

# SSH Usage on CEP

We use the Secure Shell (ssh) on CEP to connect to different systems. This page explains how this can be used without having to supply a password each time you want to connect to a system.

## Generating keys

### Linux or OS X

The first thing you need to do is generate an authorisation key using the DSA algorithm, which means you need to do the following once:

```
ssh-keygen -t dsa  
cp .ssh/id_dsa.pub .ssh/authorized_keys
```

Use cat or some editor if authorized keys already exists and can't be simply copied. Copy your .ssh/authorized\_keys to the \$HOME of each system you want access to. Please make sure you use a passphrase to encrypt your private key, to prevent easy access. When using the instructions below on the ssh-agent, you'll only have to provide it once each time you use the systems.

### Windows

TBD probably requires an explanation on installing Putty

## Using an SSH-Agent

An ssh-agent is a small program that when you start work is used to unlock the passphrase protected private key you generated above. The ssh-agent will from that point on automatically supply the right answers to any ssh session, if you use ssh -A each time you connect to another system.

Detailed information on how to setup ssh agent forwarding can be found [here](#) and [here](#).

### Linux

The ssh-agent runs in the user's local PC, laptop, or terminal. Authentication data need not be stored on any other machine, and authentication passphrases never go over the network. Also, the connection to the agent is forwarded over SSH remote logins, and the user can thus use the privileges given by the identities anywhere in the network in a secure way.

If you start the ssh-agent it creates a socket in /tmp and then generates a few commands on stdout which serve to set environmental variables and to tell you which PID the agent has. An example:

```
SSH_AUTH_SOCK=/tmp/ssh-jpIaV4861/agent.4861; export SSH_AUTH_SOCK;
SSH_AGENT_PID=4862; export SSH_AGENT_PID;
echo Agent pid 4862;
<code>
```

By 'eval'uating this code, the variables `SSH_AUTH_SOCK` and `SSH_AGENT_PID` will be set. You can use the `SSH_AGENT_PID`, for example, to kill the agent when you log off. The agent itself recognises the variable and commits suicide when you type:

```
ssh-agent -k
```

The `SSH_AUTH_SOCK` variable is mainly used by the program 'ssh-add', which uses it to determine with which agent to communicate. To get your agent running type:

```
eval `ssh-agent`
ssh-add
```

Please note the back-quotes. If you have bash, you might use the more readable:

```
eval $(ssh-agent)
ssh-add
```

Note that the permissions on the socket file prevent people from accessing your agent - but on a regular Unix system the 'root' user can override these restrictions. Hence, root can set `SSH_AUTH_SOCK` to your socket and use 'ssh-add' to list/add/delete your keys. He can also log in on all of your systems without having to use a password. **\*\*Be warned.\*\***

=== Persistent agent ===

In theory, you only need to start up the agent once on the host you use to connect to other systems (e.g. your laptop) and be done with it; all requests from all your shells may be handled by the very same agent. However, this requires the proper setting of the environmental variables. Alas, there is no simple way to find out which socket an agent uses. But a little script magic will do the trick. If you use 'bash' you can copy the following code into your ' '.bashrc' to re-use your running agent:

```
<code>
# find out how many agents we have running. If more than 1 do nothing,
# if zero, start one up and if 1, re-use it
#
z=0
PA=$(ps -u $USER |awk '$NF=="ssh-agent" { print $1 }' )
for n in $PA
do
    ((z++))
done

# No agent runs for me, so start one:
if [ $z -eq 0 ]
```

```
then
    eval $(ssh-agent)
    ssh-add
fi

# There is an agent for me, so figure out the socketname and set the
variables
# 'manually':
if [ $z -eq 1 ]
then
    # The socket has been created by the parent process, which has a PID one
    # less than that of the running agent. The PPID is needed to determine
the
    # name of the socket. Alternately you might get the PPID from the process
    # listing.
    #
    q=$PA
    ((q--))

    # Next, we search for the matching socket. There can only be one that has
    # the PPID in it's name.
    #
    candidate=$(ls /tmp/ssh-*/agent* |sed -n '/tmp\/ssh-
.*'$q'\agent.'$q'$p')

    # If what we found is a socket, set the environmental variables
    #
    if [ -S "$candidate" ]
    then
        export SSH_AGENT_PID=$PA
        export SSH_AUTH_SOCK=${candidate}
        ssh-add -L >/dev/null 2>&1
        if [ $? -eq 0 ]
        then
            echo "Reusing your existing ssh agent (pid is $PA)"
        else
            unset SSH_AGENT_PID
            unset SSH_AUTH_SOCK
        fi
    fi
fi

# A simple function to allow you to type 'gono <nodename> (as <identity>)'
# which will use ssh-agent forwarding to step right 'through' the
# portal to the end-node
#
gono() {
    if [ $# -eq 3 -a "$2" == "as" ]
    then
        ssh -A -t portal.lofar.eu "ssh -A $3@$1"
    else
```

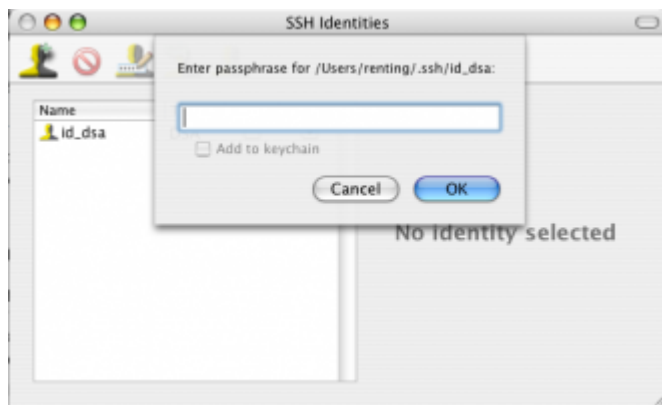
```
if [ $# -eq 1 ]
then
  ssh -A -t portal.lofar.eu "ssh -A $1"
else
  echo "Syntax error"
  echo "Usage: gono <nodename> as <user>"
fi
fi
}
```

To list the identities (keys) currently known by your ssh-agent, you can use:

```
ssh-add -L
```

## OS X

Install [SSH Agent 1.1](#) and set it to *Open at Login* or use the same commands as on Linux.



## Windows

Use Pagent provided by [Putty](#)

- TBD

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