SCO Forum 2006

MOBILITY EVERYWHERE >

SCO HA Cluster
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Overview

- System requirements
- Install process
- Configuring the cluster

System Requirements

- Hardware
  - Two or more supported servers
  - At least 64MB RAM (recommended 256MB +)
  - At least one network card attached to public network
  - At least one interface used as a heartbeat between servers. Like a serial connection or second network interface.
  - Shared storage if data is going to be shared between the clusters

System Requirements (cont)

Operating Systems

OpenServer 6.0 with:

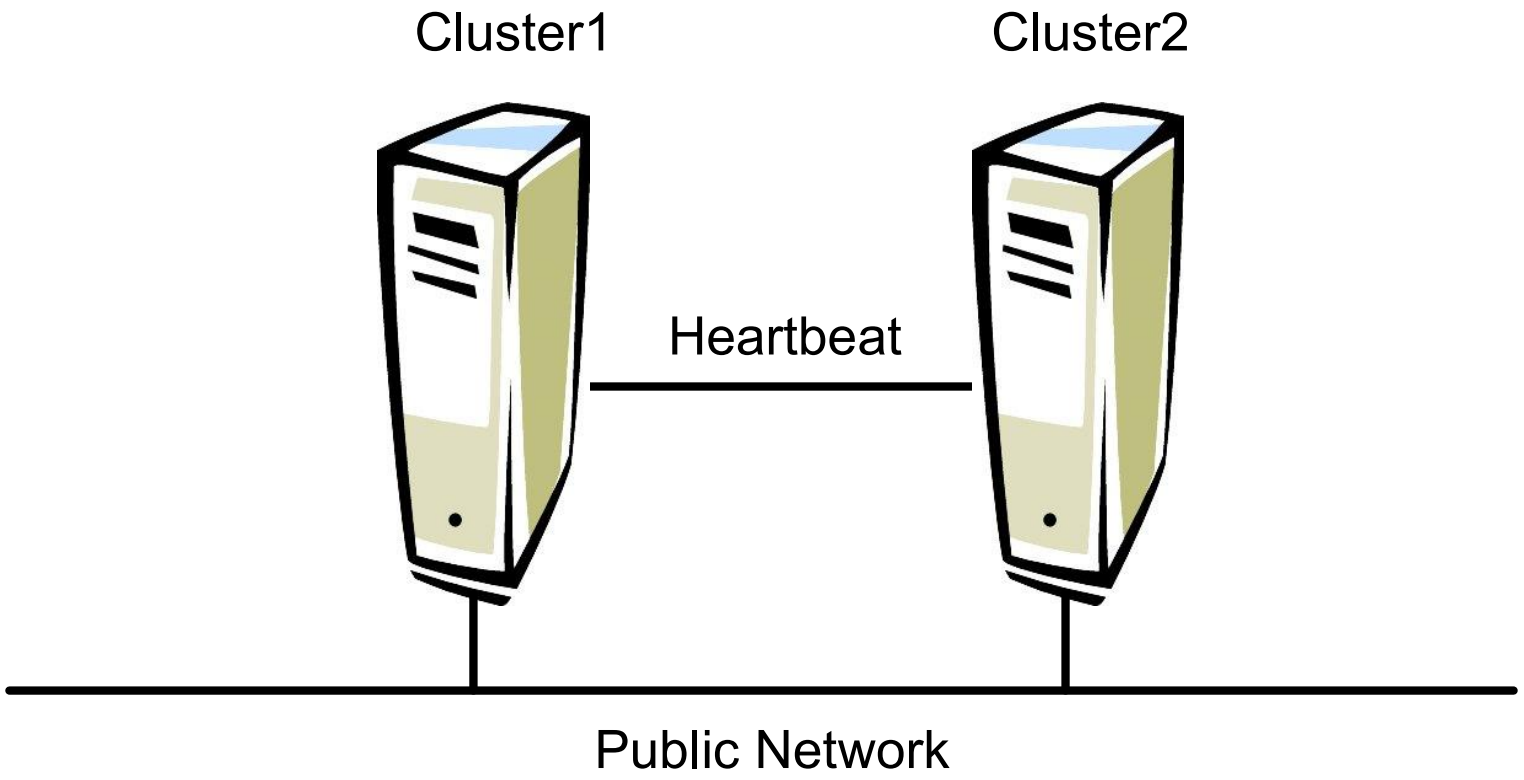
MP2 or later

UNIXWARE 7.1.4 with:

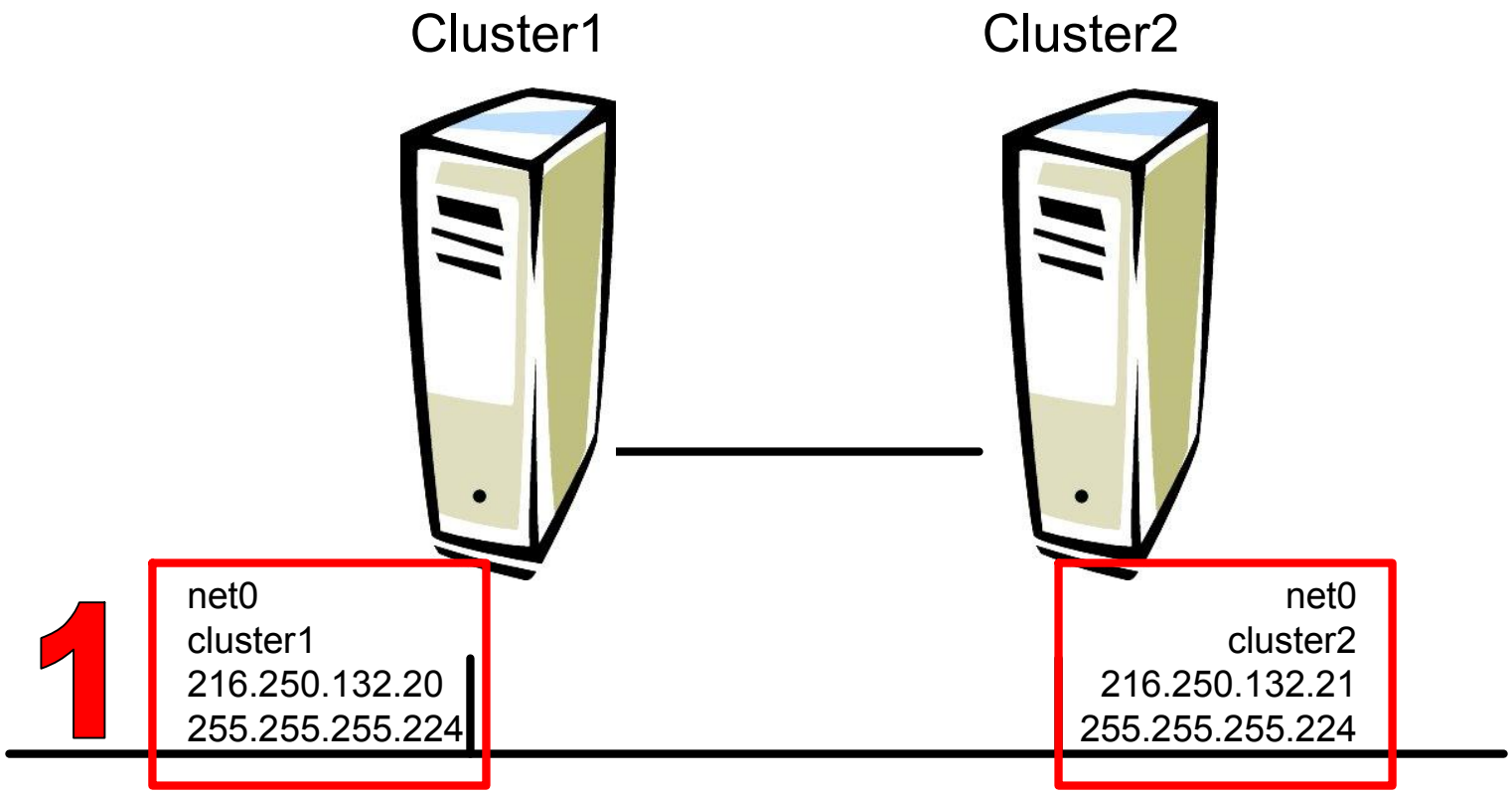
MP3 and ptf9052

or later

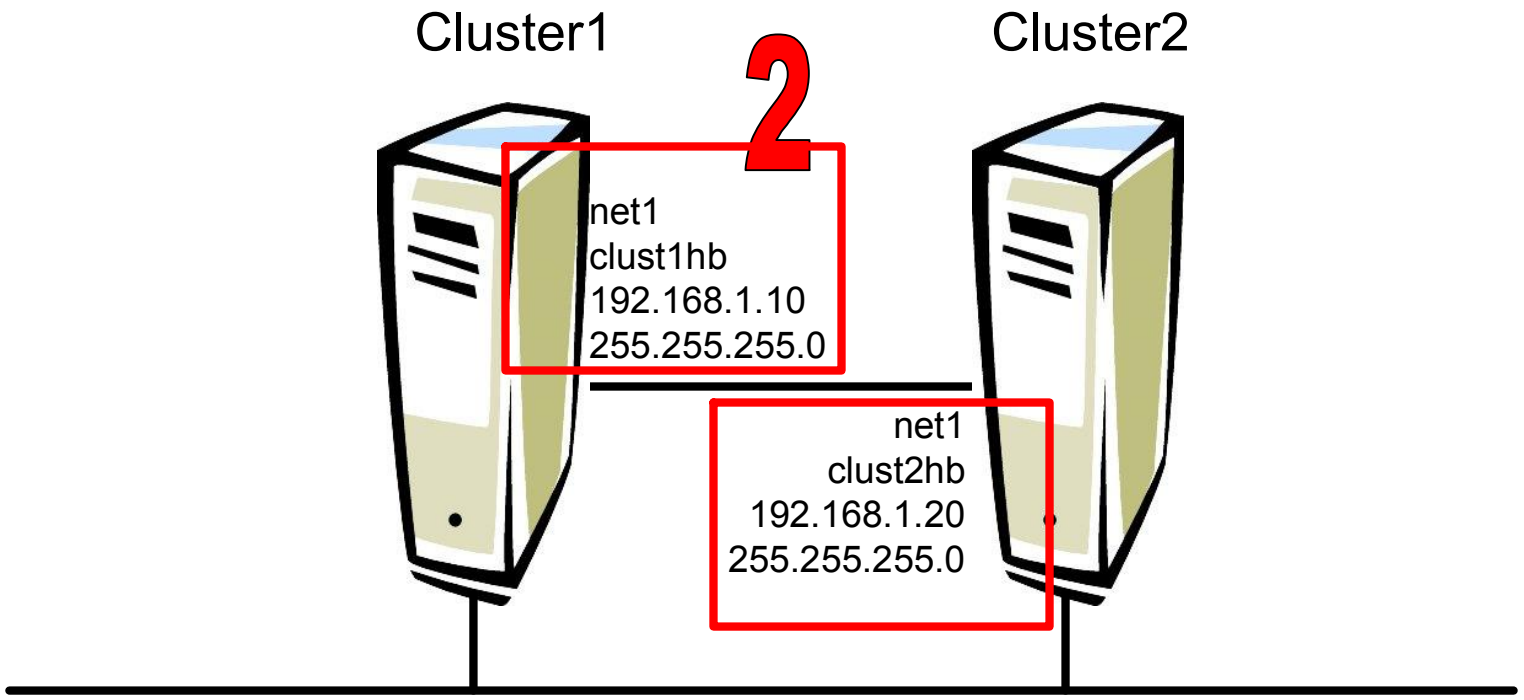
Basic Cluster Configuration



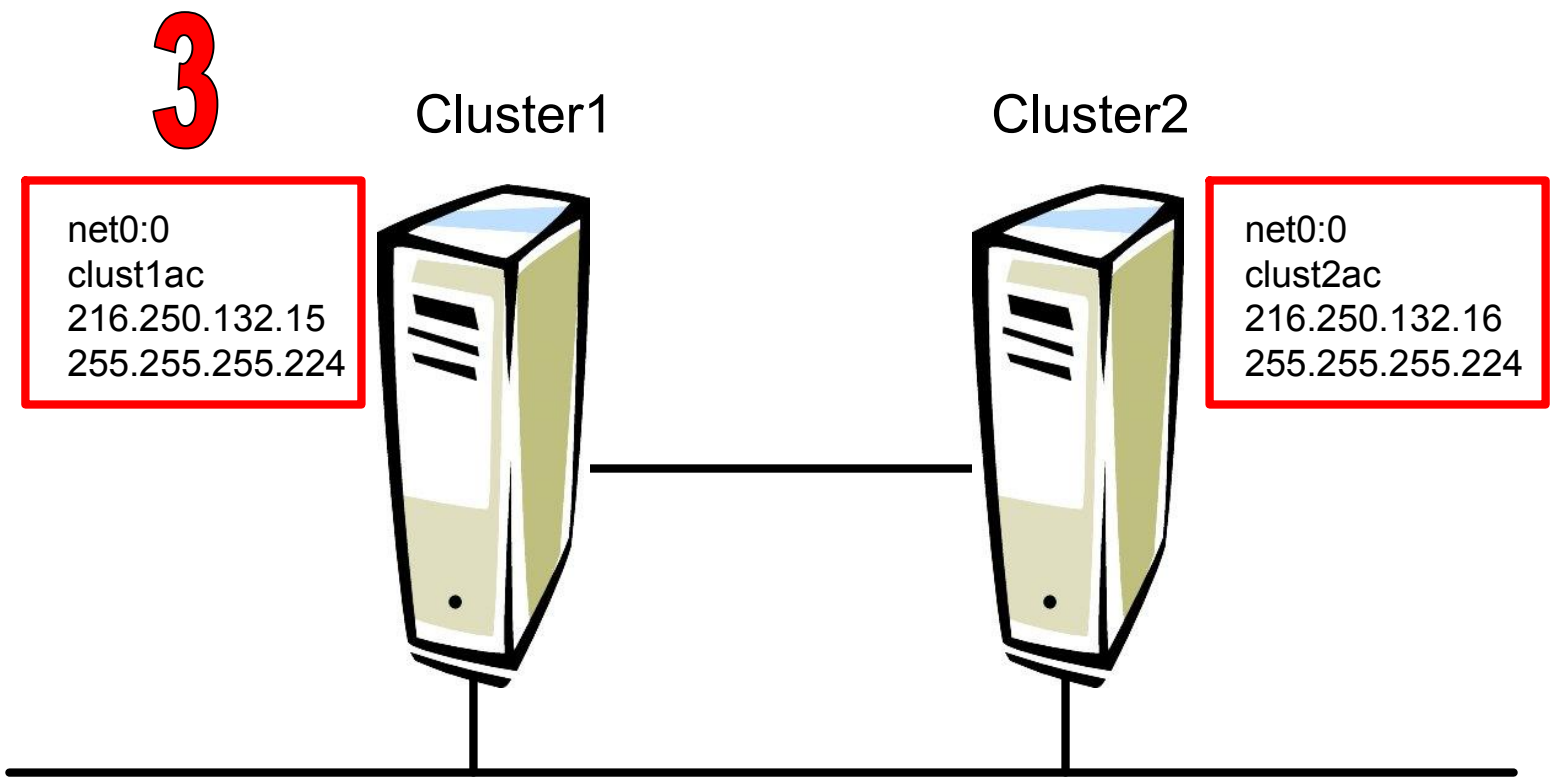
Network IP Address



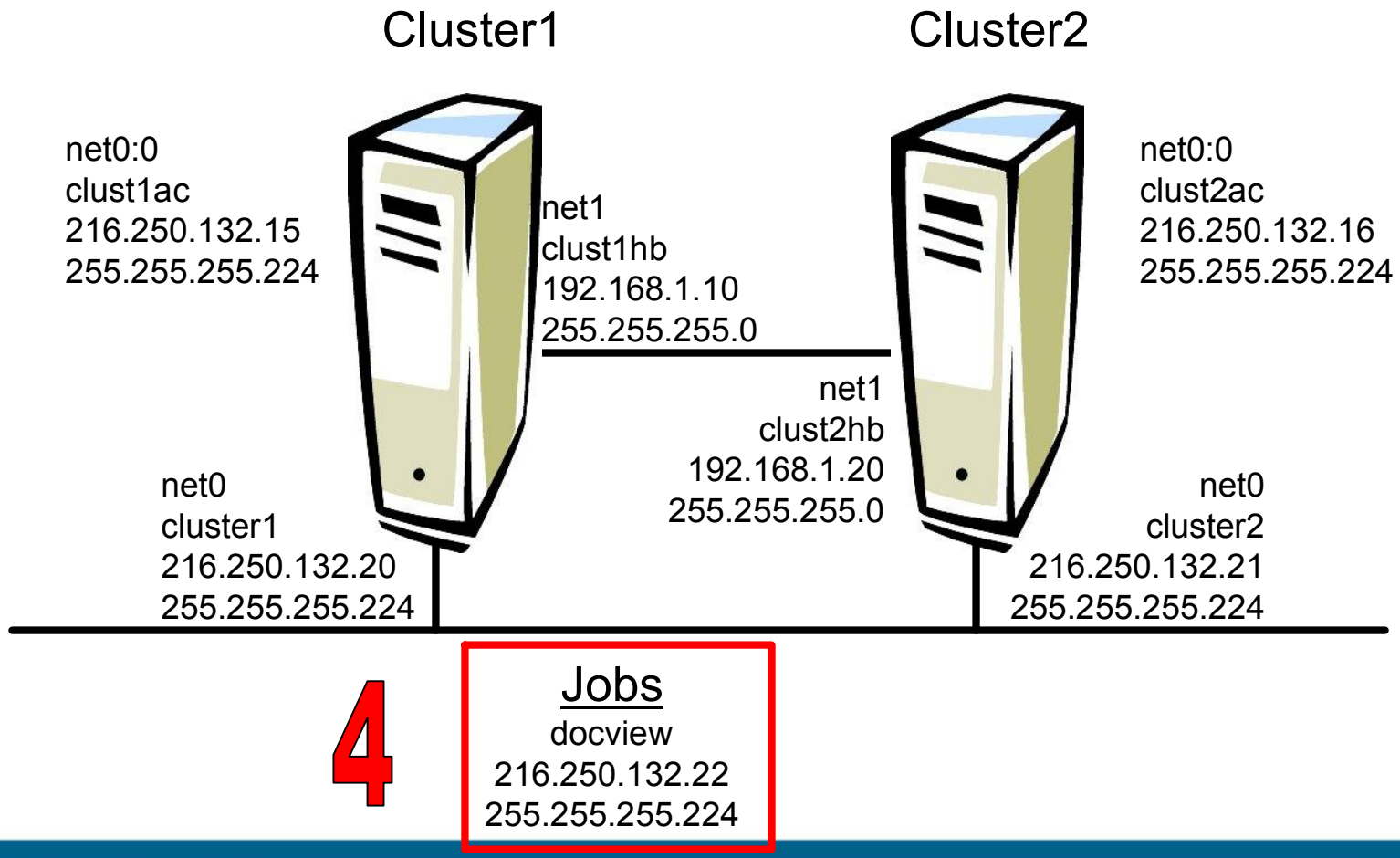
Heartbeat Network IP Addresses



Alias IP Addresses



Jobs IP Addresses



/etc/hosts file

xterm <3>

```
127.0.0.1       localhost
216.250.132.20  cluster1 cluster1.senet.sco.com
216.250.132.21  cluster2 cluster2.senet.sco.com
192.168.1.10    clust1hb
192.168.1.20    clust2hb
216.250.132.15  clust1ac
216.250.132.16  clust2ac
216.250.132.22  docview
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
```

Installation

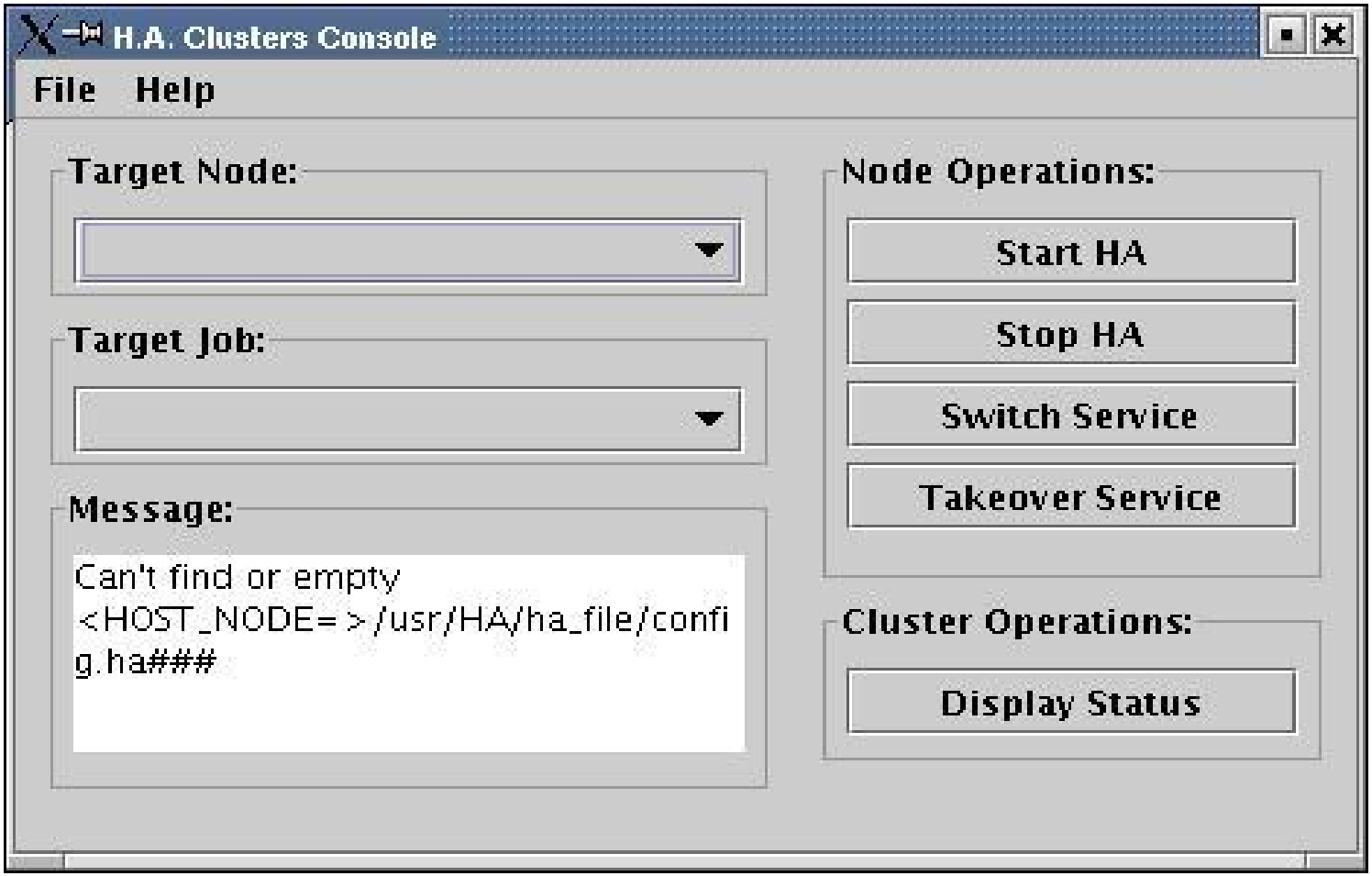
xterm

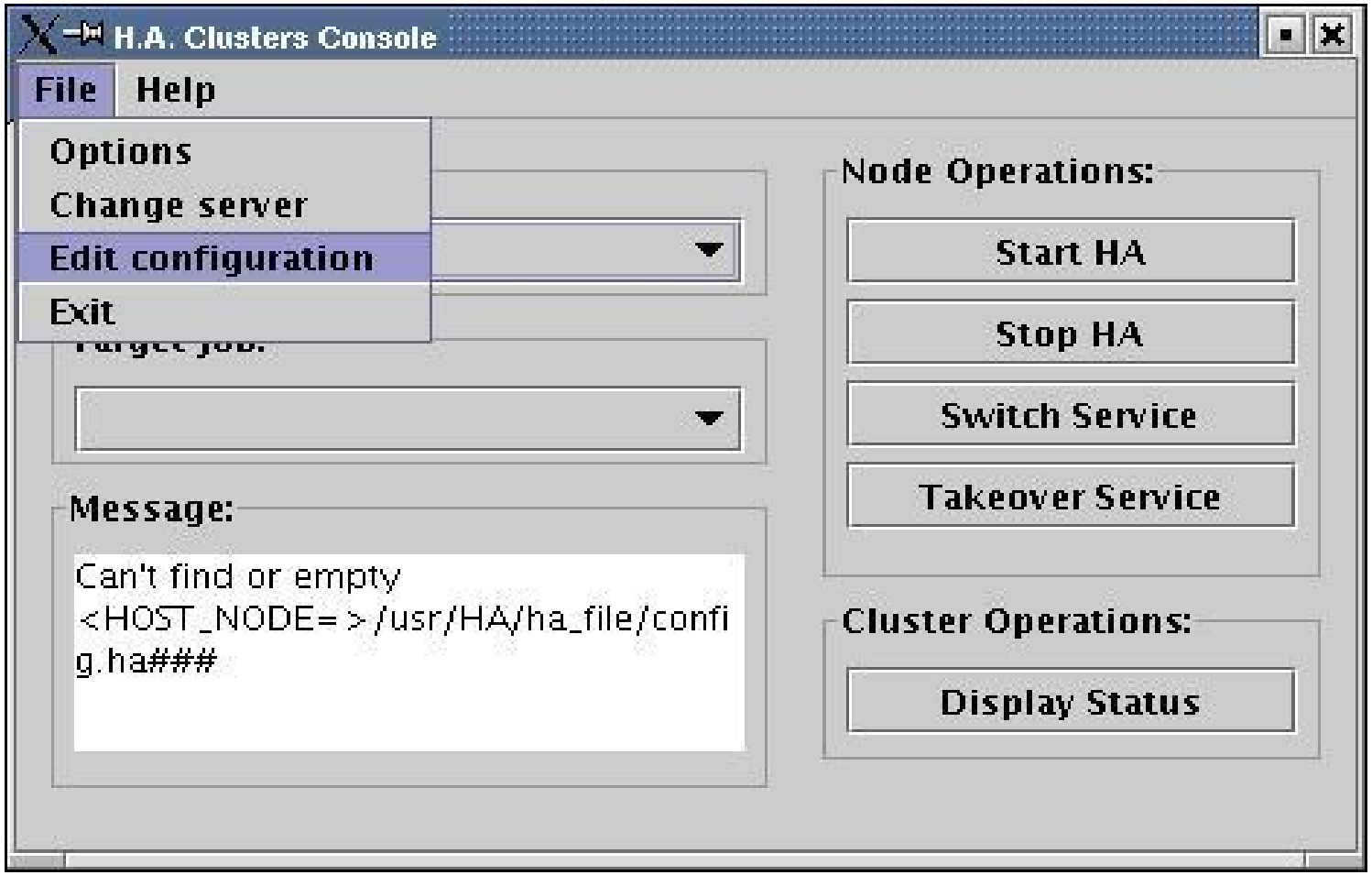
```
cluster1: ls
hacs_1.0.pkg
cluster1: pkgadd -d /cluster/hacs_1.0.pkg
```

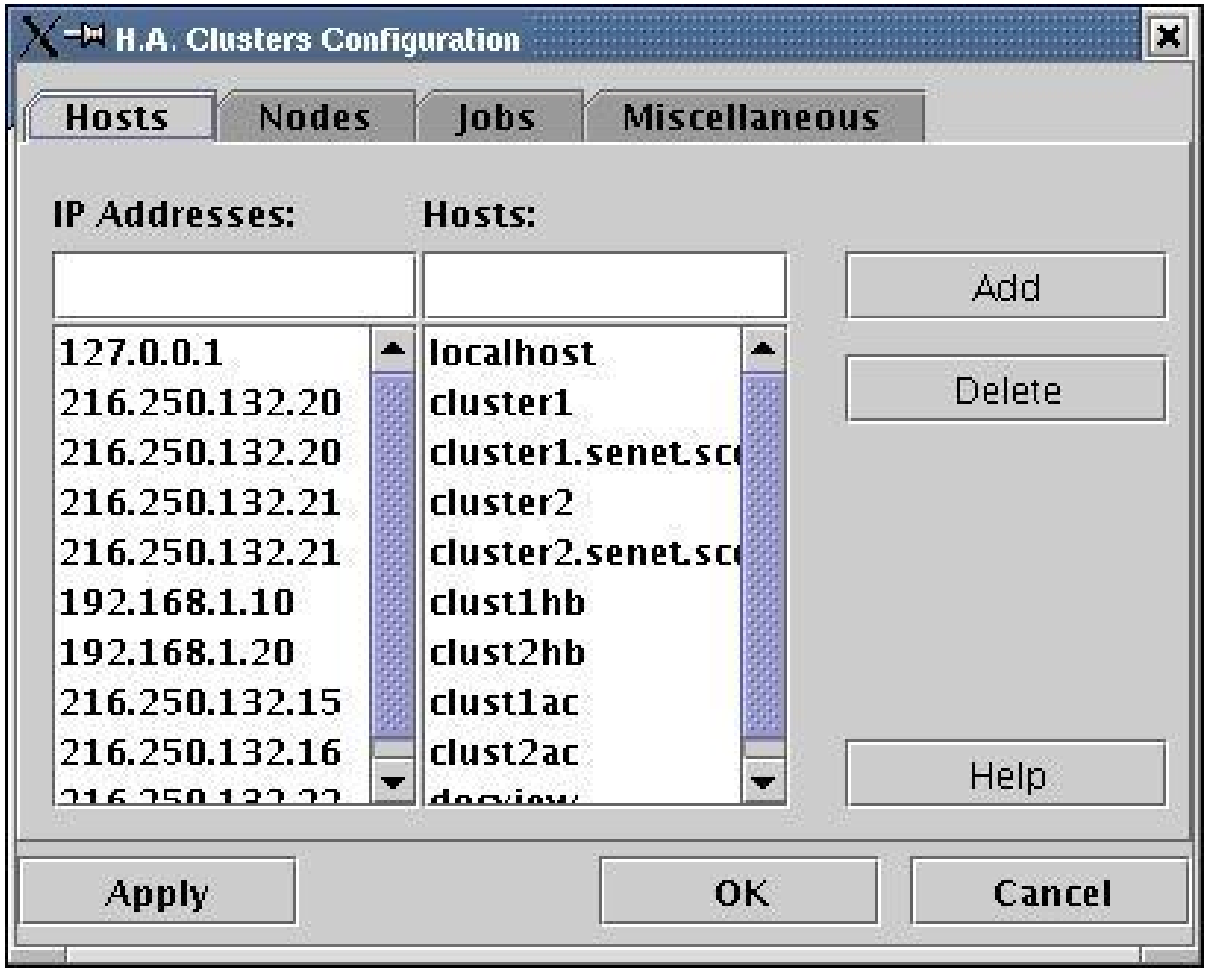
xterm

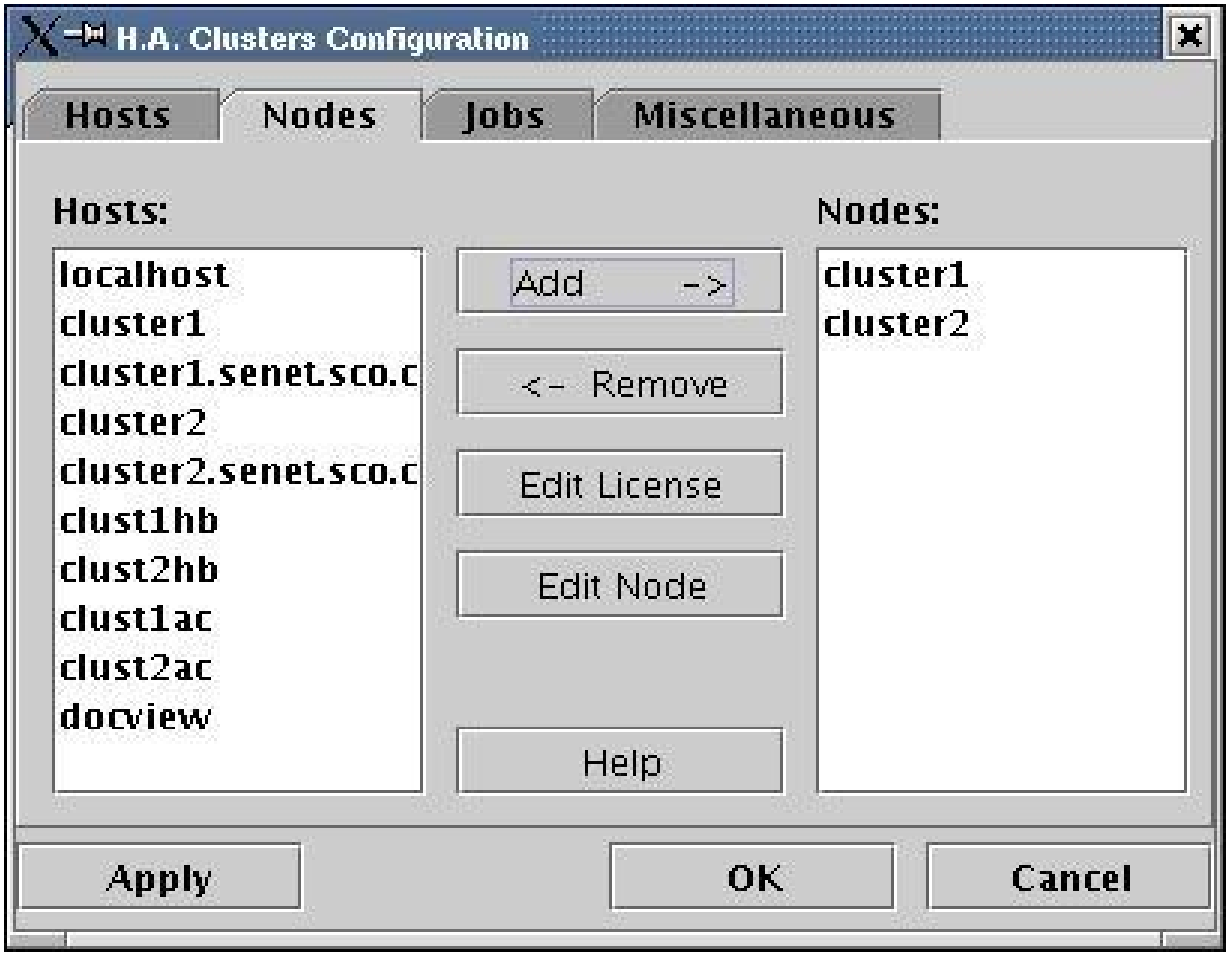
```
/usr/HA/ha_web/htdocs/images/pc_void.gif
/usr/HA/ha_web/htdocs/index.html
/usr/HA/ha_web/htdocs/invalid_login.html
/usr/HA/ha_web/htdocs/passwd_file_missing.html
/usr/HA/ha_web/htdocs/session_inuse.html
/usr/HA/ha_web/htdocs/session_timeout.html
/usr/HA/ha_web/htdocs/status.html
/usr/HA/ha_web/sessions/passwd
/usr/HA/hajgui/README_EXEC
/usr/HA/hajgui/ha_jgui.jar
/usr/HA/libha.a
[ verifying class <none> ]
/usr/HA/ha_web/htdocs/documentation.pdf <linked pathname>
## Executing postinstall script.
Setting up automatic startup...
Setting up remote GUI control...

Installation of HA Clusters (hacs) was successful.
cluster1: JAVA_HOME=/usr/java
cluster1: PATH=$PATH:$JAVA_HOME/jre/bin
cluster1: export JAVA_HOME PATH
cluster1: /usr/java/bin/java -jar /usr/HA/hajgui/ha_jgui.jar &
[1] 13937
cluster1: []
```

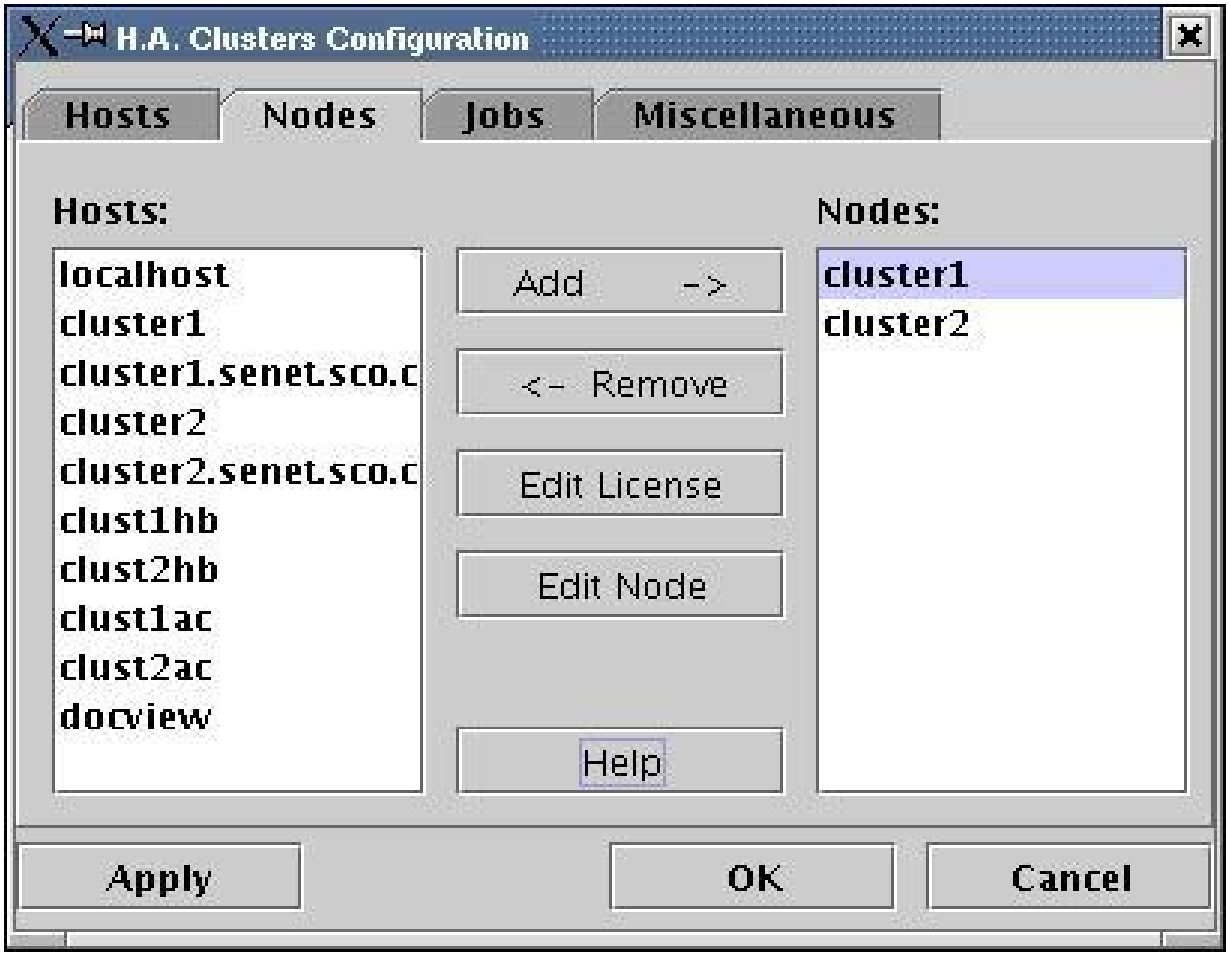

H.A. Clusters Server Login
Enter the address of the server you wish to configure.
Address:
localhost
User:
hacs_admin
Password:
OK
Cancel

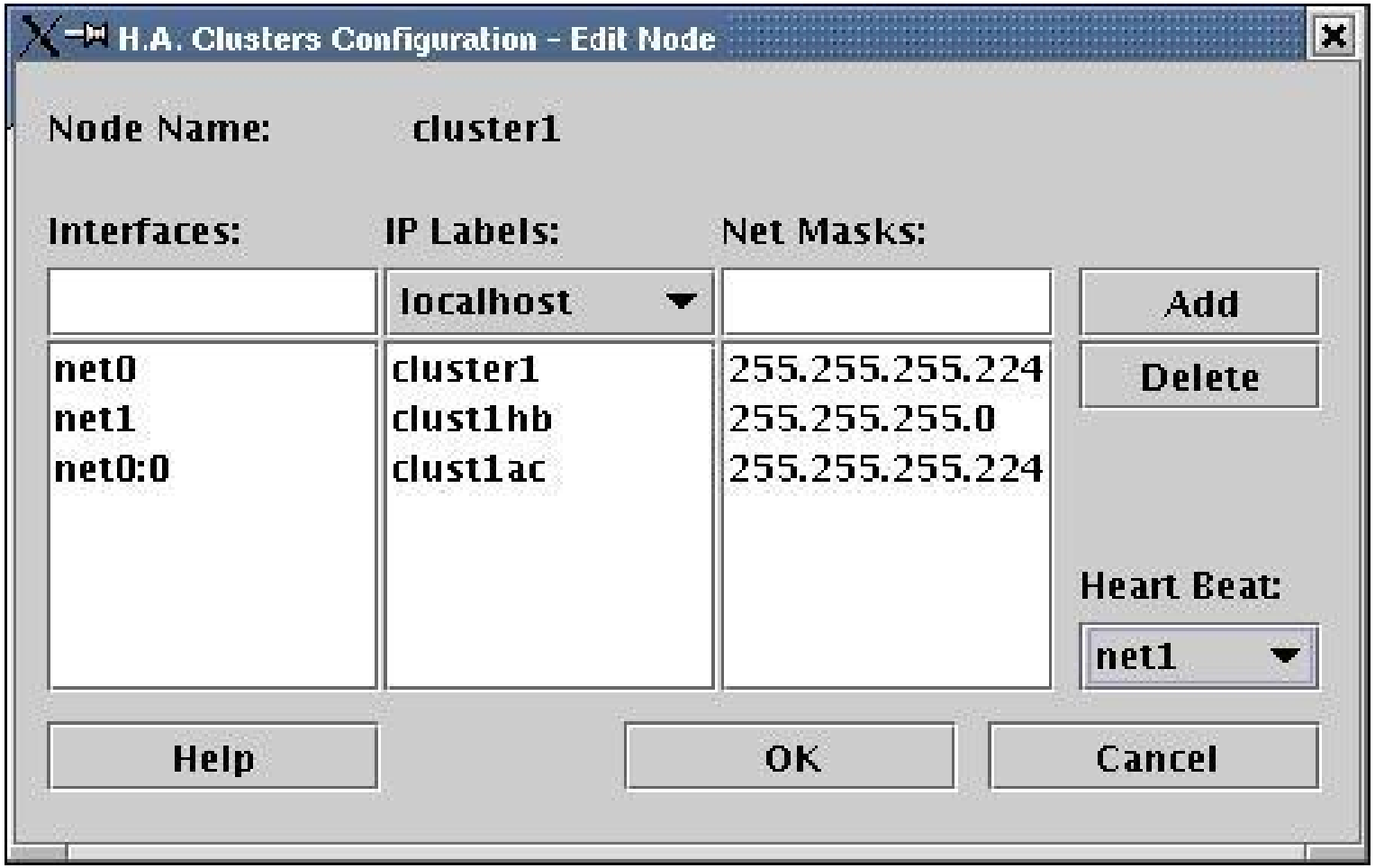

H.A. Clusters Console
File
Help
Target Node:
Target Job:
Message:
Can't find or empty
<HOST_NODE=>/usr/HA/ha_file/confi
g.ha###
Node Operations:
Start HA
Stop HA
Switch Service
Takeover Service
Cluster Operations:
Display Status

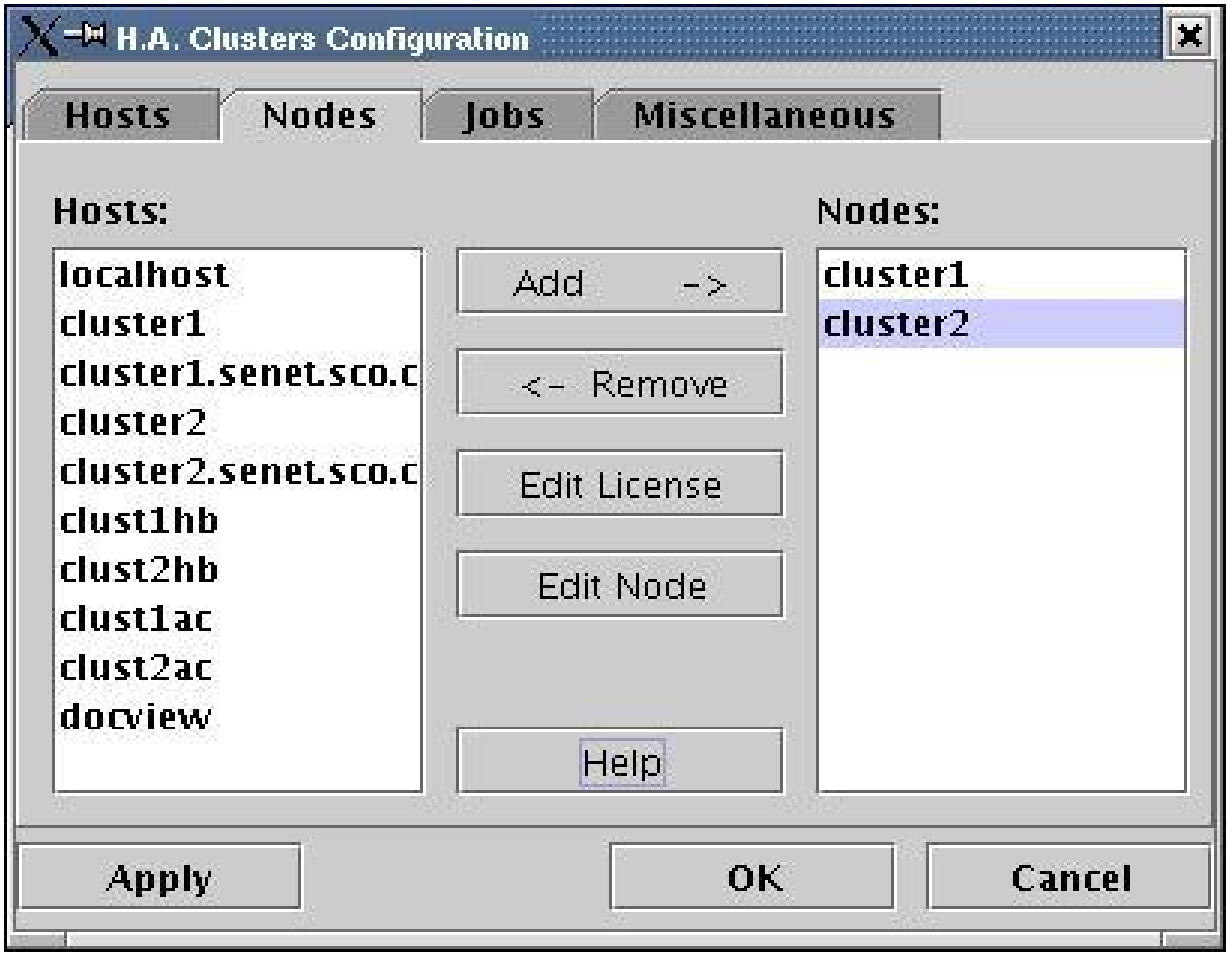

H.A. Clusters Console
File
Help
Options
Change server
Edit configuration
Exit
Node Operations:
Start HA
Stop HA
Switch Service
Takeover Service
Message:
Can't find or empty
<HOST_NODE= >/usr/HA/ha_file/confi
g.ha###
Cluster Operations:
Display Status


H.A. Clusters Configuration
Hosts
Nodes
Jobs
Miscellaneous
IP Addresses:
Hosts:
Add
Delete
Help
Apply
OK
Cancel
127.0.0.1
216.250.132.20
216.250.132.20
216.250.132.21
216.250.132.21
192.168.1.10
192.168.1.20
216.250.132.15
216.250.132.16
localhost
cluster1
cluster1.senet.sc
cluster2
cluster2.senet.sc
clust1hb
clust2hb
clust1ac
clust2ac


H.A. Clusters Configuration
Hosts
Nodes
Jobs
Miscellaneous
Hosts:
localhost
cluster1
cluster1.senet.sco.c
cluster2
cluster2.senet.sco.c
clust1hb
clust2hb
clust1ac
clust2ac
docview
Add ->
<- Remove
Edit License
Edit Node
Help
Nodes:
cluster1
cluster2
Apply
OK
Cancel


H.A. Clusters Configuration
Hosts
Nodes
Jobs
Miscellaneous
Hosts:
localhost
cluster1
cluster1.senet.sco.c
cluster2
cluster2.senet.sco.c
clust1hb
clust2hb
clust1ac
clust2ac
docview
Add ->
<- Remove
Edit License
Edit Node
Help
Nodes:
cluster1
cluster2
Apply
OK
Cancel


H.A. Clusters Configuration - Edit Node
Node Name: cluster1
Interfaces:
IP Labels:
Net Masks:
localhost
Add
net0
net1
net0:0
cluster1
clust1hb
clust1ac
255.255.255.224
255.255.255.0
255.255.255.224
Delete
Heart Beat:
net1
Help
OK
Cancel


H.A. Clusters Configuration
Hosts
Nodes
Jobs
Miscellaneous
Hosts:
localhost
cluster1
cluster1.senet.sco.c
cluster2
cluster2.senet.sco.c
clust1hb
clust2hb
clust1ac
clust2ac
docview
Add ->
<- Remove
Edit License
Edit Node
Help
Nodes:
cluster1
cluster2
Apply
OK
Cancel

H.A. Clusters Configuration - Edit Node

Node Name: cluster2

Interfaces:	IP Labels:	Net Masks:
net0	cluster2	255.255.255.224
net1	clust2hb	255.255.255.0
net0:0	clust2ac	255.255.255.224

localhost

Add

Delete

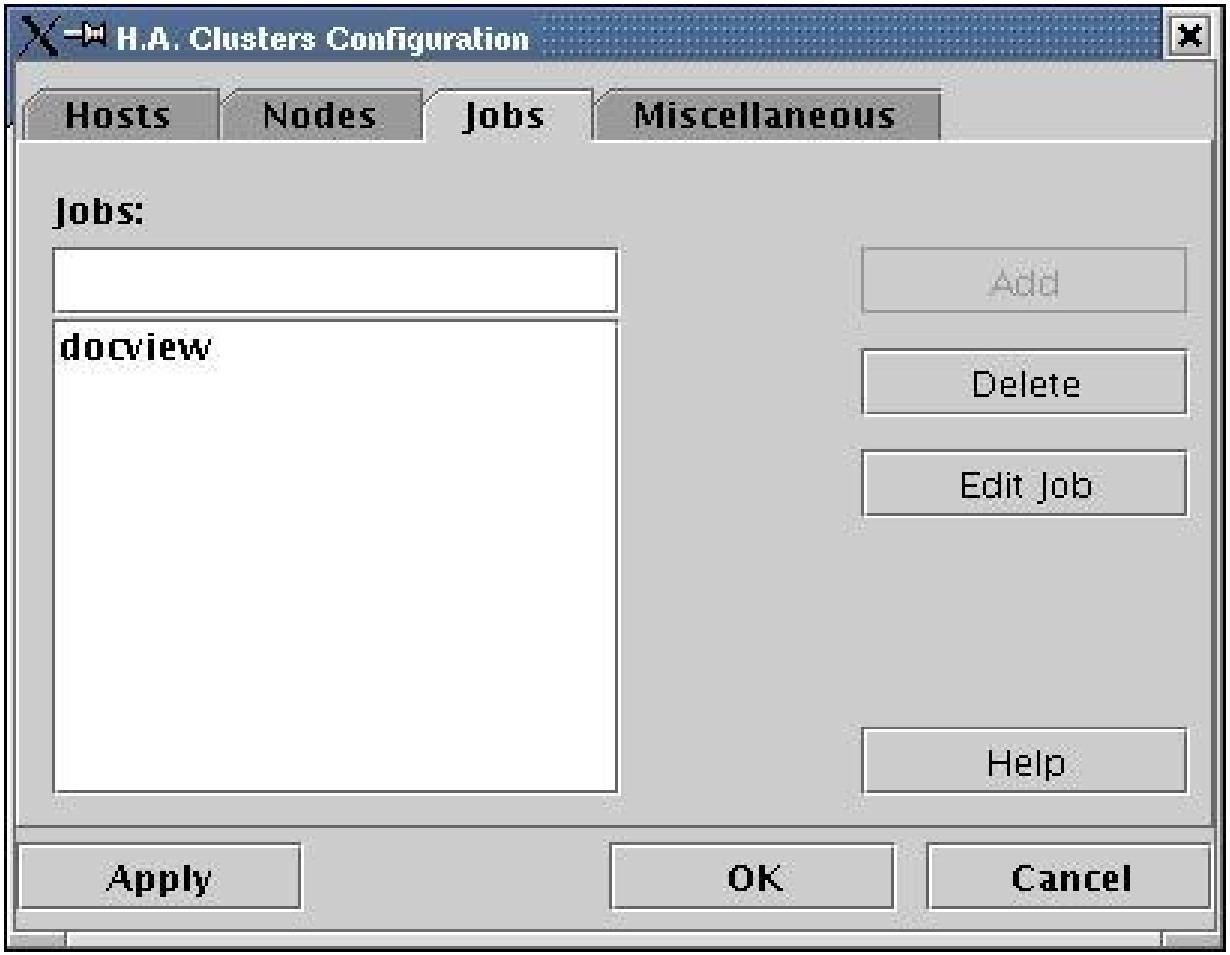
Heart Beat:

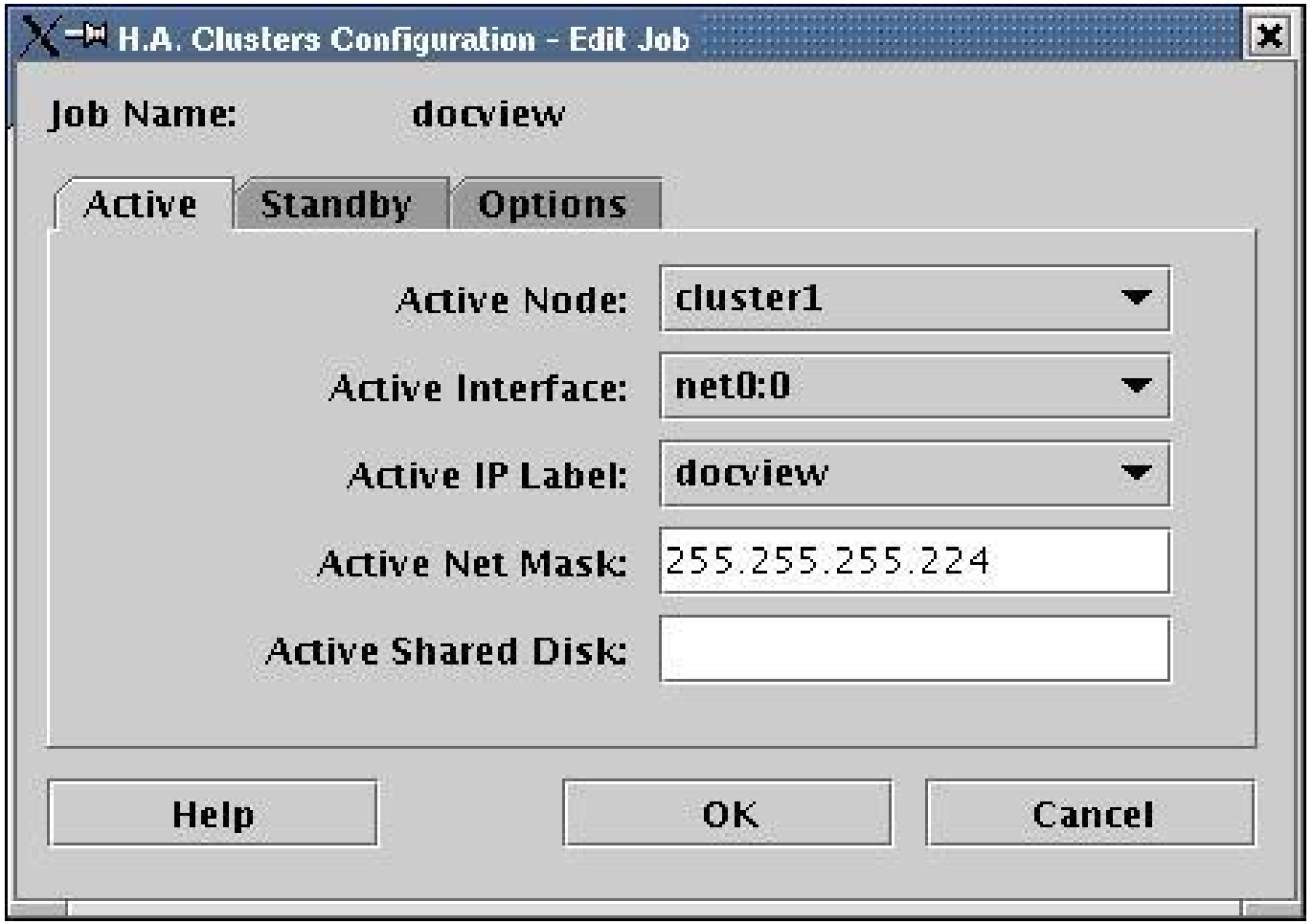
net1

Help

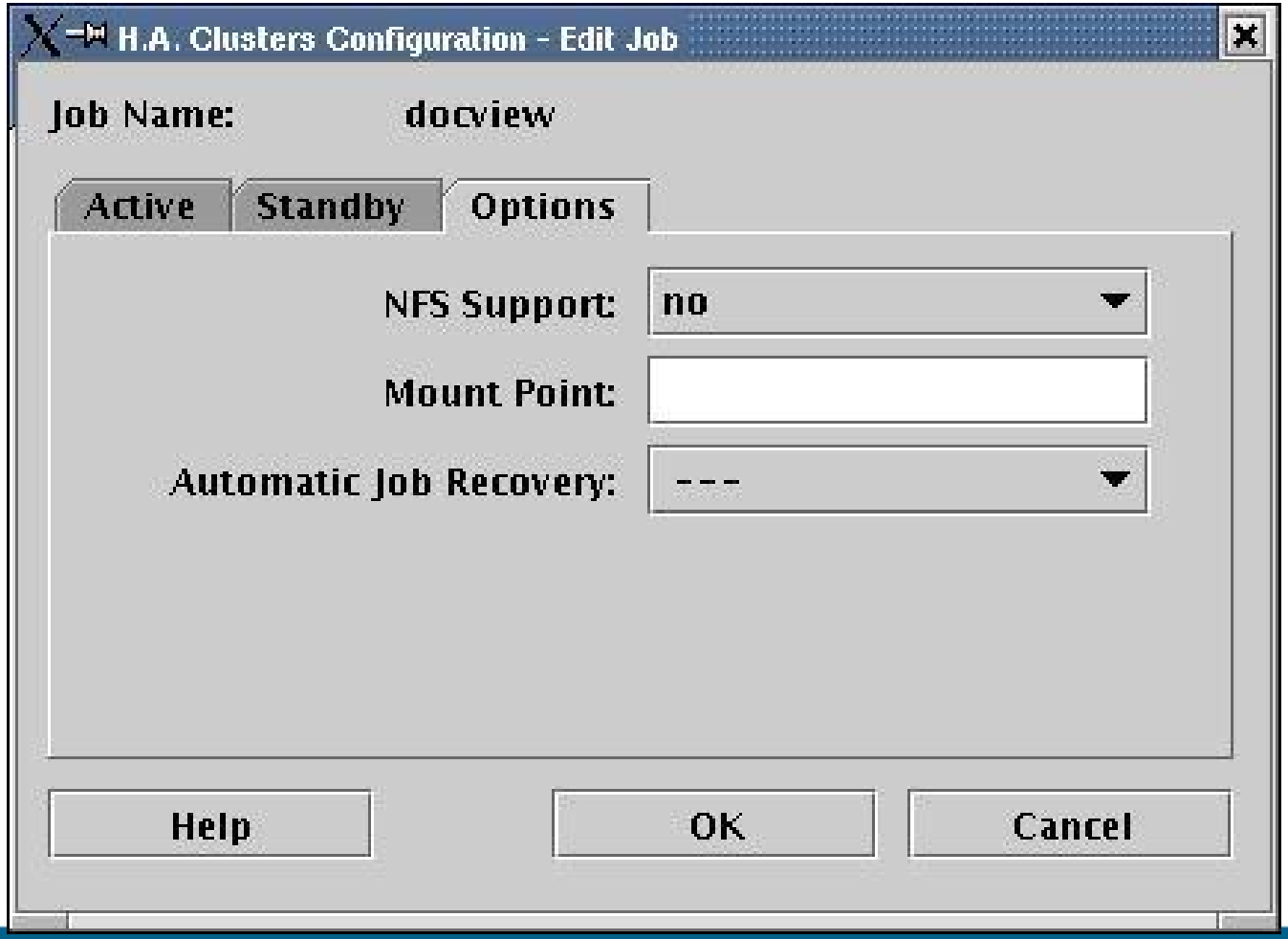
OK

Cancel

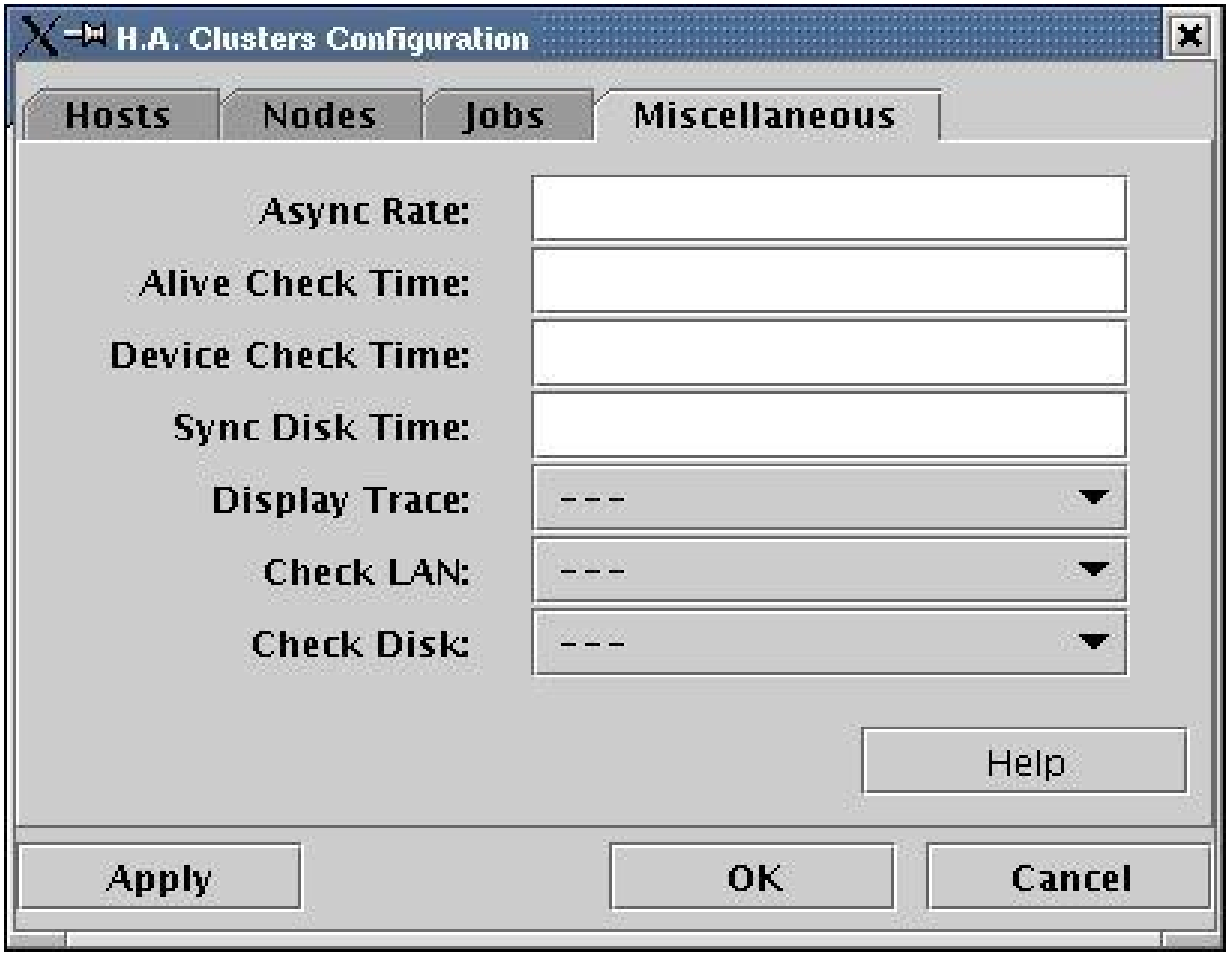

H.A. Clusters Configuration
Hosts
Nodes
Jobs
Miscellaneous
Jobs:
docview
Add
Delete
Edit Job
Help
Apply
OK
Cancel


H.A. Clusters Configuration - Edit Job
Job Name: docview
Active
Standby
Options
Active Node: cluster1
Active Interface: net0:0
Active IP Label: docview
Active Net Mask: 255.255.255.224
Active Shared Disk:
Help
OK
Cancel


H.A. Clusters Configuration - Edit Job
Job Name:
docview
Active
Standby
Options
Standby Node:
cluster2
Standby Interface:
net0:0
Standby Shared Disk:
Help
OK
Cancel


H.A. Clusters Configuration - Edit Job
Job Name:
docview
Active
Standby
Options
NFS Support:
no
Mount Point:
Automatic Job Recovery:

Help
OK
Cancel


H.A. Clusters Configuration
Hosts
Nodes
Jobs
Miscellaneous
Async Rate:
Alive Check Time:
Device Check Time:
Sync Disk Time:
Display Trace:

Check LAN:

Check Disk:

Help
Apply
OK
Cancel

Create Start Script for Application

- PuTTY

```
#!/bin/sh

# This script will start docview

/etc/docview start 2>>/usr/HA/ha_file/ha.log
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
"docview_start" 5 lines, 90 characters
```

Create Stop Script for Application

- PuTTY

```
#!/bin/sh

# This script will stop docview

/etc/docview stop 2>>/usr/HA/ha_file/ha.log
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
"docview_stop" 5 lines, 88 characters
```

Copy files to cluster2

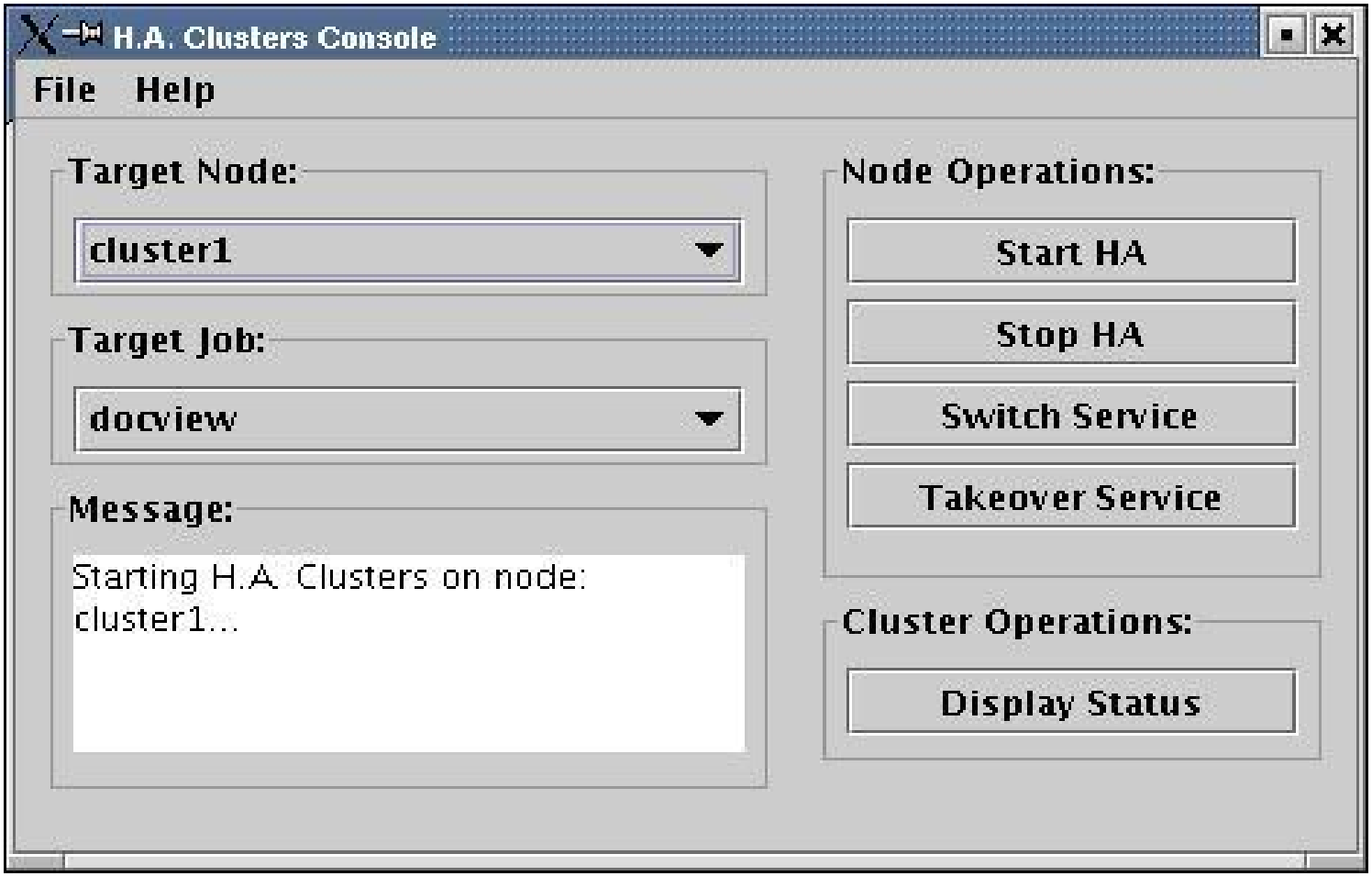
- Copy the following files over to cluster2 from cluster1
  - /usr/HA/ha_file/config.ha
  - /usr/HA/ha_file/docview_start
  - /usr/HA/ha_file/docview_stop
  - /etc/hosts

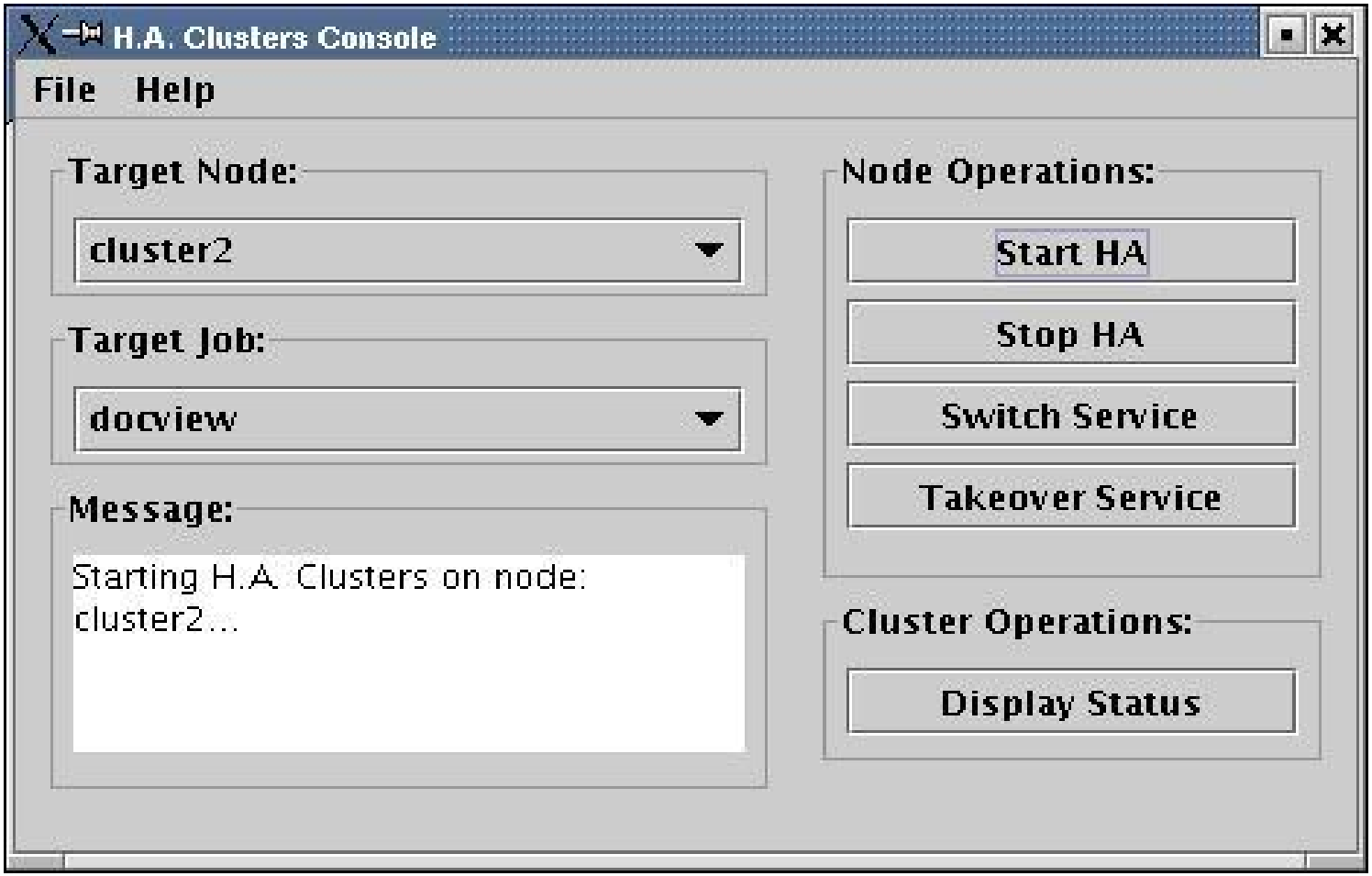
/usr/HA/ha_file/config.ha

216.250.132.20 - PuTTY

```
###################################
#        Job Definition           #
###################################
#
JOB_NAME=docview
# This is is added to cluster 1 config.ha file
#
##### Job Number: 1
JOB=docview
#
ACT_NODE=cluster1
ACT_LAN=net0:0
ACT_IP=docview
STANDBY_NODE=cluster2
STANDBY_LAN=net0:0
SWITCH_BACK=yes
ACT_NETMASK=255.255.255.224
ORIGINAL_HOST=cluster1
#
###################################
#        Misc. Definition         #
###################################
#
```

This is the config.ha file from cluster1. The config.ha file from cluster2 would show cluster2 as the value.


H.A. Clusters Console
File
Help
Target Node:
cluster1
Target Job:
docview
Message:
Starting H.A. Clusters on node:
cluster1...
Node Operations:
Start HA
Stop HA
Switch Service
Takeover Service
Cluster Operations:
Display Status


H.A. Clusters Console
File
Help
Target Node:
cluster2
Target Job:
docview
Message:
Starting H.A. Clusters on node:
cluster2...
Node Operations:
Start HA
Stop HA
Switch Service
Takeover Service
Cluster Operations:
Display Status

IP Address showing job is running on cluster1

216.250.132.20 - PuTTY

```
bash-3.1# ifconfig -a
lo0: flags=4049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
        inet 127.0.0.1 netmask ff000000
        inet/perf: recv size: 49152; send size: 49152; full-size frames: 1
        inet/options: -rfc1323
net0: flags=4043<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 216.250.132.20 netmask ffffffe0 broadcast 216.250.132.31
        inet/perf: recv size: 24576; send size: 24576; full-size frames: 1
        inet/options: rfc1323
        ether 00:02:a5:ab:19:4f
        (alias) inet 216.250.132.22 netmask ffffffe0 broadcast 216.250.132.31
net1: flags=4043<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.1.10 netmask ffffff00 broadcast 192.168.1.255
        inet/perf: recv size: 24576; send size: 24576; full-size frames: 1
        inet/options: rfc1323
        ether 00:50:04:84:9d:03
bash-3.1#
```

IP showing active IP running on cluster2

216.250.132.21 - PuTTY

```
bash-3.1# hostname
cluster2.senet.sco.com
bash-3.1# ifconfig -a
lo0: flags=4049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
        inet 127.0.0.1 netmask ff000000
        inet/perf: recv size: 49152; send size: 49152; full-size frames: 1
        inet/options: -rfc1323
net0: flags=4043<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 216.250.132.21 netmask ffffffe0 broadcast 216.250.132.31
        inet/perf: recv size: 24576; send size: 24576; full-size frames: 1
        inet/options: rfc1323
        ether 00:02:a5:ca:89:7a
        (alias) inet 216.250.132.16 netmask ffffffe0 broadcast 216.250.132.31
net1: flags=4043<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.1.20 netmask ffffff00 broadcast 192.168.1.255
        inet/perf: recv size: 24576; send size: 24576; full-size frames: 1
        inet/options: rfc1323
        ether 00:50:da:18:34:29
bash-3.1#
```

Failover IP address for job on cluster2

216.250.132.21 - PuTTY

```
bash-3.1# hostname
cluster2.senet.sco.com
bash-3.1# ifconfig -a
lo0: flags=4049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
        inet 127.0.0.1 netmask ff000000
        inet/perf: recv size: 49152; send size: 49152; full-size frames: 1
        inet/options: -rfc1323
net0: flags=4043<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 216.250.132.21 netmask ffffffe0 broadcast 216.250.132.31
        inet/perf: recv size: 24576; send size: 24576; full-size frames: 1
        inet/options: rfc1323
        ether 00:02:a5:ca:89:7a
        (alias) inet 216.250.132.22 netmask ffffffe0 broadcast 216.250.132.31
net1: flags=4043<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.1.20 netmask ffffff00 broadcast 192.168.1.255
        inet/perf: recv size: 24576; send size: 24576; full-size frames: 1
        inet/options: rfc1323
        ether 00:50:da:18:34:29
bash-3.1#
```

Switch Back Mode

216.250.132.20 - PuTTY

```
###################################
#        Job Definition           #
###################################
#
JOB_NAME=docview
# This is is added to cluster 1 config.ha file
#
##### Job Number: 1
JOB=docview
#
ACT_NODE=cluster1
ACT_LAN=net0:0
ACT_IP=docview
STANDBY_NODE=cluster2
STANDBY_LAN=net0:0
SWITCH_BACK=yes
ACT_NETMASK=255.255.255.224
ORIGINAL_HOST=cluster1
#
###################################
#        Misc. Definition         #
###################################
#
```

IP Address Failing Back When Server Online

216.250.132.21 - PuTTY

```
bash-3.1# hostname
cluster2.senet.sco.com
bash-3.1# ifconfig -a
lo0: flags=4049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
        inet 127.0.0.1 netmask ff000000
        inet/perf: recv size: 49152; send size: 49152; full-size frames: 1
        inet/options: -rfc1323
net0: flags=4043<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 216.250.132.21 netmask fffffe0 broadcast 216.250.132.31
        inet/perf: recv size: 24576; send size: 24576; full-size frames: 1
        inet/options: rfc1323
        ether 00:02:a5:ca:89:7a
        (alias) inet 216.250.132.16 netmask fffffe0 broadcast 216.250.132.31
net1: flags=4043<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.1.20 netmask ffffff00 broadcast 192.168.1.255
        inet/perf: recv size: 24576; send size: 24576; full-size frames: 1
        inet/options: rfc1323
        ether 00:50:da:18:34:29
bash-3.1#
```

- For up to date information see:
- www.sco.com/products/clustering

Get Your Passport Stamped

- Be sure to get your Passport stamped.
  - Get your passport stamped
    - By breakout session instructors
    - By exhibitors in the exhibit hall
  - Turn in your Passport
    - After the last breakout session on Wednesday
    - Drawing for great prizes for Wrap-up Session
- Remember to complete the breakout session evaluation form, too