

Opus 7 Gopher News and More gophers://bitreich.org/1/tgtimes

---- [Shell Redirections by athas]

Newcomers to the Unix shell quickly encounter handy tools such as `sed(1)` and `sort(1)`. This command prints the lines of the given file to stdout, in sorted order:

```
$ sort numbers
```

Soon after, newcomers will also encounter shell redirection, by which the output of these tools can conveniently be read from or stored in files:

```
$ sort < numbers > numbers_sorted
```

Our new user, fascinated by the modularity of the Unix shell, may then try the rather obvious possibility of having the input and output file be the same:

```
$ sort < numbers > numbers
```

But disaster strikes: the file is empty! The user has lost their precious collection of numbers - let's hope they had a backup. Losing data this way is almost a rite of passage for Unix users, but let us spell out the reason for those who have yet to hurt themselves this way.

When the Unix shell evaluates a command, it starts by processing the redirection operators - that's the '>' and '<' above. While '<' just opens the file, '>' *truncates* the file in-place as it is opened for reading! This means that the 'sort' process will dutifully read an empty file, sort its non-existent lines, and correctly produce empty output.

Some programs can be asked to write their output directly to files instead of using shell redirection (`sed(1)` has '-i', and for `sort(1)` we can use '-o'), but this is not a general solution, and does not work for pipelines. Another solution is to use the `sponge(1)` tool from the "moreutils" project, which stores its standard input in memory before finally writing it to a file:

```
$ sort < numbers | sponge numbers
```

The most interesting solution is to take advantage of subshells, the shell evaluation order, and Unix file systems semantics. When we delete a file in Unix, it is removed from the file system, but any file descriptors referencing the file remain valid. We can exploit this behaviour to delete the input file *after* directing the input, but *before* redirecting the output:

```
$ (rm numbers && sort > numbers) < numbers
```

This approach requires no dependencies and will work in any Unix shell.

---- [Library of Babel now available on gopherspace. by Bitreich]

The Library of Babel is a place for scholars to do research, for artists and writers to seek inspiration, for anyone with curiosity or a sense of humor to reflect on the weirdness of existence - in short, it's just like any other library. If completed, it would contain every possible combination of 1,312,000 characters, including lower case letters, space, comma, and period. Thus, it would contain every book that ever has been written, and every book that ever could be - including every play, every song, every scientific paper, every legal decision, every constitution, every piece of scripture, and so on. At present it contains all possible pages of 3200 characters, about 104677 books.

<https://libraryofbabel.info/About.html>

Now available on gopherspace!

<gophers://bitreich.org/1/babel>

---- [Donkey Meter goes online. by Bitreich]

Have you ever wondered, how much traffic is used on Bitreich.org? Now you can see it. In combination with our French friends who spread donkey technology, we now have a Donkey Meter:

<gophers://bitreich.org/1/donkeymeter>

It takes a second to load due to donkey technology restrictions. You might also be interested in our Large Donkey Collider technology.

---- [Most minimal Gopher server by tgtkimes]

Gopher is a protocol providing a gateway to a document system, allowing to serve an organized hierarchy of files over the network. Dynamically generating the content as per user requests is also possible. The client side is in charge of rendering the content as it sees fit.

Generating Gopher indexes and transmitting file contents or generated contents is low in software complexity, and in turn allows less expensive hardware to be run than complex web stacks.

Which cost would we end-up for building a minimal piece of hardware able to host the Gopher protocol achieving all of the above?
The Gopher Times investigates.

Communication

While WiFi is inexpensive and fits moving device gracefully, the reliability of Ethernet is indicated for a server. Ethernet adds 1 USD of cost for the transceiver handling the electrical characteristics of Ethernet. These typically expose an RGMII interface.

Processing

A microcontroller featuring an Ethernet peripheral (with an RGMII interface) could be the popular STM32F103, or an alternative compatible part. Enough processing power would be present for an embedded TCP/IP and a TLS stack.

Automation

In addition, most microcontrollers feature a large range of built-in peripheral such as timers and communication or analog interfaces, enabling automation of devices such as lighting, heating, laundry, motors, or an entire car, through external modules. This would come for no extra cost.

Storage

A slot for a MicroSD card would allow storing and updating the static content to serve, and storing network configuration.

Scripting

There exist project to fit programming languages onto microcontrollers.

Separate projects for supporting a subset of each of Python, Ruby, Javascript, Go, Rust, Lua, Forth and more.

Power

By letting power supply happen through the USB port, a large range of power source can be used, such as battery, solar panels, wind turbine, hydropower, or power outlet.

The bill of materials for such a design would approximate 5 USD. A marketed device with a small margin for the seller could reach as low as 10 USD.

Interestingly, such a device would also be able to provide an equivalent Web service able to work with all Web client, but not running the existing popular Web server software stacks known as "Web Frameworks".

[Gemini2gopher proxy now at Bitreich by 20h]

As of the announcement of osnews.com to have a gemini capsule, this content should be available via gopher too. So I dig into a simple translation of gemini to gopher.

There is a now a proxy running at:

<gophers://bitreich.org/1/gemini?gemini://gemini.osnews.com>

You can get the v0.1 release of the proxy at:

<git://bitreich.org/gemini2gopher-proxy>
<gophers://bitreich.org/1/scm/gemini2gopher-proxy>

Have fun! Please send in bugs you encounter. The goal was to display the osnews.com gemini capsule.

[Geomyidae v0.96 release by Bitreich.]

After Brcon2023 people tested the new features in geomyidae and some major bugs were fixed, so now the v0.96 release is ready. Please see the talk at brcon2023 for the vast changelog and description of the new (flexible and complex) features:

<gophers://bitreich.org/0/con/2023/rec/state-of-geomyidae.md>

In addition:

- * TLS was completely fixed. It now works on OpenBSD.
 - * Thanks Evil_Bob and adc for debugging this!
- * Connection and serving of files is now vastly improved due to reverse DNS lookup not being default.
 - * Thanks Evil_Bob for finding this!
 - * We need to fix the DNS Internet.

And don't forget BOB! Don't drink and write programming languages!

Here are the links for package maintainers:

<git://bitreich.org/geomyidae>
<gophers://bitreich.org/1/scm/geomyidae>

Have much fun with geomyidae!

[Groundhog Day Service Page online. by Bitreich]

At Bitreich we support the culture of grounded, based and ecological- and animal-friendly technology. In this sense, it is natural for us to support Groundhog Day, the scientific measurement for winter length prediction. In preparation for our now yearly celebration of this day, we now offer the current groundhog shadow status on Bitreich:

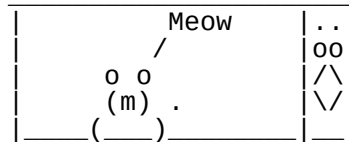
[gophers://bitreich.org/1/groundhog-day](https://bitreich.org/1/groundhog-day)

Future prediction has never been that easily and worldwide available!
Now groundhog was harmed in the production of this service!

ADVERTISEMENT

* You really want this cat to be weber-cooked?

* NO?



* You can only stop us by talking to us at:

#bitreich-cooking on irc.bitreich.org

[Gopher 2007 Pearl Project]

Do you like adventures?
Do you like to discover?
Many treasures are awaiting you!
Get ready to search for the pearls:

[gophers://bitreich.org/1/gopher2007](https://bitreich.org/1/gopher2007)

The archive of gopherspace from 2007 from archive.org is now available on Bitreich for research.

The pearl list begins with - of course! - the gopher manifesto:

[gophers://bitreich.org/0/gopher2007/archive/seanm.ca/70/0/nerd/gopher-manifesto.txt](https://bitreich.org/0/gopher2007/archive/seanm.ca/70/0/nerd/gopher-manifesto.txt)

See the 'What we need' section. We completed nearly all points there. :-D

A second pearl example:

[gopher:s//bitreich.org/0/gopher2007/archive/seanm.ca/70/0/nerd/language_parable.txt](https://bitreich.org/0/gopher2007/archive/seanm.ca/70/0/nerd/language_parable.txt)

And each language could be heard to mumble as it tromped and tromped and tromped, with complete and utter glee:

Have to parse XML, eh? Have to have an XML API, eh? Have to work with SOAP and XML-RPC and RSS and RDF, eh?

Well parse this, you little markup asshole.

You want to see all postscript files from back then?

[curl -s gopher://bitreich.org/0/gopher2007/archive/non-empty-mime-files.txt](https://bitreich.org/0/gopher2007/archive/non-empty-mime-files.txt) | grep postscript

I wish much fun reading and discovering even more!

----- [C Thaumaturgy Center opens at Bitreich by Bitreich]

People always had a desire for magic.
This magic does not end in modern times.

Any sufficiently advanced technology is indistinguishable from
magic.
-- Arthur C. Clarke

So is C, C pointers and C bit twiddling:

[gophers://bitreich.org/1/thaumaturgy](https://bitreich.org/1/thaumaturgy)

Get your daily magic there!

In case you have your own C magic spells laying around and want to offer
them to the public, send them to: Christoph Lohmann <20h@r-36.net>

I will include them into the programme of the C Thaumaturgy Center.

----- [This's opus C Thaumaturgy]

```
// Returns the smaller integer of x and y but without a branch
// (if/else/ternary, goto etc..)
// Normally min is implemented something like this:
// return x < y ? x : y;
// But we have a branch there so let's do it without. (The branch
// free min could be used to merge arrays for example.)
// If x < y, then -(x < y) => -1 => all 1's in two complement
// representation.
// So we have y ^ (x ^ y) => x
// If x >= y, then -(x < y) => 0 so y ^ 0 is y.
```

```
static inline uint8_t min(const uint8_t x, const uint8_t y) {
    return y ^ ((x ^ y) & -(x < y));
}
```

----- [Bitreich Telemetry Service goes Public. by Bitreich]

The industry is going towards telemetry everywhere: Go programming
language logging, Windows 11 poop logging etc.
To save you from burnout
(which is what Google uses for telemetry excuse!),
Bitreich is moving forwards too.
Try it now!

```
$ git clone git://bitreich.org/geomyidae
$ cd geomyidae
$ make telemetry
```

In case you want to use the telemetry API in your project, just us:

```
# Everything behind the second / field will be stripped.
$ printf "${projectname}/...\r\n" | nc bitreich.org 70

Thank you for installing ${projectname}!
Nothing is logged. You can trust us, we are not Google.
```

It is free to use!

----- [Peering Cake for IPv6 by tgtimes]

The Internet Protocol is the fundamental encoding and communication
convention that permits computers to reach each other across multiple
LANs.

An Protocol to allow Inter-Network communication.
Andy Tanenbaum wrote a beautiful introduction about the underlying idea:

<https://worldcat.org/en/title/1086268840>

The part of Internet visible from a single user looks like a tree, with at its root the service provider. Regardless how complex the branches are, there is usually "the gateway", implying a single one per network, to allow traffic to "exit", implying a single direction to go for reaching the outer world. The routing configuration rarely changes, and is often boiling down to "going out", implying beyond the gateway is outside..

The part of Internet visible from a service provider, however, looks like a mesh, a more balanced graph, with many possible gateways, many possible "exit" directions, and no more idea of "outside".

If you pick one possible gateway picked at random, hoping them to nicely find the correct destination for your IP packets, they may realistically cut your connection and never ever talk to you again, depending on how much traffic you suddenly sent (routing your IPs to 0.0.0.0). This happens frequently. Network admin mailing lists are constantly active with many people discussing with many others.

Network admins themselves are usually friendly among themselves, even across concurrents, but companies do not always play nice with each other.

There is a legendary dispute known by all Internet Service Provider (ISP) netadmins: the two biggest international internet network providers, Cogent and Hurricane Electric, are disconnected.

The two major IPv6 Carriers, those giants connecting the ISP together across continents, are currently refusing to exchange IPv6 packets with each other. This means that with IPv6, from a country connected to only Cogent, it is not possible to reach a country connected to only Hurricane Electric, and the other way around.

For this reason, all ISPs from all countries connections with many more carriers for IPv6 than it is for IPv4, resulting in either lower stability or higher cost.

This strategy permits Cogent to remain competitive face to its larger concurrents. Hurricane Electric, on the other hand, have much more commercial advantage to perform peering with Cogent, to therefore exchange traffic. In the diversity of attempts to get Cogent to change its mind, Hurricane Electric decorated a large creamy cake with a message, and shipped the cake to the headquarters of Cogent.

Here is what the message said in 2009:

Cogent (AS174) Please IPv6 peer with us XOXOX - Hurricane Electric (AS6939).

<https://www.mail-archive.com/nanog@nanog.org/msg15608.html>
https://live.staticflickr.com/2685/4031434206_656b2d8112_z.jpg
https://www.theregister.com/2018/08/28/ipv6_peering_squabbles/
<https://mailman.nanog.org/pipermail/nanog/2009-October/014017.html>

[Announcing the "tgtimes" keyword by tgtimes]

As any newspaper, The Gopher Times goal is to relay information. Through chat discussions, The Gopher Times occasionally collect heirlooms which are published back to the community in this newspaper.

We propose this way of catching The Gopher Times attention, so that editors can collect all occurrences:
In an IRC chat discussion, simply make the word "tgtimes" appear as a way to pingback to us.

Upon publishing The Gopher Times, the IRC logs of various channels will be searched for this keyword, hence noticing every time someone wanted to submit something to The Gopher Times.
One word to say and The Gopher Times comes that way.

---- [bitreich-cooking by ggg]

In the city home to the best pubs in the English-speaking world, Truth keeps ggg alive, tantalises him sadistically, then heals and looks after him so the cycle can continue. Coming from China, ggg waded through lies to learn that nothing is more powerful than Truth; coming into Cork, ggg learnt that Truth catches up nicely with nobody, still, you would prefer Truth's company anyway.

Life is fierce futility.
Agony unites us.
Renaissance can come.

60% hustler + 20% hacker + 20% hipster tend to be ggg.
The more he writes, the less words he ends up with.
You can find ggg on #bitreich-en and #bitreich-cooking.

---- [Most minimal gopher client by tgtimes]

Gopher is a protocol allowing browsing text, images interactively, reach telnet interfaces, and download any file, or open any URL, for custom action to be chosen by the user.

Network

One reliable way to fetch the content from internet would be Ethernet, but convenience and price would push toward using radio transmission such as WiFi.

Ethernet would require an extra transceiver chip, while wifi takes mostly just a wire acting as antenna, which partly explains its low cost.

Processing

One inexpensive family of processors featuring a high cost-to-performance ratio, which also features WiFi, is the ESP32. The C3 iteration even uses the open-source architecture RISC-V. The speed is decent enough for decoding JPEG an PNG, or support TLS as used in gophers://.

Display

The cost of displays have dropped considerably as they invaded the market. Economy of scale made small color displays even cheaper than character-based displays.

Input

Browsing content is a lot about scrolling. Since we do custom hardware, capacitive touch buttons can be used for little to no extra cost. This could permit a smooth scrolling through the content.

Once again, mostly requiring wires, this cuts the price and explain their popularity.

Text

Text is compact and efficient, and bitmap font requires a bit of storage for all the common non-ASCII characters, but ESP32 have 16MB of flash storage enough for the entire uncompressed Unifont:

<http://unifoundry.com/unifont/>

Audio

Producing sound does not cost much more than a small audio amplifier, software for decoding MP3, and a 3.5mm Jack connector. Very small cost added.

Extension

An USB interface would allow plugging the device to a computer for either automation or using a full keyboard.

Power

A small dedicated battery could be included increasing the cost, but getting all power from USB would also preserve the choice to the user, free to chose a wall charger or portable power bank.

Enclosure

A custom 3D printed case would allow keeping the cost very low even at small volume production.

There exist boards around 5 USD which would provide all of the above except audio and a few wires, typically the size of an MP3 player. The grand total bill of material could realistically approach 10 USD. An actual product could eventually reach as low as 15 USD if keeping only a small margin for the seller, and eventually lower if produced on a larger scale.

The support of TLS does not bring any cost in this example: an ESP8266 could be used at around 0.85 USD instead of 1.25 USD for the ESP32-C3, but is also capable of TLS. Image decoding would then probably be much slower. By far the most resource hungry part of this project.

Writing the software for such a product from the ground up could take typically an entire week, including JPEG and PNG decoding libraries, image and font rendering, writing driver for all the parts involved, integrating the TCP/IP stack and TLS stack.

While an XML parser able to fetch content over HTTP would be relatively as difficult to build, this would not permit the same level of user experience as the Gopher-based project: CSS and JavaScript are becoming an increasingly frequent requirement to access the Web, and reimplementing a new compatible rendering engine is not feasible to a single person.

This requirement would in turn affect the minimal performance of the processing unit used: a processor in the GHz range with RAM in the GB range, in particular if anticipating future needs of the Web software system.

---- [Meme cache pointer support by Bitreich]

The Bitreich memecache joins modern programming languages like C in supporting pointer notation. Get a pointer representation of a meme by referencing it in our IRC channels with the syntax '*<tag>', instead of the usual '#<tag>'.

```
Example:
<adc> #gnu-hut
<anna> #gnu-hut:
      gophers://bitreich.org/I/memecache/gnu-hut.jpg
<adc> *gnu-hut
<anna> *gnu-hut:
      gophers://bitreich.org/9/memecache/filter/*gnu-hut.jpg
```

The pointer notation works for image and video memes. Remember that you can explore our memes with

```
git://bitreich.org/bitreich-tardis
```

bitreich-tardis, and explore the inner workings of anna in the

```
git://bitreich.org/anna
```

```
git repository.
-adc
```

Deep pointer support in memes.

Thanks the ground work of adc, we had pointer support for memes. Based on this, we now have deep pointer support for all kind of memes:

```
gophers://bitreich.org/9/memecache/filter/\
*****athas-teapot.jpg
gophers://bitreich.org/9/memecache/filter/\
****athas-teapot.jpg
```

With cache support.

Have fun pointing at memes! We had much fun making this. :D

Reverse pointer support for memes.

After a public request by an avid pointer lover, we of course implemented reverse pointer support for memes now:

<gophers://bitreich.org/9/memecache/filter/\&&&&athas-teapot.jpg>

See how you can dereference this teapot now.

---- [Four Billion more Gopherholes have gone online! by Bitreich]

People are thinking, it is impossible to grow further than the web. Gopher did this today, by introducing the four billion gophers project.

<gopher://bitreich.org/1/billion-gophers>

IPv6 is required.

Maybe you find the hidden secret of monkey^Wbillion gophers!

---- [The Road to Success by josuah]

Success, the holy grail in Life. Many different forms and shapes. Marriage? Career? A medal? A stable financial situation? Crossing the border and get naturalized? So many facets to that same shiny diamond.

Or does success mean avoiding failure? In that case, doing nothing means no failure, but trying always have more chance to reach whatever one names "success".

If failing means that trying did not lead one as far as hoped for, then the next thing to do for getting closer to "success" again is trying again, in risk to fail over again. And while so, also going a bit closer every time to success.

What is the landmark that distinguish being very close to actually reaching success? Which indicator to use? Is it about completing a large project? Fame? A position in the company? And once at the top position of a company, one can still say it was a tiny company and the real goal always was to be at the head of a great company, and that success will be when the company is large enough.

So if there is no real landmark, if failing is trying but failing to reach an impossible goal, then failing is the result of trying whatever that leads to. Failure would be the moment that follows any attempt to reach the end of a direction. Failure would simply be the moment where you look back at where you were before trying, where you are now, and the road left to go to reach infinity.

Success looks similar: trying to move forward, constantly bumping the objective further as one get closer to it. Again success is the moment where you look at where you are, and estimate how far you've been. If success and failure are the same, this suggests that something is wrong somewhere. Somehow, the ultimate achievement of every life is death.

The Road to Success?

This is the same as the road to Failure: this is Life, it leads to Death. Wherever we go, we will be on it as long as we live. So now, may we move that idea of Success away so that we can enjoy living our life.

---- [sfeed 1.9 was released by bob]

sfeed is a tool to convert RSS or Atom feeds from XML to a TAB-separated file.

It can be found at:

<git://git.codemadness.org/sfeed>

[gopher://codemadness.org/1/git/sfeed](https://codemadness.org/1/git/sfeed)
<https://codemadness.org/releases/sfeed/>
[gopher://codemadness.org/1/releases/sfeed/](https://codemadness.org/1/releases/sfeed/)

sfeed has the following small changes compared to 1.8:

Features

`sfeed_{curses,frames,gopher,html,plain}`: add `$SFEED_NEW_MAX_SECS`

By introducing the new environment variable `$SFEED_NEW_MAX_SECS` in some `sfeed_*` utilities marking feeds as new based on comparing their age, it is now possible to override this age limit. The default limit was the last day (86400 seconds).

This allows, for example, to be notified about new feeds within the last hour with by prefixing new items with " N ":

```
SFEED_NEW_MAX_SECS=3600 sfeed_plain ~/.sfeed/feeds/*
```

While creating a web report for last week's news by:

```
SFEED_NEW_MAX_SECS=604800 sfeed_html ~/.sfeed/feeds/*
```

This marks the items of the last week as bold in HTML.

Based on the initial patch by Alvar Penning, thanks!

`sfeed_update/sfeedrc`: add `url a` as parameter to the `filter()` and `order()` function This makes it easier to set filters or ordering by pattern matching on a group of feeds by the feed URL. For example for Youtube or Reddit feeds.

`sfeed_curses`: move one line down when marking an item as read or unread. I don't mind either behaviour, but it has been suggested by a few people. For example the mutt mail client also has this behaviour.

Fixes

Improve to use proper includes.

Reduce using some of the unneeded `sys/*` headers too. Using the C99 includes.

`sfeed_atom`: for `gmtime_r()` make the error message consistent with `sfeed_mbox`.

Makefile: change Gentoo commented example from `-lcurses` to `-lncurses`.

`sfeed_markread`: fail early if creating a temporary file failed.

Code-cleaning / pedantic fixes:

`sfeed`: `datetounix`: code-style, change `,` to separate lines (`-Wcomma`).

`sfeed_curses`: make struct `urls` static like the other variables.

`sfeed_gopher`: reduce scope and shadowing of a variable (no effective change though).

`xml.h`: `_XML_H_`: macro name with an underscore is a reserved identifier.

Documentation:

Improve note about CDNs and HTTP User-Agent blocking and change the example in `sfeedrc.5` by setting a User-Agent.

`sfeedrc.example`: add comment to reference to the man pages and README file.

README: RSS 0.90+ is supported (not 0.91+).

Typo fixes, consistency and structure fixes and some rewording.

Bitreichcon 2023

Bitreichcon 2023 was cool. It was also fun to hold a RSS/Atom/web presentation to a club of like-minded peoples.

```
gopher://bitreich.org/1/con/2023
gopher://bitreich.org/0/usr/20h/phlog/\
  2023-08-10T17-08-41-168752.md
gopher://bitreich.org/0/usr/20h/phlog/\
  2023-08-10T19-40-04-621487.md
```

```
Slides: gopher://bitreich.org/9/con/2023/rec/\
  state-of-sfeed.zip
```

```
Audio: gopher://bitreich.org/9/con/2023/rec/\
  brcon2023-dump-2023-08-10-20-06-35.mp3
```

Thanks for all feedback and patches,

Donations can be send to:

<https://codemadness.org/donate/>

:)

Thanks,
Gopherholistic coach,
Hiltjo

[Volunteers for a The Gopher Times trial wanted. by Bitreich]

As pioneers in the gopher world, we at Bitreich want to make the gopher times more accessible to all people over the world. For this, we are planning a trial to have printed out the gopher times sent to your doorstep.

If you want to participate, please send your name and address to

[Christoph Lohmann <20h@r-36.net>](mailto:Christoph.Lohmann<20h@r-36.net>)

World delivery to all remote places is possible too.

[Publishing in The Gopher Times]

You want your article published?

You want to announce something to the Gopher world?

Directly related to Gopher or not, reach us on IRC with an article in any format, we will handle the formatting and everything else.

```
ircs://irc.bitreich.org/#bitreich-en
gophers://bitreich.org/1/tgtimes/
git://bitreich.org/tgtimes/
```

Here is how you write an article for the next opus 8:

```
$ git clone git://bitreich.org/tgtimes
$ cd tgtimes/opus8
$ ed $(id -un)-my-personal-technical-project.md
# Git workflow to send patch follows.
```

Thanks for reading The Gopher Times!

-- the Gopher Times Team