





Ganeti

Ganeti Core Team - Google
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Commandline Overview

Using the cli

- Guido Trotter <ultrotter@google.com>
- Helga Velroyen <helgav@google.com>

Latest version of these slides

Please find the latest version of these slides at:

<https://code.google.com/p/ganeti/wiki/LISA2013>

Ganeti Commands...

- ... all start with gnt -
 - gnt-cluster
 - gnt-node
 - gnt-instance
 - ...
- ... all take a subcommand
 - gnt-cluster info
 - gnt-node list
 - gnt-instance list

gnt-[subsystem] [verb] --flags [noun]

Three ways to get help

- The man page
 - `man gnt-instance`
- List of subcommands
 - `gnt-instance`
 - `gnt-instance --help`
- Help on individual subcommands:
 - `gnt-instance list --help`

Help

```
# gnt-instance list --help
```

Usage

```
=====
```

```
gnt-instance list [<instance>...]
```

Lists the instances and their status. The available fields can be shown using the "list-fields" command (see the man page for details). The default field list is (in order): name, hypervisor, os, pnode, status, oper_ram.

Options

```
=====
```

```
--no-headers           Don't display column headers
--separator=SEPARATOR  Separator between output fields ...
...
```

Commands run on the master

Commands must run on the master. Any other node will give you a friendly message. Scripts can use "getmaster" to know the right place.

```
# gnt-node list
Failure: prerequisites not met for this operation:
This is not the master node, please connect to node
'gnta2.example.com' and rerun the command
# gnt-cluster getmaster
gnta2.example.com
# ssh gnta2.example.com
WARNING:
This machine is part of a ganeti cluster.
# gnt-node list
Node          DTotal DFree MTotal MNode MFree Pinst Sinst
gnta1.example.com 3.6T 3.1T 64.0G 1023M 15.0G 5 3
...etc...
```


gnt-cluster

Cluster-wide operations

```
gnt-cluster info
gnt-cluster modify [-B/H/N ...]
gnt-cluster verify
gnt-cluster master-failover
gnt-cluster command ...
gnt-cluster copyfile ...
```

gnt-cluster example

```
# gnt-cluster verify
Submitted jobs 285450, 285451
Waiting for job 285450 ...
Sat Oct 27 19:14:08 2012 * Verifying cluster config
Sat Oct 27 19:14:08 2012 * Verifying cluster certificate files
Sat Oct 27 19:14:08 2012 * Verifying hypervisor parameters
Sat Oct 27 19:14:08 2012 * Verifying all nodes belong to an existing group
Waiting for job 285451 ...
Sat Oct 27 19:14:08 2012 * Verifying group 'default'
Sat Oct 27 19:14:08 2012 * Gathering data (3 nodes)
Sat Oct 27 19:14:10 2012 * Gathering disk information (3 nodes)
Sat Oct 27 19:14:11 2012 * Verifying configuration file consistency
Sat Oct 27 19:14:11 2012 * Verifying node status
Sat Oct 27 19:14:11 2012 * Verifying instance status
Sat Oct 27 19:14:11 2012 * Verifying orphan volumes
Sat Oct 27 19:14:11 2012 * Verifying N+1 Memory redundancy
Sat Oct 27 19:14:11 2012 * Other Notes
Sat Oct 27 19:14:11 2012   - NOTICE: 1 offline node(s) found.
Sat Oct 27 19:14:12 2012 * Hooks Results
```

gnt-node

Per-node operations

```
gnt-node list
gnt-node info
gnt-node remove node4
gnt-node modify \
  [ --master-candidate yes|no ] \
  [ --drained yes|no ] \
  [ --offline yes|no ] node2
gnt-node evacuate/failover/migrate node3
gnt-node powercycle node1
```

gnt-node examples

```
# gnt-node list
```

Node	DTotal	DFree	MTotal	MNode	MFree	Pinst	Sinst
gnta1.example.com	3.6T	3.1T	64.0G	1023M	15.0G	5	3
gnta2.example.com	3.6T	3.1T	64.0G	1023M	22.9G	4	4
gnta3.example.com	*	*	*	*	*	0	0
gnta4.example.com	3.6T	3.1T	64.0G	1023M	21.0G	4	6

```
# gnt-node info gnta1
```

```
Node name: gnta1.example.com
```

```
primary ip: 172.15.155.15
```

```
secondary ip: 172.99.199.1
```

```
...etc...
```

```
primary for instances:
```

```
- ginny.example.com
```

```
...etc...
```

```
secondary for instances:
```

```
- webcsi.example.com
```

```
...etc...
```

```
node parameters:
```

```
- oob_program: default (None)
```

```
- spindle_count: default (1)
```

```
...etc...
```

gnt-instance

Instance operations

```
gnt-instance start/stop myinstance  
gnt-instance modify ... myinstance  
gnt-instance info myinstance  
gnt-instance list  
gnt-instance migrate myinstance  
gnt-instance console myinstance
```

gnt-instance examples

```
# gnt-instance list
```

Instance	Hypervisor	OS	Primary_node	Status	Memory
rocker1.example.com	xen-pvm	debian-server	gnta2.example.com	running	512M
webcsi.example.com	xen-pvm	debian-server	gnta3.example.com	running	1.0G

```
# gnt-instance info rocker1
```

Instance name: rocker1.example.com

UUID: 3244567d-a08a-4663-8349-c68307fab664

Serial number: 2

Creation time: 2012-07-05 20:08:14

Modification time: 2012-07-09 15:33:03

State: configured to be up, actual state is up

Nodes:

- primary: gnta2.example.com
- secondaries: gnta3.example.com

Operating system: debian-server

Allocated network port: None

Hypervisor: xen-pvm

- ...

Job Queue

- Ganeti operations generate jobs in the master
 - (with the exception of queries)
- Jobs execute concurrently
- You can
 - cancel non-started jobs,
 - inspect the queue status, and
 - inspect jobs
- Development in progress: more fine-grained job-queue management

```
gnt-job list  
gnt-job info  
gnt-job watch  
gnt-job cancel
```

gnt-backup

Manage instance exports/backups

```
gnt-backup export -n node1 instance1
gnt-backup import -t plain \
  {-n node3 | -I hail } --src-node node1 \
  --src-dir /tmp/myexport instance1
gnt-backup list
gnt-backup remove
```


gnt-group

Managing node groups

```
gnt-group add  
gnt-group assign-nodes  
gnt-group evacuate  
gnt-group list  
gnt-group modify  
gnt-group remove  
gnt-group rename  
gnt-instance change-group
```

Custom output

Customize `gnt-* list` output with `-o`:

```
# gnt-instance list -o name,snodes
Instance          Secondary_Nodes
rocker1.example.com gnta3.example.com
webcsi.example.com  gnta2.example.com
```

`--no-headers` is useful in shell scripts:

```
# gnt-instance list -o name,snodes --no-headers
rocker1.example.com
webcsi.example.com
```

What are the -o fields?

The `list-fields` subcommand lists all available fields.

```
gnt-group list-fields  
gnt-instance list-fields  
gnt-job list-fields  
gnt-backup list-fields
```

Filtering a list

Filter output of `list` subcommands using the `-F` option:

```
# gnt-instance list -F 'pnode == "gnta1"' --no-headers -o name  
ringo.example.com  
george.example.com  
john.example.com  
paul.example.com  
luke.example.com
```

More on filtering

Filtering language is described in `man ganeti`

Examples:

```
'(be/vcpus == 3 or be/vcpus == 6) and pnode.group =~ m/^rack/'
```

```
'pinst_cnt != 0'
```

```
'not master_candidate'
```

Tools: cross-cluster instance migration

Instances can be moved between clusters that share a common secret.

- Operation available via the CLI or RAPI
- CLI tool uses RAPI, and can be seen as an example
- Data is transferred directly between clusters

Setup

Setup common secret and RAPI authentication

BASH

```
ssh root@cluster1 --> root@cluster1:~#  
gnt-cluster renew-crypto --new-cluster-domain-secret  
cat > /var/lib/ganeti/rapi/users <<EOF  
mover testpwd write  
EOF
```

copy /var/lib/ganeti/cluster-domain-secret to the second cluster

```
ssh root@cluster2 --> root@cluster2:~#  
gnt-cluster renew-crypto --cluster-domain-secret=path_to_domain_secret  
# rapi access can be the same or different. in production use hashed passwords.  
cat > /var/lib/ganeti/rapi/users <<EOF  
mover testpwd write  
EOF
```

Execute move

Can be run on a third party machine

```
PWDFILE=$(mktemp)
echo testpwd > $PWDFILE
```

BASH

```
# Note: --dst-* defaults to --src-* if not specified
/usr/lib/ganeti/tools/move-instance --verbose \
  --src-ca-file=rapi.pem --src-username=mover \
  --src-password-file=$PWDFILE \
  [--dest-instance-name=new_name --net=0:mac=generate] \
  --iallocator=hail cluster1 cluster2 instance.example.com
```

Bugs:

- Either--iallocator or nodes must be specified manually
- Move is slower than it ought to be
- Instances with file-based disk template not supported.

Thank You!

Questions?



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