

Sonda: a C CGI for implementing polls

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1. What's?

Sonda is a program written in C intended to be executed by the http daemon (only Apache has been tested by now) via the Common Gateway Interface (CGI).

It was initially developed as a custom little CGI to serve our italian Sondino site (<http://www.nvhs.it/sondino/>) with an easy system to make polls, but as the project grew I felt the need to release it to the world. ;-)

2. Features

- Generated pages are conform to XHTML and uses CSS
- Nice themed graphic and numeric tabled output
- Easy customization through a config file
- Ip, referer and poll name of the voter is saved so he/she cannot vote again the same poll
- As many datafiles as you need
- Multiple polls
- Virtually unlimited number of different options to vote to
- Secure file locking of the data files thus avoiding deadlock and race conditions. (At least I hope so ;-)
- Precise percentage calculation
- Support both GET and POST method
- Many "internal debugging" messages to track down errors
- Easy to setup and make it works
- Written in C for maximum performances (ehm, I'm too lazy to learn PHP now :-)

3. Using

The Form:

Feed the program with GET or POST method request through a standard HTML form.

There are 5 keywords that are recognized by the program: "ConFile", "Datafile", "Poll", "Option" and "Results".

They are all case-insensitive.

- The Confile keyword specifies which file to use as the config file
This value is passed with HIDDEN type.
Omitting it is the same as choosing `sonda.conf`.
- The Datafile keyword is very useful when you want to keep the same configuration file for more than a single poll.
The value is passed with HIDDEN type.
Omitting this keyword makes the program use the data file specified inside configuration one.
- The Poll keyword specifies a valid poll inside the datafile.
This is also passed with HIDDEN type.
- The Option keyword individuates the single option inside the poll.
Usually you will provide this keyword in a radio button.
- The Results keyword makes the program show only the results without voting.
Provide this in a submit button with the name "Results".
See `testsonda.html` example file to see exactly how all this is done.

The Config file:

By default the program uses `sonda.conf` for its configuration, but you may change this as you want in your query, of course.

The file is parsed just after the query string and contains the following case-insensitive keywords:

- `AllowVote=yes/no`
Specifies if the user has the right to vote.
- `Theme=name`
Specifies the name of the theme to use.
- `Themepath=path`
Specifies where to look for a theme.
- `Style=filename`
Specifies the CSS file to use for the results page.
The keyword "theme" lets the theme handle the CSS
- `IpLogLev=yes/no`
Specifies the logging level to use, by now only the yes/no options are supported.
- `IpData=filename`
Specifies the file to use as the IP log file.
- `PollData=filename`

This file supports standard line comments and in-line comments using the "#" character but with no spaces between option and value.

→ For example, this works:

```
#This is a line comment
aLIOWoTe=yEs #Case-insensitive keyword (this is an in-line comment)
```

→ This, instead, will NOT work:

```
#This is a line comment
AllowVote = yes #There are spaces between the option and the value
```

These informations can be read in the man page too.

The Data file:

The SDFv1.5 format describes data stored by the Sonda CGI.

The layout is very simple, here is a template:

```
---- SDFv1.5 starts here ----  
Sonda Datafile  
First Poll  
4  
Option1  
0  
Option2  
0  
Option3  
0  
Option4  
0  
---- SDFv1.5 ends here ----
```

- First line identifies the format, it must be present, otherwise the CGI will fail (be careful, it's case sensitive!).
- Second line identifies the poll as it's passed by the FORM, the Poll keyword.
- Third line lets you specify how many options has your poll to vote from.
- Fourth line (and all the Option lines) identifies the various options for the poll, it has to match the value of the Option keyword.
- Fifth line (and all the lines with the zero) represents a counter for the different alternative options of the poll, this line stores the statistic data.

See the example dist/sondata file to see a SDF file.

4. How it works

The program gets the query string (through GET or POST), unencodes it and builds a query structure.

Then it parses the config file and builds another structure. Finally it scans the datafile, updates the choosen value and shows a beautiful and clear output.

By now there are many strings that are static allocated according to a define in sonda.h, change this to manage bigger strings. (Maybe this will change soon...)

5. Themes

There are only 3 themes (plus other 3 derived from the first ones) in this release of Sonda, they are all adaptatons from phpSysInfo's themes (<http://phpsysinfo.sourceforge.net>). You can choose a theme editing the config file.

Next versions will have more themes.

If you want to make your own themes paint 14 files:

- back.png is the background of the page
- fond.png is the results table background
- sup.png, l.png, inf.png and r.png are respectively the superior, left, inferior and right border of the results table
- corn_sup_l.png, corn_sup_r.png, corn_inf_l.png, corn_inf_r.png are respectively the superior

left, the superior right, the inferior left and the inferior right corner of the results table

- bar_open.png is the left part of the bar
- bar_close.png is the right part of the bar
- bar_10.png is a ten pixel width slice of the bar
- bar_1.png is a single pixel width slice of the bar

Then put all these files in a directory inside your themepath directory (default is /sondaux), this would be the theme name you have to provide to the config file.

Write a css file having the same name of the directory containing the png files with a “.css” extension.

It's easy to write the css file, just follow the class names of the themes provided with Sonda.

→ For example:

```
[encelo@thunder encelo]$ ls /var/www/html/sondaux/aqua
aqua.css      bar_1.png      corn_inf_l.png  corn_sup_r.png  l.png
back.png     bar_close.png  corn_inf_r.png  fond.png         r.png
bar_10.png   bar_open.png   corn_sup_l.png  inf.png          sup.png
```

6. Feedback

I appreciate very much your comments, advices, criticisms, etc. Support me with your feedback! Contributions are even more appreciated...

A graphician for banners and themes would be cool! Maybe a programmer could help too :-)

Thank you a lot for giving a look to my work.