

IT465 Assignment 3 - Report

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1 Problem Statement

Implement the IPFS by following the instructions in the Zip file.

1. Screenshots of installation need to be submitted for this assignment.

2 Solutions

2.1 Installing Prerequisites

```
sachinprasanna@DESKTOP-G9A0TB8:~$ sudo apt update
[sudo] password for sachinprasanna:
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1771 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [291 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.3 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [2327 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [400 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [584 B]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [901 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [176 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [19.2 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:16 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.2 kB]
Get:17 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7588 B]
Get:18 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [228 B]
Get:19 http://archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:20 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:21 http://archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:22 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:23 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1988 kB]
Get:24 http://archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [349 kB]
Get:25 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.8 kB]
Get:26 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [2386 kB]
Get:27 http://archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [410 kB]
Get:28 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [616 B]
Get:29 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1123 kB]
Get:30 http://archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [261 kB]
Get:31 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [26.1 kB]
Get:32 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [43.3 kB]
Get:33 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [10.8 kB]
Get:34 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [444 B]
Get:35 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.8 kB]
Get:36 http://archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.1 kB]
Get:37 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:38 http://archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
```

Figure 1: Command Ran: sudo apt update

```

Get:39 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.8 kB]
Get:40 http://archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.5 kB]
Get:41 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [672 B]
Get:42 http://archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 33.4 MB in 7s (5002 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
130 packages can be upgraded. Run 'apt list --upgradable' to see them.
sachinprasanna@DESKTOP-G9A0TBB:~$

```

Figure 2: Command Ran: sudo apt update (continued)

```

sachinprasanna@DESKTOP-G9A0TBB:~$ sudo apt install nodejs
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  javascript-common libc-ares2 libjs-highlight.js libnode72 nodejs-doc
Suggested packages:
  apache2 | lighttpd | httpd npm
The following NEW packages will be installed:
  javascript-common libc-ares2 libjs-highlight.js libnode72 nodejs nodejs-doc
0 upgraded, 6 newly installed, 0 to remove and 130 not upgraded.
Need to get 13.7 MB of archives.
After this operation, 54.0 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 javascript-common all 11+nmul [5936 B]
Get:2 http://archive.ubuntu.com/ubuntu jammy/universe amd64 libjs-highlight.js all 9.18.5+dfsg1-1 [367 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc-ares2 amd64 1.18.1-1ubuntu0.22.04.3 [45.1 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 libnode72 amd64 12.22.9-dfsg-lubuntu3.6 [18.8 MB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 nodejs-doc all 12.22.9-dfsg-lubuntu3.6 [2411 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 nodejs amd64 12.22.9-dfsg-lubuntu3.6 [122 kB]
Fetched 13.7 MB in 3s (4153 kB/s)
Selecting previously unselected package javascript-common.
(Reading database ... 24208 files and directories currently installed.)
Preparing to unpack .../0-javascript-common_11+nmul_all.deb ...
Unpacking javascript-common (11+nmul) ...
Selecting previously unselected package libjs-highlight.js.
Preparing to unpack .../1-libjs-highlight.js_9.18.5+dfsg1-1_all.deb ...
Unpacking libjs-highlight.js (9.18.5+dfsg1-1) ...
Selecting previously unselected package libc-ares2:amd64.
Preparing to unpack .../2-libc-ares2_1.18.1-1ubuntu0.22.04.3_amd64.deb ...
Unpacking libc-ares2:amd64 (1.18.1-1ubuntu0.22.04.3) ...
Selecting previously unselected package libnode72:amd64.
Preparing to unpack .../3-libnode72_12.22.9-dfsg-lubuntu3.6_amd64.deb ...
Unpacking libnode72:amd64 (12.22.9-dfsg-lubuntu3.6) ...
Selecting previously unselected package nodejs-doc.
Preparing to unpack .../4-nodejs-doc_12.22.9-dfsg-lubuntu3.6_all.deb ...
Unpacking nodejs-doc (12.22.9-dfsg-lubuntu3.6) ...
Selecting previously unselected package nodejs.
Preparing to unpack .../5-nodejs_12.22.9-dfsg-lubuntu3.6_amd64.deb ...
Unpacking nodejs (12.22.9-dfsg-lubuntu3.6) ...
Setting up javascript-common (11+nmul) ...
Setting up libc-ares2:amd64 (1.18.1-1ubuntu0.22.04.3) ...
Setting up libnode72:amd64 (12.22.9-dfsg-lubuntu3.6) ...
Setting up libjs-highlight.js (9.18.5+dfsg1-1) ...
Setting up nodejs (12.22.9-dfsg-lubuntu3.6) ...
update-alternatives: using /usr/bin/nodejs to provide /usr/bin/js (js) in auto mode
Setting up nodejs-doc (12.22.9-dfsg-lubuntu3.6) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.4) ...
/sbin/ldconfig.real: Can't link /usr/lib/wsl/lib/libnvoptix_loader.so.1 to libnvoptix.so.1
/sbin/ldconfig.real: /usr/lib/wsl/lib/libcuda.so.1 is not a symbolic link
sachinprasanna@DESKTOP-G9A0TBB:~$

```

Figure 3: Command Ran: sudo apt install nodejs

```

sachinprasanna@DESKTOP-G9A0TBB:~$ nodejs --version
v12.22.9
sachinprasanna@DESKTOP-G9A0TBB:~$

```

Figure 4: Command Ran: nodejs --version

```
sachinprasanna@DESKTOP-G9A0TB8:~$ sudo apt install npm
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
adwaita-icon-theme at-spi2-core build-essential bzip2 cpp cpp-11 dconf-gsettings-backend dconf-service dp
gcc-11 gcc-11-base gsettings-desktop-schemas gtk-update-icon-cache gyp hicolor-icon-theme humanity-icon-t
libasan6 libatk-bridge2.0-0 libatk1.0-0 libatk1.0-data libatomic1 libatspi2.0-0 libauthen-sasl-perl libav
libc6 libc6-dev libcairo-gobject2 libcairo2 libcc1-0 libclone-perl libcolor2 libcrypt-dev libcups2 libda
libdrm-intel1 libdrm-nouveau2 libdrm-radeon1 libencode-locale-perl libepoxy0 libfakeroot libfile-basedir-
libfile-mimeinfo-perl libfont-afm-perl libfontconfig1 libfontenc1 libfreetype6 libgcc-11-dev libgd3 libgd
libgl1-amd-glx libgl1-mesa-dri libglapi-mesa libglvnd0 libglx-mesa0 libglx0 libgomp1 libgraphite2-3 lib
libhtml-form-perl libhtml-format-perl libhtml-parser-perl libhtml-tagset-perl libhtml-tree-perl libhttp-c
libhttp-negotiate-perl libice6 libio-html-perl libio-socket-ssl-perl libio-stringy-perl libipc-system-sim
libjs-inherits libjs-is-typedarray libjs-psl libjs-source-map libjs-sprintf-js libjs-typedarray-to-buffer
liblwp-protocol-https-perl libmailtools-perl libmpc3 libnet-dbus-perl libnet-http-perl libnet-smtp-ssl-pe
libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpciaccess0 libphobos2-ldc-shared98 libpixman-1-0
libssl-dev libssl3 libstdc++-11-dev libthai-data libthai0 libtie-ixhash-perl libtiff5 libtimedate-perl li
libvt-2.91-0 libvt-2.91-common libvt-3-0 libwayland-client0 libwayland-cursor0 libwayland-egl1 libweb
libxcb-dri2-0 libxcb-dri3-0 libxcb-glx0 libxcb-present0 libxcb-randr0 libxcb-render0 libxcb-shape0 libxcb
libxfixes3 libxft2 libxi6 libxinerama libxkbcommon0 libxkbfile libxml-parser-perl libxml-twig-perl libx
libxtst6 libxv1 libxxf86dgal libxxf86vml linux-libc-dev lto-disabled-list make manpages-dev node-abab nod
node-aproba node-archy node-are-we-there-yet node-argparse node-arrify node-asap node-asyncify node-balan
node-chownr node-clean-yaml-object node-cli-table node-clone node-color-convert node-color-name node-colo
node-console-control-strings node-copy-concurrently node-core-util-is node-coveralls node-cssom node-csss
node-delegates node-depd node-diff node-encoding node-end-of-stream node-err-code node-escape-string-rege
node-form-data node-fs-write-stream-atomic node-fs.realpath node-function-bind node-gauge node-get-stream
node-has-unicode node-hosted-git-info node-https-proxy-agent node-iconv-lite node-iferr node-imurmurhash
node-is-buffer node-is-plain-obj node-is-typedarray node-isarray node-isexe node-js-yaml node-jsdom node-
node-lcov-parse node-lodash-packages node-log-driver node-lowercase-keys node-lru-cache node-mime node-mi
node-mkdirp node-move-concurrently node-ms node-mute-stream node-negotiator node-nopt node-normalize-pack
node-once node-opener node-osenv node-p-cancelable node-p-map node-path-is-absolute node-process-nexttick
node-punycode node-quick-lru node-read node-read-package-json node-readable-stream node-resolve node-retr
node-signal-exit node-slash node-slice-ansi node-source-map node-source-map-support node-spx-correct node
node-sprintf-js node-ssri node-stack-utils node-stealthy-require node-string-decoder node-string-width no
node-tap-parser node-tar node-text-table node-time-stamp node-tmatch node-tough-cookie node-typedarray-to
node-validate-npm-package-license node-validate-npm-package-name node-wwidth.js node-webidl-conversions
node-ws node-yallist perl-openssl-defaults rpcsvc-proto session-migration tilix tilix-common ubuntu-mono
Suggested packages:
bzip2-doc cpp-doc gcc-11-locales debian-keyring g++-multilib g++-11-multilib gcc-11-doc gcc-multilib auto
libdigest-hmac-perl libgssapi-perl glibc-doc colord cups-common bzip libgd-tools gvfs libjs-angularjs libl
lm-sensors libssl-doc libstdc++-11-doc libsub-name-perl libbusiness-isbn-perl libauthen-ntlm-perl libunic
python-nautilus mesa-utils nickle cairo-1.5 xorg-docs-core
```

Figure 5: Command Ran: sudo apt install npm

```
Setting up libnotify-bin (0.7.9-3ubuntu5.22.04.1) ...
Setting up node-jsdom (19.0.0+~cs98.11.27-1) ...
Setting up g++ (4:11.2.0-ubuntu3) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up node-tar (6.1.1+ds1+~cs6.0.6-1) ...
Setting up libgd-pixbuf2.0-bin (2.42.8+dfsg-ubuntu0.3) ...
Setting up x11-utils (7.7+5build2) ...
Setting up build-essential (12.9ubuntu3) ...
Setting up node-tap (12.0.1+ds-4) ...
Setting up node-npmlog (6.0.1+~4.1.4-1) ...
Setting up node-cacache (15.0.5+~cs13.9.21-3) ...
Setting up node-read-package-json (4.1.1-1) ...
Setting up node-growl (1.10.5-4) ...
Setting up node-fetch (2.6.7+~2.5.12-1) ...
Setting up node-gyp (8.4.1-1) ...
Setting up npm (8.5.1+ds-1) ...
Setting up node-coveralls (3.1.1-1) ...
Setting up libwww-perl (6.61-1) ...
Setting up adwaita-icon-theme (41.0-1ubuntu1) ...
update-alternatives: using /usr/share/icons/Adwaita/cursor.theme to provide /usr/share/icons/default/index.theme (x-cursor-theme) in auto mode
Setting up liblwp-protocol-https-perl (6.10-1) ...
Setting up libxml-parser-perl:amd64 (2.46-3build1) ...
Setting up libxml-twig-perl (1:3.52-1) ...
Setting up libnet-dbus-perl (1.2.0-4build3) ...
Setting up humanity-icon-theme (0.6.16) ...
Setting up ubuntu-mono (20.10-0ubuntu2) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libgl1.0-0:amd64 (2.72.4-0ubuntu2.2) ...
Setting up libgtk-3-0:amd64 (3.24.33-1ubuntu2.2) ...
Processing triggers for libe-bin (2.35-0ubuntu2.4) ...
/sbin/ldconfig.real: Can't link /usr/lib/wsl/lib/libnvoptix_loader.so.1 to libnvoptix.so.1
/sbin/ldconfig.real: /usr/lib/wsl/lib/libcudart.so.1 is not a symbolic link
Setting up libgtk-3-bin (3.24.33-1ubuntu2.2) ...
Setting up libvt-2.91-0:amd64 (0.6.0-0ubuntu0.1) ...
Setting up libvt-3-0:amd64 (3.10.0-1ubuntu1) ...
Setting up at-spi2-core (2.44.0-3) ...
Setting up libgtk-3-0:amd64 (3.24.33-1ubuntu1) ...
Setting up tilix (1.9.4-2build1) ...
update-alternatives: using /usr/bin/tilix.wrapper to provide /usr/bin/x-terminal-emulator (x-terminal-emulator) in auto mode
Processing triggers for libgd-pixbuf2.0-0:amd64 (2.42.8+dfsg-ubuntu0.3) ...
Processing triggers for libe-bin (2.35-0ubuntu2.4) ...
/sbin/ldconfig.real: Can't link /usr/lib/wsl/lib/libnvoptix_loader.so.1 to libnvoptix.so.1
/sbin/ldconfig.real: /usr/lib/wsl/lib/libcudart.so.1 is not a symbolic link
sachinprasanna@DESKTOP-G9A0TB8:~$
```

Figure 6: Command Ran: sudo apt install npm (continued)

```
sachinprasanna@DESKTOP-G9A0TBB:~$ sudo npm install -g truffle
npm WARN EBADENGINE Unsupported engine {
npm WARN EBADENGINE   package: 'truffle@5.11.5',
npm WARN EBADENGINE   required: { node: '^16.20 || ^18.16 || >=20' },
npm WARN EBADENGINE   current: { node: 'v12.22.9', npm: '8.5.1' }
npm WARN EBADENGINE }
npm WARN EBADENGINE Unsupported engine {
npm WARN EBADENGINE   package: '@truffle/db-loader@0.2.36',
npm WARN EBADENGINE   required: { node: '^16.20 || ^18.16 || >=20' },
npm WARN EBADENGINE   current: { node: 'v12.22.9', npm: '8.5.1' }
npm WARN EBADENGINE }
npm WARN EBADENGINE Unsupported engine {
npm WARN EBADENGINE   package: '@truffle/debugger@12.1.5',
npm WARN EBADENGINE   required: { node: '^16.20 || ^18.16 || >=20' },
npm WARN EBADENGINE   current: { node: 'v12.22.9', npm: '8.5.1' }
npm WARN EBADENGINE }
npm WARN EBADENGINE Unsupported engine {
npm WARN EBADENGINE   package: 'mocha@10.1.0',
npm WARN EBADENGINE   required: { node: '>= 14.0.0' },
npm WARN EBADENGINE   current: { node: 'v12.22.9', npm: '8.5.1' }
npm WARN EBADENGINE }
npm WARN EBADENGINE Unsupported engine {
npm WARN EBADENGINE   package: '@truffle/abi-utils@1.0.3',
npm WARN EBADENGINE   required: { node: '^16.20 || ^18.16 || >=20' },
npm WARN EBADENGINE   current: { node: 'v12.22.9', npm: '8.5.1' }
npm WARN EBADENGINE }
npm WARN EBADENGINE Unsupported engine {
npm WARN EBADENGINE   package: '@truffle/code-utils@3.0.4',
npm WARN EBADENGINE   required: { node: '^16.20 || ^18.16 || >=20' },
npm WARN EBADENGINE   current: { node: 'v12.22.9', npm: '8.5.1' }
npm WARN EBADENGINE }
npm WARN EBADENGINE Unsupported engine {
npm WARN EBADENGINE   package: '@truffle/error@0.2.2',
npm WARN EBADENGINE   required: { node: '^16.20 || ^18.16 || >=20' },
npm WARN EBADENGINE   current: { node: 'v12.22.9', npm: '8.5.1' }
npm WARN EBADENGINE }
```

Figure 7: Command Ran: sudo npm install -g truffle

```
added 924 packages, and audited 954 packages in 1m

88 packages are looking for funding
  run 'npm fund' for details

61 vulnerabilities (24 low, 17 moderate, 19 high, 1 critical)

To address issues that do not require attention, run:
  npm audit fix

To address all issues (including breaking changes), run:
  npm audit fix --force

Run 'npm audit' for details.
sachinprasanna@DESKTOP-G9A0TBB:~$ |
```

Figure 8: Command Ran: sudo npm install -g truffle (continued)

Ganache						
ACCOUNTS BLOCKS TRANSACTIONS CONTRACTS EVENTS LOGS						
CURRENT BLOCK: 0 GAS PRICE: 20000000000 GAS LIMIT: 671975 HARDFORK: MERGE NETWORK ID: 5777 RPC SERVER: HTTP://127.0.0.1:7545 MINING STATUS: AUTOMINING WORKSPACE: QUICKSTART						
MNEMONIC			HD PATH			
disagree curious cross material ketchup iron predict seven escape when seed admit			m/44'/60'/0'/0/account_index			
ADDRESS	BALANCE	TX COUNT	INDEX			
0xa3Ffde22e53e61b0230fa0a577f47d16f13886ae	100.00 ETH	0	0			
0x116b4aeabbd434080A01C9bE9C2100A8A384757d	100.00 ETH	0	1			
0xeb088BC0F2EC0dA5085B9392d24E35CC10dcB3B4A	100.00 ETH	0	2			
0x180226D8Ea345bF7b9C26Dd8851023b2932B5Cf8	100.00 ETH	0	3			
0x2A6AACfd03E1bEFbD9f74bC86710595FEE4eDaF4	100.00 ETH	0	4			
0x7B19d1654E06CBD8A00e43c11fe32Dade92b5D74	100.00 ETH	0	5			
0xfe1788B6d2F8FF807c0D42535AA8D075bB28f317	100.00 ETH	0	6			

Figure 9: Ganache after Installation

2.2 IPFS Installation and File Management

```
sachinprasanna@DESKTOP-G9A0TB8:/mnt/c/Users/Pdogg Windows10/Desktop/Semester 7/Cryptocurrencies and Blockchain Technolog
ies/Lab/Assignment 3/file_upload$ tar xvfz go-ipfs_v0.4.22_linux-amd64.tar.gz
go-ipfs/install.sh
tar: go-ipfs/install.sh: Cannot utime: Operation not permitted
go-ipfs/ipfs
tar: go-ipfs/ipfs: Cannot utime: Operation not permitted
go-ipfs/LICENSE
tar: go-ipfs/LICENSE: Cannot utime: Operation not permitted
go-ipfs/README.md
tar: go-ipfs/README.md: Cannot utime: Operation not permitted
tar: Exiting with failure status due to previous errors
```

Figure 10: Command Ran: tar xvfz go-ipfs_v 0.4.22_linux-amd64.tar.gz

```
sachinprasanna@DESKTOP-G9A0TB8:/mnt/c/Users/Pdogg Windows10/Desktop/Semester 7/Cryptocurrencies and Blockchain Technolog
ies/Lab/Assignment 3/file_upload$ cd go-ipfs
```

Figure 11: Command Ran: cd go-ipfs

```
ies/Lab/Assignment 3/file_upload/go-ipfs$ sudo ./install.sh
Moved ./ipfs to /usr/local/bin
```

Figure 12: Command Ran: ./install.sh

```
sachinprasanna@DESKTOP-G9A0TB8:/mnt/c/Users/Pdogg Windows10/Desktop/Semester 7/Cryptocurrencies and Blockchain Technolog
ies/Lab/Assignment 3/file_upload/go-ipfs$ ipfs help
NAME
  ipfs - Global p2p merkle-dag filesystem.

SYNOPSIS
  ipfs [-config=CONFIG] [-C] [-debug] [-Q] [--help] [-M] [--api=API] [--offline] [--cid-base=BASE] [--upgrade-cidv0-in-output] [--encoding=ENCODING] [--enc] [--timeout=TIMEOUT] <command> ...

OPTIONS
  --config=CONFIG string - Path to the configuration file to use.
  -C, --debug bool - Operate in debug mode.
  --help bool - Show the full command help text.
  -h, --help bool - Show a short version of the command help text.
  --offline bool - Run the command locally, instead of using the daemon. DEPRECATED: use --offline.
  --api=API string - Run a specific API instance (defaults to /ipfs/0.0.1/tcp/5001).
  --cid-base string - Multibase encoding used for version 1 CIDs in output.
  --upgrade-cidv0-in-output bool - Upgrade version 0 to version 1 CIDs in output.
  --enc string - The encoding type the output should be encoded with (json, sei, or text).
  --encoding string - Default: text.
  --stream-channels bool - Stream channel output.
  --timeout string - Set a global timeout on the command.

SUBCOMMANDS
BASIC COMMANDS
  init Initialize ipfs local configuration
  add <path> Add a file to IPFS
  cat <ref> Show IPFS object data
  get <ref> Download IPFS objects
  ls <ref> List links from an object
  refs <ref> List hashes of links from an object
DATA STRUCTURE COMMANDS
  blocks Interact with raw blocks in the datastore
  object Interact with raw dag nodes
  files Interact with objects as if they were a unix filesystem
  dag Interact with IPLD documents [experimental]
ADVANCED COMMANDS
  daemon Start a long-running daemon process
  mount Mount an IPFS read-only mountpoint
  resolve Resolve and show IPFS names
  name Publish and resolve IPFS names
  key Create and list IPFS name keys
  dns Resolve DNS links
  pin Pin objects to local storage
  repo Manipulate the IPFS repository
  stats Various operational stats
  p2p Libp2p stream counting
  filesystem Manage the filesystem [experimental]
NETWORK COMMANDS
  id Show info about IPFS peers
  bootstrap Add or remove bootstrap peers
  swarm Manage connections to the p2p network
  peers Query the set of peers or peers
  ping Measure the latency of a connection
  diag Print diagnostics
TOOL COMMANDS
  config Manage configuration
  version Show ipfs version information
  update Download and apply go-ipfs updates
  commands List all available commands
  cid Convert and discover properties of CIDs
  log Manage and show logs of running daemon
Use 'ipfs <command> --help' to learn more about each command.
ipfs uses a repository in the local file system. By default, the repo is
located at ~/.ipfs. To change the repo location, set the $IPFS_PATH
environment variable:
export IPFS_PATH=/path/to/ipfsrepo
EXIT STATUS
The CLI will exit with one of the following values:
0 Successful execution.
1 Failed execution.
For more information about each command, use:
'ipfs <subcmd> --help'
```

Figure 13: Command Ran: ipfs help

```
sachinprasanna@DESKTOP-G9A0TB8:/mnt/c/Users/Pdogg Windows10/Desktop/Semester 7/Cryptocurrencies and Blockchain Technologies/Lab/Assignment 3/file_upload/go-ipfs$ ipfs init
initializing IPFS node at /home/sachinprasanna/.ipfs
generating 2048-bit RSA keypair...done
peer identity: QmTAgBSBSsgTLFvB32NWUzWLnLUCdhKggesbpHif2KPb
to get started, enter:

ipfs cat /ipfs/QmS4ustL54uo8FzR9455qaxZwuMiUhyvMcX9Ba8nUH4uVv/readme
```

Figure 14: Command Ran: ipfs init

```
sachinprasanna@DESKTOP-G9A0TB8:/mnt/c/Users/Pdogg Windows10/Desktop/Semester 7/Cryptocurrencies and Blockchain Technologies/Lab/Assignment 3/file_upload/go-ipfs$ ipfs cat /ipfs/QmS4ustL54uo8FzR9455qaxZwuMiUhyvMcX9Ba8nUH4uVv/readme
Hello and Welcome to IPFS!

IPFS

If you're seeing this, you have successfully installed
IPFS and are now interfacing with the ipfs merkle dag!

-----
Warning:
This is alpha software. Use at your own discretion!
Much is missing or lacking polish. There are bugs.
Not yet secure. Read the security notes for more.
-----

Check out some of the other files in this directory:

./about
./help
./quick-start    <-- usage examples
./readme        <-- this file
./security-notes
```

Figure 15: Command Ran: ipfs cat /ipfs/hash_value/ (REPLACED WITH THE GENERATED VALUE)

```
sachinprasanna@DESKTOP-G9A0TB8:/mnt/c/Users/Pdogg Windows10/Desktop/Semester 7/Cryptocurrencies and Blockchain Technologies/Lab/Assignment 3/file_upload/go-ipfs$ ipfs daemon
Initializing daemon...
go-ipfs version: 0.4.22-
Repo version: 7
System version: amd64/linux
Golang version: go1.12.7
Swarm listening on /ip4/127.0.0.1/tcp/4001
Swarm listening on /ip4/192.168.161.246/tcp/4001
Swarm listening on /ip6:::1/tcp/4001
Swarm listening on /p2p-circuit
Swarm announcing /ip4/127.0.0.1/tcp/4001
Swarm announcing /ip4/192.168.161.246/tcp/4001
Swarm announcing /ip6:::1/tcp/4001
API server listening on /ip4/127.0.0.1/tcp/5001
WebUI: http://127.0.0.1:5801/webui
Gateway (readonly) server listening on /ip4/127.0.0.1/tcp/8080
Daemon is ready
```

Figure 16: Command Ran: ipfs daemon

```
sachinprasanna@DESKTOP-G9A0TB8:/mnt/c/Users/Pdogg Windows10/Desktop/Semester 7/Cryptocurrencies and Blockchain Technologies/Lab/Assignment 3/file_upload/go-ipfs$ ipfs add filename.docx
added QmbFMke1KXqnYyBBWxB74N4c5SBnJMVaiMNRcGu6x1AwQH filename.docx
0 B / ? [-----] 0.00%
```

Figure 17: Command Ran: ipfs add filename.extension (Replaced with filename.docx, which is used for the example)

```
sachinprasanna@DESKTOP-G9A0TB8:/mnt/c/Users/Pdogg Windows10/Desktop/Semester 7/Cryptocurrencies and Blockchain Technologies/Lab/Assignment 3/file_upload/go-ipfs$ ipfs pin rm QmbFMke1KXqnYyBBWxB74N4c5SBnJMVaiMNRcGu6x1AwQH
unpinned QmbFMke1KXqnYyBBWxB74N4c5SBnJMVaiMNRcGu6x1AwQH
```

Figure 18: Command Ran: ipfs pin rm \$YOUR_HASH (Replaced with the Generated Hash)