

## FQA 1 – Introduction to 9front



### 1.1 – What is 9front?

Plan9front (or 9front) is a fork of the Plan 9 from Bell Labs operating system. The project was started to remedy a perceived lack of devoted development resources inside Bell Labs,[citation needed] and has accumulated various fixes and improvements.

This FQA specifically covers only the most recent release of 9front.

### 1.1.1 – Cirno



At some point, Cirno became associated with 9front. Details are sketchy, but this image has been in the wiki since the Google Code days, so I'm leaving it in.

#### Pro

- girl
- has magical powers
- associated with 9
- upsets kfx
- she is known to be the strongest

## Alternatives



### 1.2 – On what systems does 9front run?

9front runs on the following platforms:

- 386
- amd64
- arm
- arm64

- mips

Read: *FQA 3.2 – Selecting Hardware*

### **1.3 – Why might I want to use 9front?**

It is very likely that you do not.

New users frequently want to know whether 9front is superior to some other free UNIX-like operating system. Consider: The question is largely unanswerable. What are your criteria? Why are you even using computers in the first place? Exploring these questions and the implications that derive therefrom may help you sharpen your perceptions and eventually come to some sort of conclusion about which operating system you prefer to use for daily tasks.

Ultimately, whether or not 9front is for you is a question only you can answer.

Note: The above text is lightly plagiarized from the OpenBSD FAQ. Ironically, OpenBSD may have more of the features you're looking for.

#### **1.3.0 – Why might I not want to use 9front?**

Hold up. Before you get too excited, consider the following possibilities:

- You just realized you don't want to use Plan 9 at all.
- You don't like the people who use and/or work on 9front.
- You don't like 9front's propaganda.
- You prefer less functionality from your obscure OS, and/or you prefer to ignore 9front's public commit history and complain later because nobody informed you about its bug fixes and new programs.
- You have technical objections to specific changes 9front made to the original Bell Labs code.
- You're not sure right now, but you'll know it when you see it.

Okay, carry on.

### 1.3.0.1 – Why did 9front stop making fun of Nazis?



Because you asked us to.

- People complained it was done in poor taste.
- People reliably interpret any depiction of a thing as an endorsement of same.
- We're tired of explaining this shit to people who just call us liars anyway. (To be fair, look at the world around us today. Why cloud the issue?) *I'm through explainin the shit —Ice T*
- Cognitive dissonance.

Read: *Appendix L – Ruby*

Possibly related: *Der Anbräuner*

Definitely relevant: *They Live and the secret history of the Mozilla logo*

This poor guy: *Anselm Kiefer*



### 1.3.1 – New Features

The following list is probably not exhaustive:

- `/shr`, global mountpoint device `shr(3)`
- `/mnt` is provided by `mntgen(4)`
- `#A`, audio drivers for `sb16`, intel hd audio and `ac97` (both playback and recording supported!) `audio(3)`
- New BIOS based boot loader `9boot(8)` featuring a console and support for FAT/ISO/PXE and being small (<8K)
- New EFI based boot loader `efi`
- Made kernel compliant to multiboot specification so it can be booted by qemu or grub directly.
- Interruptable kernel qlocks (`eqlock`)
- Deferred clunks (`closeproc`) for cached mounts
- New `rc` based `boot(8)` allows breaking into a shell at any time
- Default file system is an improved `cwfs(4)` (`cwfs64x`)
- New screen fonts: `dejavu`, `germgoth`, `vga`
- No central `replica`; source updates are done with `git(1)`
- Keyboard events with `/dev/kbd`. Read: `kbd fs(8)` and `rio(4)`

- `/lib/rob` and other new corpuses, suitable as fodder for `fortune(1)` and other rhetorical programs
- New `listen(8)` `-p` `maxprocs` option
- Always available network `aan(8)` support in `cpu(1)` and `rcpu(1)`
- MSI (message signalled interrupts), avoids problems with broken MP tables. Read: `icanhasmsi(8)`
- Legacy free ACPI support (aml interpreter `libaml`, mp interrupt routing, `scram`)
- Added `rio(1)` `-b` option (black window backgrounds) and `look` menu option
- USB CD-ROM boot/install
- USB drive boot
- Improved USB mouse support
- Support for USB ptp cameras
- Stable-across-machines USB device names
- VGA initialization done by interpreting the VESA BIOS with `realemu(8)`, working VESA screen blanking.
- `/dev/kbd` and clipboard charset support for `vnc(1)`
- New `webfs(4)` with HTTP1.1 and Keep-Alive support.
- Qemu/KVM virtio block device and ethernet drivers. Read: *FQA 4.5.1.3 – Virtio*
- Mouse wheel and chording support in `sam(1)`
- Elliptic curve cryptography `ec(2)`
- Working interrupt key (Del) in console
- WiFi support with `wpa/wpa2`
- SSE support
- System-wide support for internationalized domain names
- Unicode support in `vt(1)`
- `pc64`, kernel for amd64
- `imx8`, kernel for the NXP i.MX 8
- Numerous ciphers added and improvements made to `libsec`

- New dpi9k authentication protocol
- Support for mounting Linux ext2, ext3, and ext4 file systems

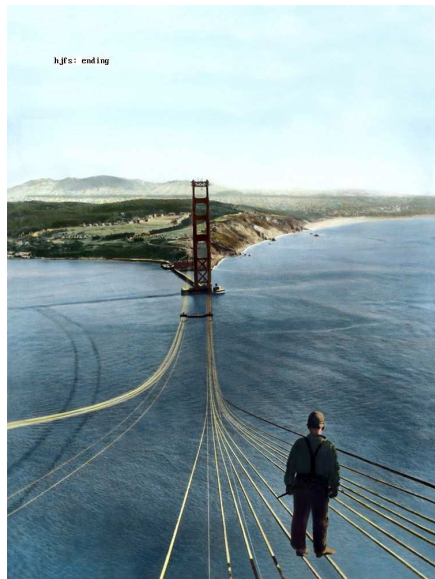
#### 1.3.1.1 – New Programs

- " and " " (print, repeat previous command)
- alarm(1) — timeouts in rc scripts
- atari(1) — 2600 emulator
- audio(1) — mp3, ogg, flac, µlaw, wav
- auth/box(8) — execute its arguments in a minimal namespace
- bar(1) — display a bar
- blit(1) — Blit terminal emulator
- bullshit(1) — print out a stream of bullshit
- cifsd(8) — CIFS/SMB server
- cryptsetup(8) — prepare an AES-encrypted partition to be used with the fs(3) device
- aux/dial(1) — connect to a remote service
- derp(1) — find changes between directories
- dtracy(1) — dynamic tracing language (like dtrace)
- evdump(1) — dump input and window events
- ext4srv(4) — ext4 file system
- fplot(1) — plot elementary function
- New games: doom, glendy, linden, mandel, mines, mole, packet, v8e
- git(1) — native git client
- hget(1) — rewritten in rc, now uses webfs
- hjfs(4) — new, experimental fs
- hpost(1) — extract and post HTML forms
- hold(1) — simple text editor
- icanhasmsi(8) — print MSI configuration

- `ipserv(8)` — proxy servers `socksd` and `hproxy`
- `ircrc(1)` — IRC client
- `memory(1)` — check memory usage
- `mothra(1)` — Tom Duff's web browser, now uses `webfs`
- `netaudit(8)` — network configuration checker
- `newt(1)` — Usenet client
- `nietzsche(1)` — print out Nietzsche quote
- `nintendo(1)` — Nintendo emulators: `gb`, `gba`, `nes`, `snes`
- `page(1)` — zoom and enhance!
- `paint(1)` — drawing program
- `play(1)` — audio player
- `pstree(1)` — print tree-like map of current processes and sub-processes
- `ptrap(4)` — plumber(4) filter
- `rc-httpd(8)` — HTTP server
- `rcpu(1)` — replacement for legacy `cpu(1)` client, uses `dp9ik`
- `qcow2(8)` — QCOW2 file system
- `resize(1)` — fast but low quality image resampler
- `riow(1)` — keyboard-controller for `rio(1)`
- `rotate(1)` — rotate or mirror a picture
- `scram(8)` — ACPI and APM shutdown
- `sega(1)` — Sega Megadrive/Genesis emulator: `md`
- `spred(1)` — sprite editor
- `ssam(1)` — stream interface to `sam`
- `ssh(1)` — SSH2 client
- `sshnet(4)` — re-implementation of `sshnet` for SSH2
- `sysinfo(1)` — print hardware report
- `sysupdate(1)` — update the local git repository

- `theo(1)` — print out insults from Theo de Raadt
- `tput(1)` — measure read throughput
- `troll(1)` — automated trolling
- `tap(1)` — follow the pipes of a process
- `tif(1)` — tiff decoder
- `tinc(8)` — mesh peer to peer VPN
- `tojpg(1)` — jpeg encoder
- `totif(1)` — tiff encoder
- `torrent(1)` — bittorrent client
- `walk(1)` — recursively walk descending directories
- `zuke(1)` — GUI audio player, replacement for juke(1)

#### 1.3.1.1.1 – Why do some new program names begin with hj?



Date: Wed, 8 Mar 2006 15:10:14 +1100  
From: "Bruce Ellis" <bruce.ellis@gmail.com>  
To: "Fans of the OS Plan 9 from Bell Labs" <9fans@cse.psu.edu>  
Subject: Re: [9fans] structure allocation.

i still like hjdicks it is obscure enough that no-one would think it's a feature (or guess it). it was required because we had a large slab of 3rd-party code that assumed it could read packets off the wire (assuming correct endian) and do no marshaling.

#pragam pack

looks like a feature.

i was there when it happened (after a nice italian meal).

ken asked "Do i really have to do this?"

P: Yes, there's buckets of code that rely on it.

K: \*some expression of disbelief\*

P: well hj are just dicks

done deal

it also turned out to be important for inferno on machines with greater than 32 bit alignment requirements. the 64 bit mips is an example. took but a recompile with hjdicks in the right place (it takes an optional alignment parameter). same with the ps2 which has 128 bit issues.

thanks for telling me that it has been changed.

brucee

On 3/8/06, geoff@collyer.net <geoff@collyer.net> wrote:  
> I was implicitly referring to C compilers. Heck, Pascal had  
> packed data in the early 1970s, possibly even the late 1960s.

### 1.3.1.2 – New Hardware Support

#### CPU

- MediaTek MT7688 — `/sys/src/9/mt7688/`
- NXP i.MX8MQ — `/sys/src/9/imx8/`

#### Audio

- AC97 — `/sys/src/9/pc/audioac97.c`
- Intel HDA — `/sys/src/9/pc/audiohda.c`
- SB 16/ESS — `/sys/src/9/pc/audiosb16.c`
- Countless new variants (VID/DID) added to existing drivers.

#### Ethernet

- ADMtek Pegasus — `/sys/src/cmd/nusb/ether/aue.c`
- Broadcom BCM57xx — `/sys/src/9/pc/etherbcm.c`
- Realtek RTL8150 — `/sys/src/cmd/nusb/ether/url.c`
- Countless new variants (VID/DID) added to existing drivers.

#### WiFi

- Intel Centrino Advanced-N 6205/6235
- Intel Centrino Ultimate-N
- Intel Centrino Wireless-N 100/2200/2230
- Intel WiFi Link 1000/4965/5100/5300/5350 AGN
- Intel PRO Wireless 3945ABG
- Intel Wireless AC 3160/7260/8260/8265/9260
- Ralink RT2860/RT3090

## Tablets

- Wacom serial tablets WACF004, WACF008

`/sys/src/cmd/aux/wacom.c`, `/sys/src/cmd/aux/tablet.c`

- USB tablets supported by USB subsystem

## Video

- AMD Geode LX driver

`/sys/src/cmd/aux/vga/geode.c` `/sys/src/9/pc/vgageode.c`

- Intel GM915, GM965, Sandy Bridge, Ivy Bridge, and Haswell driver

`/sys/src/cmd/aux/vga/igfx.c` `/sys/src/9/pc/vgaigfx.c`

## SD Card

- Ricoh — `/sys/src/9/pc/pmmc.c`

Read: *FQA 3.2 – Known Working Hardware* for a list of complete machines known to work.



#### **1.4 – Is 9front really free?**

Yes.

Read: *FQA 0.2.4 – What is the deal with Plan 9's weird license?*

#### **1.5 – How can I help support 9front?**

We are greatly indebted to the people and organizations that have contributed to the 9front project. That said, the topic is complicated: The main developers refuse to accept donations (except when they do accept donations), and the people who *do* offer to make donations often disappear without further explanation, or make strange demands that nobody feels like capitulating to. This complex, fluid, and at times contentious dynamic can best be navigated by joining #cat-v on irc.oftc.net and asking strangers how to donate to the project.

When this fails, donations that help pay for the hosting of 9front.org and cat-v.org (including fqa.9front.org, the document you are reading right now) can be made at: <http://patreon.com/stanleylieber>

You can also buy a print copy of the 9front dash1 manual (the print edition of the document you are reading right now), and/or the man pages at: <http://9front.org/propaganda/books>

#### **1.6 – Who maintains 9front?**

9front is maintained by an East German intelligence officer who never sleeps, but instead logs periods of inactivity staring straight into the soulless eyes of games/catclock. Occasional contributions are made by a diverse team of malcontents that is spread somewhat thinly across many different timezones and Internet providers. Most of them have dayjobs, and in fact are not concerned with your demands. Subsidized or not.

#### **1.7 – When is the next release of 9front?**

Soon.

The 9front team makes new releases on a regular, but unscheduled, basis. More information on the development cycle can be found on the 9front mailing list, while historical release announcements are archived at 9front.org/releases.

#### **1.8 – What is included with 9front?**

Some useful programs included with the operating system are:

- 2600 — Atari 2600 emulator.
- acid — Programmable symbolic debugger.
- acme — Text editor, window system, mail client and more.

- `ape` — ANSI/POSIX environment.
- `cwfs64x` — Cached-worm file server based on the original Ken's fs.
- `doom` — Science fiction horror-themed first-person shooter video game by id Software.
- `git` — native git client.
- `gs` — Aladdin Ghostscript (PostScript and PDF language interpreter).
- `hjfs` — A new, experimental fs.
- `mk` — Tool for describing and maintaining dependencies between files.
- `mothra` — Web browser by Tom Duff.
- `newt` — NNTP client.
- `nintendo` — Nintendo Game Boy, NES, SNES and GBA emulators.
- `paint` — Drawing program.
- `page` — FAX, image, graphic, PostScript, PDF, epub, cbz viewer.
- `play` — Flac, ogg, mp3, sun, wav player.
- `plumber` — Mechanism for inter-process communication.
- `rc` — Shell by Tom Duff.
- `rc-httpd` — Web server written in rc.
- `rio` — Rectangle multiplexer/window system.
- `sam` — Text editor.
- `sega` — Megadrive/Genesis emulator.
- `torrent` — BitTorrent client.
- `troff` — Text processor/typesetter.
- `upas` — A simpler approach to network mail.
- `zuke` — GUI audio player.

## 1.9 – Can I use 9front as a desktop system?

This question is often asked in exactly this manner—with no explanation of what the asker means by "desktop". The only person who can answer that question is you, as it depends on what your needs and expectations are.

Read: *FQA 1.3 – Why might I want to use 9front?*

### **1.10 – Why is/isn't ProductX included?**

Two potential reasons:

- Nobody wanted it.
- Nobody wrote the code.

Many "features" and programs are missing from Plan 9 for a very good reason: They are terrible ideas expressed as terrible software. Other features are missing simply because no one has yet written the code to implement them. It is left as an exercise for the reader to determine which is which, and to apply the appropriate remedy.

Read: *FQA 8.8 – Additional Software*

### **1.11 – Fine, where can I get 9front?**



If you simply cannot be dissuaded from trying 9front for yourself, obtain installation media from the mirrors mentioned in the following section.

#### **1.11.1 – Mirrors**

##### **1.11.1.1 – 9front.iso**

<http://9front.org/iso/>

<http://r-36.net/9front/>

[http://felloff.net/usr/cinap\\_lenrek/9front.torrent](http://felloff.net/usr/cinap_lenrek/9front.torrent)

<https://ftp.cc.uoc.gr/mirrors/9front/>

<http://iso.only9fans.com/> – nightly builds

#### 1.11.1.2 – git repository

<http://git.9front.org/plan9front/plan9front/> (official)

**Good luck, you may need it.**

