

The Console Toolkit

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Why the console? It's already current year!

- People ask for it
- Still an excellent interface for complex tasks
- Many advanced tools only available on the command line
- Can be much faster than GUI tools
- Allows easy remote access to other computers
- Skills portable to every Unix-like system

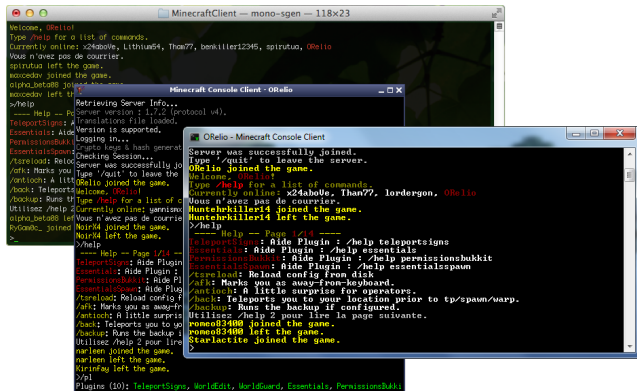
Course outline

Part 1

Part 2

What is the console

- Keyboard-only interface to your computer
- Related terms: *console*, *terminal*, *shell*, *bash*, *command prompt*, *command line interface*



The screenshot displays a Minecraft console client window titled "MinecraftClient - mono-sgen - 118x23". The console output shows the client connecting to a server, retrieving server information (version 1.7.2, protocol v4), logging in, and successfully joining the game. The client then displays a list of commands and the current online players (x24aboUs, Than77, lordergon, ORelio). The client also shows the current page of the help menu (Page 1/14) and the list of plugins (TeleportSigns, WorldEdit, WorldGuard, Essentials, PermissionsBukkit).

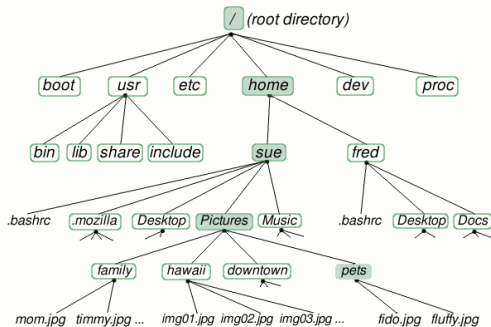
```
Welcome, ORelio!  
Type /help for a list of commands.  
Currently online: x24aboUs, Lithius64, Than77, benkiller12345, spritua, ORelio  
Vous n'avez pas de courrier.  
spritua left the game.  
xaxcedav joined the game.  
alpha_beta08 joined the game.  
xaxcedav left the game.  
>/help  
Retrieving Server Info...  
Server version: 1.7.2 (protocol v4).  
Translations file loaded.  
Version is supported.  
Logging in...  
Crypto keys & hash generated.  
Checking Session...  
Server was successfully joined.  
Type /quit to leave the game.  
ORelio joined the game.  
Welcome, ORelio!  
Type /help for a list of commands.  
Currently online: x24aboUs, Than77, lordergon, ORelio  
Vous n'avez pas de courrier.  
Huntehrkiller14 left the game.  
>/help  
----- Help --- Page 1/14 -----  
TeleportSigns: Aide Plugin : /help teleportsigns  
Essentials: Aide Plugin : /help essentials  
PermissionsBukkit: Aide Plugin : /help permissionsbukkit  
EssentialsSpawn: Aide Plugin : /help essentialsspawn  
>/toreload: Reload config from disk.  
>/afk: Marks you as away-from-keyboard.  
>/antich: A little surprise for operators.  
>/back: Teleports you to your location prior to tp/spawn/warp.  
>/backup: Runs the backup if configured.  
Utilisez /help 2 pour lire la page suivante.  
romeo83400 joined the game.  
romeo83400 left the game.  
Starlactite joined the game.  
>  
Plugins (10): TeleportSigns, WorldEdit, WorldGuard, Essentials, PermissionsBukkit
```

The 70s were interesting times, or so I'm told

Unix dogma: *Everything is a file!*

- Data files
- Directories (or “folders”)
- Storage devices
- Keyboards
- Printers
- Cameras
- *But not network sockets . . .*

File system



- File system organized as tree
- Everything under /, the root directory
- In the console, you will be at some point in the tree, the *working directory*

Working directory

- Where am I? → `pwd`
- Present working directory
- Also sometimes directly shown in the prompt
- The tilde `~` means: *this user's home directory* (abbreviation)

```
[luke@host ~]$ pwd  
/home/luke  
[luke@host ~]$
```

Listing files

- What is in here? → `ls`
- “list”

```
[luke@host ~]$ ls
Desktop
Documents
Downloads
Music
Pictures
Videos
cat1.jpg
cat2.jpg
[luke@host ~]$
```

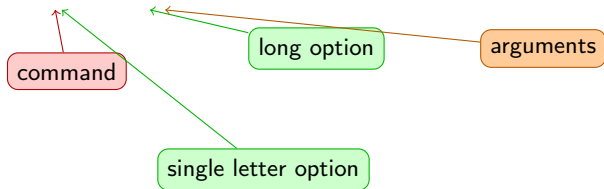

Go somewhere else

- I want to go to some other directory!
→ `cd`
- “Change directory”
- Absolute path: Whole path from the root, like:
`/home/luke/pictures/cat1.png`
- Relative path: Path relative to the current working directory, like
`pictures/cat1.png`

```
[luke@host ~]$ cd
[luke@host ~]$ pwd
/home/luke
[luke@host ~]$ cd /sys
[luke@host sys]$ pwd
/sys
[luke@host sys]$ cd ~
[luke@host ~]$ pwd
/home/luke
[luke@host ~]$ cd pictures/
[luke@host pictures]$ pwd
/home/luke/pictures
```

Commands & arguments

```
ls -a --human-readable /home/luke/pictures
```



Getting help

- Where can I find out what options are available?
- Manual pages!
- `man`
- E.g.: `man ls`

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 alphabetically 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
    with -l, scale sizes by SIZE when printing them; e.g.,
    '--block-size=M'; see SIZE format below
```

Tab completion

- Hit  to automatically complete a word you are typing (Command, file, ...)
- Hit  twice to show all possible options
- Extremely useful terminal feature! Use always!

Command History




- Scroll up in your command history by pressing the  key
- Press  +  to search the history

Showing text files

- Output a file's contents to the console with `cat`
- Used to stand for “concatenate”

```
[luke@host ~]$ cat diary
Dear diary, today I downloaded
cat pictures from the internet.
[luke@host ~]$
```


Reading long files

- What if the text doesn't fit on the terminal?
- Use the less file browser
- Scroll up and down with , 
- Exit with 

Copying files

- Copy command: `cp`
- Syntax: `cp source destination`

```
[luke@host ~]$ cp diary diary_copy
[luke@host ~]$ cat diary_copy
Dear diary, today I downloaded
cat pictures from the internet.
[luke@host ~]$
```

Moving files

- Move command: `mv`
- Syntax: `mv source destination`
- Useful to rename files

```
[luke@host ~]$ mv diary secret_diary
[luke@host ~]$ cat secret_diary
Dear diary, today I downloaded
cat pictures from the internet.
[luke@host ~]$
```