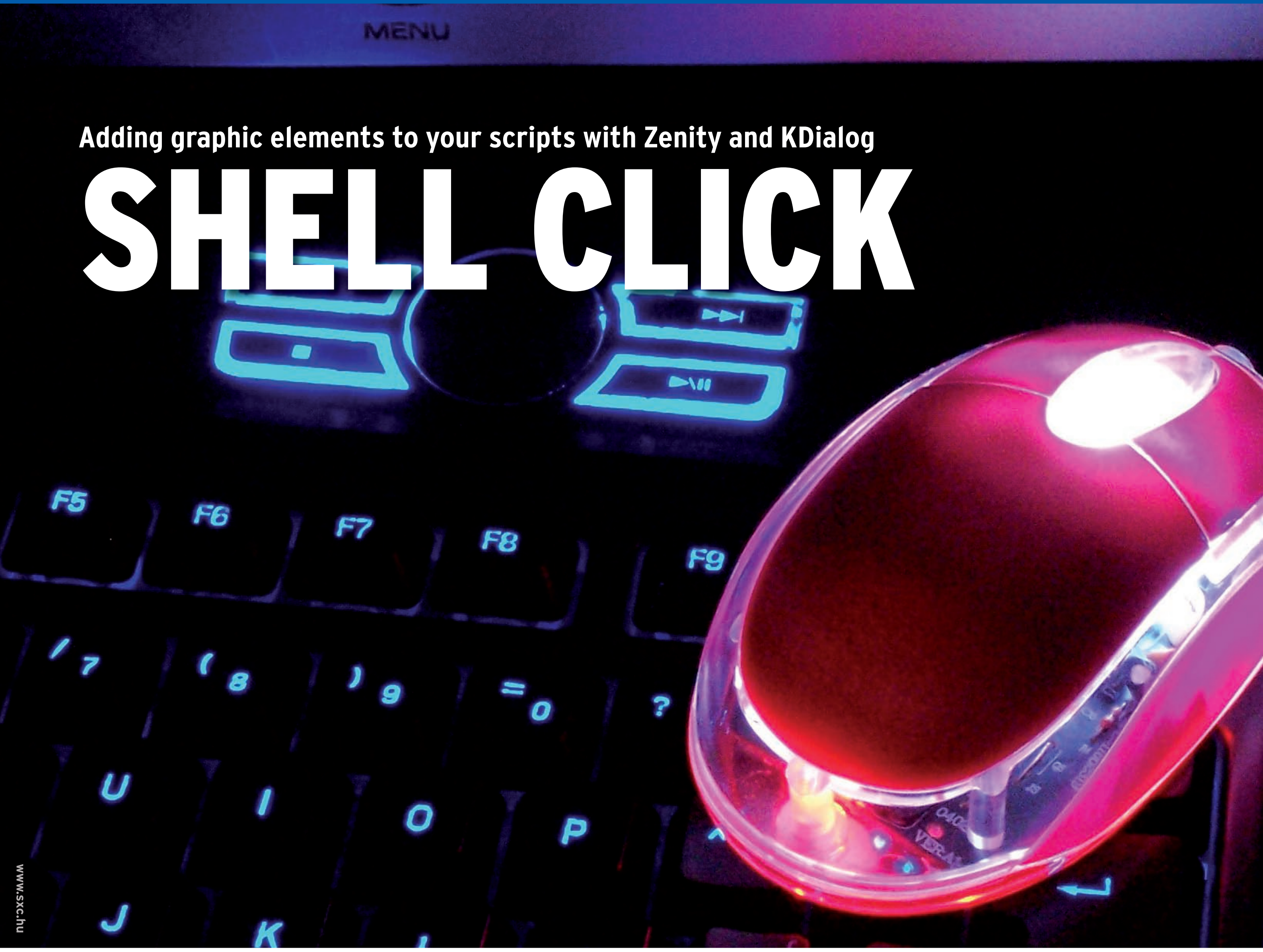


Adding graphic elements to your scripts with Zenity and KDialog

SHELL CLICK

Zenity and KDialog let you integrate your scripts with the native KDE or Gnome environment. **BY KRISTIAN KISSLING**

A full-blown GUI-based application is beautiful to behold, but a graphical interface is way more trouble to create than a simple shell script. If you like the simplicity of scripting, but you prefer a little more visual feedback, Zenity (for Gnome environments) and KDialog (for KDE) are a pair of tools you should know about. These handy helpers let you integrate graphic dialog boxes into your scripts.

Dialog boxes prompt users for input, display output, or just report progress on a process. Zenity and KDialog also output error messages and general status information in the form of visual feedback, and you'll never need to type pathnames painstakingly; instead, you can use a graphical file browser.

Zenity [1] is included by default with the Gnome desktop in openSUSE, Ubuntu, and several other distros. KDialog is often installed with the default KDE environment. If your distribution does not include these tools, install the *kde4-dialog* or *zenity* package to get started. If you write scripts for other people, the computers that run those scripts will also need Zenity or KDialog. It is a good idea to incorporate a test into your script that checks for the presence of Zenity or KDialog before invoking their commands.

The simple Shell script in Listing 1 is a good place to start. If you save the script as *zenity*, type *chmod u+x zenity* to make it executable, and then type *./zenity* to launch, you should see a slider control as in Figure 1. Because the dialog box does not have a name and the text for the slider is missing, Zenity uses standard labels.

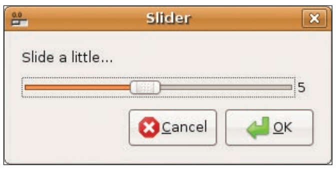


Figure 1: A slider lets users generate numbers graphically.

Table 1 shows the different Zenity dialog box types. The parameters that Ze-

Listing 1: Simple Zenity Script

```
#!/bin/sh
zenity --scale
```

Listing 2: Generating Numbers with a Slider

```
zenity --scale --title "Slider" --text "Slide a little..." --min-value=1
   --max-value=10 --value=5
```

nity uses to call them are on the left with a picture of the dialog box next to it.

As you can see, the selection includes input fields. Bash reads these fields when you click *OK*; the *--entry* field is an example of this. To pass a numeric value to Bash, use the slider (*--scale*). The *--list* control lists information and supports sorting if you click a field name.

A progress indicator is useful wherever you need to monitor progress; for example, you could use one to show the progress of a search. But I'll look at the basics first.

To label a window, you generally want to use the *--title* keyword. Listing 2 shows how to let the user select a value between *1* (*--min-value = 1*) and *10* (*--max-value = 10*) and assign a default of *5* (*--value = 5*). This gives you a dialog like that shown in Figure 1.

Of course, you can feed only a limited number of parameters to a slider: *man zenity* has a separate *Scale Options* section outlining the options that work with *--scale*. A *--warning* field only supports text definitions and new lines, for example. Some types need to be combined with other commands to be effective. The command

```
ls | zenity ➘
--list --column ➘
"Show Directory"
```

lists the files in a directory and sorts them alphabetically when you click *Show Directory* (Figure 2).

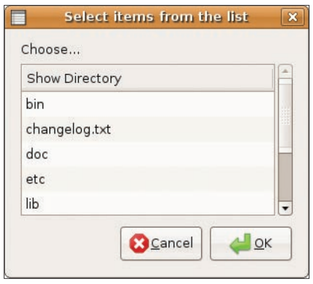

```
Select items from the list
Choose...
Show Directory
bin
changelog.txt
doc
etc
lib
Cancel   OK
```

Figure 2: Click Show Directory to list the files.

Although Zenity will build interesting graphical menus for you, it does not take the task of designing program logic off your hands. Therefore, you need an If condition to tell the script what to do when you click *Yes* or *No*. In general, Zenity and KDialog define two internal return values for dialog boxes: A positive result (*Yes*) returns *0* and a negative result (*No*) returns *1*. A third result – such as *Cancel* from KDialog – would return *2*. You can create conditional statements by querying these return values.

On Top of KDE

KDialog users can follow a similar approach to create graphical dialog boxes. Table 2 shows which commands create which elements. KDialog has a couple of additional dialogs that Zenity does not have. For example, to have the user confirm a file deletion, enter:

```
kdialog --yesno ➘
"Do you really want ➘
to remove this file?"
```

The question appears in a dialog box with *Yes* and *No* buttons. If you want to label the field, add a title (Figure 3):

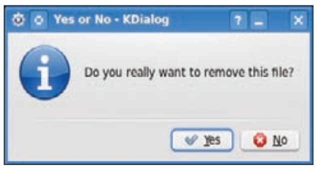

```
Yes or No - KDialog
Do you really want to remove this file?
Yes   No
```

Figure 3: KDialog will quickly set up a Yes/No dialog.

```
kdialog --title "Yes ➘
or No"
--yesno "Do you ➘
really want to ➘
remove this file?"
```

In contrast to Zenity, KDialog complains if you just type *kdialog --yesno* without adding text – the program does not generate default labels.

If you enter text in a field, it is typically displayed on the console, which is the standard output device, but you also can pipe the output into a file – for example, *file1.txt* (Listing 3, line 1). Alternatively, you can pass the results to a variable (Listing 3, lines 2 and 3).

In addition to the messages mentioned here, the *--dontagain* switch makes sure that KDialog does not continually repeat

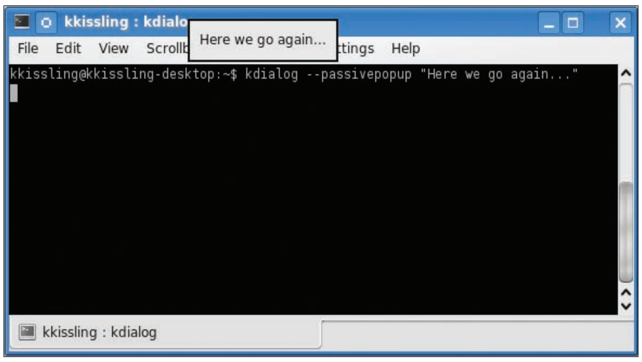

```
kkissling : kdialo   Here we go again...
File  Edit  View  Scrollb  ttings  Help
kkissling@kkissling-desktop:~$ kdialog --passivepopup "Here we go again..."
kkissling : kdialog
```

Figure 4: The --passivepopup option lets you display a short message so that the user sees the pop-up without losing the current focus.

Listing 3: Passing the Results to a Variable

```
01 kdialog --inputbox "Please enter any text here:" > file1.txt
02 variable=$(kdialog --inputbox "Please enter more text here:")
03 echo $variable
```

Listing 4: Opening a Specific File Type

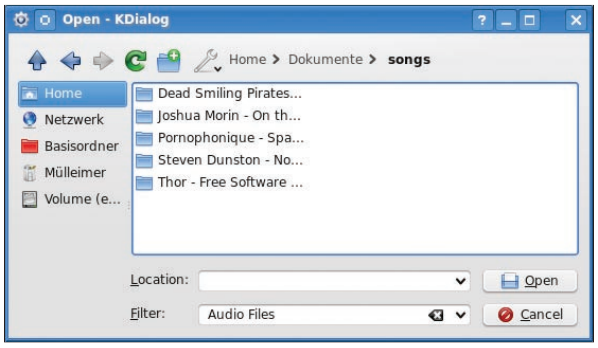
```
01 kdialog --passivepopup "That really wasn't necessary..." 5
02 kdialog --getopenfilename . " *.mp3 | MP3-Dateien"
```

a question. This displays a *Do not show this message again* checkbox on top of the Yes/No dialog.

```
kdialog --dontagain ↩
rememberfile:decision ↩
--yesno "Do you really ↩
want to delete this ↩
file?"
```

The *rememberfile: decision* entry makes sure that the dialog really does remember your decision. KDialog creates a file called *rememberfile* below *~/.kde/share/config/* and stores your decision in the *decision* variable as the following test shows:

```
$ cat ~/.kde/share/ ↩
config/rememberfile
```


Open - KDialog

Home > Dokumente > songs

Home, Netzwerk, Basisordner, Mülleimer, Volume (e...

Dead Smiling Pirates...
Joshua Morin - On th...
Pornophonique - Spa...
Steven Dunston - No...
Thor - Free Software ...

Location:
Filter: Audio Files

Open / Cancel

Figure 5: If you want the script to work on audio files only, you should restrict the user's selection options.

```
[Notification Messages]
decision=yes
```

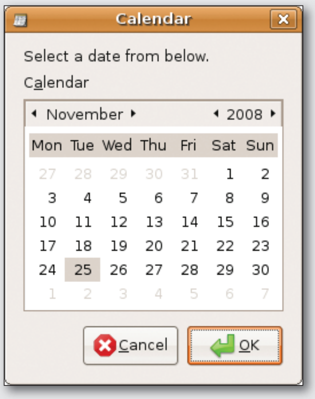
In this case, the script would autorespond *Yes* whenever this question is posed.

KDialog dialog boxes typically have a couple more switches that I'll look at. If you get stuck, *man kdialog* and the overview in the KDialog manual [2] will help you with the details.

The *--passivepopup* option lets you display a short message to users. It pops up a bubble in a dialog and tells the user something (Figure 4). A number following the pop-up text specifies how long you want the text to display (this is set to five seconds in line 1 of Listing 4). A */n* sequence adds a line break to the dialog box text to keep it from spreading all over the screen.

If you want to select a specific file on disk, it makes sense to use the *--getopenfilename* option to do so. This returns an absolute pathname, such as */home/user/song.mp3*. Another very similar parameter, *--getopenurl*, returns a URL, as in *file:/home/user/song.mp3*. For example, you can use this approach to open FTP addresses. Their counterparts that save files are *--getsavefilename* and *--getsaveurl*.

Table 1: Zenity Dialog Box Types


Calendar

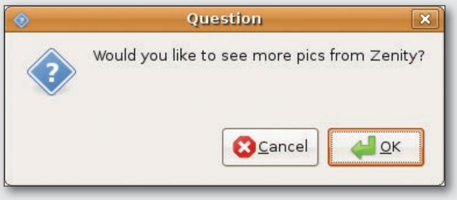
Select a date from below.
Calendar

November 2008

Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
1	2	3	4	5	6	7

Cancel / OK

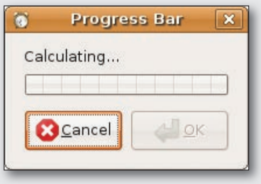
--calendar


Question

Would you like to see more pics from Zenity?

Cancel / OK

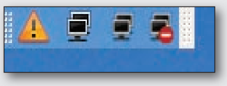
--question

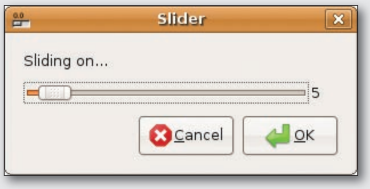

Progress Bar

Calculating...

Cancel / OK

--progress


--notification

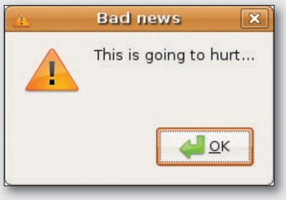

Slider

Sliding on...

5

Cancel / OK

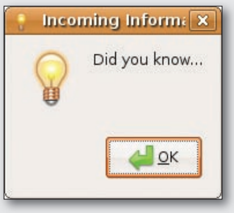
--scale


Bad news

This is going to hurt...

OK

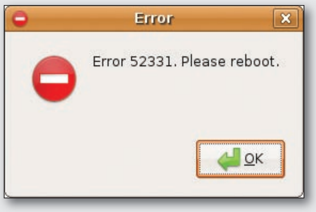
--warning


Incoming Informa

Did you know...

OK

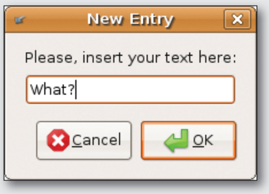
--info


Error

Error 52331. Please reboot.

OK

--error

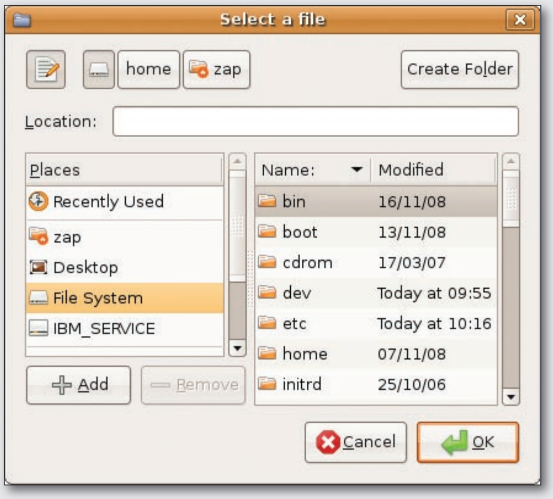

New Entry

Please, insert your text here:

What?

Cancel / OK

--entry


Select a file

home / zap / Create Folder

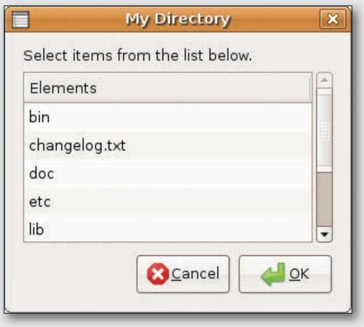
Location:

Places: Recently Used, zap, Desktop, File System, IBM_SERVICE

Name:	Modified
bin	16/11/08
boot	13/11/08
cdrom	17/03/07
dev	Today at 09:55
etc	Today at 10:16
home	07/11/08
initrd	25/10/06

Add / Remove

Cancel / OK

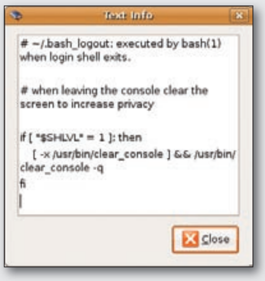

My Directory

Select items from the list below.

Elements
bin
changelog.txt
doc
etc
lib

Cancel / OK

--list


Text Info

```
# ~/.bash_logout: executed by bash(1)
when login shell exits.

# when leaving the console clear the
screen to increase privacy

if [ "$SHLVL" = 1 ]; then
    [ -x /usr/bin/clear_console ] && /usr/bin/
clear_console -q
fi
```

Close

--text-info

--file-selection

To open only specific file types – such as MP3-formatted tracks – just add a descriptor to the command (Listing 4, line 2). KDialog shows the *MP3 files* entry as a *Filter* (see Figure 5); if you delete the pipe and the entry, you see the file suffix instead.

After *--getopenfilename*, you normally pass in the path the dialog box opens – in this example, it was the current working directory. If you replace this entry with *:label1*, the file manager will start where you left it last time; that is, it remembers the last directory you used.

Conclusions

If you author scripts for other users, dialog boxes give them useful visual feedback – especially if they are newcomers.

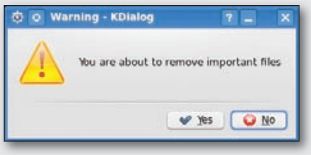
Finally, a word of warning: Don't be surprised if you find yourself re-writing working scripts and get so used to the convenience that you don't want to do without the reassurance of visual feedback. ■

INFO

[1] Zenity manual: *http://library.gnome.org/users/zenity/stable/*

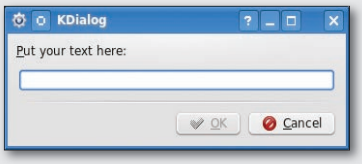
[2] KDialog manual: *http://techbase.kde.org/index.php?title=Development/Tutorials/Shell_Scripting_with_KDE_Dialogs#Introduction_and_Scope*

Table 2: KDialog Dialog Box Types


Warning - KDialog

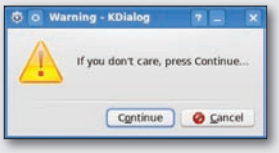
You are about to remove important files

--warningyesno


KDialog

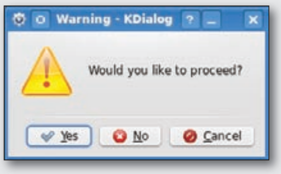
Put your text here:

--inputbox


Warning - KDialog

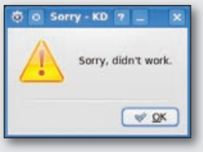
If you don't care, press Continue...

--warningcontinuecancel


Warning - KDialog

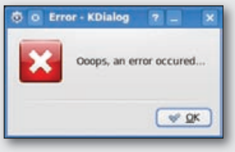
Would you like to proceed?

--warningyesnocancel


Sorry - KD

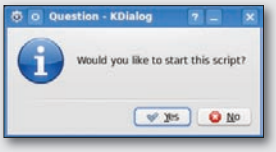
Sorry, didn't work.

--sorry


Error - KDialog

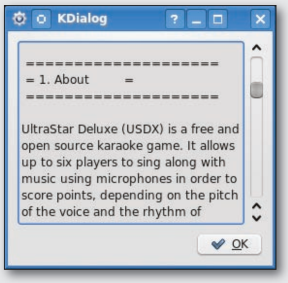
Ooops, an error occured...

--error


Question - KDialog

Would you like to start this script?

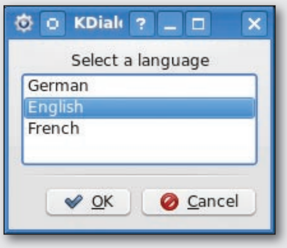
--yesno


KDialog

```
====================
= 1. About         =
====================

UltraStar Deluxe (USDX) is a free and
open source karaoke game. It allows
up to six players to sing along with
music using microphones in order to
score points, depending on the pitch
of the voice and the rhythm of
```

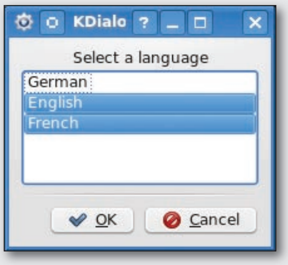
--textbox


KDial

Select a language

German
English
French

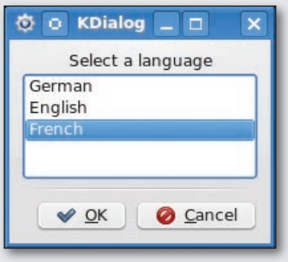
--menu


KDialo

Select a language

German
English
French

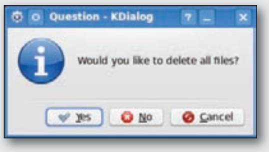
--checklist


KDialog

Select a language

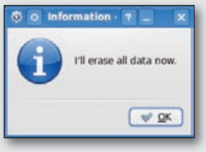
German
English
French

--radiolist


Question - KDialog

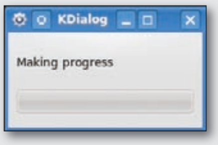
Would you like to delete all files?

--yesnocancel


Information - K

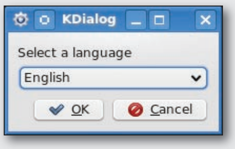
I'll erase all data now.

--msgbox


KDialog

Making progress

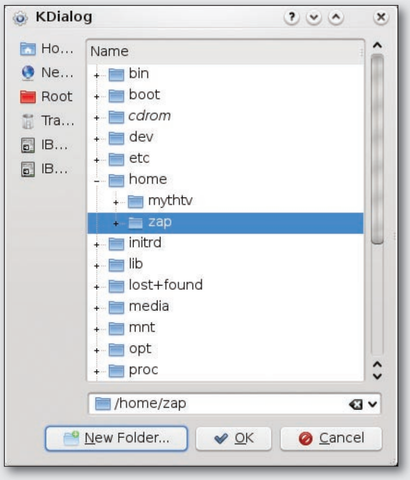
--progressbar


KDialog

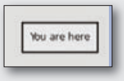
Select a language

English

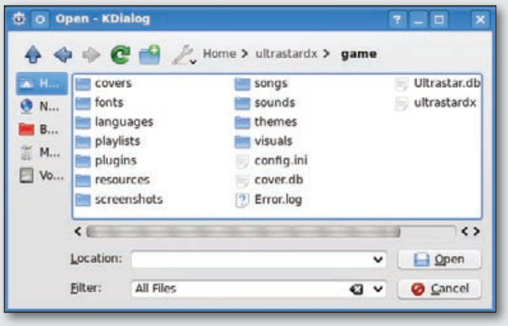
--combobox


KDialog

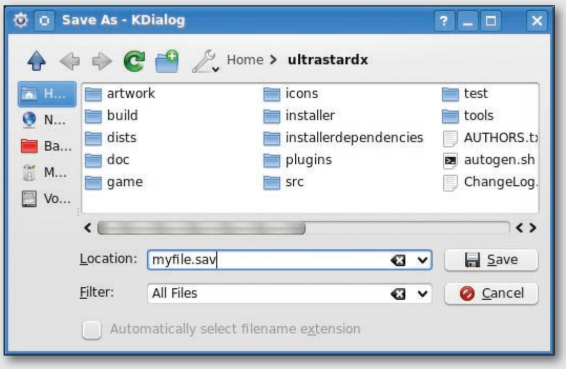
--getexistingdirectory


You are here

--passivepopup


Open - KDialog

--getopenfilename


Save As - KDialog

Location: myfile.sav

Filter: All Files

--getsavefilename