Kconfig make config

This file contains some assistance for using *make *config*.

Use "make help" to list all of the possible configuration targets.

The xconfig ('qconf'), menuconfig ('mconf'), and nconfig ('nconf') programs also have embedded help text. Be sure to check that for navigation, search, and other general help text.

General

New kernel releases often introduce new config symbols. Often more important, new kernel releases may rename config symbols. When this happens, using a previously working .config file and running "make oldconfig" won't necessarily produce a working new kernel for you, so you may find that you need to see what NEW kernel symbols have been introduced.

To see a list of new config symbols, use:

```
cp user/some/old.config .config
make listnewconfig
```

and the config program will list any new symbols, one per line.

Alternatively, you can use the brute force method:

```
make oldconfig
scripts/diffconfig .config.old .config | less
```

Environment variables for **config*

KCONFIG_CONFIG

This environment variable can be used to specify a default kernel config file name to override the default name of ".config".

KCONFIG_DEFCONFIG_LIST

This environment variable specifies a list of config files which can be used as a base configuration in case the .config does not exist yet. Entries in the list are separated with whitespaces to each other, and the first one that exists is used.

KCONFIG_OVERWRITECONFIG

If you set KCONFIG_OVERWRITECONFIG in the environment, Kconfig will not break symlinks when .config is a symlink to somewhere else.

*CONFIG_*

If you set *CONFIG_* in the environment, Kconfig will prefix all symbols with its value when saving the configuration, instead of using the default, *CONFIG_*.

Environment variables for '{allyes/allmod/allno/rand}config'

KCONFIG_ALLCONFIG

(partially based on lkml email from/by Rob Landley, re: miniconfig)

The allyesconfig/allmodconfig/allnoconfig/randconfig variants can also use the environment variable KCONFIG_ALLCONFIG as a flag or a filename that contains config symbols that the user requires to be set to a specific value. If KCONFIG_ALLCONFIG is used without a filename where KCONFIG_ALLCONFIG == "" or KCONFIG_ALLCONFIG == "1", *make *config* checks for a file named "all{yes/mod/no/def/random}.config" (corresponding to the **config* command that was used) for symbol values that are to be forced. If this file is not found, it checks for a file named "all.config" to contain forced values.

This enables you to create "miniature" config (miniconfig) or custom config files containing just the config symbols that you are interested in. Then the kernel config system generates the full .config file, including symbols of your miniconfig file.

This 'KCONFIG_ALLCONFIG' file is a config file which contains (usually a subset of all) preset config symbols. These variable settings are still subject to normal dependency checks.

Examples:

```
KCONFIG_ALLCONFIG=custom-notebook.config make allnoconfig
```

or:

```
KCONFIG_ALLCONFIG=mini.config make allnoconfig
```

or:

```
make KCONFIG_ALLCONFIG=mini.config allnoconfig
```

These examples will disable most options (allnoconfig) but enable or disable the options that are explicitly listed in the specified mini-config files.

Environment variables for 'randconfig'

KCONFIG_SEED

You can set this to the integer value used to seed the RNG, if you want to somehow debug the behaviour of the kconfig parser/frontends. If not set, the current time will be used.

KCONFIG_PROBABILITY

This variable can be used to skew the probabilities. This variable can be unset or empty, or set to three different formats:

KCONFIG_PROBABILITY	y:n split	y:m:n split
unset or empty	50 : 50	33 : 33 : 34
N	N : 100-N	N/2 : N/2 : 100-N
[1] N:M	N+M : 100-(N+M)	N : M : 100-(N+M)
[2] N:M:L	N : 100-N	M : L : 100-(M+L)

where N, M and L are integers (in base 10) in the range [0,100], and so that:

[1] N+M is in the range [0,100]

[2] M+L is in the range [0,100]

Examples:

```
KCONFIG_PROBABILITY=10
        10% of booleans will be set to 'y', 90% to 'n'
        5% of tristates will be set to 'y', 5% to 'm', 90% to 'n'
KCONFIG_PROBABILITY=15:25
        40% of booleans will be set to 'y', 60% to 'n'
        15% of tristates will be set to 'y', 25% to 'm', 60% to 'n'
KCONFIG_PROBABILITY=10:15:15
        10% of booleans will be set to 'y', 90% to 'n'
        15% of tristates will be set to 'y', 15% to 'm', 70% to 'n'
```

Environment variables for 'syncconfig'

KCONFIG_NOSILENTUPDATE

If this variable has a non-blank value, it prevents silent kernel config updates (requires explicit updates).

KCONFIG_AUTOCONFIG

This environment variable can be set to specify the path & name of the "auto.conf" file. Its default value is "include/config/auto.conf".

KCONFIG_AUTOHEADER

This environment variable can be set to specify the path & name of the "autoconf.h" (header) file. Its default value is "include/generated/autoconf.h".

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menuconfig

SEARCHING for CONFIG symbols

Searching in menuconfig:

> The Search function searches for kernel configuration symbol names, so you have to know something close to what you are looking for.
>
> Example:
>
> ```
> /hotplug
> This lists all config symbols that contain "hotplug",
> e.g., HOTPLUG_CPU, MEMORY_HOTPLUG.
> ```
>
> For search help, enter / followed by TAB-TAB (to highlight <Help>) and Enter. This will tell you that you can also use regular expressions (regexes) in the search string, so if you are not interested in MEMORY_HOTPLUG, you could try:
>
> ```
> /^hotplug
> ```
>
> When searching, symbols are sorted thus:
>
> - first, exact matches, sorted alphabetically (an exact match is when the search matches the complete symbol name);
> - then, other matches, sorted alphabetically.
>
> For example: ^ATH.K matches:
>
> > ATH5K ATH9K ATH5K_AHB ATH5K_DEBUG [...] ATH6KL ATH6KL_DEBUG [...] ATH9K_AHB ATH9K_BTCOEX_SUPPORT ATH9K_COMMON [...]
>
> of which only ATH5K and ATH9K match exactly and so are sorted first (and in alphabetical order), then come all other symbols, sorted in alphabetical order.

User interface options for 'menuconfig'

MENUCONFIG_COLOR

It is possible to select different color themes using the variable MENUCONFIG_COLOR. To select a theme use:

```
make MENUCONFIG_COLOR=<theme> menuconfig
```

Available themes are:

```
- mono       => selects colors suitable for monochrome displays
- blackbg    => selects a color scheme with black background
- classic    => theme with blue background. The classic look
- bluetitle  => a LCD friendly version of classic. (default)
```

MENUCONFIG_MODE

This mode shows all sub-menus in one large tree.

Example:

```
make MENUCONFIG_MODE=single_menu menuconfig
```

---

nconfig

nconfig is an alternate text-based configurator. It lists function keys across the bottom of the terminal (window) that execute commands. You can also just use the corresponding numeric key to execute the commands unless you are in a data entry window. E.g., instead of F6 for Save, you can just press 6.

Use F1 for Global help or F3 for the Short help menu.

Searching in nconfig:

> You can search either in the menu entry "prompt" strings or in the configuration symbols.
>
> Use / to begin a search through the menu entries. This does not support regular expressions. Use <Down> or <Up> for Next hit and Previous hit, respectively. Use <Esc> to terminate the search mode.
>
> F8 (SymSearch) searches the configuration symbols for the given string or regular expression (regex).

NCONFIG_MODE

This mode shows all sub-menus in one large tree.

Example:

```
make NCONFIG_MODE=single_menu nconfig
```

---

xconfig

Searching in xconfig:

> The Search function searches for kernel configuration symbol names, so you have to know something close to what you are looking for.
>
> Example:
>
> ```
> Ctrl-F hotplug
> ```
>
> or:
>
> ```
> Menu: File, Search, hotplug
> ```
>
> lists all config symbol entries that contain "hotplug" in the symbol name. In this Search dialog, you may change the config setting for any of the entries that are not grayed out. You can also enter a different search string without having to return to the main menu.

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gconfig

Searching in gconfig:

> There is no search command in gconfig. However, gconfig does have several different viewing choices, modes, and options.