



NetworkCentric Core Avionics



RODOS tutorial UDP I/O

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Author: Sergio Montenegro



RODOS Tutorial UDP I/O

How to begin.

Read and understand first the RODOS-Tutorial and then the RODOS-UDP tutorial.

use

```
% linux-executable <list of sources>  
to compile and  
%tst
```

to execute e.g.

```
% linux-executable udpsender.cc  
% tst
```

For each example program please first read and understand the code, then compile and execute and see if it does what you expected. Then modify and continue trying.

Useful to know:

UDP implements a simple way to communicate with the external world. UDP is a datagram transfer protocol: using one port, one or more senders send messages to a single receiver receives - there is no acknowledgement or handshake protocol. Messages can get lost.

One port in one computer can be opened only by one receiver process. Several senders can send to the same port. If there is a (single) receiver to that port then it will receive from all senders.

The RODOS UDP implementation works asynchronously. There are no thread suspends if data cannot be received. The receiver (using get) gets the number of bytes which were received or 0 if no message was ready.

LINUX sender/receiver

udpLinuxText is a directory containing a simple udp sender and a simple udp receiver which do not use RODOS (even if the UDP interface is just copied from RODOS). This example programme can be used to communicate with RODOS processes from normal Linux processes.

To compile use:

```
% doit
```



You will get two executables: `tst_sender` and `tst_receiver`. Both use port 5001. Try to start each of them in its own xterm window and type sentences in the sender.

RODOS udp interface

The same function can be executed from RODOS threads. They are **`udpsender.cc`** and **`udpreceiver.cc`**. Both of them use the port 5001 to send/receive.

Compile using

```
%linux-executable udpsender.cc  
%tst
```

In another window start the Linux receiver and see.

```
%linux-executable udpreceiver.cc  
%tst
```

In another window start the Linux sender and see.

Or compile both in different windows and execute both RODOS udp sender and udp receiver.

Warning: `linux-executable` always generates `tst`. You will overwrite the first compilation.

`udpreceiver_checker.cc` checks with a very high frequency if data has arrived. This check is done in a time event, which is more effective than resuming threads. Comment out the time event and see the difference.