



Geminispace / Gemini Protocol

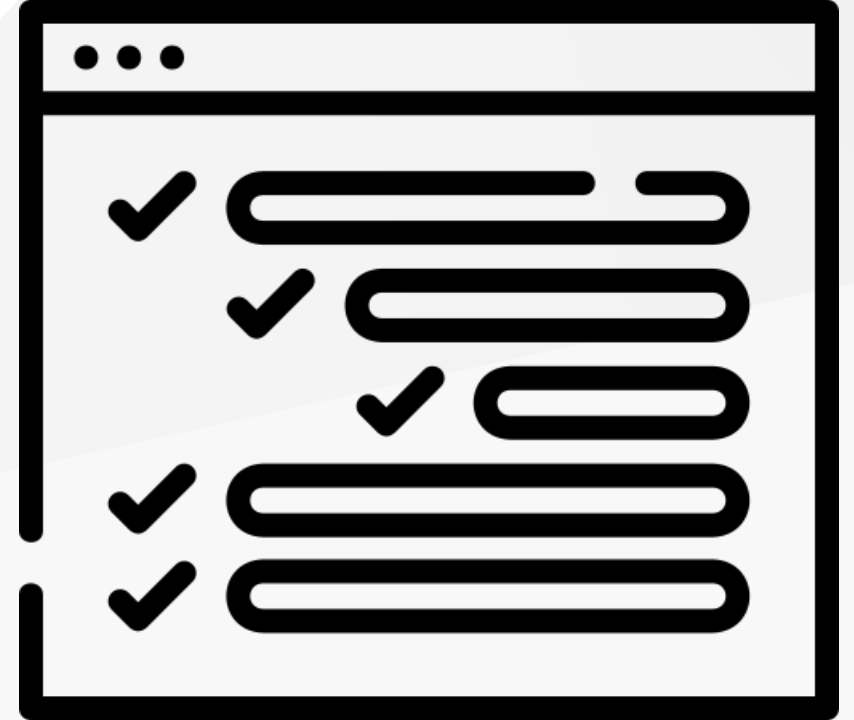
What is the Geminispace and the
Gemini protocol?





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Introduction

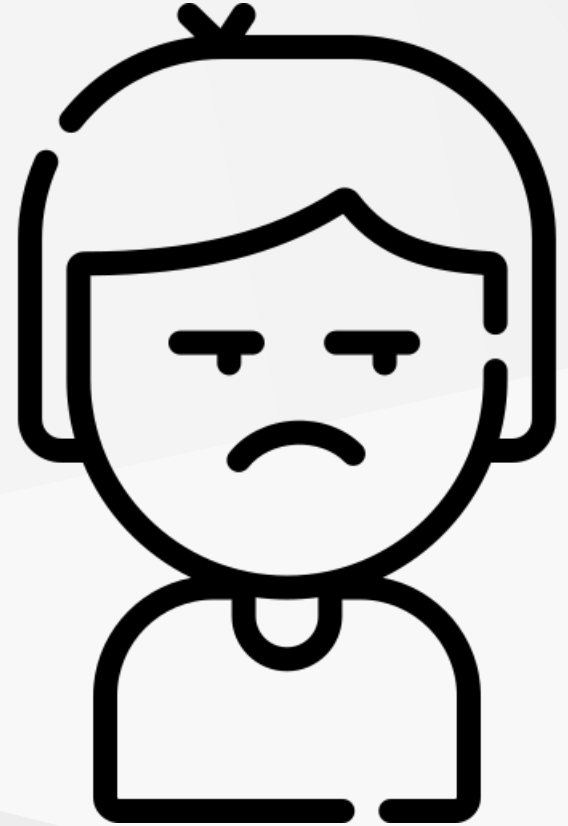
- Introduced in 2019
- Gemini is an application-layer internet communication protocol
 - Similarities to HTTP & Gopher
 - It should co-exist to them and not replace them
- Focussing on:
 - simplicity
 - lightweight
 - security



Motivation

Who doesn't know the struggle...

Advertising, Cookie banner, random pop-ups, auto-play music & video, Tracking, Privacy violations, long loading, newsletter subscriptions, Captchas, slow responses, too much JavaScript, Cookies, not mobile friendly, structureless, annoying site preloader, unreadability, [...]





Motivation

What happened?

Features over Content!

"The more - the better!"





Motivation

Solutions...

- Protocol for serving lightweight hypertext
- Being conservative & standardized but secure
- Simplicity and finite scope are very intentional design
- Focussing on content

Like a radically stripped down web stack!



Protocol

Overview

- Works as a request-response protocol
- Run on tcp/1965 (Gemini mission 1965)
- Enforces TLS encryption
- URI-scheme: gemini://
- Response header consists of:
 - 2 digit status code
 - A space
 - Meta field



Protocol

Content - Overview

- File structure similar to HTML
- File formats: .gmi, .gmni, .gemini
- Media type: text/gemini (unofficial)
- Type code: TEXT



Protocol

Gemtext - Syntax

- Gemtext is a text format
- Very limited set of features
- Similar to Markdown
 - Links are in a special format
 - Links can be relative (foo.gmi) or absolute (gemini://gyptazy.ch)



Protocol (Gemtext Syntax)

Headers:

Big

Smaller

Smallest

Lists:

*

Quotes:

> Initial response

Links:

=> gemini://gyptazy.ch Visit gyptazy.ch



Protocol

Content - Example: index.gmi

```
  _ _ _ _ _ _ _ _ | | _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
/ _ ` | | | | | ' _ \ | _ _ / _ ` | _ / | | | |
| (- | | | _ | | -) | | | (- | | / / | | _ | |
 \ _ , | \ _ , | . _ _ / \ _ _ \ _ , _ / _ _ | \ _ , |
 | _ _ / | _ _ / | _ | _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
# Welcome
Welcome to my Gemini Capsule on gyptazy.ch!
[...]
## Links
=> ./contact/          ./contact          - Contact
=> ./motivation/      ./motivation      - Why to run a Gemini capsule
```



Protocol

Content - Static only?

- Well, no!
- Dynamic integrations via CGI



Protocol

Client

`gemini://gyptazy.ch/`

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GEMINI

Welcome

In my tech repertoire, FreeBSD and Garden Linux stand not just as a personal preference but as a symbol of a commitment to the ethos of open source. By championing this operating systems in both personal and professional spheres, I embody the spirit of shared knowledge and communal innovation. With a heart deeply entwined with the principles of open source, I stand as a beacon of the belief that technology thrives when knowledge and source code is shared. Represented by my contributed open source projects (like manpageblog, Plutono & Vali, Changelog Fragments Creator, Ansible) and shared code it also shows my strength in working as a DevOps and developer in various projects with people from all over the world.

I am a fervent believer in the symbiotic relationship between developers and the open source community. The journey is marked not just by the lines of code we all have written but by the meaningful contributions we all have made to various open source projects. Collaboration isn't just a choice; it's a responsibility!

Moreover, I am a fervent proponent of decentralization and federated services, recognizing the importance of diversifying and distributing digital infrastructure. My work in the network operation center and as a DevOps professional underscores the belief that resilient systems are built on principles of decentralization, ensuring greater stability and security in an interconnected world. This is also represented by our BSD Cafe community which is part of the Fediverse.

As I continue to lead teams in the ever-evolving landscape of technology, their dedication to open source contributions and advocacy for decentralized and federated services echoes not only in the code they write but in the ethos they instill within the teams. Therefore, I am not just a technologist but a true custodian of the collaborative and inclusive spirit that also defines and represents the open source community and its mindset.

In a world often resource-heavy applications, I emerges as a beacon of innovation, emphasizing the art of non-bloated and efficient software and software development. As a visionary technologist on a mission to redefine the paradigm of digital optimization, my philosophy centers on the belief that true optimization lies not in throwing more resources at a problem, but in the meticulous crafting of streamlined, purposeful code where bloat is the adversary, and minimalism is the ally.

As a result, I place great value on running efficient software components like FreeBSD, an optimized nginx service and the self written blog engine manpageblog.

Links

- [1] `./contact` - Contact
- [2] `./motivation` - Why to run a Gemini capsule
- [3] <https://gyptazy.ch/> - HTTPS site

`gemini://gyptazy.ch/`



Protocol

Server

```
20 text/gemini
# Welcome
Welcome to the Gemini capsule on gyptazy.ch.

## Links
=> gemini://gyptazy.ch   Home Home
=> ./contact            Contact Contact
=> ./gpg                GPG GPG
```



Software

Overview

- Supports all OS
 - Windows, Linux, BSD, Mac, Android, iPhone, Windows Mobile,...
- Styles
 - GUI
 - CLI

There's a client for almost all OS in all languages!



Software

Clients

Software	OS	Lang	Mode
Amfora	All	Go	Text (CLI)
Bollux	All	Bash	Text (CLI)
Agregire	All	Electron	GUI
Elaho	iOS	Swift	GUI
Xenia	Android	Java	GUI



Software

Server

Software	OS	Lang	Mode
gmid	All	C	Simple and secure Gemini server.
gmnd	All	Python	Support for CGI and indexing.
Hydepark	All	Rust	Forum application for Gemini.



Software

Misc

- There are http/gemini proxies (comitium)
- There are feed generator (gemgen)
- There are HTML -> Gemini converters (geminize)
- There are site generators (Gempress)
- There is a search engine: gemini://geminispace.info



Resources

Gemini

- Protocol Insights: <https://geminiprotocol.net/docs/protocol-specification.gmi>
- Software overview: <https://github.com/kr1sp1n/awesome-gemini>
- Example game: gemini://tictactoe.lanterne.chilliet.eu

Presentation

- <https://gyptazy.ch/talks/>



Thanks!

Web: <https://gyptazy.ch>
Gemini: gemini://gyptazy.ch
Twitter: @gyptazy
Fediverse: @gyptazy@gyptazy.ch
Matrix: @gyptazy:gyptazy.ch





Credits

- image(annyoing.png): Image from Flaticon.com
- image(more.png): Image from Flaticon.com
- image(gemini_logo.png): Image from Flaticon.com
- image(toc.png): Image from Flaticon.com