

Start and stop

Command example	Description
<code>gnt-instance start <VM></code>	Start an instance
<code>gnt-instance start -H \ kernel_path=/vmlinuz,initrd_path=/initrd.img <VM></code>	Start Linux instance with the given kernel from the host filesystem (must exist on both nodes if using drbd)
<code>gnt-instance start -H kernel_args="ro single" <VM></code>	Start Linux instance in single-user mode (if using kernel from the host filesystem)
<code>gnt-instance shutdown <VM></code>	Initiate shutdown, with 120 second timeout before forcible switch off
<code>gnt-instance shutdown --timeout=0 <VM></code>	Switch off immediately
<code>gnt-instance reboot [--shutdown-timeout=N] <VM></code>	Shutdown then restart

Instance overview and console access

Command example	Description
<code>gnt-instance console <VM></code>	Attach to serial console, ctrl-] to disconnect
<code>gnt-instance list -o name,pnode,network_port</code>	List VMs, showing node and VNC port (or use -o +network_port)
<code>gnt-instance info <VM></code>	Detailed information about this VM
<code>gnt-cluster modify -H kvm:vnc_bind_address=0.0.0.0</code>	Allow network VNC connections to all VMs
<code>gnt-instance modify -H vnc_bind_address=0.0.0.0 <VM></code>	Allow network VNC connections to a single VM
<code>gnt-instance modify -H vnc_bind_address=default <VM></code>	Revert to cluster default behaviour
<u>To set password authentication for VNC connections:</u>	
<code>echo "somepassword" >/etc/ganeti/vnc-cluster-password</code>	
<code>gnt-cluster copyfile /etc/ganeti/vnc-cluster-password</code>	
<code>gnt-cluster modify -H kvm:vnc_password_file=/etc/ganeti/vnc-cluster-password</code>	

Enable serial console in guest

Configuration	Description
<u>Uncomment this line in /etc/inittab</u> <code>T0:23:respawn:/sbin/getty -L ttyS0 9600 vt100</code>	Debian guest
<u>Create file /etc/init/ttyS0.conf</u> <code>start on stopped rc RUNLEVEL=[2345] stop on runlevel [!2345] respawn exec /sbin/getty -L 115200 ttyS0 xterm</code>	Ubuntu guest
<code>grubby --update-kernel=ALL --args='console=tty0 console=ttyS0,115200n8'</code>	CentOS guest
<u>Make the following change in /etc/ttys for ttyu0</u> <code>ttyu0 "/usr/libexec/getty std.9600" vt100 on secure</code> <u>Add the following line to /boot/loader.conf</u> <code>console="comconsole,vidconsole"</code>	FreeBSD guest

Instance creation

Command example

```
gnt-instance add -s 4G -t drbd [-n <pnode>:<snode>]
```

```
-o image+cd -H vnc_bind_address=0.0.0.0 --no-start <VM>
```

```
gnt-instance start -H boot_order=cdrom,  
cdrom_image_path=/srv/ganeti/iso/xxx.iso <VM>
```

```
gnt-instance add -s 4G -t drbd [-n <pnode>:<snode>]  
-o debootstrap+default [--no-start] <VM>
```

Debian debootstrap

```
gnt-instance add -s 4G -t drbd [-n <pnode>:<snode>]  
-o debootstrap+precise --no-start <VM>
```

```
gnt-instance start  
-H kernel_path=/vmlinuz,initrd_path=/initrd.img <VM>
```

```
gnt-instance console <VM>
```

```
<<login as root>>
```

```
update-grub
```

```
grub-install /dev/vda
```

Ubuntu debootstrap, install grub

Common options

```
--no-name-check
```

Don't check <VM> name resolves to IP

```
--no-ip-check
```

Don't check <VM> IP address in use

```
--no-wait-for-sync
```

Don't wait for DRBD to sync

```
--net 0:ip=x.x.x.x,link=br-svc
```

Specify NIC IP address/link

Manage hypervisor and backend

Command example

```
gnt-instance list -o +option_name,...
```

Description

Default output followed by extra fields (ex:
-o +oper_ram,disk.size/0)

```
gnt-instance info <VM>
```

Show all VM settings

```
gnt-cluster modify -H kvm:<hvparams> -B <beparams>
```

Set cluster-wide default values

```
gnt-cluster modify -H kvm:kernel_path=,initrd_path=
```

Example: do not boot from kernel on host filesystem (i.e. boot from instance disk)

```
gnt-instance modify -H <hvparams> -B <beparams> <VM>
```

Modify the settings for a VM, take effect on the next shutdown/start

```
gnt-instance start -H <hvparams> -B <beparams> <VM>
```

Start a VM with these parameters for one boot only

```
gnt-instance modify -m <memory> <VM>
```

Set memory (MB) on running instance, between minmem and maxmem

Important hypervisor parameters (-H) (see 'man gnt-instance' for full list)

hvparams (comma-separated)

Description

```
boot_order={disk|cdrom|floppy|network}
```

Which device to boot from

```
cdrom_image_path=/srv/ganeti/iso/cd.iso
```

Attach CD-ROM

```
cdrom2_image_path=/srv/ganeti/iso/cd2.iso
```

Attach second CD-ROM (e.g. drivers disk)

```
kernel_path=/vmlinuz
```

```
initrd_path=/initrd.img
```

```
root_path=/dev/vda1
```

```
kernel_args="ro"
```

Boot Linux guest using kernel from host. Other settings are ignored unless kernel_path is set.

```
nic_type={paravirtual|e1000|...}
```

Select type of NIC emulated

```
disk_type={paravirtual|ide|scsi|...}
```

Select type of hard disk emulated

Important backend parameters (-B) (see 'man gnt-instance' for full list)

beparams (comma-separated)

Description

```
maxmem=N
```

Maximum memory (MB)

```
minmem=N
```

Minimum memory (MB)

```
vcpus=N
```

Number of CPUs

Network settings

Command example	Description
<code>gnt-instance modify --net 0:modify,link=br-lan [--hotplug] <VM></code>	Change NIC 0 to bridge br-lan
<code>gnt-instance modify --net add:link=br-svc [--hotplug] <VM></code>	Add another NIC connected to br-svc
<code>gnt-instance modify --net 1:remove [--hotplug] <VM></code>	Remove NIC 1

Note: [hotplug](#) added in ganeti 2.10. The guest needs to have the "[acpiphp](#)" module loaded.

Disk settings

Command example	Description
<code>gnt-node list-storage</code>	Summary of storage on each node
<code>gnt-node volumes</code>	Detailed volume info on each node
<code>gnt-instance modify --disk add:size=4G [--hotplug] [--no-wait-for-sync] <VM></code>	Add a disk
<code>gnt-instance modify --disk 1:remove [--hotplug] <VM></code>	Remove disk 1
<code>gnt-cluster modify -D drbd:resync-rate=80</code>	Set global disk parameters, in this example DRBD sync rate=80MB/s (see 'man gnt-cluster')
<code>gnt-instance grow-disk <VM> 1 5G</code>	Grow disk 1 by 5G

Note: if you want the running instance to pick up the change immediately, you'll need to notify KVM (see [issue 258](#)).

```
socat STDIO UNIX-CONNECT:/var/run/ganeti/kvm-hypervisor/ctrl/<VM>.monitor
info block
block_resize hotdisk-XXXXXX 0G
^C (do not type "quit!")
```

DRBD and migration

Command example	Description
<code>gnt-instance modify -t drbd -n <snode> [--no-wait-for-sync] <VM></code>	Convert plain to drbd, with secondary storage on given node (instance must be shutdown)
<code>gnt-instance modify -t plain <VM></code>	Convert drbd to plain (instance must be shutdown)
<code>gnt-instance move [-n <node>] <VM></code>	Move a shutdown plain instance to another node
<code>gnt-instance migrate <VM></code>	Live-migrate a running instance from primary to secondary; secondary becomes primary
<code>gnt-instance migrate --cleanup <VM></code>	Clean up after failed live migration
<code>gnt-instance shutdown <VM></code> <code>gnt-instance modify -t plain <VM></code> <code>gnt-instance modify -t drbd -n <snode> <VM></code> <code>gnt-instance start <VM></code>	Fix a seriously failed migration which --cleanup cannot (by converting to plain and back to drbd)
<code>gnt-instance failover <VM></code>	Migrate a shutdown or failed instance (i.e. change the secondary node to be primary and vice versa)
<code>gnt-instance replace-disks -n <snode> <VM></code>	Move a DRBD secondary to the given node

Backing up instances

Command example	Description
<code>gnt-backup export -n <node> <VM></code>	Export a node (disk + configuration data) to a directory – by default <code>/var/lib/ganeti/export</code> The exported image will typically be no larger than the data used on the disk (not the entire disk allocated)

Node management

Command example	Description
<code>gnt-node list</code>	Show all nodes with disk and memory usage and number of primary/secondary instances
<code>gnt-node info [<nodename>]</code>	Detailed information about given node or all nodes
<code>gnt-node evacuate -p <nodename></code>	Migrate all primary instances off this node: running instances will be live-migrated to their secondary, and hence all instances which were primary on this node will now be secondary on this node
<code>gnt-node evacuate -s [-n <newnode>] <nodename></code>	Migrate secondary storage off this node. This will copy data to another node, which you can specify using -n or let the instance allocator choose
<code>gnt-node modify --offline=yes <nodename></code>	Mark a node as failed, so we no longer try to communicate with it
<code>gnt-node add --readd <nodename></code>	Re-add node after repair
<code>gnt-node failover [--ignore-consistency] <node></code>	Fail over all instances having the given node as primary to their secondary nodes
<code>gnt-cluster getmaster</code>	Show which node is the master
<code>gnt-cluster master-failover</code>	Promote the node you are logged into to master

Cluster maintenance

Command example	Description
<code>gnt-cluster info</code>	Show cluster settings and instance defaults
<code>gnt-cluster copyfile /path/to/file</code>	Distribute file to all nodes
<code>gnt-cluster verify</code>	Check the cluster configuration
<code>gnt-cluster redist-conf</code>	Redistribute configuration to all nodes
<code>gnt-cluster modify --reserved-lvs=xenvg/root, xenvg/swap,xenvg/var</code>	Ignore these logical volumes when checking cluster configuration
<code>gnt-cluster verify-disks</code>	Check disk status
<code>drbd-overview</code>	(Run on individual nodes) show DRBD sync status
<code>gnt-node add [-s x.x.x.x] <nodename></code>	Add new node [x.x.x.x = new node's secondary IP]
<code>gnt-node remove <nodename></code>	Remove node, once all instances removed

Rebalancing a cluster

Command example	Description
<code>hbal -m <cluster-name></code>	Connect to <cluster-name>, analyze it, and show a possible solution to rebalance the cluster (relocating virtual instances more evenly across the nodes of the cluster). <cluster-name> can be localhost.
<code>hbal -C -m <cluster-name></code>	Show the commands that need to be executed to achieve the solution offered
<code>gnt-cluster add-tags htools:iextags:service</code>	Exclusion tag: ensure that instances with tag "service:xxx" do not run on the same node
<code>gnt-instance add-tags <VM> service:<type></code>	Add tag to an instance, e.g. service:dns
Options	
<code>--no-disk-moves</code>	Do not use <code>gnt-instance replace-disks</code> commands – this limits the rebalancing to use only migration
<code>--no-instance-moves</code>	Do not use <code>gnt-instance migrate</code> commands, only disk replacement/relocation.