Hewlett Packard Enterprise

HPE Cray EX Series System Administration with HPE Performance Cluster Manager

Lab exercise cm power

Manage power with the cm power command

This lab procedure takes approximately 30 minutes to complete. Work in your LabGroup for this exercise.

1. Open a terminal session to the admin node:
   Account: **root**
   Password: **cmdefault**

2. Review the cm power man page:

   man cm power

   Example output:

```
cm(power)            Hewlett Packard Enterprise            cm(power)

NAME
       cm power - HPCM Power Management Tool

SYNOPSIS
       cm   power  [options]  ACTION  -t|--type  TARGET-TYPE   HOST-
       NAME_LIST | RACKNAME

DESCRIPTION
       cm power is used to query and control power state for  system
       nodes and integrated infiniband switches.  It can also report
       whether nodes are fully booted via a  heartbeat  system,  and
       can activate the identification light on supported nodes.

   ACTION
       Required argument. For each action, the supported targets are
       listed.

       on Send a baseboard power "on"  command  to  target:  node  |
       leader | rack | chassis | switch | system

            system  target: for clusters with rack leaders, and also
            clusters of compute  nodes  directly  connected  to  the
            Administrative Node, these compute nodes and leaders are
            turned on first.  After rack  leaders  are  booted,  the
            chassis  power  is turned on, then compute nodes managed
            by the rack leader nodes are turned on.

            rack target: applies to clusters with rack leaders.  The
            designated rack leaders are turned on first.  After rack
            leaders are booted, the chassis power is turned on, then
            the  compute  nodes  of the designated racks are powered
            on.
 Manual page cm-power(8) line 1 (press h for help or q to quit)
```

3. Review the cm power online help:

   cm power -h

   Example output:

```
Usage: cm power [options] action -t|--type target-type [target-hostnames]
-------------------------
Action commands
```

```
    on         issue power on to target-hostname(s). Implicit power on of essential power
domains.
    off         issue power off to target-hostname(s). Implicit power off of subservient
power domains.
    status      return heartbeat status or power status from target-hostname(s).
    halt        ssh to target-hostname(s) os and issue a 'halt' command.
    shutdown    ssh to target-hostname(s) os and issue a 'shutdown -h now' command
    reboot      ssh to target-hostname(s) os and issue a 'reboot' command
    hard_reboot issue a power cycle command to target-hostname(s) BMC
    reset       issue a power reset command to target-hostname(s) BMC
    press       issue 'chassis power soft' to target-hostname(s) BMC
    uid_on      issue identify light ON to target-hostname(s) BMC
    uid_off     issue identify light OFF to target-hostname(s) BMC

Target-type names

    system      all system hostnames, chassis, management proxy servers (leader)
    node        compute node hostname(s)
    leader      management proxy server for hierarchical cluster
    rack        compute rack of a hierarchical cluster
    chassis     compute rack subdomain
    switch      integrated fabric switch

Target-hostname options
    Hostnames may be specified by a comma separated list.
        Wildcards/globbing (*, ? and []) and lists can be used.
        Wildcards must be quoteed to eliminate shell filename expansion.
Common Options
    -v|--verbose       more command progress verbosity
    -u|--no-unmatched  Report any unmatched targets from wild card or glob target
    -q|--quiet         Quiet mode. Do not report progress or summary text.
    -e|--err-log ename direct error output to file ename.
    -x|--pxe           Request the target nodes to pxe boot. Valid for reboot and
hard_reboot.
    -p|--poll          Use ssh ping command to target-hostnames instead of heartbeat status.
    -b|--boot          Only test heartbeat status for BOOTED, do not probe node.
Chassis Options
    --chassis_switch   Only direct the power on/off to the chassis switch power bay.
    --chassis_node     Only direct the power on/off to the chassis node power bay.
 ------------------------
Examples:

   $ cm power status -t node "r1i*n*"
   $ cm power on -t leader r1lead,r2lead
   $ cm powwer on -t node 'r1c1' --chassis_power

 Racknames can be specified using either the 'r<x>' or 'rack<x>' format, where
 <x> represents the rack number.  Lists are not allowed for racknames, but
 wildcards are accepted:

   $ cm power on -t rack r1
   $ cm power on -t rack rack1
Options:
  -h, --help            show this help message and exit
  -e ERR_FNAME, --err-log=ERR_FNAME
                        send errors to file
  -p, --poll            for node status, use port poll rather then heartbeat.
  -q, --quiet           quiet mode. Do not display progrees bars or summary
                        text
  -t TARGET, --type=TARGET
                        command target type: node, system, switch, rack,
```

```
                        leader, chassis
  -u, --no-unmatched    Report any unmatched targets from wild card or glob
                        target
  -v, --verbose         report details and all errors.
  -w WAIT, --wait=WAIT  for certain operations, verification waiting timeout.
  -x PXE, --pxe=PXE     request node(s) to pxe boot. Valid for action reboot
                        or hard_reboot.
  -b, --boot            report BOOTED or NOT BOOTED status.
  --chassis_switch      control for chassis switch power
  --chassis_node        control for chassis node power
```

4. Check cluster power status:

   cm power status -t system

5. Observe that the admin node's power status is not listed.

   The cm power command does not power manage the admin node.

6. Omit the -t option to generate a command error.

   cm power status system

   Example output:

   ```
   # cm power status  system
   Command line usage error: ERROR:target parameter -t required
   ```

7. Shutdown one cluster node—use the node assigned to your labgroup and coordinate this activity.

   cm power shutdown -t node <node>

8. Check cluster power status (your output may vary based on the time that you issue the command and the response returned by the power service):

   cm power status -t system

9. Power on the node that you shutdown.

   cm power on -t node <node>

10. Check the cluster power status.

    cm power status -t system

    If a node power status does not transition from ON to BOOTED after a few minutes, troubleshoot: check console logs and infrastructure.

11. After the nodes complete the boot of the operating system, check the cluster power status:

    cm power status -t system

12. Check the power status of all compute (flat, service) and ICE compute nodes:

    cm power status -t node "*"

NOTE: Any hostname list that contains wildcard characters should be quoted to prevent the shell from matching files in the current directory.

13. Check the power status of all leader nodes:

    cm power status -t leader "*"

14. Omit the "*" argument to generate a command error.

    cm power status -t leader

    Example output:

    ```
    [root@admin1 ~]# cm power status -t leader
    Command line usage error: ERROR: Hostname positional parameter
    required.
    ```

15. Check the power status of a specific leader node (replace <leader> with the name of a leader node):

    cm power status -t leader <leader>

    Example output with a single leader node specified:

    ```
    [root@admin1 ~]# cm power status -t leader leader2
    Leader2    BOOTED
    ```

16. Check the power status of a specific compute node (replace ***<node>*** with the name of a node):

    cm power status -t node *<node>*

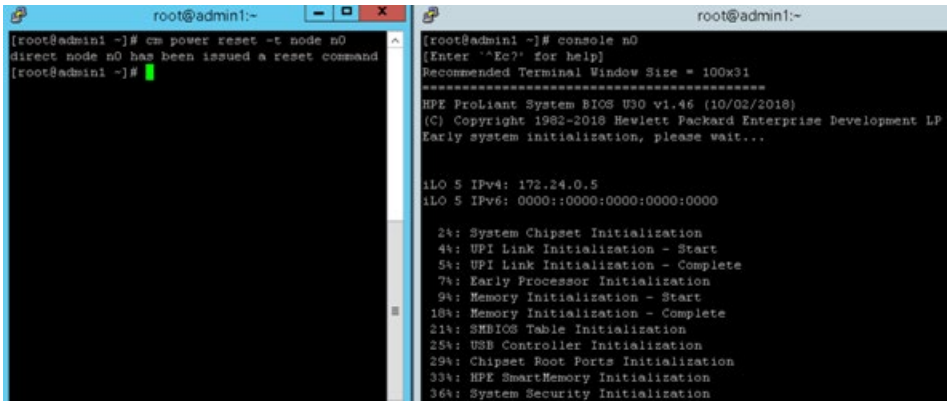
17. Arrange 2 terminal sessions connected to the admin node side by side.
18. In one terminal session, connect to the console of your node:

    console <node>

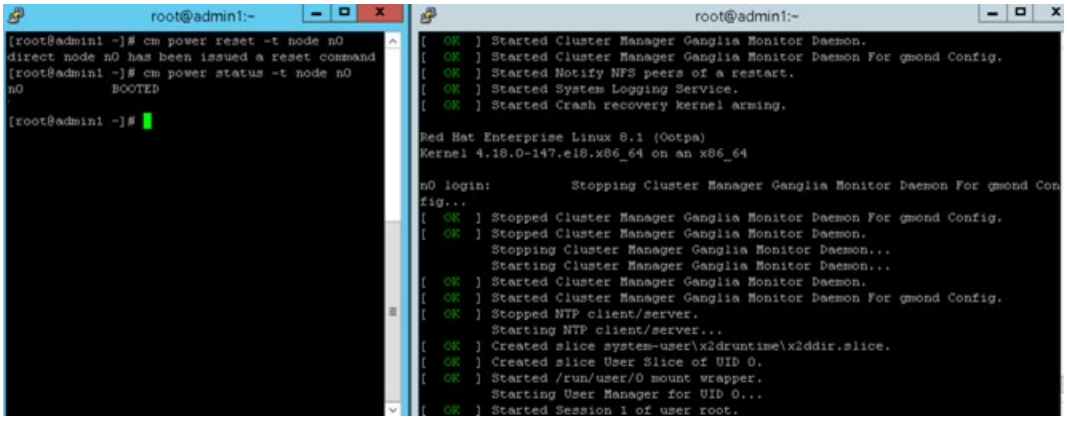
19. In the other terminal session, reset the specified node:

    cm power reset -t node <node>

20. Monitor the node reset and boot to operating system on the node console.



After boot:



21. Turn on the chassis identify or beacon LED (replace ***<node>*** with the name of a node):

    cm power uid_on -t node *<node>*

22. Turn off the chassis identify or beacon LED (replace ***<node>*** with the name of a node):

    cm power uid_off -t node *<node>*

23. Check the status of the power service clmgr-power:

    systemctl -l status clmgr-power

    If the service is stopped, start it.

24. Check the status of the power service clmgr-power on a leader node:

    ssh leader2 systemctl -l status clmgr-power

    If the service is stopped, start it.

25. On the admin node, browse the power service log clmgr-power.log:

    less /opt/clmgr/log/clmgr-power.log

    Search on NOTICE, ERROR, WARNING.

26. Show a node's boot order index:

    cm node show -Oj -n <node>

27. Close the terminal session.

    This completes lab exercise cm power.