# sNow! Cluster Manager Quick Reference

HPCNow! (http://www.hpcnow.com) - The High Performance Computing Consulting Company

sNow! is an Open Source project developed and lead by HPCNow!

## Contact Information

- **sNow! web**: `http://snow.hpcnow.com`
- **EULA**: `http://snow.hpcnow.com/eula.txt`
- **Documentation**: `https://hpcnow.github.io/snow-documentation`
- **Source**: `https://bitbucket.org/hpcnow/snow-tools`
- **Bug report**: `https://bitbucket.org/hpcnow/snow-tools/issues`
- **Support**: dev@hpcnow.com

## sNow! Command Line Interface

The `snow` command is the most important administration command you will use to manage your cluster. It allows you to do the initial configuration, deploy the domains and compute nodes, boot or power off them when needed, open the console, deploy, clone or boot the compute nodes, etc.

`snow [function] <domain|node> <option>`

The following sections explain how to interact with the `snow` command line interface.

## Man pages

There is a manpage covering the snow command usage. We encourage you to read it as it might information not available in this guide or, at least, organized in a different way. The available man pages are:

- `man snow`
- `man snow.conf`
- `man active-domains.conf`
- `man domains.conf`

## Version and help

- `snow version` shows the version of sNow!
- `snow help` prints the standard help message

## Power Management

- `snow boot <domain>` boot specific domain
- `snow boot domains` boot all the domains (all services not available under sNow! HA)
- `snow boot <node> <image>` boot specific node(s) with optional image
- `snow boot cluster <cluster>` boot all the compute nodes of the selected cluster (by default 12 nodes at once)
- `snow shutdown <domain|node>` shutdown specific domain or node(s)
- `snow shutdown cluster <cluster>` shutdown all the compute nodes of the selected cluster
- `snow destroy <domain|node>` force to stop specific domain or node(s) simulating a power button press
- `snow reboot <domain|node>` force to reboot specific domain or node(s)
- `snow reset <domain|node>` reboot specific domain or node(s)
- `snow poweroff <domain|node>` initiate a soft-shutdown of the OS via ACPI for domain(s) or node(s)
- `snow uptime <domain|node>` Uptime

## Domains Management

- `snow deploy <domain|node> <template> <force>` deploy specific domain/node (optional: with specific template or force to deploy existing domain/server)
- `snow remove domain <domain>` removes an existing domain deployed with sNow!
- `snow list domains` list the current domains (services) and their status
- `snow list roles` list the available roles for domains (services)

## Node Management

- `snow add node <node> [--option value]` adds a new node in the sNow! database. Available options: cluster, image, template, install_repo, console_options
- `snow set node <node> [--option value]` sets parameters in the node description. Available options: cluster, image, template, install_repo, console_options
- `snow list nodes` list the available compute nodes and their status
- `snow show nodes <node>` shows the node(s) configuration.
- `snow remove node <node>` removes an existing node from sNow! configuration

## Deployment and Template Management

- `snow deploy <domain|node> <template> <force>` deploy specific domain/node (optional: with specific template or force to deploy existing domain/server)
- `snow clone template <old> <new> "<description>"` creates a new template based on an existing one
- `snow remove template <template>` removes an existing template
- `snow list templates` list the templates installed in the system

## Image Management System

- `snow clone image <old> <new> "<description>"` creates a new image based on an existing one
- `snow clone node <node> <image> <type>` creates an image to boot the compute nodes diskless. Available types (nfsroot, stateless).
- `snow remove image <image>` removes an existing image
- `snow list images` list the images generated or downloaded
- `snow chroot <image>` provides chroot environment inside a read-only nfsroot image. The prompt provided by this command, also highlights that the shell session is allocated inside a particular image chroot. In order to exit from this environment, type exit or press Ctrl+d.

## Get Involved!



We would like to encourage you to send suggestions and feedback to the HPCNow! Team (`dev@hpcnow.com`).

## Console Access

`snow console <domain|node>`

Supported escape sequences for compute nodes:

- `~.` terminate connection
- `~B` send a BREAK to the remote system
- `~C` open a command line
- `~R` request rekey
- `~V/v` decrease/increase verbosity (LogLevel)
- `~^Z` suspend ssh
- `~#` list forwarded connections
- `~&` background ssh
- `~?` this message
- `~~` send the escape character by typing it twice

The SSH sessions capture the ~ char, so in order to exit from the console through a SSH session you will need an additional ~ for each SSH session.

Supported escape sequences for domains:

- `CTRL+]` exit from sNow! domain console
- `CTRL+5` exit from sNow! domain console connected by SSH client

## Update sNow!

- `snow update tools` updates the sNow! Tools
- `snow update configspace` updates configuration files from private git
- `snow update template` updates the sNow! image used to create new domains

## Configuration

- `snow init` initiates the system configuration according to the parameters defined in snow.conf and active-domains.conf
- `snow config` dumps the information available in snow.conf and domains.conf. Use it for keeping a track of the changes.
- `snow update firewall` updates the default sNow! firewall rules (only for sNow! with public IP address and internal DMZ)

## Default paths

| PATH | Function |
|---|---|
| /sNow/snow-tools | Path to sNow! command line interface. |
| /sNow/snow-configspace | Includes all the required configuration files for managing sNow!. |
| /sNow/modules | Path to domains templates. |
| /sNow/easybuild | Path to easybuild. |
| /sNow/OS | Path to local repositories. |