

HoyaiLink-in-a-box – Linux

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Prerequisite

You need the root password of your linux if you don't use sudo. Recent linux distributions feature sudo to avoid a root account with password : in this case you need to use an account with sudo authorizations (defined in /etc/sudoers.conf)

Install Java , if missing :

```
# sudo apt-get install default-jre
```

install openssh-server to allow remote connection :

```
# sudo apt-get install openssh-server
```

(it may takes a long time, several minutes)

Part I - HoyaiLink-in-a-box - preparation guide

Step 1 - Download hoyaiLink for linux from hoyaiLog website on your PC

Put the file hoyailink.linux.bsx on a ftp server reachable by the box.

Connect to the box (user : hoyai/root) using screen , keyboard and mouse directly plug to the box.

Download hoyailink.linux.bsx to the box from the ftp server.

```
ftp xxxserver...  
  
> bin  
  
> hash  
  
> cd /folder_where_you_put_hoyailink/  
  
> get hoyailink.linux.bsx
```

Step 2 - Install it from download folder:

```
#./hoyailink.linux.bsx
```

Install as standard and webstorage

Step 3 - Change access control list :

```
# sudo chmod a+rw /etc/hoyailink.cnf
```

```
# sudo chmod a+rw /dev/ttyS0
```

To avoid any issuer with ethernet cards,

remove the following file :

```
# sudo rm /etc/udev/rules.d/70-persistent-net.rules
```

Then reboot and you will have eth0 active then restart the guide from here.

Create a user hoyailink inside group hoyailink

```
# sudo useradd -m -g hoyailink hoyailink
```

```
# sudo passwd hoyailink
```

setup hoyailink as password for hoyailink account

```
# sudo vi /etc/passwd
```

Replace the script `/bin/sh` by `/home/hoyailink/netsetup.sh` in the line of hoyailink user

```
hoyailink:x:1001:1001::/home/hoyailink:/home/hoyailink/netsetup.sh
```

Now, when hoyaiLink user will connect, the netsetup.sh script will be fired without any possibility to do anything else.

```
# sudo visudo
```

Insert the two following lines to allow hoyaiLink user to shutdown and startup the eth0 :1 network interface

```
hoyailink ALL=NOPASSWD: /sbin/ifdown eth0\:1
```

```
hoyailink ALL=NOPASSWD: /sbin/ifup eth0\:1
```

```
# sudo chmod a+rw /etc/resolv.conf
```

```
# sudo chmod a+rw /etc/network/interfaces
```

```
# sudo mkdir /home/hoyailink
```

(it could have been created already by useradd, depending on options given to useradd)

```
# sudo chown hoyailink:hoyailink hoyailink
```

```
# cd /home/hoyailink
```

```
# sudo vi /home/hoyailink/netsetup.sh
```

and copy paste from Appendix – netsetup.sh

```
# sudo chmod a+x /home/hoyailink/netsetup.sh
```

Above command enables execution of the script

```
# sudo vi /home/hoyailink/interfaces.eth0
```

and copy paste from Appendix – interfaces.eth0

```
# sudo cp -f /etc/resolv.conf /home/hoyailink/resolv.conf
```

```
# sudo vi /home/hoyailink/interfaces.eth0.1
```

and copy paste from Appendix – interfaces.eth0.1

```
# sudo chown hoyailink:hoyailink *
```

```
# sudo crontab -e
```

and define autoupdate check every day at 01 :00am (hoyaiibox has to be kept power on overnight, at least one night per week)

```
0 1 * * * /opt/app/HoyaiLinkUpdater/bin/hiupdater.sh
```

Rename the host

```
# sudo vi /etc/hostname
```

I recommend to define unique name like `hoyailink_XXX` where 'XXX' varies. It will allow to have several boxes in plug-n-play mode in the same shop. For example, in France, I will manage `_xxx` in lower case, like `_frxxxx`, where `fr` is for France.

Step 4 – remove graphical interface at boot

(see Part II below)

Now, preparing the box to boot without graphical interface started, to save resource (CPU and memory).

Edit `/etc/default/grub` with your favorite editor,

```
# sudo nano /etc/default/grub
```

Find out this line:

```
GRUB_CMDLINE_LINUX_DEFAULT="quiet splash"
```

Change it to:

```
GRUB_CMDLINE_LINUX_DEFAULT="text"
```

Update Grub:

```
# sudo update-grub
```

In case you to launch graphical interface, from the console , just type

```
# sudo /etc/init.d/lxdm start
```

Step 5 - Open hoyailog's website from one machine's browser,

HoyaiLink has to be installed in web storage mode on this machine to setup the tracer.

Setup the tracer's configuration in settings

- COM0 mapped to /dev/ttyS0
- COM1 mapped to /dev/ttyS1
- COM2 mapped to /dev/ttyS2
- And so on

Choose COM0 on hoyailog's settings if you plug the tracer on COM1 port on the box

Choose COM1 on hoyailog's settings if you plug the tracer on COM2 port on the box

Step 6 - Preparing a new image disk to distribute

Clone the original SD card, by engraving hoyailink.img to a new SD card.

Boot the new SD card into a box and connect as hoyo/root

Change the hostname from hoyailink_xxxx to a new name hoyailink_xxyy

```
# sudo nano /etc/hostname
```

After initial configuration, the system has created a file

```
/etc/udev/rules.d/70-persistent-net.rules
```

This file contains hardware address of the network interface card. If you take an image of the SD card and build a clone, when you will plug the clone SD card into another machine, your network interface number will be incremented.

Hardware address is unique. If you plug the card into another box, the hardware address of the card will be different and the system will increment it for the new card.

Before cloning the card remove the file

```
# sudo rm /etc/udev/rules.d/70-persistent-net.rules
```

Part II – Hoyailink-in-a-box installation guide in shop

Retrieve IP address from dhcp , or try to find it using the name hoyailink_XXX, or connect screen and keyboard to the box.

If you need to setup the ip address to better fit the shop's local network :

With ssh client , open a session to hoyabox , or direct connection with keyboard and screen.

Connect as user : hoyailink/hoyailink

Fix the address by following script guidance.

Says you retrieve 10.8.53.24, use the address to setup the tracer inside hoyailog with your browser

Part II – hoyaiLog tracer's setup

On your PC you need hoyaiLink installed also as standard/webstorage only for tracer's setup

From your PC, open hoyaiLog settings

Choose advanced settings, check Network tracer



Enter the IP address : 10.8.53.24 for example

- It will automatically apply your choice to the hoyaiLink referred by the IP address.

Save your configuration

Start to trace , enjoy !

Appendix

Appendix I - Files after installation

1. /opt/app/HoyaiLinkNetworkConnector/
2. /opt/app/HoyaiLinkUpdater/
3. /opt/app/HoyaiLinkWebApiConnector/
4. /var/log/networkconn/networkconn.log
5. /var/log/webapiconn/webapiconn.log
6. /etc/hoyailink.cnf
7. /var/local/hoyailink/version.info

Appendix II - Netsetup.sh

```
#!/bin/bash
clear
cd /home/hoyailink
IFACE="eth0:1"
ifacefilename="interfaces.eth0.1"
dhcpaddr=`/sbin/ifconfig eth0 | grep "inet " | cut -d ":" -f 2 | cut -d " " -f 1`
ipaddr=`/sbin/ifconfig eth1 | grep "inet " | cut -d ":" -f 2 | cut -d " " -f 1`
ipbcast=`/sbin/ifconfig eth0:1 | grep "inet " | cut -d ":" -f 3 | cut -d " " -f 1`
ipmask=`/sbin/ifconfig eth0:1 | grep "inet " | cut -d ":" -f 4 | cut -d " " -f 1`
ipgway=`grep gateway interface.eth0.1 | awk '{split($0,array," ")} END{ print array[2]}'`
dns1=`grep nameserver /etc/resolv.conf | head -1| awk '{split($0,array," ")} END{ print array[2]}'`
dns2=`grep nameserver /etc/resolv.conf | tail -1| awk '{split($0,array," ")} END{ print array[2]}'`
echo " ----- dynamic IP configuration -----"
echo " Address   :   $dhcpaddr "
echo " Gateway    :   $ipgway  "
echo " ----- current IP configuration -----"
echo " Address   :   $ipaddr  "
echo " Mask      :   $ipmask  "
echo " Broadcast :   $ipbcast "
echo " Gateway   :   $ipgway  "
echo " DNS #1    :   $dns1   "
echo " DNS #2    :   $dns2   "
echo " ----- "
read -p "Please enter new IP address [$ipaddr]: " IN_ipaddr
IN_ipaddr=${IN_ipaddr:-$ipaddr}
read -p "Please enter new IP network mask [$ipmask]: " IN_ipmask
IN_ipmask=${IN_ipmask:-$ipmask}
read -p "Please enter new IP broadcast [$ipbcast]: " IN_ipbcast
IN_ipbcast=${IN_ipbcast:-$ipbcast}
read -p "Please enter new IP gateway [$ipgway]: " IN_ipgway
IN_ipgway=${IN_ipgway:-$ipgway}
read -p "Please enter new address of DNS #1[$dns1]: " IN_dns1
IN_dns1=${IN_dns1:-$dns1}
read -p "Please enter new address of DNS #2 [$dns2]: " IN_dns2
IN_dns2=${IN_dns2:-$dns2}
echo " ----- new IP configuration -----"
echo " Address   :   $IN_ipaddr "
echo " Mask      :   $IN_ipmask "
echo " Broadcast :   $IN_ipbcast "
echo " Gateway   :   $IN_ipgway "
echo " DNS #1    :   $IN_dns1 "
echo " DNS #2    :   $IN_dns2 "
echo " ----- "
read -p "Confirm change [Y/n]: " IN_valid
valid="Y"
```



```

IN_valid="${IN_valid:-$valid}"
if test "$IN_valid" == "Y"
then
    echo "update applied, restart network interface"
    echo "auto $IFACE " > $ifacefilename
    echo "iface $IFACE inet static" >> $ifacefilename
    echo "    address $IN_ipaddr " >> $ifacefilename
    echo "    netmask $IN_ipmask " >> $ifacefilename
    echo "    broadcast $IN_ipbcast " >> $ifacefilename
    echo "    gateway $IN_ipgway " >> $ifacefilename
    echo " nameserver $IN_dns1 " > resolv.conf
    echo " nameserver $IN_dns2 " >> resolv.conf
    cat interfaces.eth0 $ifacefilename > interfaces
    cat interfaces
    cp -f interfaces /etc/network/interfaces
    sudo /sbin/ifdown $IFACE
    sudo /sbin/ifup $IFACE
    cp -f resolv.conf /etc/resolv.conf
else
    echo "no change applied"
fi
exit

```

Appendix III – interfaces.eth0

```

# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

```

```

# The loopback network interface
auto lo
iface lo inet loopback

```

```

# The primary network interface
auto eth0
iface eth0 inet dhcp

```

Appendix IV – interfaces.eth0.1

```

auto eth0:1
iface eth0:1 inet static
    address 169.254.221.200
    netmask 255.255.255.0
    broadcast 169.254.221.255
    gateway 169.254.221.1

```

Appendix V – troubleshooting

V-1 Monitoring

To analyze issues , have a look to /var/log/ in the following files

```

/var/log/networkconn/networkconn.log
/var/log/webapiconn/webapiconn.log
/var/log/auth.log

```

Use the `tail` command to track events while you try to connect.

```
# tail -f /var/log/networkconn/networkconn.log &
# tail -f /var/log/auth.log &
# tail -f /var/log/webapiconn/webapiconn.log &
```

V-2 Network issues

If you made a mistake when creating disk image, or plug a SD card into another box. The Network interface name will be different from `eth0` : `eth1,eth2` instead of `eth0`

In case of troubles, using a keyboard and screen connected to the mini pc. Connect with `hoya/root` and open terminal, then run the order `ifconfig`.

```
# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:1b:eb:63:8c:19
          inet addr:10.8.51.26  Bcast:10.8.51.255
Mask:255.255.254.0
          inet6 addr: fe80::21b:ebff:fe63:8c19/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:43697 errors:0 dropped:0 overruns:0 frame:0
          TX packets:13556 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:20026127 (20.0 MB)  TX bytes:1253157 (1.2 MB)
          Interrupt:10

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:6 errors:0 dropped:0 overruns:0 frame:0
          TX packets:6 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:328 (328.0 B)  TX bytes:328 (328.0 B)
```

If the name is not `eth0` then your clone card has been misconfigured (see Part I – step 6) , remove the following file :

```
# sudo rm /etc/udev/rules.d/70-persistent-net.rules
```

Then reboot and you will have `eth0` active.