

Gemini - a quieter web experience

niceness through simplicity

Giovanni Moretti - giovanni@reflections.co.nz

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Problems with WWW

- **User tracking:**
 - ▶ cookies, tracking pixels, browser fingerprinting
- **Pages bloated & source is opaque**
 - ▶ Google.com: 35 requests - 2.2MB of content - 11 scripts
- **Layout & formatting defined by the creator**
 - ▶ busy screen – distracting
 - ▶ page complexity – accessibility?

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 - ▶ page complexity – accessibility?

Web browsers are *really* complicated ...

- HTML-5, CSS-3, JavaScript, rendering images/PDF, playing audio/video, cookies, SSL ...
- implausible to start from scratch

→ **Attack surface is huge**

Gemini is a new Internet protocol (June 2019)

- for distributing of arbitrary files
- lightweight hypertext format
- takes user privacy very seriously
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Very different approach to security

- very restricted feature set
- whitelist vs. Web's blacklist

Gemini goals

Simplicity

- a developer can write a client in a weekend
- possible to remember entire protocol spec
 - ▶ ≈ 600 lines (12 x A4 pages)

It will be *difficult to extend* in the future

so it **stays** simple and privacy conscious

Gemini's designer intended:

- one request, one response: no hidden network activity
- images can be inlined OR loaded in external viewer – **client decides**

Why not use a subset of HTML?

- there'd be no clear separation between Gemini and HTML sites
- browser would still interpret whatever was sent - you never know
 - ▶ request page of text → browser loads hidden iframes and 15 scripts ...
- too tempting to 'add just one more feature'
- tracking/user profiling would still work

Gemini - Text formatting

- UTF-8 is the default
- no inline formatting: i.e. no bold/italics
- all text except preformatted blocks are line-wrapped
- **ALL** styling is done by the client

Gemini Markup is line-oriented

Six core elements

Line Type	Start of line
Heading	# ## ###
List item	*
Quote	>
Preformatted text	““ line before and after
Link	=>
Body Text	all else
link examples	<pre>=> gemini://gemini.circumlunar.space => https://www.reddit.com REDDIT Home Page => image-dir/giant-peach.jpg => mailto:fred@example.com Email me => gemini://podcast.com/episode-1.mp3</pre>

Sample Gemini page - [gemini://friendo.monster/log/lace.gmi](https://friendo.monster/log/lace.gmi) - 3314 bytes

```
# A script to interleave tiny Gemini logs
18 Feb 2021
```

I guess what this script is, really, is a client-of-sorts for Gemini tiny logs. Which is kinda like micro

Client is overstating it though. It's written in the laziest, simplest way I can think of and it will o

Let's call it a first pass.

```
=> https://gitlab.com/uouu/dotfiles/-/tree/master/stow/bin/home/drew/.local/bin/lace
```

If you want to give it a go, just

```
...
```

```
wget https://gitlab.com/uouu/dotfiles/-/raw/master/stow/bin/home/drew/.local/bin/lace
```

```
chmod +x lace
```

```
...
```

And then either put it somewhere in your ``$PATH`` or call it with ``./lace``.

Here's what it looks like **in action**...

```
=> /images/lace.png
```

A script to interleave tiny Gemini logs

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Here's what it looks like *in action*...

➤ [/images/lace.png](#)

image/png — 628 x 895 — 0.1MB ×

10 hours ago

👤 uouu

This is just a test of the emergency broadcast system. Have so

or with a dark theme

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 uouu

Gemini clients control the page style

The image displays three browser windows side-by-side, each showing the same Gemini page (gemini://unbon.cafe/www-gem/) but with different visual styles controlled by the client.

- Left Window (Lagrange):** Features a light blue background. The title "WHAT WAS WRONG" is in large, bold, teal letters. The "Table of Content" is in bold yellow text. The "The 3 last posts" section has a yellow background. The list of posts is in black text.
- Middle Window (Kristall):** Features a dark blue background. The title "WHAT WAS WRONG" is in large, bold, white letters. The "Table of Content" is in bold yellow text. The "The 3 last posts" section has a yellow background. The list of posts is in black text.
- Right Window (AV98):** Features a light yellow background. The title "WHAT WAS WRONG" is in large, bold, black letters. The "Table of Content" is in bold black text. The "The 3 last posts" section has a yellow background. The list of posts is in black text.

Each window shows the same content, including a "Table of Content" with links to "My system and discoveries", "Issues (Past and current)", "My scripts in self-service", "FAQ", and "Stay in touch with the feed". The "The 3 last posts" section lists three posts from May 2021, each with a date and a brief description.

Same page - three browsers: Lagrange, Kristall and AV98 (terminal)

Let's see what Gemini users have created

Demo: selection of Gemini pages viewed in Lagrange

What's the protocol: Gemini Request/Response

- ① *Client: Opens connection*
- ② *Server: Accepts connection*
- ③ *Client/Server: Complete TLS handshake*
- ④ *Client: Validates server certificate*
- ⑤ ***Client: Sends one line Request-URL or URL+query-string***
- ⑥ ***Server: Sends one line response header***
- ⑦ ***Server: Sends response body (text/binary data), Closes connection***
- ⑧ ***Client: Handles response***

Using TLS Certificates

Gemini uses TLS v1.3 (ideally) or v1.2

- no certificate authority required
- users are based on "Trust on First Use" (TOFU) - like SSH

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No Cookies: identify users by their TLS certificate

- clients support multiple certificates - user chooses
- if a certificate is deleted, that identity is *gone*

Gemini Software

Desktop browsers

- **Lagrange** - <https://github.com/skyjake/lagrange/releases/tag/v1.4.0>
- **Kristall** - <https://github.com/MasterQ32/kristall>
- **Amfora & AV98** - terminal based clients
- **Elpher** for Emacs - via Melpa

Mobile browsers

- **Android** - Ariane from Play Store ← **Easy to try**
- **iPhone/Pad** - Elaho from App Store and <https://github.com/pitr/gemini-ios>

Recommended Servers: Agate (Rust) & Jetforce (Python)

There's *lots* of gemini software: <https://gemini.circumlunar.space/software/>

Quick overview of Lagrange

Lagrange - the most feature-rich Gemini browser:

- it looks really nice!
- multiple tabs
- subscriptions
- inlining of images and audio
- clear certificate management
- split-screen view
- available for Linux, Mac and Windows

Subscribing to Gemini pages

Options: Browser detects change in page headings OR simple day-timestamp scheme:

Welcome to my Gemlog, where you can read every Friday about my adventures in urban gardening and abstract algebra!

My posts

=> ***bokashi.gmi 2020-11-20 - Early Bokashi composting experiments***

=> ***finite-simple-groups.gmi 2020-11-13 - Trying to get to grips with finite simple groups. ...***

=> ***balcony.gmi 2020-11-06 - I started a balcony garden!***

Other gemlogs I enjoy

=> *gemini://example.com/foo/ Abelard Lindsay's gemlog*

=> *gemini://example.net/bar/ Vladimir Harkonnen's gemlog*

=> *gemini://example.org/baz/ Case Pollard's gemlog*

from `gemini://gemini.circumlunar.space/docs/companion/subscription.gmi`

What are people doing with it?

- **Blogging** – [gemini://fixato.org/2020-03-25-an-uneventful-day.gmi](https://fixato.org/2020-03-25-an-uneventful-day.gmi)
- **Podcasts** – [gemini://gem.chriswere.uk/trendytalk/](https://gem.chriswere.uk/trendytalk/)
- **News sites proxied to Gemini:** [gemini://simplynews.metalune.xyz](https://simplynews.metalune.xyz)
- **Gembooks - an eBook format using Gemini:**
 - ▶ <https://codeberg.org/oppenlab/gempub>
- **Blogging Client in 30 lines**
 - [gemini://spool-five.com/gemlog/2021-04-01-second_script.gmi](https://spool-five.com/gemlog/2021-04-01-second_script.gmi)
- **xj9 - tech blog** [gemini://sunshinegardens.org/xj9](https://sunshinegardens.org/xj9)
- **Sunshine Gardens:** [gemini://sunshinegardens.org](https://sunshinegardens.org)
- **One Hundred Rabbits (resilience, offline-first, sailing, cooking, Plan9, design):** \ [gemini://gemini.circumlunar.space/users/hundredrabbits](https://gemini.circumlunar.space/users/hundredrabbits)
- **Konpeito is quarterly Lo-fi hip-hop & chill mixtape** - [gemini://konpeito.media](https://konpeito.media)

On Social Media: Mastodon - <https://mastodon.social/tags/gemini>

Small Web (smolweb) related sites

- **Tilde sites:** e.g.
 - ▶ <https://tildeverse.org/>
 - ▶ <https://tilde.team/>
 - ▶ [gemini://tilde.team](https://tilde.team) – Free Gemini Hosting
- **Pubnixes:** Public Unix servers
 - Super Dimensional Fortress:
 - ▶ <https://sdf.org>
 - ▶ <https://sdfeu.org>

Konpeito Retro tapes - announced on Mastodon.social



cat @cat@hackers.town

Dec 12, 2020

Hello everyone! I'm happy to announce that the KONPEITO Winter 2021 tape is now available on [gemini://konpeito.media](https://konpeito.media) - this marks the one-year anniversary of the KONPEITO project.

Thanks for sticking with me, and thanks for your support of the Gemini protocol, it has really made huge strides since this project began.

[gemini://konpeito.media](https://konpeito.media)

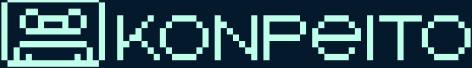
[#KONPEITO](#) [#gemini](#) [#geminiprotocol](#) [#lofi](#) [#mixtape](#)



1+ [reply icon] [retweet icon] [star icon] [more icon]

[gemini://konpeito.media](https://konpeito.media)

Konpeito inside Lagrange browser - expanded view



KONPEITO is quarterly Lo-fi hip hop & chill bootleg mixtape, distributed exclusively through the Gemini protocol. Each tape is a half-hour mix, clean on side A and repeated on side B with an added ambient background noise layer for atmosphere. Tapes are generally released in the first week of each meteorological season.

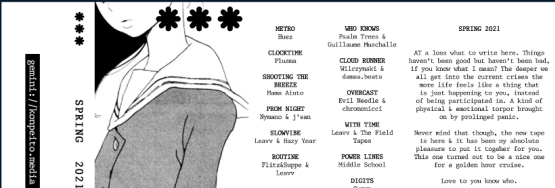
Spring 2021

Side A audio/mpeg ×

02:04 28:58

Side B

Cover image/png — 2771 x 1202 — 0.7MB ×



gemini://konpeito-mixtape

SPRING 2021

METRO Baez	WHO KNOWS Psalms Trees & Guillaume Marchalle	
CLOCKTIME Piusa	CLOUD RUNNER Wiczynski & dama,beats	AT a loss what to write here. Things haven't been good but haven't been bad, if you know what I mean? The deeper we all get into the current crises the more life feels like a thing that is just happening to you, instead of being participated in. A kind of physical & emotional torpor brought on by prolonged panic.
SHOOTING THE BREEZE Mama Aiuto	OVERCAST Evil Needle & chronocicci	Never mind that though, the new tape is here & it has been my absolute pleasure to put it together for you. This one turned out to be a nice one for a golden hour cruise.
FROM NIGHT Synano & j'san	WITH TIME Leavv & The Field Tapes	Love to you know who.
SLOWFIRE Leavv & Hazy Year	POWER LINES Middle School	
ROUTINE FlitzSoppe & Leavv	DIGITS Sven	

Why do you like Gemini?

@pytpu it just works. No cookies/tracking/ads or broken web standards.

It's simply your content presented in the way you want it to be. ...

Also all the people around there are nice and friendly ...

***This shouldn't just co-exist with the web,
it should be default for everyone.***

Leonie <@koyu@koyu.space> – <https://koyu.space/@koyu/106113153639591891>

Survey summary: [gemini://nytpu.com/why-gemini.gmi](https://nytpu.com/why-gemini.gmi)

Conclusion

Gemini

- **for users**

- ▶ a very simple and accessible markup for creating pages
- ▶ suitable for many (but not all) documents
- ▶ provides an ad-free, secure, and distraction-free environment

- **for developers**

- ▶ is simple enough to encourage experimentation
- ▶ gemtext markup is easily mapped to other formats
- ▶ has low hardware and network traffic requirements

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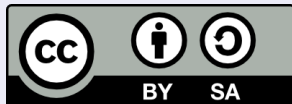
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Interested?

- **Getting Started with Gemini:** [gemini://geminiquickst.art](http://geminiquickst.art) ← **Really Good**
- **Gemini Home:** <https://gemini.circumlunar.space>
- **Gemini on Mastodon:** <https://mastodon.social/web/timelines/tag/gemini>

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