Subject: Re: request: Socket working example
Posted by Mindtraveller on Wed, 18 Nov 2009 08:50:23 GMT
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Recently I've made a kind of simple example for U++ nonblocking sockets.
Any comments, suggestions and critics are welcome.

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

using namespace Upp;

int PORT_START      = 5000;
int PORT_COUNT      = 100;
int PORT_IO_TIMEOUT = 10000;

class Outter
{
public:
 Outter &operator<< (const String &s)
 {
  mutex.Enter(); Cout() << s; mutex.Leave();
  return *this;
 }
 Outter &operator<< (int i)
 {
  mutex.Enter(); Cout() << FormatInt(i); mutex.Leave();
  return *this;
 }
private:
 Mutex mutex;
};
Outter print;

class SenderThread : public Thread
{
public:
 void Do()
 {
  Vector<Socket> sockets;

  for (int i=0; i<PORT_COUNT; ++i)
  {
   int     port   = PORT_START+i;
   Socket &socket = sockets.Add();

   if (!ClientSocket(socket, "localhost", port))
   {
```

```
    print << "\nError creating client socket @" << port;
    sockets.Pop();
    break;
   }

   socket.Write(Format("%04d", port));
  }

  print << "\nAll data in ports sent\n";

  Vector<Socket *> read;
  Vector<Socket *> write;
  for (int i=0; i<sockets.GetCount(); ++i)
   write.Add(&sockets[i]);

  int socketsFinished = 0;
  while (socketsFinished < sockets.GetCount())
  {
   if (!Socket::Wait(read, write, PORT_IO_TIMEOUT))
    Sleep(200);
   else
   {
    int curSocketsFinished = 0;

    for (int i=0; i<sockets.GetCount(); ++i)
     if (sockets[i].IsError())
     {
      print << Format("-(%04d) ", PORT_START+i);
      ++curSocketsFinished;
     }
     else
     if (sockets[i].PeekWrite(PORT_IO_TIMEOUT))
     {
      sockets[i].Clear();
      print << Format("+(%04d) ", PORT_START+i);
      ++curSocketsFinished;
     }

    socketsFinished += curSocketsFinished;
   }
  }
 }
};

class ReceiverThread : public Thread
{
public:
 void Do()
```

```
{
 Vector<Socket> sockets;
 Vector<Socket> newSockets;

 for (int i=0; i<PORT_COUNT; ++i)
 {
  int     port   = PORT_START+i;
  Socket &socket = sockets.Add();

  if (!ServerSocket(socket, port))
  {
   print << "\nError creating server port @" << port;
   sockets.Pop();
   break;
  }

  Socket &newSocket = newSockets.Add();
  dword newAddr;
  socket.Accept(newSocket, &newAddr);
 }

 print << "\nListening with all ports\n";

 Vector<Socket *> read;
 Vector<Socket *> write;
 for (int i=0; i<newSockets.GetCount(); ++i)
  read.Add(&newSockets[i]);

 int socketsFinished = 0;
 while (socketsFinished < sockets.GetCount())
 {
  if (!Socket::Wait(read, write, PORT_IO_TIMEOUT))
   Sleep(200);
  else
  {
   int curSocketsFinished = 0;
   for (int i=0; i<newSockets.GetCount(); ++i)
   {
    String inData = newSockets[i].PeekCount(4, PORT_IO_TIMEOUT);
    if (!inData.IsEmpty())
    {
     newSockets[i].Read(4,PORT_IO_TIMEOUT);
     print << inData << " ";
     ++curSocketsFinished;
    }
   }

   socketsFinished += curSocketsFinished;
```

```
   }
  }
 }
};

CONSOLE_APP_MAIN
{
 SenderThread   sender;
 ReceiverThread receiver;

 receiver.Run(callback(&receiver, &ReceiverThread::Do)); print << "\nReceiver started";
 Sleep(1000);
 sender  .Run(callback(&sender,   &SenderThread  ::Do)); print << "\nSender started";

 sender.Wait(); print << "\nSender finished";
 receiver.Wait(); print << "\nReceiver finished";
}
```