

HOW TO INSTALL ICUB

Rev.	Prepared by		Date	Approved		Date
0.0	EDL	Marco Maggiali	31/03/2009			
0.1	RBCS-EDL	Marco Maggiali	15/07/2009			
0.2	RBCS-EDL	Marco Maggiali	03/11/09			

1 Revision history

Rev.	Date	Revision description
0.0	31/03/09	Preliminary emission
0.1	15/07/09	Changed icub_cluster.sh with the new phyton script icub_cluster.py
0.2	03/11/09	Added information about the power supplier

2 Summary

1 Revision history	1
2 Summary	1
3 Installing icub	1
4 Switching off icub	5

3 Installing icub

1. Remove the robot icub from the box. Lift the robot between the legs and the upper arms in two persons (video_1).

2. Remove the envelope from the torso and fix the robot to the robot stand with the four screws (video_1).
3. Use two clamps to fix the robot with its stands on a table.
4. Put the two power supply close to the robot (1-2 meters) , take the power supply cables and connect them as specified in Extern Power Supply Cable document (video_2).
5. Do not connect the power supply cable to the robot.
6. Plug the power suppliers. Check the power supply voltage and current. The XANTREX XFR 60-46 DC must be set from 24 up to 42 volts with the OVP to 45V (to be set with a screw driver), and the current limit up to 20A. The XANTREX XFR 35-35 DC must be set to 13.4 volts and 15A, with the OVP to 14V (to be set with a screw driver). Look at the documentation for detailed instructions. (video_3)
7. Without connecting the power supply cable to the robot switch on the green switches and look at the power supply. Now the output of the power supplies should be from 24 to 48 and 13 volts.
8. Switch off the green switches. Connect the power supply cable to the robot, and the Ethernet cable to the hub.
9. Switch on the laptop and connect it to the hub with the Ethernet cable. The username is icub and the password is icub.
10. Now you can switch on the PC104 and wait about 60 seconds.
11. Click on the penguin icon in the deskbar. It is for an ssh connection with the PC104. We call this shell *icub@pc104*. If it does not ask you for a password it means that the boot of the pc104 is finished. If not wait few seconds more and repeat the step 11.
12. Press the red button (it is the fault button, if it is pressed there is no power to the motors).
13. Switch on the motor boards and wait 10 seconds.
- 14.
15. Open a shell in the laptop: *icub@icubsrv* and type:

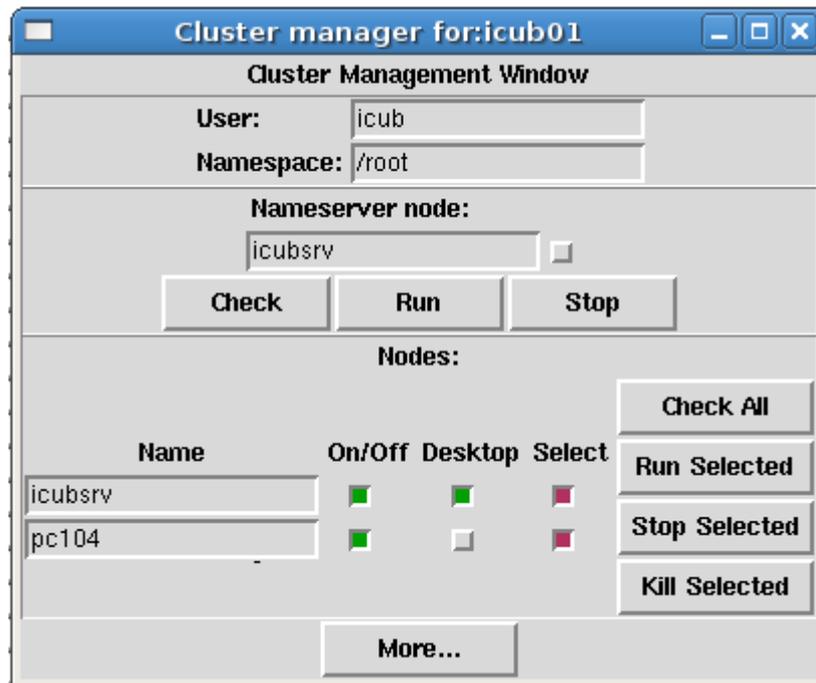
```
yarp server &
```

16. Open a shell *icub@icubsrv* and type:

```
cd /usr/local/src/robot/iCub/app/default/scripts
```

```
./icub_cluster.py
```

It opens a graphical interface:

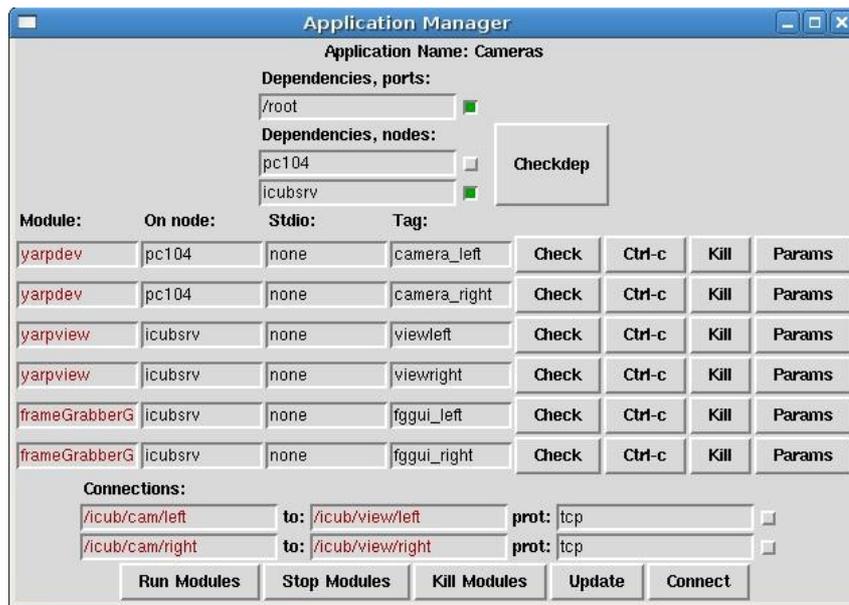


Press the button Run Selected and check if both the pc are running

17. Open a shell *icub@icubsrv* and type:

```
cd /usr/local/src/robot/iCub/app/default/scripts
```

```
./manager.py cameras.xml
```



18. Click on the penguin icon in the deskbar. It is for an ssh connection with the PC104.

19. Leave the red button pressed and run from the icub@pc104 shell:

```
iCubInterface --config /usr/local/robot/icub/app/icub<cityXX>/conf/icubSafe.ini
```

20. Open an icub@icubsrv shell :

```
cd /usr/local/src/robot/iCub/app/ icub<cityXX>/conf/
```

```
robotMotorGui
```

21. Stand the robot in the home position (image_1).

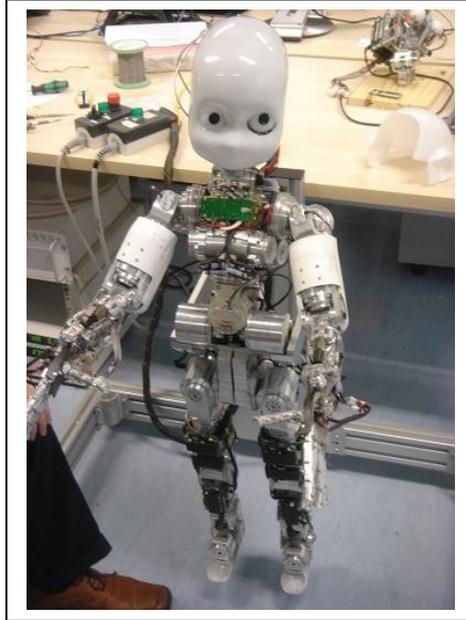


Fig 1 Home position. The robot must start the calibration in this position.

22. Look at the joint values. The value should be approximately:

- a. LeftLeg and RightLeg: $0 (\pm 15 \text{ degrees})$ for all the joints.
- b. LeftArm and RightArm: $-30, +30, 0, +45, (\pm 15 \text{ degrees})$ for joints 0..3. Any number for the other joints.
- c. Torso: $0, 0, 10 (\pm 15 \text{ degrees})$.
- d. Head: any number.

23. If step 22 is ok press 4 times `ctrl-c` in iCubInterface.

24. Release the red button and run iCubInterface again with the same parameters (see steps 19). Now you will see the robot calibrating.

25. The robot calibration takes 20 seconds should.

4 Switching off icub

1. Press once `ctrl-c` in iCubInterface. The robot goes to the park position and stops the power to the motors.
2. Press the red-button.
3. Open a shell `icub@icubpc104` and type:

```
sudo shutdown -h now
```

4. Wait 10 seconds and switch off the two power suppliers.