

**→ Convenciones:**

```
# En todos los nodos como 'sudo su'.  
[root@srv1 ~]# Solo en servidor 'srv1' → como 'sudo su'.  
[root@srv2 ~]# Solo en servidor 'srv2' → como 'sudo su'.
```

→ **Configuración Vagrant inicial como ejemplo, no obstante utilizaré una configuración mas amplia y compleja para poder desplegar datos/servicios en entornos de trabajo diferenciados para un adecuado despliegue y en producción.**

```
$ cat <<FIN > Vagrantfile  
Vagrant.configure(2) do |config|  
  config.vm.define "srv1" do |srv|  
    srv.vm.box = "centos/8"  
    srv.vm.hostname = "srv1.enermol.lan"  
    srv.vm.network "private_network", ip: "192.168.10.151",  
      virtualbox__intnet: "intnet"  
    srv.vm.network "private_network", ip: "192.168.10.161",  
      virtualbox__intnet: "intnet2"  
    srv.vm.network "forwarded_port", guest: 2224, host: 2224  
  end  
  config.vm.define "srv2" do |srv|  
    srv.vm.box = "centos/8"  
    srv.vm.hostname = "srv2.enermol.lan"  
    srv.vm.network "private_network", ip: "192.168.10.152",  
      virtualbox__intnet: "intnet"  
    srv.vm.network "private_network", ip: "192.168.10.162",  
      virtualbox__intnet: "intnet2"  
  end  
end  
FIN
```

```
# lsblk  
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT  
sda         8:0    0   40G  0 disk  
├─sda1      8:1    0    1G  0 part /boot  
├─sda2      8:2    0   39G  0 part  
│  └─cl-root 253:0   0   36G  0 lvm /  
│  └─cl-swap 253:1   0  3,1G  0 lvm [SWAP]  
sdb         8:16   0   40G  0 disk
```

```
# df -hT  
S.ficheros      Tipo      Tamaño Usados  Disp  Uso% Montado en  
devtmpfs        devtmpfs  1,4G    0      1,4G   0% /dev  
tmpfs           tmpfs     1,4G    38M    1,4G   3% /dev/shm  
tmpfs           tmpfs     1,4G    8,6M   1,4G   1% /run  
tmpfs           tmpfs     1,4G    0      1,4G   0% /sys/fs/cgroup  
/dev/mapper/cl-root xfs       36G    2,8G   34G    8% /  
/dev/sda1       ext4      976M   190M   720M   21% /boot  
tmpfs           tmpfs     284M    0      284M   0% /run/user/0
```

```
# cat <<FIN > /etc/hosts  
#127.0.0.1 srv1 srv1  
#127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4  
#::1 localhost localhost.localdomain localhost6 localhost6.localdomain6
```



```
192.168.10.150 pgsq1-vip.enermol.lan pgsq1-vip
192.168.10.160 pgsq1-alt-vip.enermol.lan pgsq1-alt-vip
```

```
192.168.10.151 srv1.enermol.lan srv1
192.168.10.152 srv2.enermol.lan srv2
```

```
192.168.10.161 srv1-alt.enermol.lan srv1-alt
192.168.10.162 srv2-alt.enermol.lan srv2-alt
```

```
192.168.10.159 ilo-srv1.enermol.lan ilo-srv1
192.168.10.169 ilo-srv2.enermol.lan ilo-srv2
```

FIN

```
# vim /etc/ssh/sshd_config
```

...

```
PermitRootLogin yes
```

```
PasswordAuthentication yes
```

...

```
# systemctl restart sshd.service
```

```
# ssh-keygen
```

```
# getenforce
```

```
Enforcing
```

```
# systemctl status firewalld.service
```

```
● firewalld.service - firewalld - dynamic firewall daemon
```

```
Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; vendor preset: enabled)
```

```
Active: active (running) since Tue 2020-03-24 11:37:28 CET; 3h 52min ago
```

```
Docs: man:firewalld(1)
```

```
Main PID: 942 (firewalld)
```

```
Tasks: 3 (limit: 17950)
```

```
Memory: 41.4M
```

```
CGroup: /system.slice/firewalld.service
```

```
└─942 /usr/libexec/platform-python -s /usr/sbin/firewalld --nofork - nopic
```

```
mar 24 11:37:16 srv1.enermol.lan systemd[1]: Starting firewalld - dynamic firewall daemon...
```

```
mar 24 11:37:28 srv1.enermol.lan systemd[1]: Started firewalld - dynamic firewall daemon.
```

```
[root@srv1 ~]# ssh-copy-id -i .ssh/id_rsa.pub srv2
```

```
[root@srv2 ~]# ssh-copy-id -i .ssh/id_rsa.pub srv1
```

```
# systemctl enable --now firewalld.service
```

```
→ Sincronización Horaria.
```

```
# firewall-cmd --permanent --add-service=ntp
```

```
# firewall-cmd --permanent --add-port=123/udp
```

```
# firewall-cmd --reload
```

```
# systemctl enable --now chronyd.service chrony-wait.service
```

```
# timedatectl set-timezone Europe/Madrid
```

```
# systemctl restart chronyd.service chrony-wait.service
```



```
# chronyc tracking
# chronyc sources
# timedatectl
# chronyc sourcestats
```

https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/7/html/system_administrators_guide/sect-using_chrony

<http://proyectoa.com/configurar-actualizacion-automatica-de-hora-y-fecha-en-equipo-linux-centos-7-con-ntp/>

→ Instalación de Pacemaker.

```
# dnf install epel-release-8-8.el8.noarch -y
# firewall-cmd --permanent --add-service=high-availability
# firewall-cmd --reload
# firewall-cmd --list-services
cockpit dhcpv6-client high-availability ntp ssh

# dnf --enablerepo=HighAvailability -y install pacemaker pcs

# systemctl enable --now pcsd.service

# passwd hacluster
```

```
[root@srv1 ~]# pcs host auth srv1.enermol.lan srv2.enermol.lan -u hacluster
Password:
srv2.enermol.lan: Authorized
srv1.enermol.lan: Authorized
```

```
[root@srv1 ~]# pcs cluster setup cluster-odoo srv1.enermol.lan srv2.enermol.lan
No addresses specified for host 'srv1.enermol.lan', using 'srv1.enermol.lan'
No addresses specified for host 'srv2.enermol.lan', using 'srv2.enermol.lan'
Destroying cluster on hosts: 'srv1.enermol.lan', 'srv2.enermol.lan'...
srv1.enermol.lan: Successfully destroyed cluster
srv2.enermol.lan: Successfully destroyed cluster
Requesting remove 'pcsd settings' from 'srv1.enermol.lan', 'srv2.enermol.lan'
srv1.enermol.lan: successful removal of the file 'pcsd settings'
srv2.enermol.lan: successful removal of the file 'pcsd settings'
Sending 'corosync authkey', 'pacemaker authkey' to 'srv1.enermol.lan',
'srv2.enermol.lan'
srv1.enermol.lan: successful distribution of the file 'corosync authkey'
srv1.enermol.lan: successful distribution of the file 'pacemaker authkey'
srv2.enermol.lan: successful distribution of the file 'corosync authkey'
srv2.enermol.lan: successful distribution of the file 'pacemaker authkey'
Sending 'corosync.conf' to 'srv1.enermol.lan', 'srv2.enermol.lan'
srv2.enermol.lan: successful distribution of the file 'corosync.conf'
srv1.enermol.lan: successful distribution of the file 'corosync.conf'
Cluster has been successfully set up.
```

```
# vim /etc/corosync/corosync.conf

totem {
    version: 2
    cluster_name: cluster-odoo
    transport: knet
    crypto_cipher: aes256
    crypto_hash: sha256
```



```
}  
nodelist {  
  node {  
    ring0_addr: srv1.enermol.lan  
    name: srv1.enermol.lan  
    nodeid: 1  
  }  
  
  node {  
    ring0_addr: srv2.enermol.lan  
    name: srv2.enermol.lan  
    nodeid: 2  
  }  
}  
  
quorum {  
  provider: corosync_votequorum  
  two_node: 1  
}  
  
logging {  
  to_logfile: yes  
  logfile: /var/log/cluster/corosync.log  
  to_syslog: yes  
  timestamp: on  
}
```

```
[root@srv1 ~]# corosync-keygen
```

```
Corosync Cluster Engine Authentication key generator.  
Gathering 1024 bits for key from /dev/random.  
Press keys on your keyboard to generate entropy.  
Press keys on your keyboard to generate entropy (bits = 920).  
Press keys on your keyboard to generate entropy (bits = 1000).  
Writing corosync key to /etc/corosync/authkey.
```

```
[root@srv1 ~]# scp /etc/corosync/authkey srv2:/etc/corosync/
```

```
[root@srv1 ~]# pcs cluster start --all
```

```
srv2.enermol.lan: Starting Cluster...  
srv1.enermol.lan: Starting Cluster...
```

```
[root@srv1 ~]# pcs cluster enable --all
```

```
srv1.enermol.lan: Cluster Enabled  
srv2.enermol.lan: Cluster Enabled
```

```
[root@srv1 ~]# pcs status
```

```
Cluster name: cluster-odoo
```

```
WARNINGS:
```

```
No stonith devices and stonith-enabled is not false
```

```
Stack: corosync
```

```
Current DC: srv1.enermol.lan (version 2.0.2-3.el8_1.2-744a30d655) - partition  
with quorum
```

```
Last updated: Sun Mar 22 10:06:59 2020
```

```
Last change: Sun Mar 22 10:05:41 2020 by hacluster via crmd on srv1.enermol.lan
```



```
2 nodes configured
0 resources configured
```

```
Online: [ srv1.enermol.lan srv2.enermol.lan ]
```

```
No resources
```

```
Daemon Status:
  corosync: active/enabled
  pacemaker: active/enabled
  pcsd: active/enabled
```

```
[root@srv1 ~]# corosync-cfgtool -s
Printing link status.
Local node ID 1
LINK ID 0
  addr = 192.168.10.151
  status:
    nodeid 1: link enabled:1    link connected:1
    nodeid 2: link enabled:1    link connected:1
```

```
[root@srv2 ~]# corosync-cfgtool -s
Printing link status.
Local node ID 2
LINK ID 0
  addr = 192.168.10.152
  status:
    nodeid 1: link enabled:1    link connected:1
    nodeid 2: link enabled:1    link connected:1
```

```
[root@srv1 ~]# corosync-cmapctl | grep members
runtime.members.1.config_version (u64) = 0
runtime.members.1.ip (str) = r(0) ip(192.168.10.151)
runtime.members.1.join_count (u32) = 1
runtime.members.1.status (str) = joined
runtime.members.2.config_version (u64) = 0
runtime.members.2.ip (str) = r(0) ip(192.168.10.152)
runtime.members.2.join_count (u32) = 1
runtime.members.2.status (str) = joined
```

```
[root@srv1 ~]# journalctl | grep error
Mar 22 09:03:50 srv1.enermol.lan dracut[6694]: lrwxrwxrwx  1 root    root
22 Jan  3 18:12 usr/lib64/libgpg-error.so.0 -> libgpg-error.so.0.24.2
Mar 22 09:03:50 srv1.enermol.lan dracut[6694]: -rwxr-xr-x  1 root    root
145984 May 11 2019 usr/lib64/libgpg-error.so.0.24.2
Mar 22 10:05:41 srv1.enermol.lan pacemaker-schedulerd[5686]: error: Resource
start-up disabled since no STONITH resources have been defined
Mar 22 10:05:41 srv1.enermol.lan pacemaker-schedulerd[5686]: error: Either
configure some or disable STONITH with the stonith-enabled option
Mar 22 10:05:41 srv1.enermol.lan pacemaker-schedulerd[5686]: error: NOTE:
Clusters with shared data need STONITH to ensure data integrity
Mar 22 10:05:41 srv1.enermol.lan pacemaker-schedulerd[5686]: notice:
Configuration errors found during scheduler processing, please run "crm_verify
-L" to identify issues
```

```
[root@srv1 ~]# crm_verify -L -V
(unpack_resources)      error: Resource start-up disabled since no STONITH
```



```
resources have been defined
(unpack_resources) error: Either configure some or disable STONITH with the
stonith-enabled option
(unpack_resources) error: NOTE: Clusters with shared data need STONITH to
ensure data integrity
Errors found during check: config not valid
```

```
[root@srv1 ~]# pcs status corosync
```

```
Membership information
```

```
-----
Nodeid      Votes Name
    1         1 srv1.enermol.lan (local)
    2         1 srv2.enermol.lan
```

```
[root@srv2 ~]# pcs status corosync
```

```
Membership information
```

```
-----
Nodeid      Votes Name
    1         1 srv1.enermol.lan
    2         1 srv2.enermol.lan (local)
```

```
[root@srv1 ~]# pcs property set stonith-enabled=false
```

```
[root@srv1 ~]# crm_verify -L -V
```

```
[root@srv1 ~]# corosync-quorumtool
```

```
Quorum information
```

```
-----
Date:                Thu Oct 18 18:16:56 2018
Quorum provider:    corosync_votequorum
Nodes:              2
Node ID:            1
Ring ID:            1/20
Quorate:            Yes
```

```
Votequorum information
```

```
-----
Expected votes:    2
Highest expected:  2
Total votes:       2
Quorum:            1
Flags:              2Node Quorate WaitForAll
```

```
Membership information
```

```
-----
Nodeid      Votes Name
    1         1 srv1 (local)
    2         1 srv2
```

```
[root@srv1 ~]# pcs quorum status
```

```
Quorum information
```

```
-----
Date:                Sun Mar 22 10:19:21 2020
Quorum provider:    corosync_votequorum
Nodes:              2
Node ID:            1
Ring ID:            1/8
```



Quorate: Yes

Votequorum information

Expected votes: 2
Highest expected: 2
Total votes: 2
Quorum: 1
Flags: 2Node Quorate WaitForAll

Membership information

Nodeid	Votes	Qdevice Name
1	1	NR srv1.enermol.lan (local)
2	1	NR srv2.enermol.lan

<https://192.168.10.151:2224>

<https://192.168.10.152:2224>



HIGH AVAILABILITY
MANAGEMENT

NODES RESOURCES FENCE DEVICES ACLS CLUSTER PROPERTIES MANAGE CLUSTERS

Username:

Password:



The screenshot shows the High Availability Management (hacluster) interface. At the top, there is a navigation bar with the Red Hat logo, the text 'HIGH AVAILABILITY MANAGEMENT', and a dropdown menu set to 'hacluster'. Below this are two tabs: 'MANAGE CLUSTERS' and 'PERMISSIONS'. The main content area is titled 'MANAGE CLUSTERS' and includes links for 'Remove', 'Add Existing', and 'Create New'. On the left, there is a table with columns for cluster status (All, OK, Warning, Error, Deleted) and counts (0, 0, 0, 0, 0). The right side of the interface is titled 'INFORMATION ABOUT CLUSTERS' and contains the text 'Select a cluster to view more detailed cluster information'. A modal dialog box titled 'Add Existing Cluster' is open in the center. It prompts the user to 'Enter the hostname/IP of a node in a cluster that you would like to manage:'. The 'Node Name/IP:' field contains 'srv1' and the 'PCSD port:' field contains '2224'. At the bottom of the dialog are 'Add Existing' and 'Cancel' buttons.

This screenshot shows the same High Availability Management interface as the previous one, but with an additional dialog box. The 'Add Existing Cluster' dialog is still present in the background. A new modal dialog box titled 'Authentication of nodes' is overlaid on top of it. It prompts the user to 'Enter password for user "hacluster" to authenticate nodes. Nodes to authenticate:'. The 'Nodes to authenticate:' field contains 'srv1' followed by a password input field with masked characters (dots). At the bottom of this dialog are 'Authenticate' and 'Cancel' buttons. The background interface is dimmed.



HIGH AVAILABILITY MANAGEMENT hacluster

MANAGE CLUSTERS PERMISSIONS

MANAGE CLUSTERS [Remove](#) [Add Existing](#) [Create New](#)

NAME	NODES	RESOURCES
cluster-odoo	2	0

INFORMATION ABOUT CLUSTERS

Select a cluster to view more detailed cluster information

HIGH AVAILABILITY MANAGEMENT Cluster: cluster-odoo hacluster

NODES RESOURCES FENCE DEVICES ACLS CLUSTER PROPERTIES MANAGE CLUSTERS

NODES

[Remove](#) [Add](#) [Edit Node](#)

- srv1
- srv2

Edit Node srv2

srv2 ✓ Pacemaker Connected
✓ Corosync Connected

[Start](#) [Stop](#) [Restart](#) [Standby](#) [Maintenance](#) [Configure Fencing](#)

Node ID: 2 Uptime: 0 days, 00:47:24

Cluster Daemons

NAME	STATUS
pacemaker	✓ Running (Enabled)
corosync	✓ Running (Enabled)
pcsd	✓ Running (Enabled)

Running Resources

NAME
NONE

Resource Location Preferences

NAME	Score
NONE	

**# netstat -lntp**

Active Internet connections (only servers)

Proto	Recv-Q	Send-Q	Local Address	Foreign Address	State
tcp	0	0	0.0.0.0:5355	0.0.0.0:*	LISTEN
1382/systemd-resolv					
tcp	0	0	0.0.0.0:111	0.0.0.0:*	LISTEN
1/systemd					
tcp	0	0	0.0.0.0:2224	0.0.0.0:*	LISTEN
4131/platform-pytho					
tcp	0	0	0.0.0.0:22	0.0.0.0:*	LISTEN
969/sshd					
tcp6	0	0	:::5355	:::*	LISTEN
1382/systemd-resolv					
tcp6	0	0	:::111	:::*	LISTEN
1/systemd					
tcp6	0	0	:::2224	:::*	LISTEN
4131/platform-pytho					
tcp6	0	0	:::22	:::*	LISTEN
969/sshd					

ss -nltp

State	Recv-Q	Send-Q	Local Address:Port	Peer Address:Port	
LISTEN	0	128	0.0.0.0:5355	0.0.0.0:*	users:
			(("systemd-resolve", pid=1382, fd=13))		
LISTEN	0	128	0.0.0.0:111	0.0.0.0:*	users:
			(("systemd", pid=1, fd=28))		
LISTEN	0	128	0.0.0.0:2224	0.0.0.0:*	users:
			(("pcsd", pid=4131, fd=6))		
LISTEN	0	128	0.0.0.0:22	0.0.0.0:*	users:
			(("sshd", pid=969, fd=5))		
LISTEN	0	128	:::5355	:::*	users:
			(("systemd-resolve", pid=1382, fd=15))		
LISTEN	0	128	:::111	:::*	users:
			(("systemd", pid=1, fd=30))		
LISTEN	0	128	:::2224	:::*	users:
			(("pcsd", pid=4131, fd=7))		
LISTEN	0	128	:::22	:::*	users:
			(("sshd", pid=969, fd=7))		

firewall-cmd --list-services

cockpit dhcpv6-client high-availability ntp ssh

firewall-cmd --permanent --add-port=9090/tcp

success

firewall-cmd --reload

success

firewall-cmd --list-ports

123/udp 9090/tcp



```
# firewall-cmd --list-services
cockpit dhcpv6-client high-availability ntp ssh

# dnf install cockpit* -y

# systemctl enable cockpit.socket --now
Created symlink /etc/systemd/system/sockets.target.wants/cockpit.socket →
/usr/lib/systemd/system/cockpit.socket.

# systemctl status cockpit.socket
● cockpit.socket - Cockpit Web Service Socket
   Loaded: loaded (/usr/lib/systemd/system/cockpit.socket; enabled; vendor
  preset: disabled)
   Active: inactive (dead)
     Docs: man:cockpit-ws(8)
    Listen: [::]:9090 (Stream)

# netstat -nltp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
PID/Program name
tcp        0      0 0.0.0.0:5355            0.0.0.0:*              LISTEN
1382/systemd-resolv
tcp        0      0 0.0.0.0:111             0.0.0.0:*              LISTEN
1/systemd
tcp        0      0 0.0.0.0:2224            0.0.0.0:*              LISTEN
4131/platform-pytho
tcp        0      0 0.0.0.0:22              0.0.0.0:*              LISTEN
969/sshd
tcp6       0      0 :::5355                 :::*                   LISTEN
1382/systemd-resolv
tcp6       0      0 :::111                  :::*                   LISTEN
1/systemd
tcp6       0      0 :::2224                 :::*                   LISTEN
4131/platform-pytho
tcp6       0      0 :::22                   :::*                   LISTEN
969/sshd
tcp6       0      0 :::9090                 :::*                   LISTEN
1/systemd

# systemctl status firewalld.service
● firewalld.service - firewalld - dynamic firewall daemon
   Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; vendor
  preset: enabled)
   Active: active (running) since Tue 2020-03-24 11:37:28 CET; 3h 52min ago
     Docs: man:firewalld(1)
    Main PID: 942 (firewalld)
      Tasks: 3 (limit: 17950)
     Memory: 41.4M
    CGroup: /system.slice/firewalld.service
            └─942 /usr/libexec/platform-python -s /usr/sbin/firewalld --nofork --
  nopid

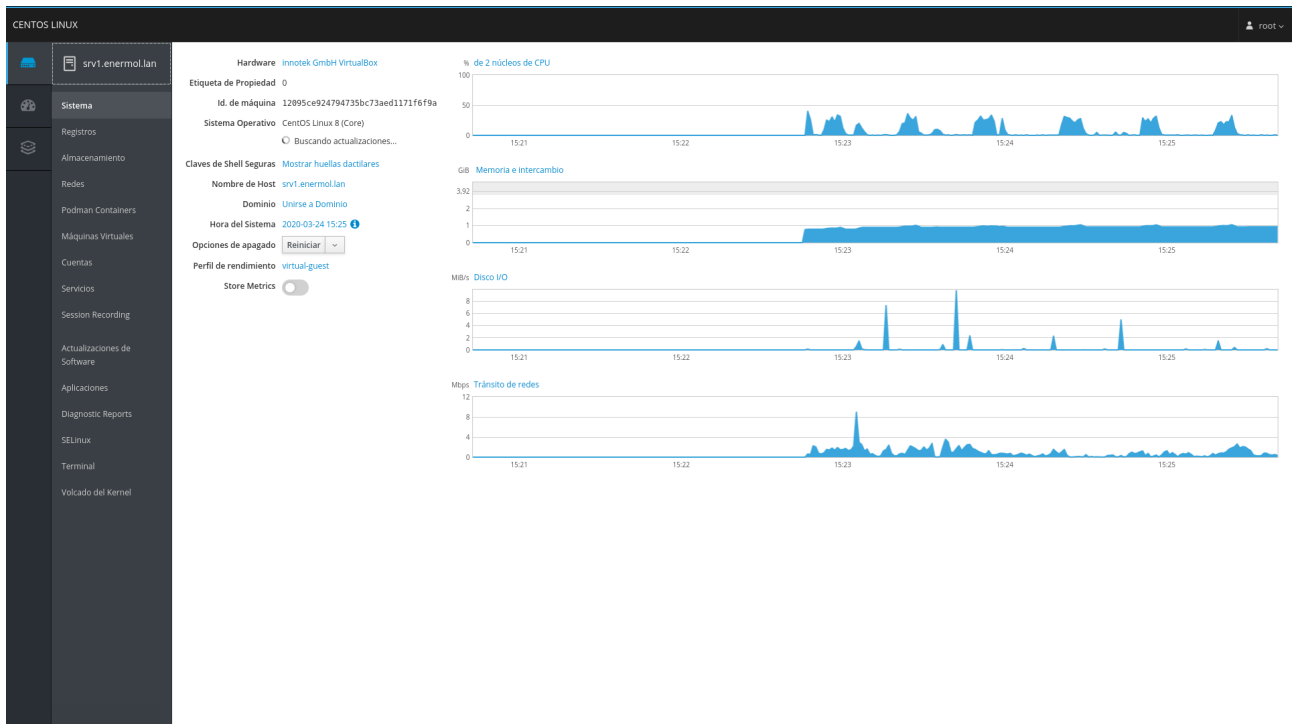
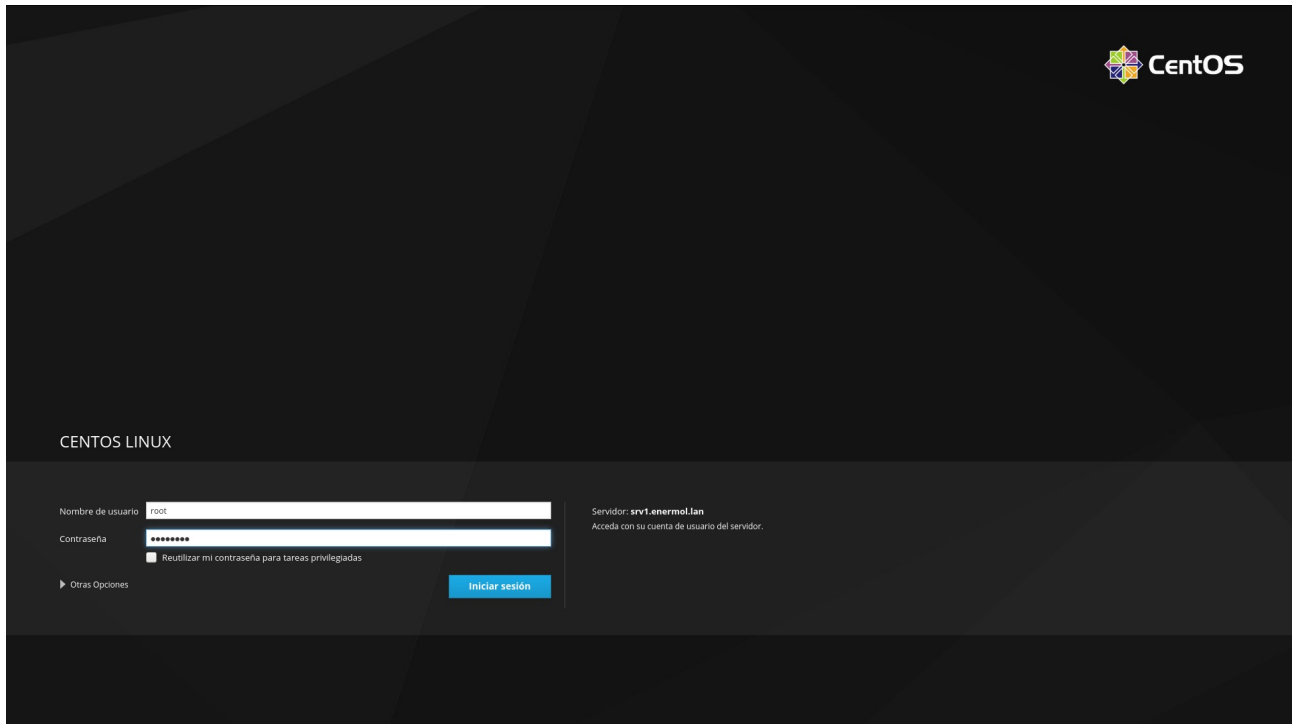
mar 24 11:37:16 srv1.enermol.lan systemd[1]: Starting firewalld - dynamic
  firewall daemon...
mar 24 11:37:28 srv1.enermol.lan systemd[1]: Started firewalld - dynamic
  firewall daemon.
```



mar 24 14:11:08 srv1.enermol.lan firewalld[942]: WARNING: ALREADY_ENABLED: cockpit

<https://192.168.10.151:9090/>

<https://192.168.10.152:9090/>





Normativa de SELinux
Enforce policy:

Errores de control de acceso de SELinux

No hay ninguna alerta de SELinux.

<https://192.168.99.106:9090/selinux/setroubleshoot>

```
[root@srv1 ~]# ip a
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group
default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
    link/ether 08:00:27:bc:e1:4c brd ff:ff:ff:ff:ff:ff
    inet 192.168.99.106/24 brd 192.168.99.255 scope global dynamic noprefixroute
enp0s3
        valid_lft 346sec preferred_lft 346sec
    inet6 fe80::ba90:c77a:eebc:fb6/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
    link/ether 08:00:27:f8:1f:e7 brd ff:ff:ff:ff:ff:ff
    inet 192.168.10.151/24 brd 192.168.10.255 scope global noprefixroute enp0s8
    valid_lft forever preferred_lft forever
    inet6 fe80::e7ff:d218:38ad:c237/64 scope link noprefixroute
    valid_lft forever preferred_lft forever
4: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
    link/ether 08:00:27:2f:45:6f brd ff:ff:ff:ff:ff:ff
    inet 192.168.10.161/24 brd 192.168.10.255 scope global noprefixroute enp0s9
        valid_lft forever preferred_lft forever
    inet6 fe80::b5c0:7a48:7ab4:8c87/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
5: enp0s10: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
```



```
group default qlen 1000
  link/ether 08:00:27:39:01:3a brd ff:ff:ff:ff:ff:ff
  inet 10.0.5.15/24 brd 10.0.5.255 scope global dynamic noprefixroute enp0s10
    valid_lft 69674sec preferred_lft 69674sec
  inet6 fe80::5374:d5df:e304:7a25/64 scope link noprefixroute
    valid_lft forever preferred_lft forever
```

```
[root@srv1 ~]# pcs resource create pgsq1-vip ocf:heartbeat:IPaddr2 nic="enp0s8"
ip=192.168.10.150 cidr_netmask=24 op monitor interval=30s
```

(En realidad el interfaz 'enp0s8' no debería ser el candidato, puesto que ya esta ocupado en otra dirección. Habida cuenta que el modelo presentado se realiza de forma virtualizada y no se dispone de mas interfaces se utiliza el mismo para este propósito, pero teniendo en cuenta que el interfaz en 'modo real' debería ser independiente y único.)

```
[root@srv1 ~]# ip a
```

```
...
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
  link/ether 08:00:27:f8:1f:e7 brd ff:ff:ff:ff:ff:ff
  inet 192.168.10.151/24 brd 192.168.10.255 scope global noprefixroute enp0s8
    valid_lft forever preferred_lft forever
  inet 192.168.10.150/24 brd 192.168.10.255 scope global secondary enp0s8
    valid_lft forever preferred_lft forever
  inet6 fe80::e7ff:d218:38ad:c237/64 scope link noprefixroute
    valid_lft forever preferred_lft forever
...
```

```
[root@srv1 ~]# pcs status
```

```
Cluster name: cluster-odoo
Stack: corosync
Current DC: srv2.enermol.lan (version 2.0.2-3.el8_1.2-744a30d655) - partition
with quorum
Last updated: Tue Mar 24 16:20:52 2020
Last change: Tue Mar 24 16:18:26 2020 by root via cibadmin on srv1.enermol.lan
```

```
2 nodes configured
1 resource configured
```

```
Online: [ srv1.enermol.lan srv2.enermol.lan ]
```

```
Full list of resources:
```

```
pgsq1-vip (ocf::heartbeat:IPaddr2): Started srv1.enermol.lan
```

```
Daemon Status:
```

```
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
```

```
[root@srv1 ~]# pcs resource create pgsq1-alt-vip ocf:heartbeat:IPaddr2
nic="enp0s9" ip=192.168.10.160 cidr_netmask=24 op monitor interval=30s
```

(En realidad y por la misma argumentación anterior el interfaz 'enp0s9' no debería ser el candidato, puesto que ya esta ocupado en otra dirección. Habida cuenta que el modelo presentado se realiza de forma virtualizada y no se dispone



de mas interfaces se utiliza el mismo para este propósito, pero teniendo en cuenta que el interfaz en 'modo real' debería ser independiente y único.)

```
# pcs status
Cluster name: cluster-odoo
Stack: corosync
Current DC: srv1.enermol.lan (version 2.0.2-3.el8_1.2-744a30d655) - partition
with quorum
Last updated: Wed Mar 25 09:51:30 2020
Last change: Tue Mar 24 19:03:44 2020 by root via cibadmin on srv1.enermol.lan
```

```
2 nodes configured
2 resources configured
```

```
Online: [ srv1.enermol.lan srv2.enermol.lan ]
```

```
Full list of resources:
```

```
pgsql-vip (ocf::heartbeat:IPaddr2): Started srv1.enermol.lan
pgsql-alt-vip (ocf::heartbeat:IPaddr2): Started srv2.enermol.lan
```

```
Daemon Status:
```

```
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
```

```
# ping -c1 pgsql-vip
```

```
PING pgsql-vip.enermol.lan (192.168.10.150) 56(84) bytes of data.
64 bytes from pgsql-vip.enermol.lan (192.168.10.150): icmp_seq=1 ttl=64
time=0.069 ms
```

```
--- pgsql-vip.enermol.lan ping statistics ---
```

```
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.069/0.069/0.069/0.000 ms
```

```
[root@srv1 ~]# ping -c1 pgsql-alt-vip
```

```
PING pgsql-alt-vip.enermol.lan (192.168.10.160) 56(84) bytes of data.
64 bytes from pgsql-alt-vip.enermol.lan (192.168.10.160): icmp_seq=1 ttl=64
time=0.765 ms
```

```
--- pgsql-alt-vip.enermol.lan ping statistics ---
```

```
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.765/0.765/0.765/0.000 ms
```

```
[root@srv1 ~]# pcs resource defaults resource-stickiness=100
```

```
Warning: Defaults do not apply to resources which override them with their own
defined values
```

```
[root@srv1 ~]# pcs resource defaults
```

```
resource-stickiness: 100
```

```
[root@srv1 ~]# pcs status
```

```
Cluster name: cluster-odoo
Stack: corosync
Current DC: srv2.enermol.lan (version 2.0.2-3.el8_1.2-744a30d655) - partition
with quorum
```



Last updated: Tue Mar 24 17:43:02 2020
Last change: Tue Mar 24 17:42:28 2020 by root via cibadmin on srv1.enermol.lan

2 nodes configured
2 resources configured

Online: [srv1.enermol.lan srv2.enermol.lan]

Full list of resources:

```
pgsql-vip (ocf::heartbeat:IPaddr2): Started srv1.enermol.lan
pgsql-alt-vip (ocf::heartbeat:IPaddr2): Started srv2.enermol.lan
```

Daemon Status:

```
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
```

→ [Pruebas de HA cruzadas.](#)

```
# pcs node standby srv{1,2}.enermol.lan
```

```
# pcs status
```

```
Cluster name: cluster-odoo
Stack: corosync
Current DC: srv2.enermol.lan (version 2.0.2-3.el8_1.2-744a30d655) - partition
with quorum
Last updated: Tue Mar 24 17:55:48 2020
Last change: Tue Mar 24 17:55:45 2020 by root via cibadmin on srv1.enermol.lan
```

2 nodes configured
2 resources configured

```
Node srv1.enermol.lan: standby
Node srv2.enermol.lan: standby
```

Full list of resources:

```
pgsql-vip (ocf::heartbeat:IPaddr2): Stopped
pgsql-alt-vip (ocf::heartbeat:IPaddr2): Stopped
```

Daemon Status:

```
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
```

```
[root@srv1 ~]# pcs resource
```

```
pgsql-vip (ocf::heartbeat:IPaddr2): Stopped
pgsql-alt-vip (ocf::heartbeat:IPaddr2): Stopped
```

```
[root@srv1 ~]# pcs node unstandby srv1.enermol.lan
```

```
[root@srv1 ~]# pcs resource
```

```
pgsql-vip (ocf::heartbeat:IPaddr2): Started srv1.enermol.lan
pgsql-alt-vip (ocf::heartbeat:IPaddr2): Started srv1.enermol.lan
```

```
[root@srv1 ~]# pcs node unstandby srv2.enermol.lan
```

```
[root@srv1 ~]# pcs status
```

```
Cluster name: cluster-odoo
Stack: corosync
```




```
Current DC: srv1.enermol.lan (version 2.0.2-3.el8_1.2-744a30d655) - partition
with quorum
Last updated: Wed Mar 25 10:04:36 2020
Last change: Wed Mar 25 10:04:30 2020 by root via cibadmin on srv1.enermol.lan
```

```
2 nodes configured
2 resources configured
```

```
Online: [ srv1.enermol.lan srv2.enermol.lan ]
```

```
Full list of resources:
```

```
pgsql-vip (ocf::heartbeat:IPaddr2): Started srv1.enermol.lan
pgsql-alt-vip (ocf::heartbeat:IPaddr2): Started srv1.enermol.lan
```

```
Daemon Status:
```

```
corosync: active/enabled
pacemaker: active/enabled
pcsd: active/enabled
```

```
[root@srv1 ~]# pcs resource move pgsql-vip srv2.enermol.lan
[root@srv1 ~]# pcs resource move pgsql-alt-vip srv2.enermol.lan
[root@srv1 ~]# pcs resource
pgsql-vip (ocf::heartbeat:IPaddr2): Started srv2.enermol.lan
pgsql-alt-vip (ocf::heartbeat:IPaddr2): Started srv2.enermol.lan
```

**REFERENCIAS:**

<https://www.systutorials.com/docs/linux/man/5-votegorum/>

https://www.server-world.info/en/note?os=CentOS_8&p=pacemaker&f=1

https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/8/html-single/configuring_and_managing_high_availability_clusters/index

Creative Commons**Reconocimiento-NoComercial-CompartirIgual 3.1 ESPAÑA**

© 2020 by carlos briso. Usted es libre de copiar, distribuir y comunicar públicamente la obra y hacer obras derivadas bajo las condiciones siguientes:

a) Debe reconocer y citar al autor original.

b) No puede utilizar esta obra para fines comerciales (incluyendo su publicación, a través de cualquier medio, por entidades con fines de lucro.

c) Si altera o transforma esta obra o genera una obra derivada, sólo puede distribuir la obra generada bajo una licencia idéntica a ésta. Al reutilizar o distribuir la obra, tiene que dejar bien claro los términos de la licencia de esta obra.

Alguna de estas condiciones puede no aplicarse si se obtiene el permiso del titular de los derechos de autor. Los derechos derivados de usos legítimos u otras limitaciones no se ven afectados por lo anterior. Licencia completa en castellano.

→ La información contenida en este documento y los derivados de éste se proporcionan tal cual son y los autores no asumirán responsabilidad alguna si el usuario o lector hace mal uso de éstos.