Subject: Stopping ReadStdIn() function
Posted by Xemuth on Sun, 16 May 2021 18:08:23 GMT
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Hello,

I'm working on a project which implement a tiny command line interface :

```
Upp::String command;
LOG("Command line interface ready");
while(command != "exit" && !secureStop){
 command = ToLower(ReadStdIn());
 Cout() << ProcessCommandLine(command);
}
```

secureStop boolean is use to stop my app (in case of SIGINT) however, since my while is in blocking mode because of ReadStdIn() It wont stop my app until I write something to console.
Is there a way to set a timeout or stop the ReadStdIn() ?

Subject: Re: Stopping ReadStdIn() function
Posted by Oblivion on Sun, 16 May 2021 18:53:06 GMT
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Hello xemuth,

Have you tried to set the boolean value, using signal api (sigaction, to be specific)?

```
#include <Core/Core.h>
#include <signal.h>

using namespace Upp;

static std::atomic<bool> done(false);
static void SecureStop(int) {  done = true; }

CONSOLE_APP_MAIN
{
    String s;
    struct sigaction sa;
    Zero(sa);
    sa.sa_handler = &SecureStop;
    sigaction(SIGINT, &sa, nullptr);

 while(s != "exit" && !done) {
  s = ReadStdIn();
```

```
 }
  if(done) {
  Cout() << "SIGINT!" << "\n";
 }
}
```

Is this what you need?

Best regards,
Oblivion

Subject: Re: Stopping ReadStdIn() function
Posted by Xemuth on Mon, 17 May 2021 07:28:21 GMT
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Hello Oblivion, Thanks for your help.

In my actual code I'm doing this :

```
CV2DServer* serverPtr;

CONSOLE_APP_MAIN
{
 StdLogSetup(LOG_COUT | LOG_FILE | LOG_TIMESTAMP);
 CV2DServer server(LISTENING_PORT, TICK_RATE);
 serverPtr = &server;
 std::signal(SIGINT,static_cast<__p_sig_fn_t>([](int s)->void{serverPtr->StopServer();}));
 server.StartServer();
}
```

It is a bit different from your approch but I guess it is partially equal.
The probleme is, in my StartServer which is equal to this :

```
void CV2DServer::StartServer(){
 serverThread.Start(THISBACK(ServerRoutine));
 Upp::String command;
 LOG("Command line interface ready");
 while(command != "exit" && !secureStop){
  command = ToLower(ReadStdIn());
  Cout() << ProcessCommandLine(command);
 }
 server.Close();
 client.Close();
 serverThread.ShutdownThreads();
 serverThread.Wait();
```

}

The ReadStdIn() block my code until I write something in console. It mean, even if I raise a SIGINT event, my code will catch it, turn the boolean secureStop to true but wont stop until I write something in console. This is problematique, that's why I'm looking for a way to stop the ReadStdIn().

I will try the way you do it after work and will update this post. But I'm pretty sure result will be the same

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Subject: Re: Stopping ReadStdIn() function
Posted by Oblivion on Mon, 17 May 2021 08:46:45 GMT
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Hello Xemuth,

You are insalling a SIGINT hook and from that point on, it is your responsibility to send a SIGINT to the foreground process:

```
std::signal(SIGINT,static_cast<__p_sig_fn_t>([](int s)->void{serverPtr->StopServer();}));
```

One way might be to set the SIGINT hook to default after you've clean up the application:

```
static void SecureStop(int)
{
	// Cleanup the app here...

  signal(SIGINT, SIG_DFL); // unsintall your hook.
  raise(SIGINT);           // Let OS handle it.
}
```

This way, you shouldn't even need "done" flag...

Example:

```
static std::atomic<bool> done(false);
static void SecureStop(int)
```

```
{
	// Do app cleanup here..
 done = true;
 signal(SIGINT, SIG_DFL); // unsintall the hook.
 raise(SIGINT);
}

CONSOLE_APP_MAIN
{
 StdLogSetup(LOG_COUT|LOG_FILE);

 auto worker = Async([] { // Simulate the signal request...
  int timeout = 5000;
  int t = msecs();
  while(msecs(t) < timeout) {
   if(CoWork::IsCanceled())
    return;
   Sleep(10);
  }
  if(!done) {
   RLOG("rasigin SIGINT with custom hook...");
   raise(SIGINT);
  }

 });
 signal(SIGINT, &SecureStop);
 String s;
 while(s != "exit") {
  s = ReadStdIn();
 }
 worker.Cancel();

}
```

Please note that this may work, because the code you posted is very simple. This isn't a good way to handle it if it get complex, as you need to make your cleanup-code thread-safe.

Best regards,
Oblivion

Subject: Re: Stopping ReadStdIn() function
Posted by Oblivion on Mon, 17 May 2021 09:50:17 GMT
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You can also write a non-blocking version of ReadStdIn so that you can set a timeout value. (this is for posix, but it can be easily adapted to windows)

```
void SetNonBlocking()
{
 fcntl(STDIN_FILENO, F_SETFL, fcntl(STDIN_FILENO, F_GETFL) | O_NONBLOCK);
}

void SetBlocking()
{
 fcntl(STDIN_FILENO, F_SETFL, fcntl(STDIN_FILENO, F_GETFL) & ~O_NONBLOCK);
}

String ReadStdIn2(int timeout)
{
 String r;
 SetNonBlocking();
 int t = msecs();
 do {
  SocketWaitEvent we;
  we.Add(STDIN_FILENO, WAIT_READ);
  if(we.Wait(10) && (we[0] & WAIT_READ)) {
   int c = 0;
   int n = read(STDIN_FILENO, (char*) &c, 1);
   if(c == '\n')
    break;
   if(n > 0) {
    r.Cat(c);
    t = msecs();
   }
  }
 }
 while(msecs(t) < timeout && !done);
 SetBlocking();
 return r.GetCount() ? r : String::GetVoid();
}
```

Best regards,
Oblivion

Subject: Re: Stopping ReadStdIn() function
Posted by Xemuth on Mon, 17 May 2021 16:24:50 GMT
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Hello again Oblivion, I like the tiemout approach. here is what I did :

```
String ReadCmd(int timeout)
{
 String r;
 int time = msecs();

 while(msecs(time) < timeout){
  int c = 0;
  int n = read(STDIN_FILENO, (char*) &c, 1);
  if(c == '\n')
   break;
  if(n > 0) {
   r.Cat(c);
   time = msecs();
  }
 }
 return r.GetCount() ? r : String::GetVoid();
}
```

It now work perfectly. Thanks for your precious help !