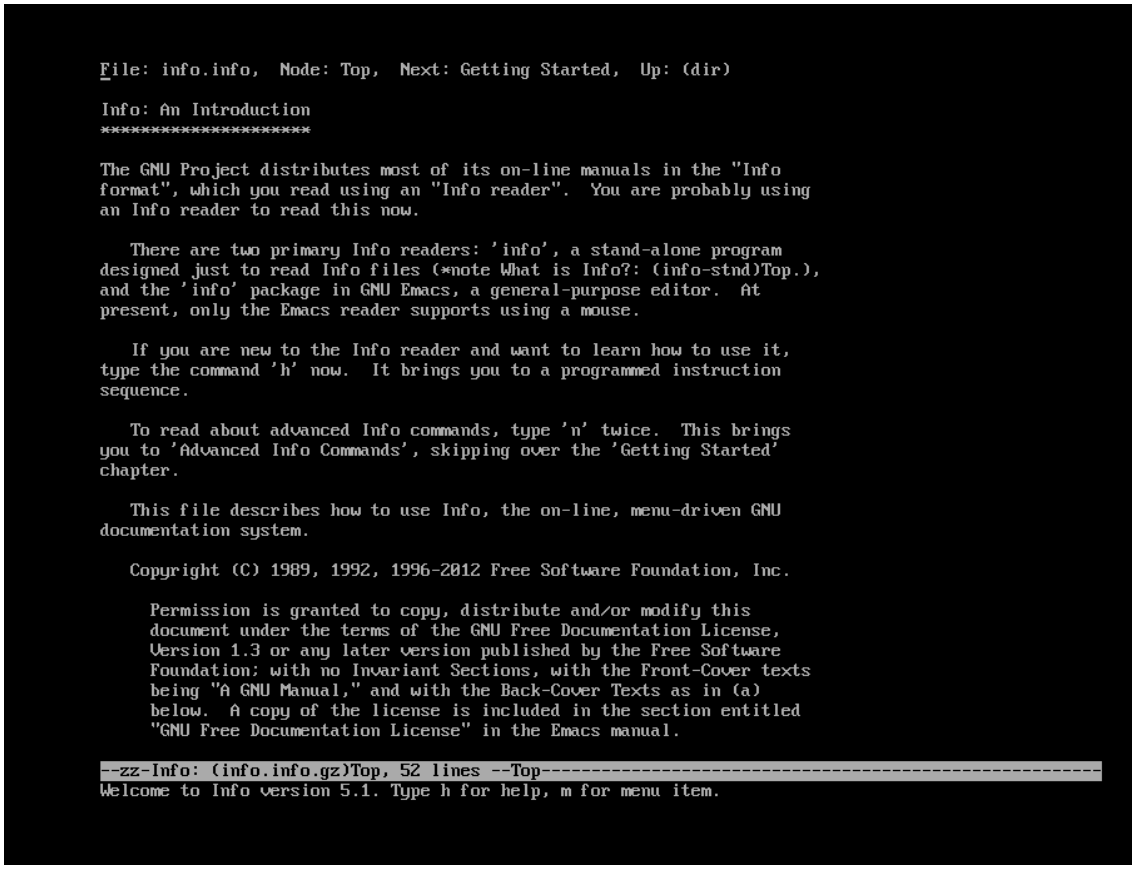
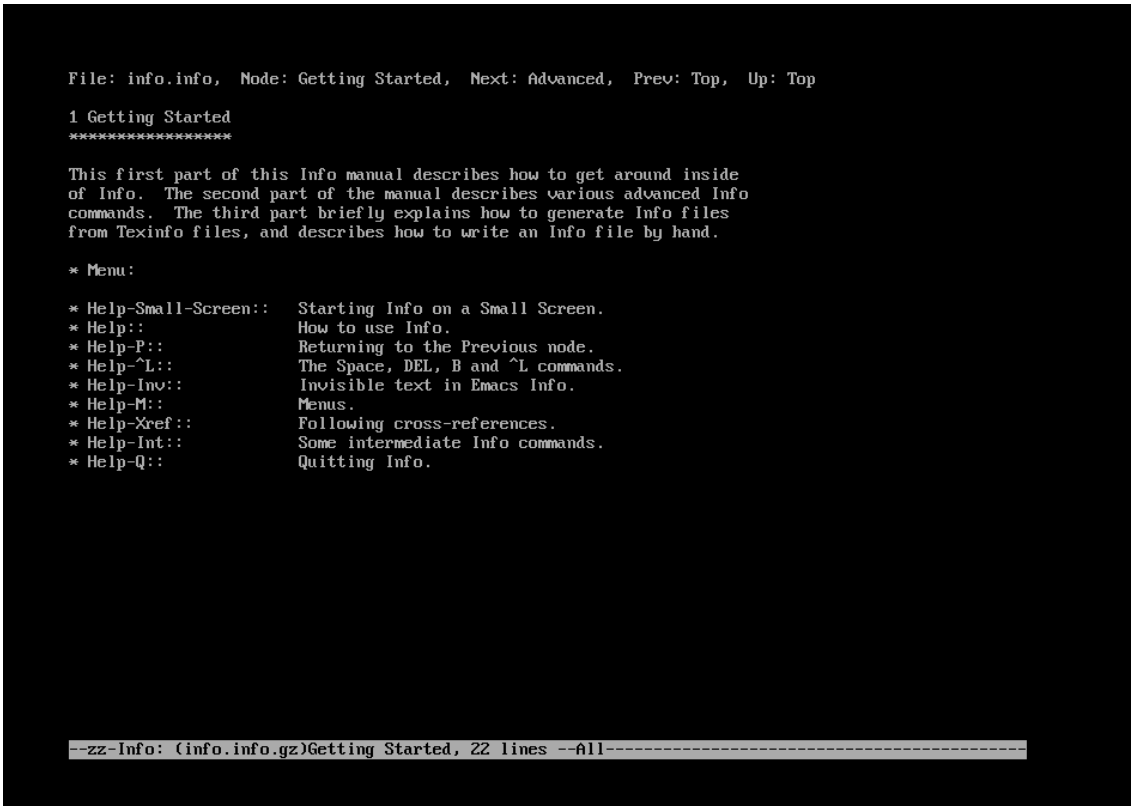
* Menu:
Archiving
* Cpio: (cpio). Copy-in-copy-out archiver to tape or disk.
* Tar: (tar). Making tape (or disk) archives.
Basics
* Common options: (coreutils)Common options.
-----Info: (dir)Top, 291 lines --Top-----
TAB (move-to-next-xref)Move to the next cross reference
LFD (select-reference-this-line)Select reference or menu item appearing on this line
C-l (redraw-display)Redraw the display
RET (select-reference-this-line)Select reference or menu item appearing on this line
C-n (next-line)Move down to the next line
C-p (prev-line)Move up to the previous line
C-r (isearch-backward)Search interactively for a string as you type it
C-s (isearch-forward)Search interactively for a string as you type it
C-u (universal-argument)Start (or multiply by 4) the current numeric argument
C-v (scroll-forward-page-only)Scroll forward in this window staying within node
C-x C-b (list-visited-nodes)
Make a window containing a menu of all of the currently visited nodes
C-x C-c (quit)Quit using Info
C-x C-f (view-file)Read the name of a file and select it
C-x C-g (abort-key)Cancel current operation
C-x C-v (view-file)Read the name of a file and select it
-----Info: *Info Help*, 386 lines --14%-----

4. 结束info命令

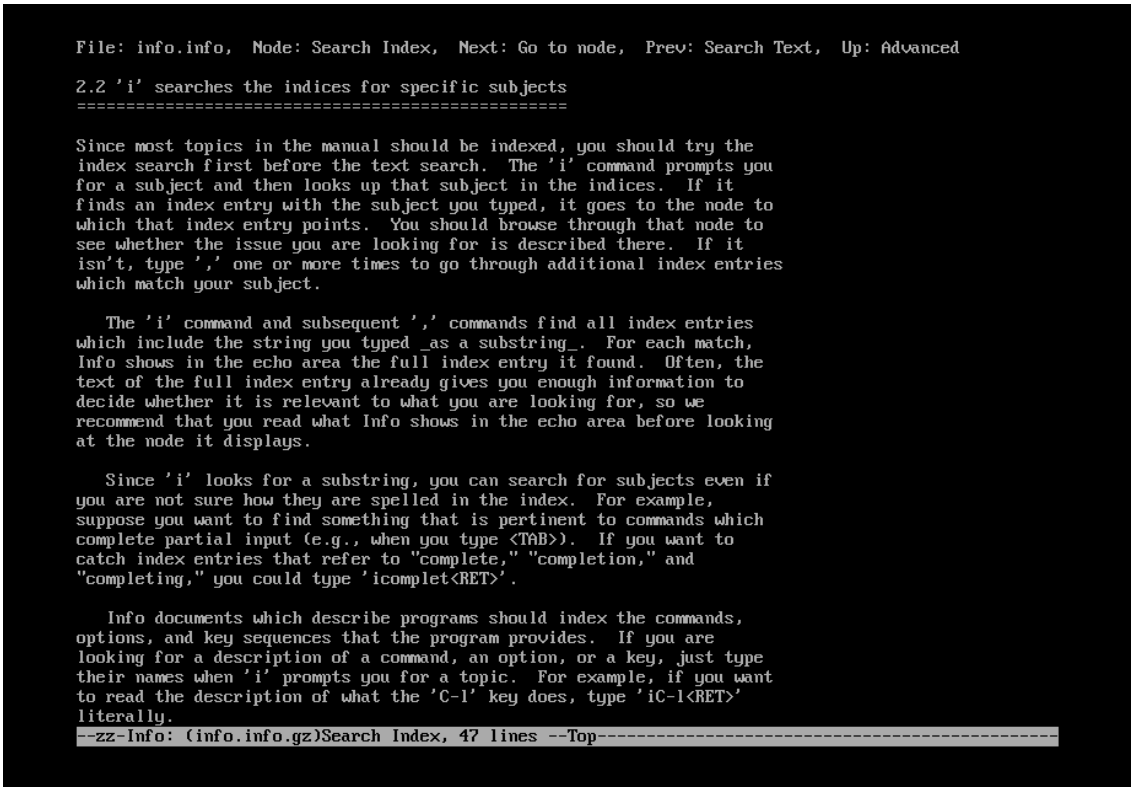


5. 阅读info命令的info文档

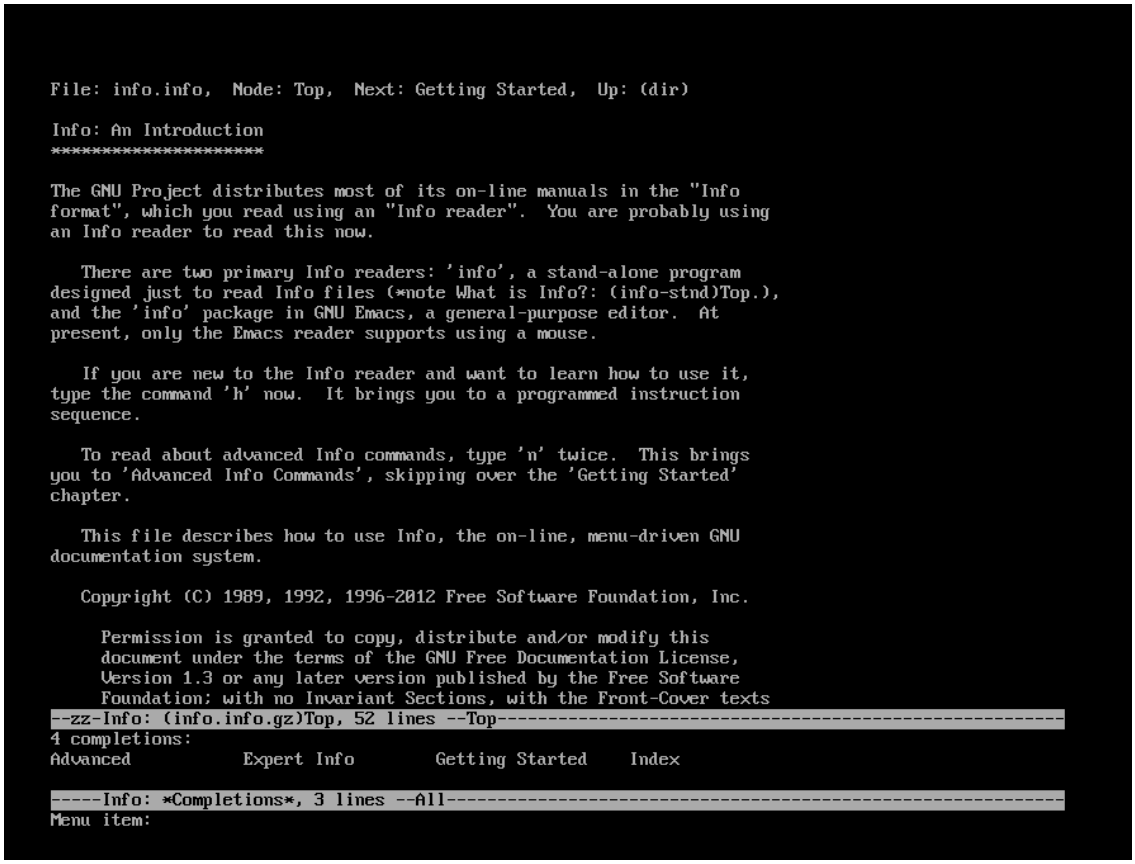




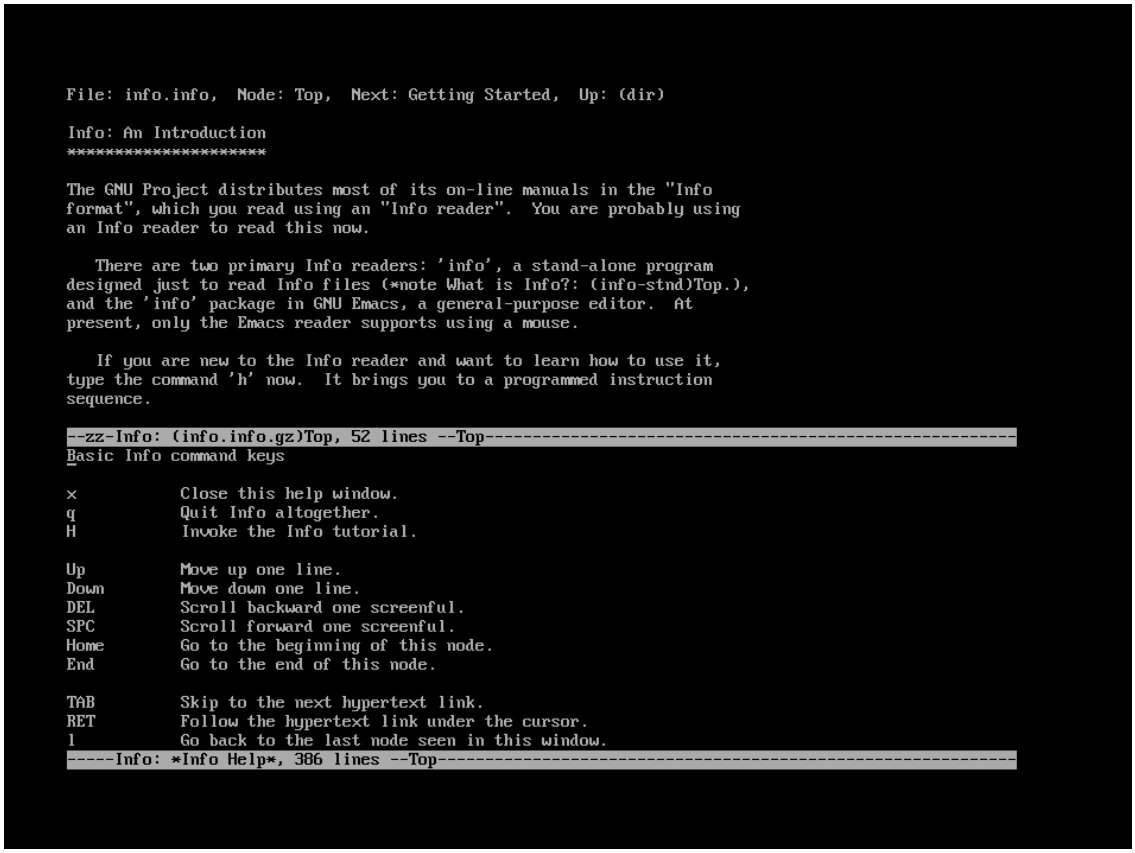
6. 通过访问超链接node



7. 通过访问菜单node



8. 使用**H**进入info命令教程



3.3 其他文档

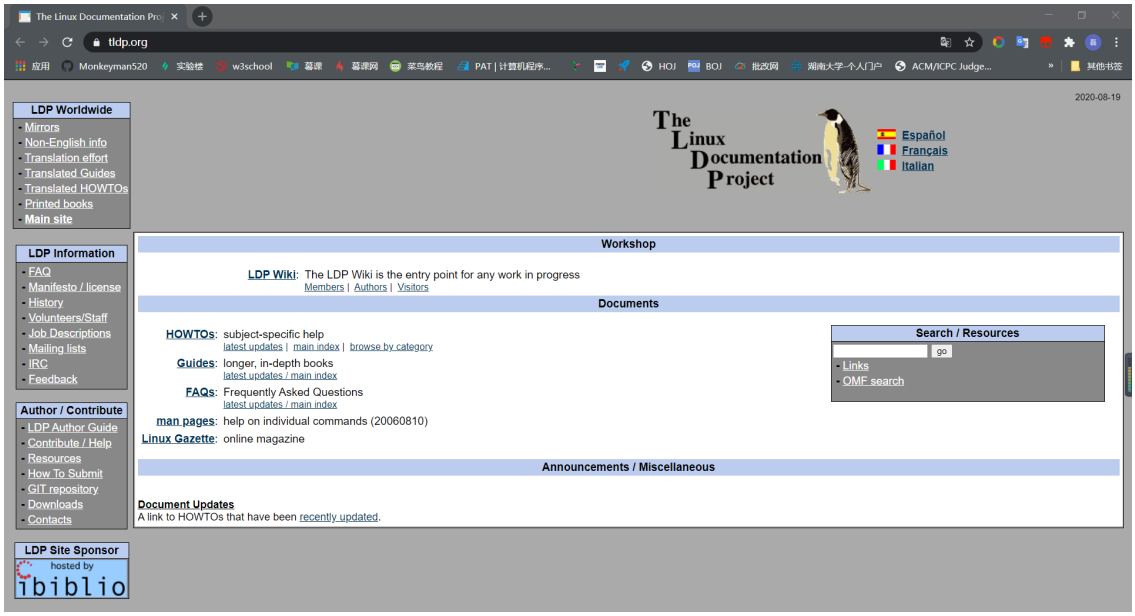
1. 列出/usr/share/doc目录中的所有目录

```
iwl3945-firmware-15.32.2.9          python-urlgrabber-3.10
iwl4965-firmware-228.61.2.24        pyxattr-0.5.1
iwl5000-firmware-8.83.5.1_1         qrencode-libs-3.4.1
iwl5150-firmware-8.24.2.2           readline-6.2
iwl6000-firmware-9.221.4.1          redhat-release
iwl6000g2a-firmware-18.168.6.1      rpm-4.11.3
iwl6000g2b-firmware-18.168.6.1      rsyslog-8.24.0
iwl6050-firmware-41.28.5.1          sed-4.2.2
iwl7260-firmware-25.30.13.0         setup-2.8.71
jansson-2.10                        shadow-utils-4.6
json-c-0.11                         shared-mime-info-1.8
kbd-1.15.5                          slang-2.2.4
kexec-tools-2.0.15                  snappy-1.1.0
keyutils-libs-1.5.8                 sqlite-3.7.17
kmod-20                             sudo-1.8.23
krb5-libs-1.15.1                    systemd
less-458                            sysvinit-tools-2.88
libaio-0.3.109                      tar-1.26
libassuan-2.1.0                     tcp_wrappers-libs-7.6
libblkid-2.23.2                     teamd-1.29
libcap-2.22                         tuned-2.11.0
libcap-ng-0.7.5                     tzdata-2020a
libcom_err-1.42.9                   ustr-1.0.4
libcroco-0.6.12                     util-linux-2.23.2
libdaemon-0.14                      virt-what-1.18
libdb-5.3.21                        which-2.20
libdrm-2.4.97                       wpa_supplicant-2.6
libedit-3.0                         xfsprogs-4.5.0
libestr-0.1.9                       xmlsec1-1.2.20
libfastjson-0.99.4                  xz-5.2.2
libffi-3.0.13                       xz-libs-5.2.2
libgcc-4.8.5                        yum-3.4.3
libgcrypt-1.5.3                     yum-metadata-parser-1.1.4
libgomp-4.8.5                       yum-plugin-fastestmirror-1.1.31
libgpg-error-1.12                   zlib-1.2.7
libidn-1.28
[monkeyman@localhost ~]$ a_
```

2. 浏览其中一些目录以查看可用的信息种类

```
[monkeyman@localhost ~]$ cd /usr/share/doc/libidn-1.28
[monkeyman@localhost libidn-1.28]$ ls
AUTHORS  COPYING.LESSERv2  COPYINGv2  FAQ   README
COPYING  COPYING.LESSERv3  COPYINGv3  NEWS  THANKS
[monkeyman@localhost libidn-1.28]$ _
```

3. 访问http://www.tldp.org网站，查找IPv6的HOWTO



3.2 文本编辑器

1. 实验目的

使用最常见的Linux编辑器vi创建和编辑文件，并尝试使用其他可用的编辑器。通过完成本实验，掌握下列技能：

1. 使用vi创建和编辑文件
2. 列出并尝试系统上其他可用的编辑器

---

2. 实验环境

2.1 软件环境：

1. CentOS Linux release 7.9.2009
2. VMware Workstation Pro 15
3. MobaXterm v20.0

2.2 硬件环境：

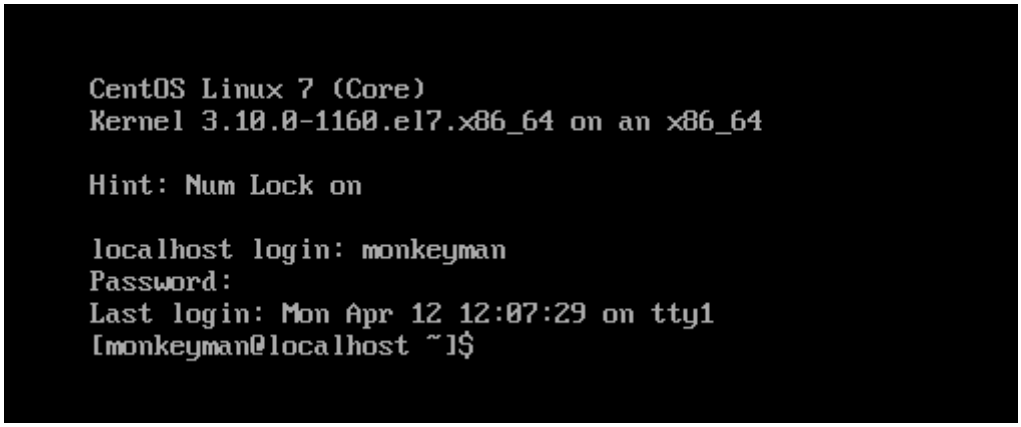
1. 阿里云云服务器ECS，共享计算型实例，配置（CPU 1核 \ 内存 2GB \ 带宽 1Mbps）
2. 个人笔记本，配置（建议内存>4G)

---

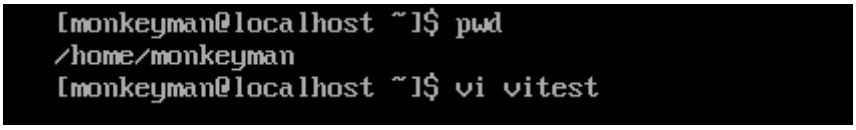
3. 实验步骤和方法

3.1 使用vi

1. 打开终端软件ssh会话，连接云服务器ECS



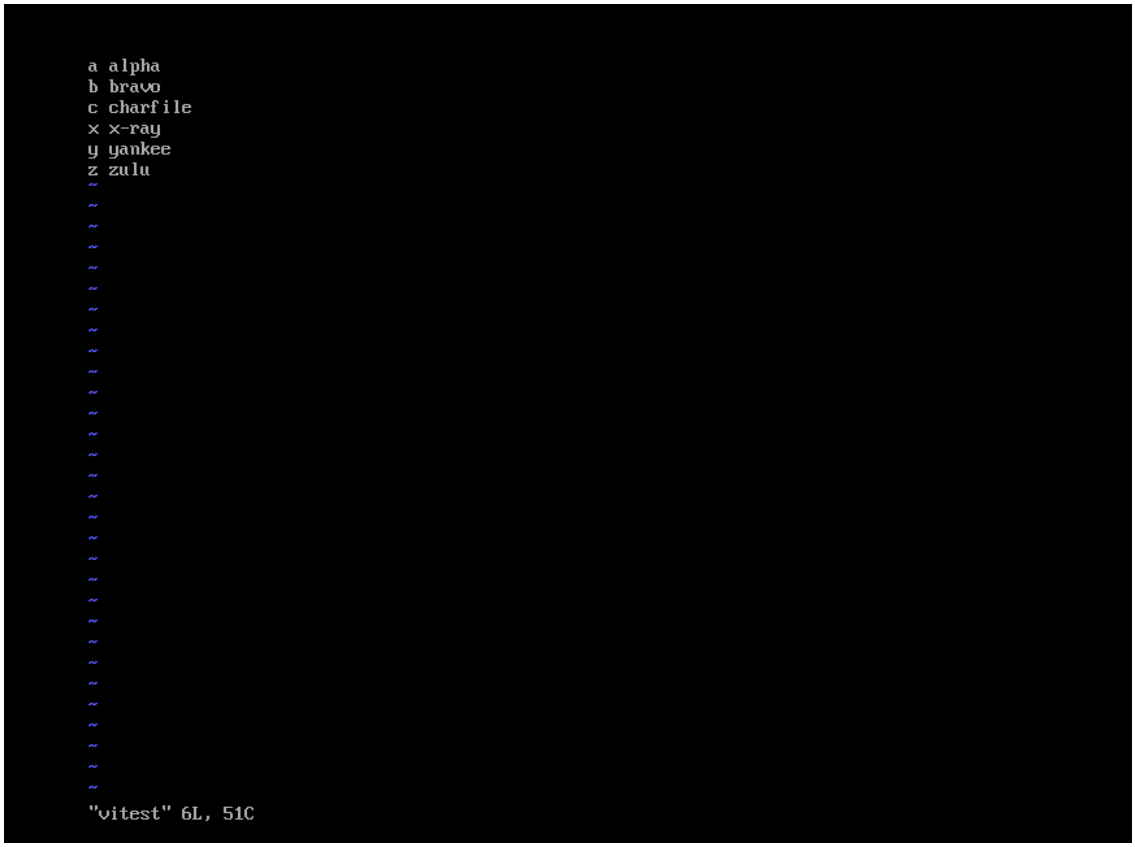
2. 确保位于主目录中。使用vi在主目录中创建一个名为vitest的文件。在vitest文件中键入文本 和字母。



3. 返回命令模式，写入并退出文件

3.2 光标移动键

1. 再次打开vitest文件（注意：屏幕的底行指示文件名和字符数）
2. 使用H，J，K和L键，练习在文件中移动。



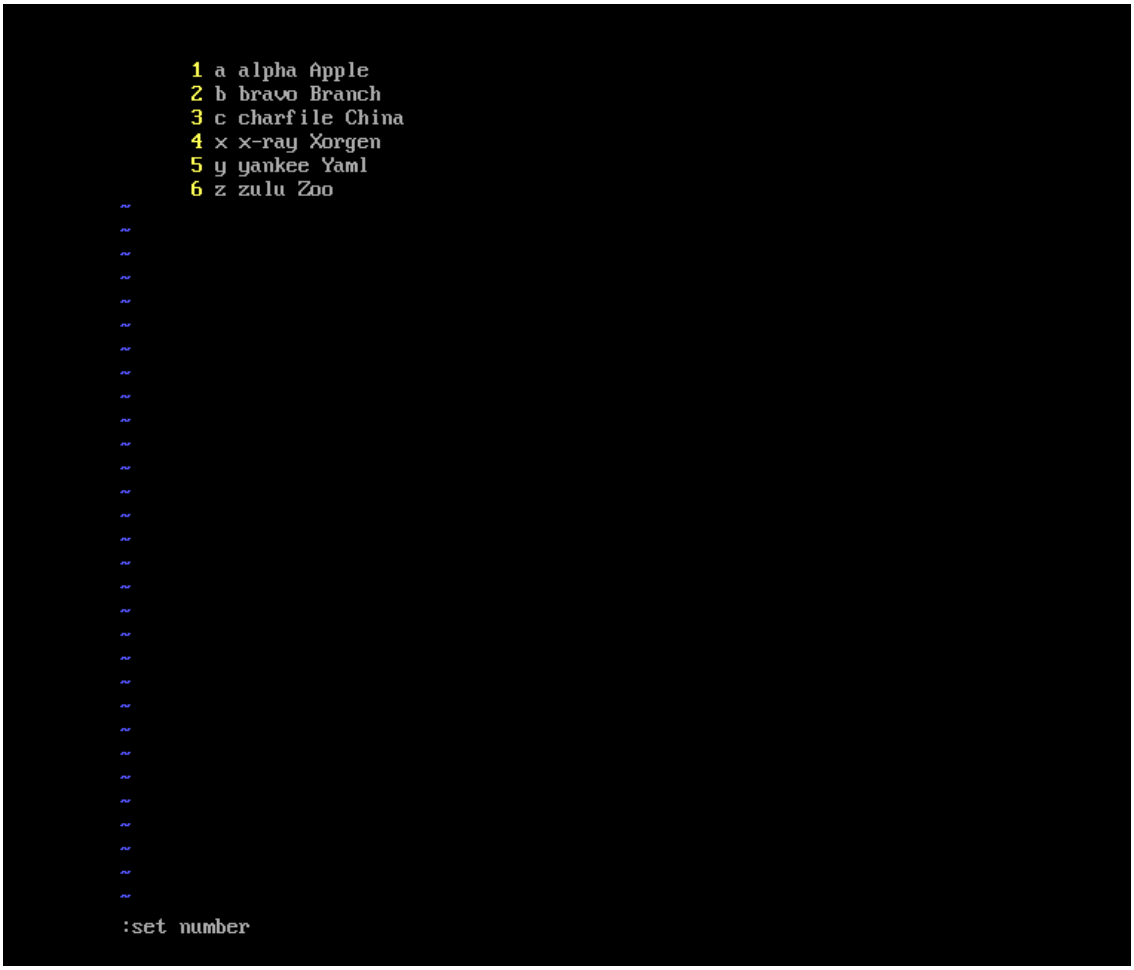
3. 使用适当的vi命令在文本中移动。

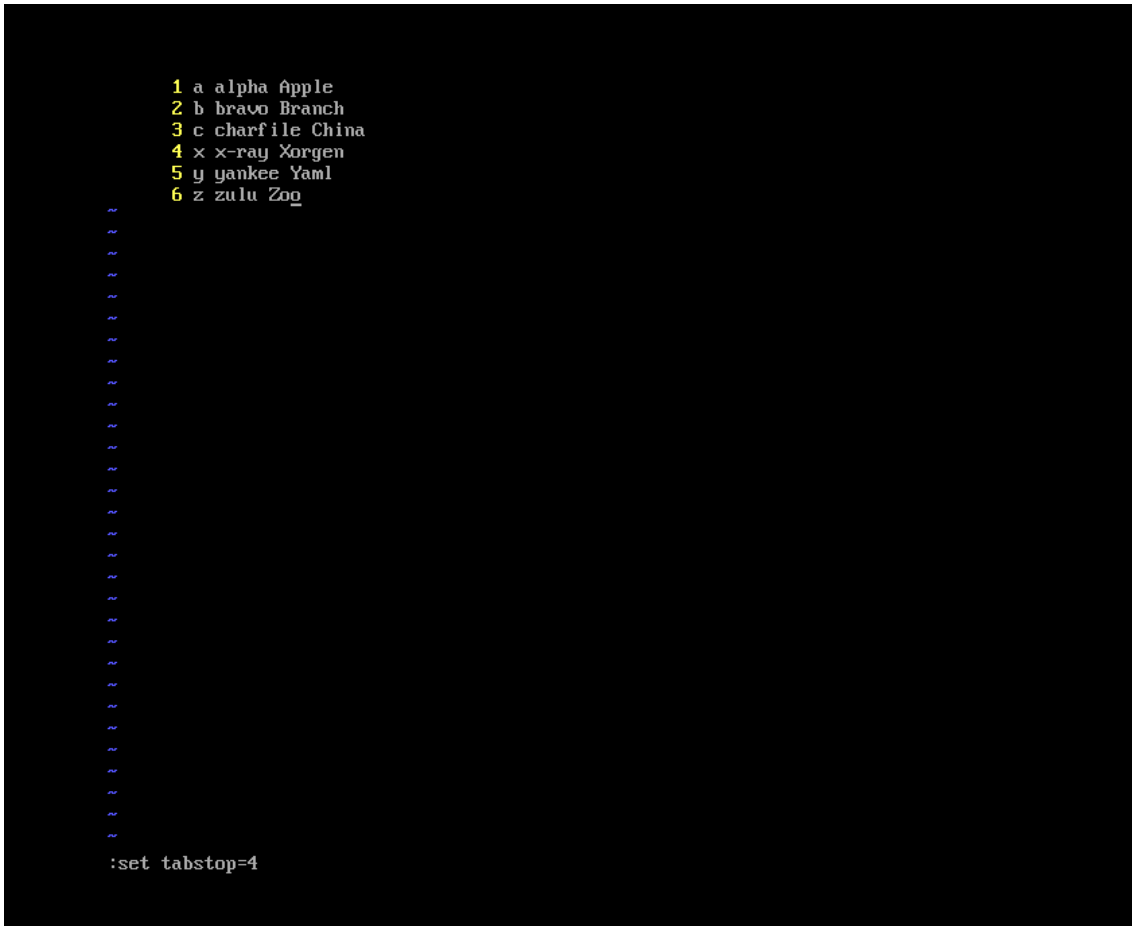
4. 更改文件vitest，以便在每个字母之后添加一个以该字母开头的通用名字。确保使用不同的方法从命令模式切换到插入模式

5. 保存文件，但不退出Vi。

3.3 使用设置自定义编辑会话

1. 进行在线编号并将制表位设为4

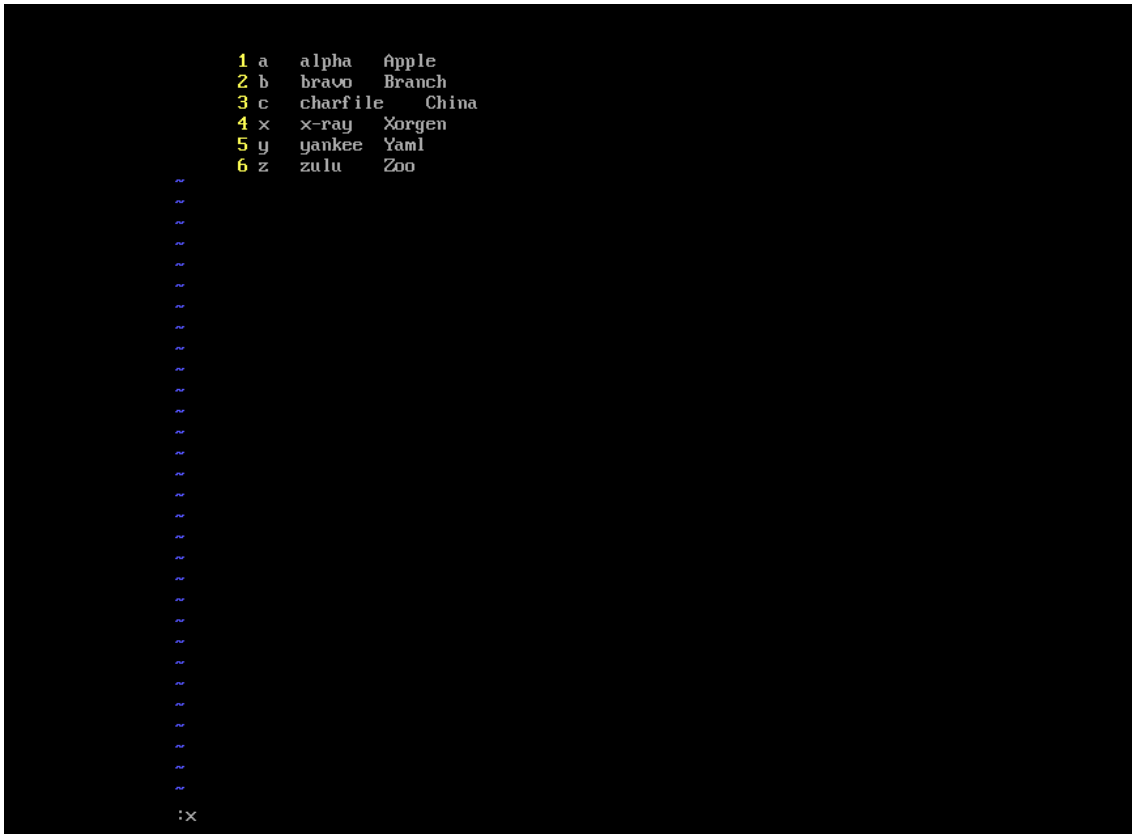




3.4 全局搜索和替换

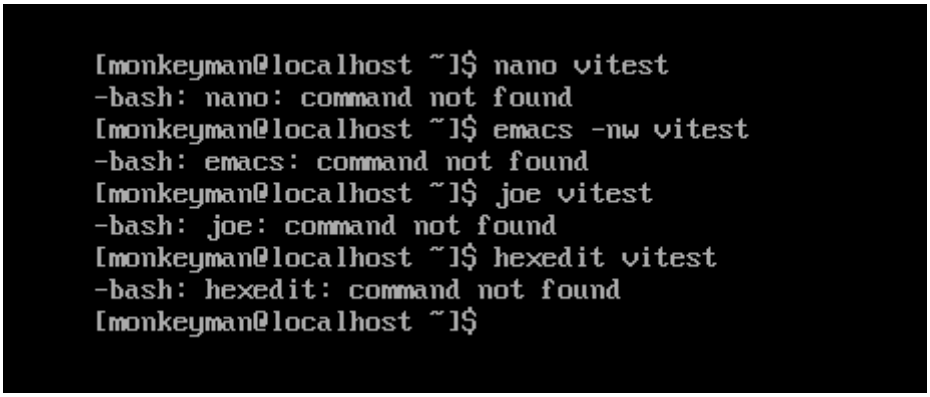
1. 用制表符替换文件中的所有空格

2. 保存文件



3.5 使用其他编辑器

> 课程资料中列出的编辑器可能在您的发行版上不可用或未安装



```
extras                                                                   | 2.9 kB  00:00:00
updates                                                                  | 2.9 kB  00:00:00
(1/2): extras/7/x86_64/primary_db                                        | 232 kB  00:00:00
(2/2): updates/7/x86_64/primary_db                                       | 7.1 MB  00:00:10
Resolving Dependencies
--> Running transaction check
---> Package nano.x86_64 0:2.3.1-10.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================================
 Package            Arch                Version                      Repository          Size
================================================================================================
Installing:
 nano               x86_64              2.3.1-10.el7                 base               440 k

Transaction Summary
================================================================================================
Install  1 Package

Total download size: 440 k
Installed size: 1.6 M
Downloading packages:
nano-2.3.1-10.el7.x86_64.rpm                                             | 440 kB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : nano-2.3.1-10.el7.x86_64                                                   1/1
  Verifying  : nano-2.3.1-10.el7.x86_64                                                   1/1

Installed:
  nano.x86_64 0:2.3.1-10.el7

Complete!
[monkeyman@localhost ~]$
```

```
 GNU nano 2.3.1                    File: vitest

a       alpha   Apple
b       bravo   Branch
c       charfile        China
x       x-ray   Xorgen
y       yankee  Yaml
z       zulu    Zoo

                        [ Read 6 lines ]
^G Get Help     ^O WriteOut     ^R Read File    ^Y Prev Page    ^K Cut Text     ^C Cur Pos
^X Exit         ^J Justify      ^W Where Is     ^V Next Page    ^U UnCut Text   ^T To Spell
```

实验总结

1. 如果man -k或apropos命令不起作用，则需要以root用户身份运行makewhatis命令。通常，makewhatis命令会在每晚自动执行，但是由于系统是全新安装的，因此可能尚未发生。