Hyperlinks in GNOME terminal

how to benefit from fancy hyperlinks in your terminal...

Over the years I've learned about many of the advantages of using a modern terminal and shell. I'm talking about using `bash` (https://www.gnu.org/software/bash/) with GNOME terminal (https://en.wikipedia.org/wiki/GNOME_Terminal) on a modern GNU/Linux (https://getfedora.org/) distribution.

I particularly like switching between the terminal and GUI applications. (https://purpleidea.com /blog/2013/03/22/running-your-file-manager-from-a-terminal/) It's now even better.

Automatic Hyperlinks:

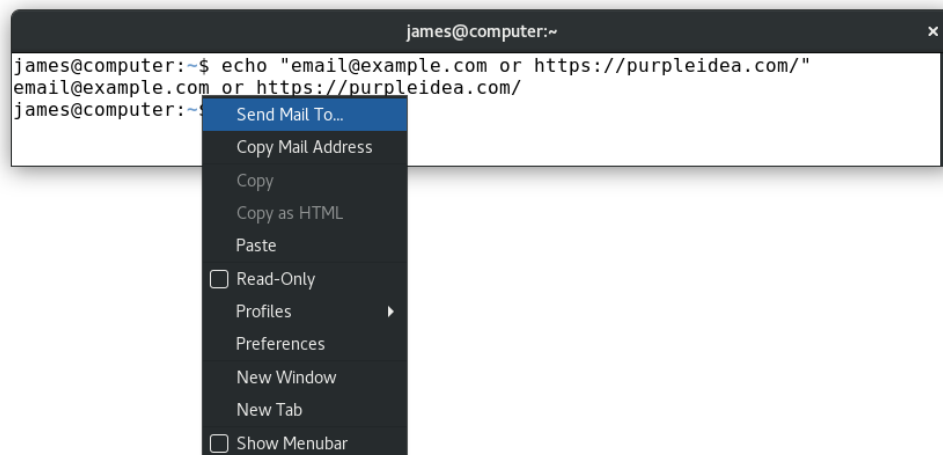Occasionally, some program running in your shell might output what looked like a link:

(gnome-terminal-link.png)
gnome terminal and vte will automatically add links to text that looks like a web hyperlink or an email address

They can be seen when you hover over them, and a right-click will display a useful context menu:
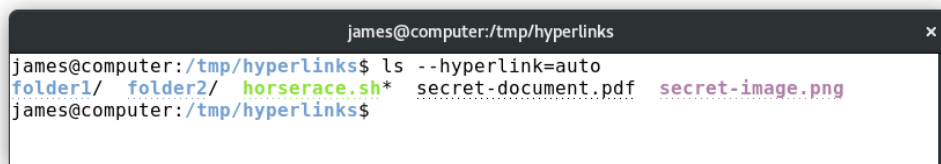

(gnome-terminal-link-dialog.png)

the terminal detected this text sequence as an email address, and the dialog makes it easy to open your MUA

This was always useful, but detection was always a heuristic. In many situations it might show a hyperlink unnecessarily or omit one that would have been useful.

__Integrating Hyperlinks__:

With recent versions of VTE (https://github.com/GNOME/vte) this is now done properly, without needing a heuristic! (https://github.com/GNOME/vte/commit/c9e7cbabfe2fd682a80dd8938c317e7aed1195f4)

Here's what it might look like:

(gnome-terminal-hyperlink.png)
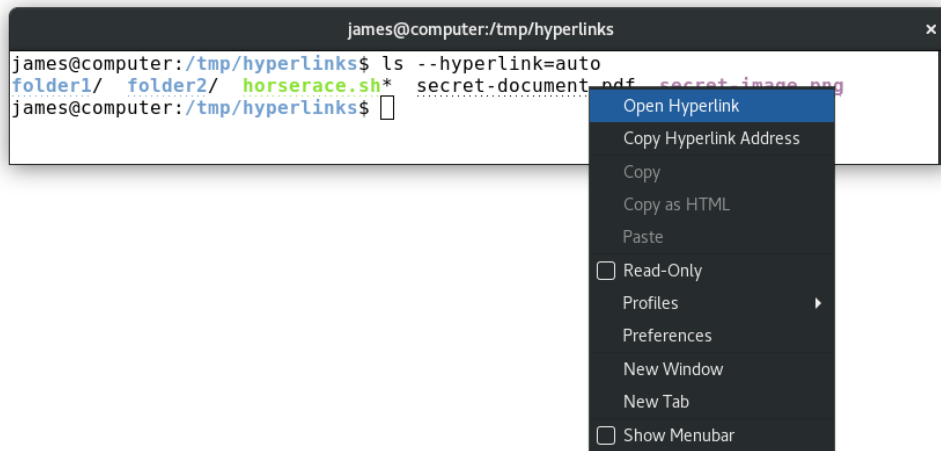the ls program can automatically add relevant links

All this magic works because programs can include magic "escape codes" (https://en.wikipedia.org/wiki/ANSI_escape_code) which tell the shell to do special things. They have been traditionally used to add colours or underlining to shell output. In this case they're been used to send a special message telling the shell that it might want to hyperlink something.

The venerable `ls` program was updated to include a `--hyperlink` option, which, when active produces the above output. If you look closely, it puts a fine line of dots over any such link.

I chose to make this automatic, so I've added an alias that includes this by default, and other options:

```
$ alias ls
alias ls='ls -FGh --color=auto --hyperlink=auto'
```

When you right click on one of the above links, it now shows a helpful menu:

(gnome-terminal-hyperlink-dialog.png)
this is some magic that opens things in the right program

I suspect that it uses `xdg-open` to run the correct program. In my case it causes folders to open in `nautilus`, images in `eog`, and pdf's in `evince`.

This isn't limited to `ls`. A bunch of other programs have started to add this feature in various ways. A recent release of `systemd` has even added support for this in the `systemctl status` output (https://lists.freedesktop.org/archives/systemd-devel/2018-June/040879.html).

Future Work:

It's now time to add useful contextual information to more of the terminal apps out there. Imagine having a `git log` with clickable `sha1` hashes, or pasted `irssi` links which shorten and ellipsize, but which are still clickable? All of these things are possible, so start getting those patches upstream!

Advanced Use Cases:

I started to think about if some fancier use cases were possible. Imagine if running an `ls` command over `ssh` could have the hyperlink information modified by the local shell so that it knew it was a remote URL. In that case, the terminal might consider converting it to a `gvfs` (https://en.wikipedia.org/wiki/GVfs) link instead, giving you easy access to remote files.

It might be fun thinking about if adding hyperlinks to `vim` could offer links to full screen help dialogs. An even fancier idea might be to include a link to a trusted execution agent which could open up a GTK+ dialog, and send the response back to some socket that the program is listening on. The `emacs` and `mutt` users could have an easier way to view graphical email attachments.

As we blur the lines between working in graphical environments and the terminal, power users who aren't afraid of the shell only get more proficient.

More Information:

Some more information about other applications tracking this feature is available here.

(https://gist.github.com/egmontkob/eb114294efbcd5adb1944c9f3cb5feda)

Conclusion:

Hope you enjoyed this. Hopefully you can add some hyperlink integrations to your application today! Can you think of any other types of magic escape codes we should add?

Happy Hacking,

James

You can follow James on Twitter (https://twitter.com/intent/follow?screen_name=purpleidea) for more frequent updates and other random thoughts.
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