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## Embedding an SDL Surface in a Tk Window

by Lawrence Woodman 26 June 2012

Tags: Programming SDL Tcl/Tk Tutorial

Tk is great, but sometimes it just isn't fast enough. SDL is fast, but has no support for input dialogs and other GUI conventions. By embedding an SDL surface in a Tk window you get the best of both worlds. Whether you want to use Tk to add a nice GUI to an SDL app or want to access SDL via TcI/Tk, this article will show you how.

# Embedding the SDL Surface

To embed an SDL surface in another window you have to alter the SDL\_WINDOWID environmental variable so that it matches the ID of the window that you want the SDL surface embedded in. This must be done after the main window is displayed and before SDL\_Init() is called.

To ensure that the Tk window is displayed you need to call something like:

```
Tcl_Eval(interp, "update");
```

Then to get the window ID and set SDL\_WINDOWID:

```
int
setSDLWindowID(Tcl_Interp *interp)
{
   Tcl_Obj *result;
   char *windowID;
```

```
char envBuf[50];

/* .screen here is the name of the widget that you want to overwrite,
    this is normally a frame */
if (Tcl_Eval(interp, "winfo id .screen") == TCL_ERROR)
    return 0;

result = Tcl_GetObjResult(interp);
Tcl_GetStringFromObj(windowID, NULL);

snprintf(envBuf, 50, "SDL_WINDOWID=%s", windowID);
SDL_putenv(buf);

return 1;
}
```

The above uses SDL\_putenv() rather than putenv() as this is recommended by an old <u>SDL GUI FAQ</u>

From this point you can call SDL\_Init() and SDL\_SetVideoMode(), but do remember to use the SDL\_NOFRAME attribute:

### The Event Loop

You must have an event loop that calls both SDL\_PollEvent() and Tk\_DoOneEvent(). The events will be handled mostly by Tk. However, you do need to detect SDL\_QUIT from SDL\_PollEvent() because SDL converts SIGTERM to this.

```
void
event_loop()
{
    SDL_Event event;

while (!(SDL_PollEvent(&event) && event.type == SDL_QUIT)) {
    Tk_DoOneEvent(TK_ALL_EVENTS|TK_DONT_WAIT);
    }
}
```

#### Handling Key Release Events

From Tcl you can handle whichever events you need to detect. For example to bind the

<KeyRelease> event to a key handler:

```
proc handleKey {key} {
    switch -regexp -- $key {
        .*Up$ {ball up}
        .*Down$ {ball down}
        .*Left$ {ball left}
        .*Right$ {ball right}
    }
}
bind all <KeyRelease> {handleKey %K}
```

#### Handling Focus Events

SDL also needs to know when the screen is put into focus. From Tcl:

```
bind . <FocusIn> {screen_refresh}
```

And to provide the screen\_refresh command:

```
static SDL_Surface *sfScreen = NULL;
void
screenRefresh(void)
  if (sfScreen != NULL)
    SDL_Flip(sfScreen);
static int
ScreenRefreshCmd(ClientData clientData, Tcl_Interp *interp,
                 int objc, Tcl_Obj *CONST objv[])
  if (objc != 1) {
    Tcl_WrongNumArgs(interp, 1, objv, "");
  screenRefresh();
  return TCL_OK;
void createCommands(Tcl_Interp *interp)
  Tcl_CreateObjCommand(interp, "screen_refresh", ScreenRefreshCmd,
                       (ClientData) NULL,
                        (Tcl_CmdDeleteProc *) NULL);
}
```

#### A Small Demonstration

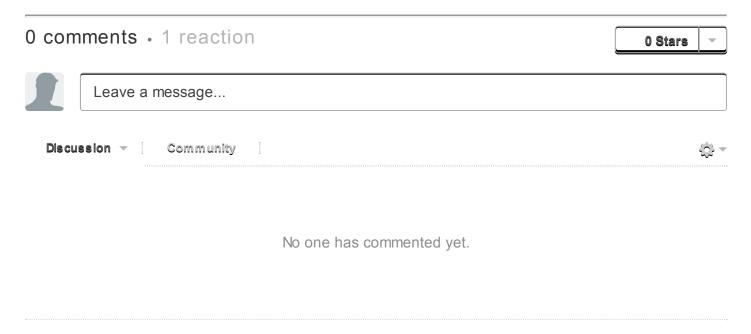
I have created the <u>sdl and tk demo</u> on github to demonstrate how to put this altogether. The README contains information on how to compile and run the demo. This demo was inspired by <u>Kent Mein</u>'s <u>SDL and Tk MDI demo</u>.

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