## et Comunicacions amb Raspberry Pi Algunes ordres útils



## <sup>2</sup> Configuració de xarxa

WiFi : https://www.raspberrypi.org/documentation/configuration/wireless/wireless-cli.md

Ethernet : http://hectorgarciaperez.com/2013/05/01/configurar-interfaces-de-red-en-debian-6/

#### eth0 amb IP estàtica

# interfaces(5) file used by ifup(8) and ifdown(8)

# Please note that this file is written to be used with dhcpcd # For static IP, consult /etc/dhcpcd.conf and 'man dhcpcd.conf'

# Include files from /etc/network/interfaces.d: source-directory /etc/network/interfaces.d

auto lo iface lo inet loopback

#eth0 amb DHCP #allow-hotplug eth0 #iface eth0 inet dhcp

#eth0 amb IP estàtica
allow-hotplug eth0
iface eth0 inet static
 address 192.168.1.2
 netmask 255.255.255.0
 network 192.168.1.0
 broadcast 192.168.1.255
 gateway 192.168.1.1
 dns-nameservers 80.58.0.33 80.58.32.97

#WIFI DHCP allow-hotplug wlan0 iface wlan0 inet dhcp wpa-conf /etc/wpa\_supplicant/wpa\_supplicant.conf

#### eth0 amb IP dinàmica

# interfaces(5) file used by ifup(8) and ifdown(8)

# Please note that this file is written to be used with dhcpcd # For static IP, consult /etc/dhcpcd.conf and 'man dhcpcd.conf'

# Include files from /etc/network/interfaces.d: source-directory /etc/network/interfaces.d

auto lo iface lo inet loopback

⊭ethO amb DHCP allow-hotplug ethO iface ethO inet dhcp

#eth0 amb IP estàtica
#allow-hotplug eth0
#iface eth0 inet static
# address 192.168.1.2
# netmask 255.255.255.0
# network 192.168.1.0
# broadcast 192.168.1.255
# gateway 192.168.1.1
# dns-nameservers 80.58.0.33 80.58.32.97
#WIFI DHCP

#WLF1 DHCP allow-hotplug wlan0 iface wlan0 inet dhcp wpa-conf /etc/wpa\_supplicant/wpa\_supplicant.conf

#### /etc/network/interfaces



Si modifiqueu wlan0 a /etc/network/interfaces i no voleu reiniciar l'equip, executeu:

#### ifdown wlan0 ifup wlan0

Si modifiqueu eth0 a /etc/network/interfaces i no voleu reiniciar l'equip, executeu:

```
ifdown eth0
                            ifup eth0
                                                    ctrl interface=DIR=/var/run/wpa_supplicant GROUP=netdev
                                                    update config=1
                                                    #country=GB
                                                    network={
                                                       ssid="MOVISTAR 2840"
                                                       psk="TFTMX3YTUFRC4NAFJUJJ"
                                                    }
                                                    network={
                                                       ssid="Telecos.cat"
/etc/wpa supplicant/wpa supplicant.conf
                                                       psk="Fourier17"
                                                       key mgmt=WPA-PSK
                                                    }
                                                    network={
                                                       ssid="IoT-eCat"
                                                       psk="clotClot"
                                                       key mgmt=WPA-PSK
```

electronics.cat

### <sup>4</sup> Comunicacions amb Raspberry Pi Connexió remota emprant el navegador d'arxius

| Cancel·la                   | Connecta't al servidor Conne             | cta |  |  |  |  |  |
|-----------------------------|--|-----|--|--|--|--|--|
| Adreça del servidor         |  |     |  |  |  |  |  |
| sftp://192.168.1.17/home/pi |  |     |  |  |  |  |  |
| Per exempl                  | e, smb://foo.example.org                 |     |  |  |  |  |  |
| Servidors r                 | recents                                  |     |  |  |  |  |  |
| ecat                        | sftp://web398.webfaction.com/home/ecat   |     |  |  |  |  |  |
| popotamo                    | sftp://37.135.7.25:5598/home/popotamo    |     |  |  |  |  |  |
| рі                          | sftp://85.48.228.118:5584/home/pi        |     |  |  |  |  |  |
| рі                          | sftp://192.168.1.17/home/pi              |     |  |  |  |  |  |
| popotamo                    | sftp://37.133.169.207:5598/home/popotamo |     |  |  |  |  |  |
| pi                          | sftp://192.168.1.48/home/pi              |     |  |  |  |  |  |
| pi                          | sftp://192.168.42.1/home/pi              |     |  |  |  |  |  |
| popotamo                    | sftp://37.133.169.186:5598/home/popotamo |     |  |  |  |  |  |
| juanda                      | sftp://172.20.0.40/home/juanda           |     |  |  |  |  |  |
| popotamo                    | sftp://37.133.169.186:2244/home/popotamo |     |  |  |  |  |  |

## ec Comunicacions amb Raspberry Pi ifconfig

| pi@raspbe<br>eth0 | <pre>rrypi:~ \$ ifconfig<br/>Link encap:Ethernet HWaddr b8:27:eb:fd:d0:b5<br/>inet addr:192.168.1.17 Bcast:192.168.1.255 Mask:255.255.255.0<br/>inet6 addr: fe80::b88e:e7c9:8c24:45d7/64 Scope:Link<br/>UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1<br/>RX packets:1140 errors:0 dropped:7 overruns:0 frame:0<br/>TX packets:206 errors:0 dropped:0 overruns:0 carrier:0<br/>collisions:0 txqueuelen:1000<br/>RX bytes:77745 (75.9 KiB) TX bytes:28255 (27.5 KiB)</pre> |
|-------------------|--|
| ιο                | Link encap:Local Loopback<br>inet addr:127.0.0.1 Mask:255.0.0.0<br>inet6 addr: ::1/128 Scope:Host<br>UP LOOPBACK RUNNING MTU:65536 Metric:1<br>RX packets:226 errors:0 dropped:0 overruns:0 frame:0<br>TX packets:226 errors:0 dropped:0 overruns:0 carrier:0<br>collisions:0 txqueuelen:1<br>RX bytes:20208 (19.7 KiB) TX bytes:20208 (19.7 KiB)  |
| wlan0             | Link encap:Ethernet HWaddr b8:27:eb:a8:85:e0<br>inet addr:192.168.42.1 Bcast:192.168.42.255 Mask:255.255.255.0<br>inet6 addr: fe80::4504:2549:cd46:698/64 Scope:Link<br>UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1<br>RX packets:246 errors:0 dropped:168 overruns:0 frame:0<br>TX packets:85 errors:0 dropped:0 overruns:0 carrier:0<br>collisions:0 txqueuelen:1000<br>RX bytes:39016 (38.1 KiB) TX bytes:17059 (16.6 KiB)   |

pi@raspberrvpi:~ \$ 📕

## ec Comunicacions amb Raspberry Pi Porta d'enllaç i DNS

#### pi@raspberrypi:~ \$ route -n

| Kernel IP routi | ng table.         |               |       |        |     |     |       |
|-----------------|-------------------|---------------|-------|--------|-----|-----|-------|
| Destination     | Gateway           | Genmask       | Flags | Metric | Ref | Use | Iface |
| 0.0.0.0         | 192.168.1.1       | 0.0.0.0       | UG    | 202    | 0   | 0   | eth0  |
| 169.254.0.0     | 0.0.0.0           | 255.255.0.0   | U     | 303    | 0   | 0   | wlan0 |
| 192.168.1.0     | 0.0.0.0           | 255.255.255.0 | U     | 202    | 0   | 0   | eth0  |
| 192.168.42.0    | 0.0.0.0           | 255.255.255.0 | U     | 0      | 0   | 0   | wlan0 |
| pi@raspberrypi: | ~ \$ cat /etc/res | solv.conf     |       |        |     |     |       |
| # Generated by  | resolvconf        |               |       |        |     |     |       |
| nameserver 62.8 | 1.29.254          |               |       |        |     |     |       |
| nameserver 62.8 | 1.16.213          |               |       |        |     |     |       |
|                 |                   |               |       |        |     |     |       |

ni@rasnberrvni 🛹 💲 📕

## ec Comunicacions amb Raspberry Pi SSH

#### ssh -X pi@192.168.1.17

jordi@debianJB:~\$ ssh -X pi@192.168.1.17 pi@192.168.1.17's password:

The programs included with the Debian GNU/Linux system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/\*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law. Last login: Wed Nov 30 10:09:47 2016 from 192.168.1.12 pi@raspberrypi:~ \$

L'opció -X ens permet poder executar remotament programes amb interfície gràfica d'usuari.

En sistemes operatius Windows existeix el programa putty (http://www.putty.org/)

## e¢ Comunicacions amb Raspberry Pi Accés SSH sense contrasenya

https://docs.webfaction.com/user-guide/access.html

#### Genereu una clau al vostre ordinador (si no existeix ~/.ssh/id\_rsa.pub):

- 1- Obriu una sessió de terminal.
- 2- Creeu la carpeta ~/.ssh, en cas de que no existeixi. (mkdir -p \$HOME/.ssh )
- 3- Aneu al directori ~/.ssh ( cd ~/.ssh i premeu Enter)
- 4-Genereu les vostres claus (ssh-keygen -t rsa)
- 5- Premeu Enter per a contestar totes les preguntes per defecte.

#### Desplegueu la clau a la Raspberry Pi

1- Copieu la clau a la Raspberry Pi. Entreu scp ~/.ssh/id\_rsa.pub pi@192.168.1.17:temp\_id\_rsa\_key.pub (canvieu 192.168.1.17 per la IP de la vostra Raspberry Pi) i premeu Enter. Entreu la contrasenya quan us ho demani (la contrasenya per defecte és raspberry).

```
jordi@debianJB:~$ scp ~/.ssh/id_rsa.pub pi@192.168.1.17:temp_id_rsa_key.pub
pi@192.168.1.17's password:
id_rsa.pub
jordi@debianJB:~$ ■
```

## e¢ Comunicacions amb Raspberry Pi Accés SSH sense contrasenya

#### Desplegueu la clau a la Raspberry Pi

2- Obriu una sessió SSH a la vostra Raspberry Pi des del vostre ordinador. Entreu ssh pi@192.168.1.17 (canvieu 192.168.1.17 per la IP de la vostra Raspberry Pi) i premeu Enter. Entreu la contrasenya quan us ho demani (la contrasenya per defecte és raspberry).

jordi@debianJB:~\$ ssh pi@192.168.1.17 pi@192.168.1.17's password:

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3- Creeu la carpeta ~/.ssh, en cas de que no existeixi. (mkdir -p \$HOME/.ssh )

4- Afegiu la vostra clau a l'arxiu authorized\_keys . Entreu cat ~/temp\_id\_rsa\_key.pub >> ~/.ssh/authorized\_keys i premeu Enter.

pi@raspberrypi:~ \$ cat ~/temp\_id\_rsa\_key.pub >> ~/.ssh/authorized\_keys



#### Desplegueu la clau a la Raspberry Pi

**5**- Esborreu l'arxiu amb la clau tempral. Feu rm temp\_id\_rsa\_key.pub i premeu Enter.

pi@raspberrypi:~ \$ rm temp\_id\_rsa\_key.pub

**6**- Protegiu l'arxiu de claus SSH. Entreu-hi chmod 600 ~/.ssh/authorized\_keys i premeu Enter.

pi@raspberrypi:~ \$ chmod 600 ~/.ssh/authorized keys

7- Protegiu el directori SSH. Entreu-hi chmod 700 ~/.ssh i premeu Enter.

pi@raspberrypi:~ \$ chmod 700 ~/.ssh

8- Protegiu el vostre directori d'usuari. Entreu-hi chmod go-w \$HOME i premeu Enter.

pi@raspberrypi:~ \$ chmod go-w \$HOME

9- Tanqueu la sessió SSH.

## e¢ Comunicacions amb Raspberry Pi Accés SSH sense contrasenya

#### Desplegueu la clau a la Raspberry Pi

pi@raspberrypi:~ \$ cat ~/temp\_id\_rsa\_key.pub >> ~/.ssh/authorized\_keys pi@raspberrypi:~ \$ rm temp\_id\_rsa\_key.pub pi@raspberrypi:~ \$ chmod 600 ~/.ssh/authorized\_keys pi@raspberrypi:~ \$ chmod 700 ~/.ssh pi@raspberrypi:~ \$ chmod go-w \$HOME pi@raspberrypi:~ \$ chmod go-w \$HOME connection to 192.168.1.17 closed. jordi@debianJB:~\$

#### Verifiqueu que ja podeu accedir mitjançant SSH sense que us pregunti la contrasenya

```
jordi@debianJB:~$ ssh pi@192.168.1.17

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the exact distribution terms for each program are described in the

individual files in /usr/share/doc/*/copyright.

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permitted by applicable law.

Last login: Wed Nov 30 11:03:54 2016 from 192.168.1.12

pi@raspberrypi:~ $
```

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http://jerrygamblin.com/2016/04/23/persistent-reverse-ssh-tunnels-on-a-raspberrypi/



## ec Comunicacions amb Raspberry Pi Túnel SSH invers

|  | jordi@debianJB: ~  | ×  |
|--|--|--|
| Fitxer Edita Visualitza Cerca  | Terminal Ajuda   |  |
| <pre>pi@raspberrypi:~ \$ ssh -R The authenticity of host ECDSA key fingerprint is Are you sure you want to Warning: Permanently adde jordi@192.168.1.12's pass</pre> | 12345:localhost:22 jordi@192.168.1.12<br>'192.168.1.12 (192.168.1.12)' can't be establi<br>01:eb:89:96:25:8b:48:22:e9:a7:ed:5e:d4:98:c4:a<br>continue connecting (yes/no)? yes<br>d '192.168.1.12' (ECDSA) to the list of known<br>word:                           | shed.<br>c.<br>hosts.  |
| The programs included wit<br>the exact distribution te<br>individual files in /usr/  | h the Debian GNU/Linux system are free softwar<br>rms for each program are described in the<br>share/doc/*/copyright.  | e;   |
| Debian GNU/Linux comes wi  | . pi@raspberrypi   | . N  |
| permitted by applicable l  | Fitxer Edita Visualitza Cerca Terminal Ajuda   |  |
| ] OF GIGGEDIANDB.~\$   | jordi@debianJB:~\$ ssh -p 12345 pi@127.0.0.1<br>The authenticity of host '[127.0.0.1]:12345 ( <br>ished.<br>ECDSA key fingerprint is db:79:95:3e:5d:97:96<br>Are you sure you want to continue connecting (<br>Warning: Permanently added '[127.0.0.1]:12345<br>s. | [127.0.0.1]:12345)' can't be esta<br>cd:ce:57:64:96:63:82:15:e2.<br>(yes/no)? yes<br>' (ECDSA) to the list of known he |
|  | The programs included with the Debian GNU/Linu<br>the exact distribution terms for each program<br>individual files in /usr/share/doc/*/copyright  | ux system are free software;<br>are described in the   |
|  | Debian GNU/Linux comes with ABSOLUTELY NO WARF<br>permitted by applicable law.<br>Last login: Wed Nov 30 23:46:52 2016 from 192<br>pi@raspberrypi:~ \$   | RANTY, to the extent<br>.168.1.12  |

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## ec Comunicacions amb Raspberry Pi autoSSH

Si el túnel deixa de funcionar (acostuma a ocórrer en xarxes molt ocupades o d'escasa qualitat, com el 3G), es pot utilitzar el paquet autossh en lloc de l'ssh per a establir la connexió que s'encarregarà de mantenir el túnel obert reiniciant automàticament la connexió.

pi@raspberrypi:~ \$ autossh -M 65500 -o ServerAliveInterval=20 -R 19994:localhost:22 ecat@web398.webfaction.com

L'autossh no funciona com s'espera si al connectar la Raspberry Pi no hi ha connexió a Internet. Per a evitar això, primer verifiquem la connectivitat fent un ping.

```
jordi@debianJB:~$ ssh ecat@web398.webfaction.com
ecat@web398.webfaction.com's password:
Last login: Wed Nov 30 23:21:27 2016 from 62.83.215.143
[ecat@web398 ~]$ ssh -p 19994 pi@localhost
pi@localhost's password:
```

The programs included with the Debian GNU/Linux system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/\*/copyright.

```
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permitted by applicable law.
Last login: Thu Dec 1 00:24:02 2016 from localhost
pi@raspberrypi:~ $
```

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## ec Comunicacions amb Raspberry Pi Verificació de la connectivitat

```
pi@raspberrypi:~ $ ping -c 1 www.binefa.cat
PING binefa.cat (37.58.75.228) 56(84) bytes of data.
64 bytes from web398.webfaction.com (37.58.75.228): icmp seq=1 ttl=52 time=49.2 ms
--- binefa.cat ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time Oms
rtt min/avg/max/mdev = 49.200/49.200/49.200/0.000 ms
pi@raspberrypi:~ $ echo $?
pi@raspberrypi:~ $ ping -c 1 www.jordibinefa.cat
ping: unknown host www.jordibinefa.cat
pi@raspberrypi:~ $ echo $?
2
pi@raspberrypi:~ $ ping -c 1 192.168.1.222
PING 192.168.1.222 (192.168.1.222) 56(84) bytes of data.
From 192.168.1.17 icmp seq=1 Destination Host Unreachable
--- 192.168.1.222 ping statistics ---
1 packets transmitted, 0 received, +1 errors, 100% packet loss, time Oms
pi@raspberrypi:~ $ echo $?
pi@raspberrypi:~ $ ping -c 1 192.168.1.1
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data.
64 bytes from 192.168.1.1: icmp seq=1 ttl=64 time=1.01 ms
--- 192.168.1.1 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time Oms
rtt min/avg/max/mdev = 1.019/1.019/1.019/0.000 ms
pi@raspberrypi:~ $ echo $?
Θ
pi@raspberrypi:~ $
```

## ec Comunicacions amb Raspberry Pi Ordres consecutives emprant &&

```
pi@raspberrypi:~ $ ping -c 1 192.168.1.222 && ls
PING 192.168.1.222 (192.168.1.222) 56(84) bytes of data.
From 192.168.1.17 icmp seq=1 Destination Host Unreachable
--- 192.168.1.222 ping statistics ---
1 packets transmitted, 0 received, +1 errors, 100% packet loss, time Oms
pi@raspberrypi:~ $ ping -c 1 192.168.1.1 && ls
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data.
64 bytes from 192.168.1.1: icmp seg=1 ttl=64 time=1.01 ms
--- 192.168.1.1 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time Oms
rtt min/avg/max/mdev = 1.019/1.019/1.019/0.000 ms
                                                         sketchbook tunelSSH.txt
codis
         Documents Music
                                 Pictures pwdVnc.txt
Desktop Downloads oldconffiles Public
                                           python games Templates
                                                                     Videos
pi@raspberrypi:~ $ ping -c 1 www.jordibinefa.cat && ls
ping: unknown host www.jordibinefa.cat
pi@raspberrypi:~ $ ping -c 1 www.binefa.cat && ls
PING binefa.cat (37.58.75.228) 56(84) bytes of data.
64 bytes from web398.webfaction.com (37.58.75.228): icmp seq=1 ttl=52 time=48.6 ms
--- binefa.cat ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time Oms
rtt min/avg/max/mdev = 48.642/48.642/48.642/0.000 ms
        Documents Music
                                 Pictures pwdVnc.txt
                                                         sketchbook tunelSSH.txt
codis
Desktop Downloads oldconffiles Public python games Templates
                                                                     Videos
pi@raspberrypi:~ $
```

En cas de que la primera ordre tingui èxit, llavors executa la següent.

## e⋩ Comunicacions amb Raspberry Pi Processos actius i grep

pi@raspberrypi:~ \$ ps aux | grep autossh pi 2586 0.0 0.2 4772 2032 pts/0 S+ 12:18 0:00 grep --color=auto autossh pi@raspberrypi:~ \$ ps aux | grep autossh | grep -v grep pi@raspberrypi:~ \$ if ! ps aux | grep autossh > /dev/null; then echo "No hi ha cap procés"; else echo "Hi ha algun procés"; fi Hi ha algun procés pi@raspberrypi:~ \$ if ! ps aux | grep autossh | grep -v grep > /dev/null; then echo "No hi ha cap procés"; else echo "Hi ha algun procés"; fi No hi ha cap procés pi@raspberrypi:~ \$ if ! ps aux | grep autossh > /dev/null; then echo "No hi ha cap procés"; else echo "Hi ha algun pro cés"; fi No hi ha cap procés pi@raspberrypi:~ \$ if ! ps aux | grep autossh > /dev/null; then echo "No hi ha cap procés"; fi pi@raspberrypi:~ \$ if ! ps aux | grep autossh > /dev/null; then echo "No hi ha cap procés"; fi No hi ha cap procés pi@raspberrypi:~ \$ if ! ps aux | grep autossh > /dev/null; then echo "No hi ha cap procés"; fi pi@raspberrypi:~ \$ if ! ps aux | grep autossh | grep -v grep > /dev/null; then echo "No hi ha cap procés"; fi

### ec Comunicacions amb Raspberry Pi crontab

#### /etc/crontab

| # /etc/crontab: system-wide crontab<br># Unlike any other crontab you don't have to run the `crontab'<br># command to install the new version when you edit this file<br># and files in /etc/cron.d. These files also have username fields,<br># that none of the other crontabs do. |   |                                  |  |  |  |  |  |
|--|---|----------------------------------|--|--|--|--|--|
| SUELL - /bin /ch   |   |                                  |  |  |  |  |  |
| DATU (upp (local (chip) (u   | an (leas) (hin, (shin, (hin, (yan (shin, (yan (hin  |                                  |  |  |  |  |  |
| PATH=/usr/tocat/sbin:/u  | sr/tocat/bin:/sbin:/bin:/usr/sbin:/usr/bin          |                                  |  |  |  |  |  |
| #mhdommondowuser<br>17* *** root   | command<br>cd / && run-partsreport /etc/cron.hourlv |                                  |  |  |  |  |  |
| 25.6 *** root  | test -x /usr/sbin/anacron    ( cd / && run-parts    | report /etc/cron.dailv )         |  |  |  |  |  |
| 47.6 * * 7 root  | test -x /usr/sbin/anacron    ( cd / && run-parts    | - report /etc/cron weekly )      |  |  |  |  |  |
| 52.6 1 * * root  | test -x /usr/sbin/anacron    ( cd / && run-parts    | - report /etc/cron.monthly )     |  |  |  |  |  |
| */] * * * * root   | ping -c 1 www.binefa.cat && if ! ps aux   grep      | autossh   grep -v grep > /dev/nu |  |  |  |  |  |
| #  | pring of annihilation of our time boundary grop     |                                  |  |  |  |  |  |

\*/1 \* \* \* \* \* root ping -c 1 www.binefa.cat && if ! ps aux | grep autossh | grep -v grep > /dev/null; then su pi -c 'autossh -f -nNT -M 65500 -o ServerAliveInterval=20 -R 19994:localhost:22 ecat@web398.webfaction.com'; fi



## **Comunicacions amb Raspberry Pi** Persistència de les accions remotes screen (1/2)

http://www.tecmint.com/screen-command-examples-to-manage-linux-terminals/

pi@raspberrypi:~ \$ screen -ls No Sockets found in /var/run/screen/S-pi. pi@raspberrypi:~ \$ screen pi@raspberrypi:~ \$ screen PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data. 64 bytes from 192.168.1.1: icmp\_seq=1 ttl=64 time=2.07 ms 64 bytes from 192.168.1.1: icmp\_seq=2 ttl=64 time=0.919 ms 64 bytes from 192.168.1.1: icmp\_seq=3 ttl=64 time=1.17 ms 64 bytes from 192.168.1.1: icmp\_seq=3 ttl=64 time=0.960 ms 64 bytes from 192.168.1.1: icmp\_seq=5 ttl=64 time=0.934 ms 64 bytes from 192.168.1.1: icmp\_seq=5 ttl=64 time=0.934 ms 64 bytes from 192.168.1.1: icmp\_seq=6 ttl=64 time=1.33 ms

#### Per a sortir temporalment d'screen premeu Ctrl A + D

[detached from 2427.pts-0.raspberrypi] pi@raspberrypi:~ \$ 19

## 20 **Comunicacions amb Raspberry Pi** Persistència de les accions remotes SCREEN (2/2) http://www.tecmint.com/screen-command-examples-to-manage-linux-terminals/

```
[detached from 2427.pts-0.raspberrypi]
pi@raspberrypi:~ $ exit
loqout
Connection to 192.168.1.17 closed.
jordi@debianJB:~$ ssh pi@192.168.1.17
```

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```
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Wed Nov 30 11:55:07 2016 from 192.168.1.12
pi@raspberrypi:~ $ screen -r
```

```
64 bytes from 192.168.1.1: icmp seq=205 ttl=64 time=0.883 ms
64 bytes from 192.168.1.1: icmp seq=206 ttl=64 time=0.881 ms
64 bytes from 192.168.1.1: icmp seq=207 ttl=64 time=0.969 ms
64 bytes from 192.168.1.1: icmp seq=208 ttl=64 time=0.873 ms
64 bytes from 192.168.1.1: icmp seq=209 ttl=64 time=1.10 ms
64 bytes from 192.168.1.1: icmp seq=210 ttl=64 time=0.927 ms
64 bytes from 192.168.1.1: icmp seq=211 ttl=64 time=0.906 ms
64 bytes from 192.168.1.1: icmp seq=212 ttl=64 time=0.860 ms
```

[screen is terminating] pi@raspberrypi:~ \$

Per a cancel·lar el ping podem prémer Ctrl C i per a sortir de screen fem exit

# 21 Comunicacions amb Raspberry Pi Publicació de la IP pública (1/2)

🗧) 🛈 🛛 binefa.cat/php/svr/

#### 37.133.169.186 dc nov 30 13:00:02 CET 2016

popotamo@popotamo:~\$ cat /etc/crontab # /etc/crontab: system-wide crontab # Unlike any other crontab you don't have to run the `crontab' # command to install the new version when you edit this file # and files in /etc/cron.d. These files also have username fields, # that none of the other crontabs do. SHELL=/bin/sh PATH=/usr/local/sbin:/usr/local/bin:/sbin:/bin:/usr/sbin:/usr/bin # m h dom mon dow user command 17 \* \* \* \* cd / && run-parts --report /etc/cron.hourly root 25 6 \* \* \* test -x /usr/sbin/anacron || ( cd / && run-parts --report /etc/cron.daily ) root 47 6 test -x /usr/sbin/anacron || ( cd / && run-parts --report /etc/cron.weekly ) \* \* 7 root 52 6 1 \* \* test -x /usr/sbin/anacron || ( cd / && run-parts --report /etc/cron.monthly ) root \*/5 \* \* \* popotamo /home/popotamo/bin/svr.sh \*/1 \* popotamo /home/popotamo/bin/checkAutoSSH.sh popotamo@popotamo:~\$

# e Comunicacions amb Raspberry Pi Publicació de la IP pública (2/2)

popotamo@popotamo:~\$ cat /home/popotamo/bin/svr.sh
#!/bin/bash

# rm ip.php
wget http://www.binefa.cat/php/ip/ip.php
echo "<BR>" >> ip.php
date >> ip.php

scp ip.php ecat@web398.webfaction.com:/home/ecat/webapps/www\_binefa\_cat\_php/svr/index.php

rm ip.php popotamo@popotamo:~\$ 📕

| <      | ui_ctrlLeds01.py 🛛 🗶 | ecat.cpp 🛛 🗶  | index.htm  | ×     | index.php | × |
|--------|----------------------|---------------|------------|-------|-----------|---|
| 1<br>2 | META HTTP-EQU        | W="refresh" C | ONTENT="0; | JRL=i | .p.php">  |   |

| ۲                | ecat.cpp          | ×    | index.htm    | ×    | index.php | × | ip.php | × | > |
|------------------|-------------------|------|--------------|------|-----------|---|--------|---|---|
| 1<br>2<br>3<br>4 | php<br echo<br>?> | )\$_ | SERVER['REMC | TE_A | DDR'];    |   |        |   |   |

| ( ec | at.cpp  | ×  | index.htm   | ×      | index.php           | ×    | ip.php | × |
|------|---|--|-------------|--------|---------------------|------|--------|---|
| 1    |   | L>   |             |        |                     |      |        |   |
| 2    | ¢   | <head></head>  |             |        |                     |      |        |   |
| з    |   | <t.< td=""><td>ITLE&gt;Your I</td><td>intern</td><td>et IP<mark></mark></td><td>E&gt;</td><td></td><td></td></t.<> | ITLE>Your I | intern | et IP <mark></mark> | E>   |        |   |
| 4    | F   | <td>&gt;</td> <td></td> <td></td> <td></td> <td></td> <td></td>  | >           |        |                     |      |        |   |
| 5    | 白   | <b0dy></b0dy>  |             |        |                     |      |        |   |
| 6    |   | </td <td>php</td> <td></td> <td></td> <td></td> <td></td> <td></td>  | php         |        |                     |      |        |   |
| 7    |   |  | echo \$_SE  | RVER[  | REMOTE_ADD          | R']; |        |   |
| 8    |   | ?>   | _           |        |                     |      |        |   |
| 9    | F   | <td>&gt;</td> <td></td> <td></td> <td></td> <td></td> <td></td>  | >           |        |                     |      |        |   |
| 10   | L <td>ML&gt;</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | ML>  |             |        |                     |      |        |   |
| 11   |   |  |             |        |                     |      |        |   |