

CFG: A simple handler for config files and command line options

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Abstract How to handle options.

Contents

1	Overview	1
2	Loading	1
3	Pre-load actions	1
3.1	Operators	1
3.2	Flags	1
3.3	Hooks	1
4	Main drivers	2
4.1	Setting options	2
4.2	Accessing options	2
5	Start-up Actions	2
A	License	2
A.1	nowarranty.txt	2
A.2	warranty.txt	2
A.3	conditions.txt	2

List of Figures

1	Find out more about PROD.	3
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1 Overview

CFG lets programmers and users defined a set of options using the syntax

option = setting

For application *X*, the options can be placed in

- A default setting files called *defaults.X*.
- A user preference file called *config.X*.
- Or, on the Prolog command line. When placing options on the command line, they must come *after* a *--* mark.

Options in files have be followed by a full stop “.”. Options on the command line have to be followed by a space. CFG loads settings in the order *defaults.X*, *config.X*, then command line. If the same option is seen more than once during this load, then the *latest* option overrides all the

older ones. That is, command-line options override *config.X* options which override *defaults.X* options.

After all the above loads, options can be managed in several ways. For example,

`ListOfOptionNames := ListOfOptionValues`
pairs items items in the two lists.

`Option := Value` cheks that *option* has *value* and fails otherwise.

`?X` checks that the *option* called *X* hsa the value 1. Good for boolean tests.

2 Loading

```
1 :- load_files([lib % grab standard stuff
2               ,cfg0 % pre-load actions
3               ,cfg1 % predicates
4               ,cfg2 % start-up commands
5               ],[silent(yes),if(changed)]).
```

3 Pre-load actions

3.1 Operators

How to access an option:

```
6 :- op(700,xfx, :=).
```

We also need a “?”, but that is predefined, in SWI-Prolog as `op(500, fX, ?)`.

3.2 Flags

Options are stored internally in `option/2` facts.

```
7 :- dynamic      option/2.
8 :- discontinuous option/2.
```

3.3 Hooks

Options are set via a side effect of `term_expansion/2`.

```
9 term_expansion(A=B,[_]) :- set(A=B).
```

4 Main drivers

4.1 Setting options

Blast all previous knowledge of this option and set a new value:

```
10 set(X=Y) :-  
11     retractall(option(X,_)),  
12     assert(option(X,Y)).
```

4.2 Accessing options

Run down a list of accessors.

```
13 [] := []      :- !.  
14 [H0|T0] := [H|T] :- !, H0 := H, T0 := T.
```

Primitive accessor.

```
15 X := Y      :- option(X,Z),!, Y=Z.
```

Complain if option not known.

```
16 X := _      :- !, baph(missingOption(X)).
```

Boolean options- check for a "1" value.

```
17 ?X         :- atomic(X), X := 1.
```

Process the command line options.

```
18 commandLine :-  
19     current_prolog_flag(argv, Argv),  
20     append(_, [--|Args], Argv), !,  
21     concat_atom(Args, ' ', SingleArg),  
22     term_to_atom(Term, SingleArg),  
23     c2l(Term,List),  
24     forall(member(One,List), set(One)).  
25 commandLine.
```

5 Start-up Actions

None here but in your application *X*, you should have a start-up actions to sneak in defaults.*X*, then `config.X` file, then process the command line. E.g.

```
:- sneak(  
    ['defaults.x' % see ???  
     , 'config.x' % see ???  
    ]).  
  
:- commandLine.
```

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