

GNOME Internet Radio Locator

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Introduction

GIRL, the GNOME Internet Radio Locator program, allows users to easily find and record live radio programs on radio broadcasters on the Internet.

GIRL is developed for the GNOME desktop and requires one audio helper such as GNOME Videos (<https://wiki.gnome.org/Apps/Videos>) to be installed for playback and streamripper (<http://streamripper.sourceforge.net/>) to be installed for recording live radio streams of supported radio stations.

GIRL, a recursive acronym for GNOME Internet Radio Locator, following the tradition of naming projects in Free Software culture.

GIRL is not officially a part of GNU or GNOME, but using the *.gnome.org infrastructure on <http://git.gnome.org/girl> and <https://download.gnome.org/sources/girl/>

Why did I write GNOME Internet Radio Locator (GIRL)?

- I support
 - ▷ Freedom
 - ▷ Free Speech
 - ▷ Free Software
- I want to give something back to the Free Software community
- Internet Radio is a free Internet resource
- Many Universities run non-profit Internet radio stations

History of GNOME Internet Radio Locator

2002

- Test client for streaming Radio NOVA / radiOrakel / Radio Tellus live
- GIRL 0.1.0 released at 01lab at Norwegian Computing Center in 2002.
- GIRL 0.1.0 just sat on my backups/machines/harddrives 2002 - 2014.

2014

- Visit to SIPB at MIT in June 2014 inspired me to release GIRL 0.2.0.

2015

- GIRL 1.0.0 released on January 3rd, 2015 with 42 Internet radio stations.
- GIRL 1.0.0 named “Fenchurch” as tribute to Douglas Adams’ HHGTTG.

2016

- GIRL 8.0.0 released on January 16th, 2016 with WNYC as default radio station.
- GIRL 8.0.1 released on January 26th, 2016 with 77 Internet radio stations.
- GIRL 8.0.1 prepared for MacPorts on Mac OS X.

What is the definition of Free Software?

From FSF's home page (<https://www.gnu.org/philosophy/free-sw.html>):

Free Software is a good idea because you have

- The freedom to run the program as you wish, for any purpose (freedom 0).
- The freedom to study how the program works, and change it so it does your computing as you wish (freedom 1). Access to the source code is a precondition for this.
- The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to distribute copies of your modified versions to others (freedom 3). By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

Existing Music Services

Apple Music, Google Music and Spotify

- Require non-free client software
- DRM (Digital Restrictions Management)
- Impose EULAs that restrict more than copyright
- Track what the user listens to

One redeeming feature of some of them:

- You can't access them from GNU/Linux at all. If you're a GNU/Linux user, this protects you from the temptation to use them.

Why did I write GIRL?

The last public talk I gave, was a talk on Music Recording, Production and Distribution with Free Software at UKUUG Linux 2005 at University of Wales, Swansea, in 2005. The talk is available from <http://home.nuug.no/~ole/UKUUG2005.pdf>

10 years is a long time, a lot of stuff has happened in these 10 years.

Free Radio

Free Speech

Free Software

Features in GNOME Internet Radio Locator version 5.0.0

73 non-profit and independent radio stations are supported.

14 language translations (see `girl/AUTHORS` and `girl/THANKS`).

Radio station search by physical location, but just city names.

Optional recording feature (if “streamripper” is available)

Support for Personal Radio Stations (“`$HOME/.girl/girl.xml`”).

Play supported radio codecs with GNOME Videos

Supported Internet Radio Stations

The following 73 radio stations are supported in GIRL 5.0.0:

- 2NURFM (Newcastle, Australia)
- 95bFM (Auckland, New Zealand)
- Arizona State University (Phoenix, AZ)
- BBC World Service (London, United Kingdom)
- Burst Radio (Brighton, United Kingdom)
- CFRC (Kingston, Canada)
- CHUO (Ottawa, Canada)
- CJSW (Calgary, Canada)
- COOG (Houston, TX)
- Cam FM (Cambridge, United Kingdom)
- Caper Radio (Sydney, Nova Scotia, Canada)
- Coimbra University Radio (Coimbra, Portugal)
- EPER (Budapest, Hungary)
- Fuse FM (Manchester, United Kingdom)
- Imperial College Radio (London, United Kingdom)

- KALX (Berkeley, CA)
- KCSN (Los Angeles, CA)
- KDUP (Portland, OR)
- KEXP (Seattle, WA)
- KSUB (Seattle, WA)
- KTRU (Houston, TX)
- KTUH (Honolulu, Hawaii)
- KVRX (Austin, TX)
- KXSC (Los Angeles, CA)
- KZSU (San Francisco, CA)
- King's College London Radio (London, United Kingdom)
- Leeds University Student Radio FM (Leeds, United Kingdom)
- NRK P1 (Oslo, Norway)
- NRK P2 (Oslo, Norway)
- NRK P3 (Oslo, Norway)
- NRK Radio Alltid Nyheter (Oslo, Norway)
- NRK Urørt (Oslo, Norway)
- Oxford Student Radio (Oxford, United Kingdom)
- Pulse LSE (London, United Kingdom)

- Radio AF (Lund, Sweden)
- Radio Adelaide (Adelaide, Australia)
- Radio Campus Bruxelles (Bruxelles, Belgium)
- Radio Campus Paris (Paris, France)
- Radio Eco (Pisa, Italy)
- Radio NOVA (Oslo, Norway)
- Radio NRJ Bern (Bern, Switzerland)
- Radio R (Brno, Czech Republic)
- Radio Radius (Zürich, Switzerland)
- Radio UNAM (México City, México)
- RÚV (Reykjavik, Iceland)
- SoundFM (Waterloo, Canada)
- Stockholm College Radio (Stockholm, Sweden)
- UCT Radio (Cape Town, South Africa)
- University Radio Nottingham (Nottingham, United Kingdom)
- University Radio York (York, United Kingdom)
- WAMU (Washington, DC)
- WCSB (Cleveland, OH)
- WHPK (Chicago, IL)

- WHRB (Boston, MA)
- WKCR (New York City, NY)
- WMBR (Boston, MA)
- WNYO (Oswego, NY)
- WPTS (Pittsburgh, PA)
- WRVU (Nashville, TN)
- WTBU (Boston, MA)
- WUMR (Memphis, TN)
- WUSB (Long Island, NY)
- WVAU (Washington, DC)
- WVUA-FM (Tuscaloosa, AL)
- WWNO (New Orleans, LA)
- WXOU (Rochester, MI)
- WXYC (Chapel Hill, NC)
- radiOrakel (Oslo, Norway)

See <http://girl.software/girl.xml> for the current list of supported radio stations in GNOME Internet Radio Locator.

Supported Radio Codecs

The radio stations stream live audio with several different audio codecs supported by the GNOME Videos program, see <https://wiki.gnome.org/Apps/Videos>

The audio codecs in usage among the supported 76 radio stations are:

- “AAC, v4 LC”
- “MPEG 1 Audio, Layer 3 (MP3)”
- “MPEG-2 AAC (AAC+)”
- “MPEG-2 AAC”
- “MPEG-4 AAC”
- “Ogg Vorbis”

GIRL Data Type Definition (DTD)

GIRL 0.1 DTD began at Norwegian Computing Centre in 2002.

Short description of each radio station (<station ...>).

Short description of each radio station stream (<stream ...>).

GIRL 5.0 DTD is available from <http://girl.software/girl-5.0.dtd>

GIRL 5.0 XML data renders as HTML using XSLT in at least Firefox 36.0 at <http://girl.software/girl.xml>

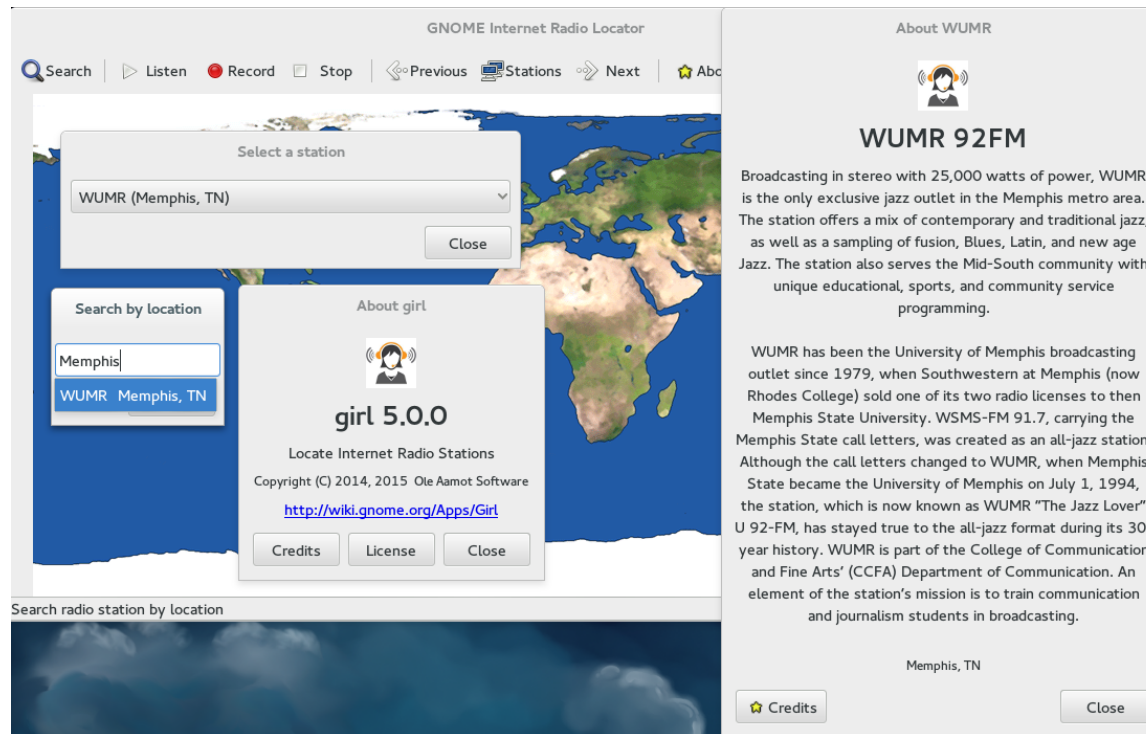
Current GIRL 5.0 DTD

```
<!ATTLIST frequency uri CDATA #REQUIRED >
<!ELEMENT description ( #PCDATA ) >
<!ATTLIST description lang CDATA #REQUIRED >
<!ELEMENT frequency ( #PCDATA ) >
<!ELEMENT location ( lat | lon )* >
<!ELEMENT girl ( station+ ) >
<!ATTLIST girl version NMTOKEN #REQUIRED >
<!ELEMENT station ( frequency | location | description | stream)* >
<!ATTLIST station band CDATA #REQUIRED >
<!ATTLIST station icon CDATA #REQUIRED >
<!ATTLIST station id NMTOKEN #REQUIRED >
<!ATTLIST station lang CDATA #REQUIRED >
<!ATTLIST station name CDATA #REQUIRED >
<!ATTLIST station rank CDATA #REQUIRED >
<!ATTLIST station type CDATA #REQUIRED >
<!ELEMENT stream EMPTY >
<!ATTLIST stream bitrate NMTOKEN #REQUIRED >
<!ATTLIST stream channels NMTOKEN #IMPLIED >
<!ATTLIST stream codec CDATA #REQUIRED >
<!ATTLIST stream mime CDATA #REQUIRED >
<!ATTLIST stream samplerate NMTOKEN #REQUIRED >
<!ATTLIST stream uri CDATA #REQUIRED >
```

Example of GIRL 5.0 XML data

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="http://girl.software/girl.xsl" ?>
<!DOCTYPE girl SYSTEM "girl-5.0.dtd">
<girl version="5.0">
  ...
  <station band="88.1FM"
    id="wmbr"
    lang="en"
    name="WMBR"
    rank="1.0"
    type="edu">
    <frequency>88.1 FM in Cambridge, MA</frequency>
    <location>Boston, MA</location>
    <description lang="en">WMBR is the MIT campus radio station.
    We broadcast on 88.1 FM between 20 and 24 hours per day, 365 days a year.
    We transmit at 720 watts, effective radiated power from the top of the
    Eastgate Building in Kendall Square in Cambridge, Massachusetts.
    Our programming includes a wide range of music shows, public affairs
    programs and eclectic audio entertainment.</description>
    <stream mime="audio/mpeg"
      uri="http://wmbr.org/WMBR_live_128.m3u"
      codec="MPEG 1 Audio, Layer 3 (MP3)"
      samplerate="44100 Hz"
      channels="Stereo"
      bitrate="128 kbps" />
    <uri>http://wmbr.org/</uri>
  </station>
  ...
</girl>
```


Screenshot



Screenshot of GNOME Internet Radio Locator 5.0.0

Legal stuff

Internet Radio stations in the U.S. need a broadcast license permit from the F.C.C.

- Read `girl/BROADCAST` for some details on radio and music licensing
- http://en.wikipedia.org/wiki/Broadcast_license
- <https://www.dnalounge.com/backstage/webcasting.html>

Personal Radio Stations can be set up using Icecast streaming server

- Download Icecast from <http://www.icecast.org/> and add your station in `$HOME/.girl/girl.xml`

Only Internet radio stations with broadcast permit are included in GIRL

Internet Radio Fairness Act

Many Internet radio stations can't afford to pay royalty fee collection agencies

- The American Society of Composers, Authors and Publishers (ASCAP)
- Broadcast Music, Inc. (BMI)
- Society of European Stage Authors and Composers (SESAC)

New bill in support of Internet Radio introduced in U.S. Congress 2002:

- <https://www.eff.org/Internet-Radio-Fairness-Act-Explanation>
- http://en.wikipedia.org/wiki/Internet_Radio_Equality_Act

EFF had a 2012 campaign in support of the Internet Radio Fairness Act

- <https://www.eff.org/Internet-Radio-Fairness-Act-Explanation>

A recommended letter to U.S. congress representatives is included in GIRL

- See girl/LETTER and <http://girl.software/LETTER.html>

The IRFA bill may be reintroduced in U.S. Congress in 2016, but who knows?

Email from Dr. Richard M. Stallman of FSF

From: Richard Stallman <rms@gnu.org>
Subject: Re: Internet Radio Fairness Act? (Re: It's your birthday)
Date: Mon, 23 Mar 2015 22:43:25 -0400
To: oka@oka.no

[[[To any NSA and FBI agents reading my email: please consider]]]
[[[whether defending the US Constitution against all enemies,]]]
[[[foreign or domestic, requires you to follow Snowden's example.]]]

- > Regarding updating the LETTER included in GNOME Internet Radio Locator,
- > I don't know what to write/who to contact to promote Internet Radio
- > Fairness Act again in U.S. politics, except you.

Ask people to contact their congressional representatives.

Can you write a message to the public about this?

--

Dr Richard Stallman
President, Free Software Foundation
51 Franklin St
Boston MA 02110
USA
www.fsf.org www.gnu.org
Skype: No way! See stallman.org/skype.html.

Questions?

GNOME Internet Radio Locator 5.0.0 is available here and now.

- <http://download.gnome.org/sources/girl/5.0/girl-5.0.0.tar.xz>

Debian 8.0 'jessie' packages

- http://girl.software/girl_5.0.0-1_i386.deb

Fedora 21 RPMS

- http://girl.software/girl-5.0.0-1.fc21.x86_64.rpm

Mailing List

- <http://mail.gnome.org/mailman/listinfo/girl-list/>

Source repository

- <git://git.gnome.org/girl>
- <https://git.gnome.org/browse/girl>
- [ssh://\\$USERNAME@git.gnome.org/git/girl](ssh://$USERNAME@git.gnome.org/git/girl)

L^AT_EX source code for this presentation

<https://git.gnome.org/browse/girl/plain/talk/girl-osdc-2015.tex>