Ganeti cheat sheet

Start and stop

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

Instance overview and console access

Command example	Description
`gnt-instance console <VM>`	Attach to serial console, ctrl-] to disconnect
`gnt-instance list -o name,pnode,network_port`	List VMs, showing node and VNC port (or use `-o +network_port`)
`gnt-instance info <VM>`	Detailed information about this VM
`gnt-cluster modify -H kvm:vnc_bind_address=0.0.0.0`	Allow network VNC connections to all VMs
`gnt-instance modify -H vnc_bind_address=0.0.0.0 <VM>`	Allow network VNC connections to a single VM
`gnt-instance modify -H vnc_bind_address=default <VM>`	Revert to cluster default behaviour

To set password authentication for VNC connections:

```
echo "somepassword" >/etc/ganeti/vnc-cluster-password
gnt-cluster copyfile /etc/ganeti/vnc-cluster-password
gnt-cluster modify -H kvm:vnc_password_file=/etc/ganeti/vnc-cluster-password
```

Enable serial console in guest

Configuration	Description
Uncomment this line in /etc/inittab `T0:23:respawn:/sbin/getty -L ttyS0 9600 vt100`	Debian guest

Create file /etc/init/ttyS0.conf
`start on stopped rc RUNLEVEL=[2345]`
`stop on runlevel [!2345]`
`respawn`
`exec /sbin/getty -L 115200 ttyS0 xterm`
	Ubuntu guest

`grubby --update-kernel=ALL --args='console=tty0 console=ttyS0,115200n8'`	CentOS guest

Make the following change in /etc/ttys for ttyu0
`ttyu0 "/usr/libexec/getty std.9600" vt100 on secure`
Add the following line to /boot/loader.conf
`console="comconsole,vidconsole"`
	FreeBSD guest

Instance creation

Command example	Description

`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>`
	Install from ISO (file must exist on both nodes, see `gnt-cluster copyfile`)

`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	Description
`gnt-instance list -o +option_name,...`	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 (default MB)
`minmem=N`	Minimum memory (default MB)
`vcpus=N`	Number of CPUs

Network settings

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

Note: hotplug added in ganeti 2.10. The guest needs to have the "acpiphp" module loaded.

Disk settings

Command example	Description
`gnt-node list-storage`	Summary of storage on each node
`gnt-node volumes`	Detailed volume info on each node
`gnt-instance modify --disk add:size=4G [--hotplug] [--no-wait-for-sync] <VM>`	Add a disk
`gnt-instance modify --disk 1:remove [--hotplug] <VM>`	Remove disk 1
`gnt-cluster modify -D drbd:resync-rate=80`	Set global disk parameters, in this example DRBD sync rate=80MB/s (see 'man gnt-cluster')
`gnt-instance grow-disk <VM> 1 5G`	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
`gnt-instance modify -t drbd -n <snode> [--no-wait-for-sync] <VM>`	Convert plain to drbd, with secondary storage on given node (instance must be shutdown)
`gnt-instance modify -t plain <VM>`	Convert drbd to plain (instance must be shutdown)
`gnt-instance move [-n <node>] <VM>`	Move a shutdown plain instance to another node
`gnt-instance migrate <VM>`	Live-migrate a running instance from primary to secondary; secondary becomes primary
`gnt-instance migrate --cleanup <VM>`	Clean up after failed live migration

`gnt-instance shutdown <VM>`
`gnt-instance modify -t plain <VM>`
`gnt-instance modify -t drbd -n <snode> <VM>`
`gnt-instance start <VM>`
	Fix a seriously failed migration which --cleanup cannot (by converting to plain and back to drbd)

`gnt-instance failover <VM>`	Migrate a shutdown or failed instance (i.e. change the secondary node to be primary and vice versa)
`gnt-instance replace-disks -n <snode> <VM>`	Move a DRBD secondary to the given node

Backing up instances

Command example	Description
`gnt-backup export -n <node> <VM>`	Export a node (disk + configuration data) to a directory – by default `/var/lib/ganeti/export` 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
`gnt-node list`	Show all nodes with disk and memory usage and number of primary/secondary instances
`gnt-node info [<nodename>]`	Detailed information about given node or all nodes
`gnt-node evacuate -p <nodename>`	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
`gnt-node evacuate -s [-n <newnode>] <nodename>`	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
`gnt-node modify --offline=yes <nodename>`	Mark a node as failed, so we no longer try to communicate with it
`gnt-node add --readd <nodename>`	Re-add node after repair
`gnt-node failover [--ignore-consistency] <node>`	Fail over all instances having the given node as primary to their secondary nodes
`gnt-cluster getmaster`	Show which node is the master
`gnt-cluster master-failover`	Promote the node you are logged into to master

Cluster maintenance

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

Rebalancing a cluster

Command example	Description
`hbal -m <cluster-name>`	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.
`hbal -C -m <cluster-name>`	Show the commands that need to be executed to achieve the solution offered
`gnt-cluster add-tags htools:iextags:service`	Exclusion tag: ensure that instances with tag "service:xxx" do not run on the same node
`gnt-instance add-tags <VM> service:<type>`	Add tag to an instance, e.g. service:dns
Options	
`--no-disk-moves`	Do not use `gnt-instance replace-disks` commands – this limits the rebalancing to use only migration
`--no-instance-moves`	Do not use `gnt-instance migrate` commands, only disk replacement/relocation.