

HighPoint RAID Management Command Line Interface Guide



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Conventions

The following conventions are used through this guide:

- **Bold font** is used for what you type on the command line and for the screen output.
- In commands, braces {} around an item indicate that it must be specified.
- In commands, square brackets [] around an item indicate that it is optional.
- In commands, braces with pipes inside {| | |} indicate you must specify one option among multiple items.
- In commands, square brackets with pipes inside [| | |] indicate you can either specify one option or more options.
- Whenever you type a parameter with a space, it should be enclosed with double quotation marks "".

Introduction to the HighPoint Command Line Interface

The HighPoint CLI (Command Line Interface) is a command line utility that configures and manages HighPoint RAID controllers via a command line. It is ideal for systems where the browser-based RAID Management utility cannot be used.

Supported Operation Systems and Adapters

The current CLI release supports Windows, Linux and FreeBSD operating systems.

CLI Command Reference

This chapter discusses the various HighPoint CLI commands: Query, Create, Delete, OCE/ORLM, Rebuild, Verify, Unplug, Switch, Lscard, Rescan, Init, Events, Mail, Task, Set, Clear, Help and Exit.

Warning:

Operations under the Create/Delete commands may destroy data stored in the disks, and the lost data can never be recovered. So you should take special care when executing these commands. The CLI utility will not prompt before each operation is committed.

Query Commands

Syntax

- query controllers
- query devices
- query devices {device_id}
- query arrays
- query arrays {array_id}

query controllers

This command reports controller information.

Example

HPT CLI> query controllers

Typical output:

```
HPT CLI > query controllers
ID          Channel      Name
1           8           RocketRAID 4520 SAS Controller
-----
IOP Model   88RC9580 (9580B2)
$DRAM Size  512M
Battery Installed      No
Firmware Version      v1.4.74.22
Battery MotherBoard Status  Not installed
-----
HPT CLI > _
```

query devices

This command presents status of all the physical devices to the controllers. It provides a list of device ID, capacity, model number, status and array attributes. Each device's status will be listed as one of the following: NORMAL, DISABLED, SPARE, RAID and BOOT.

Attributes

ID:

A device ID is a string used to represent a disk. It is in the format "controller/port" for SATA controllers, and "controller/channel/device" for PATA controllers. E.g. 1/2 represents the disk on controller 1 port 2; 1/2/1 represents the disk on controller 1 channel 2 master disk; 1/2/2 represents the disk on controller 1 channel 2 slave disk.

Capacity:

The capacity of the disk in GB.

MaxFree:

The Maximum sequence free space on a disk which can be used by creating array.

TotalFree:

The sum of all the free space on a disk which can be used by creating array.

Hard Disk Status:

NORMAL: The disk's status is normal.

DISABLED: The disk's cannot be use. (May be disk failure or removed)

RAID: The disk is a member of some RAID.

SPARE: It is a spare disk

BOOT: It is a boot disk.

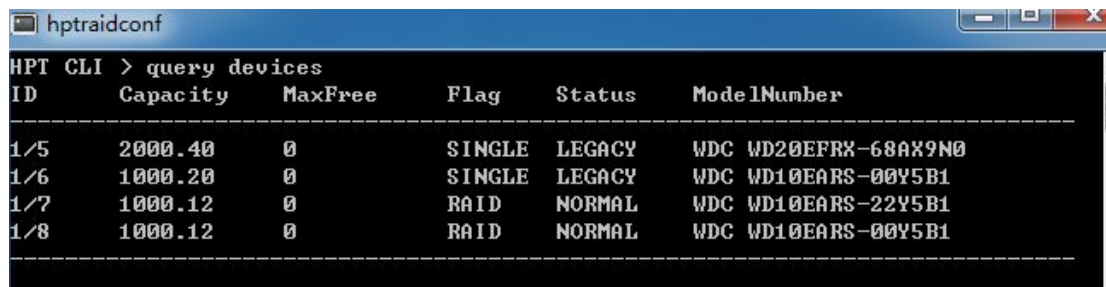
ModelNumber:

The disk's model number.

Example

HPT CLI> query devices

Typical output:



ID	Capacity	MaxFree	Flag	Status	ModelNumber
1/5	2000.40	0	SINGLE	LEGACY	WDC WD20EFRX-68AX9N0
1/6	1000.20	0	SINGLE	LEGACY	WDC WD10EARS-00Y5B1
1/7	1000.12	0	RAID	NORMAL	WDC WD10EARS-22Y5B1
1/8	1000.12	0	RAID	NORMAL	WDC WD10EARS-00Y5B1

query devices {device_id}

This command presents information for the specified device.

Attributes

Serial Number:

Disk Serial Number

Read Ahead/Write Cache/TCQ/NCQ Status:

Disk's Read Ahead/Write Cache/TCQ/NCQ status could be enabled/disabled/--(not support)

S.M.A.R.T Attributes:

S.M.A.R.T Attributes detailed information reported by hard disk

Example

HPT CLI> query devices 1/5

Typical output:

```

HPT CLI > query devices 1/5
Mode Number:      WDC WD20EFRX-68AX9N0
Serial Number:    WD-WMC300032432
Firmware Version: 80.00A80
Capacity(GB):    2000.40      TotalFree(GB): 0
Status:          SINGLE      Flag:          LEGACY
Read Ahead:      enabled     Write Cache:  enabled
TCQ:             --          NCQ:             enabled
-----
                                S.M.A.R.T Attributes
Status: S.M.A.R.T OK.
ID  Name                                Threshold  Value      Worst      Status
-----
1  Read Error Rate                      51         200        200        OK
3  Spin-up Time                         21         205        173        OK
4  Start/Stop Count                     0          98         98         OK
5  Re-allocated Sector Count            140        200        200        OK
7  Seek Error Rate                      0          200        200        OK
9  Power-on Hours Count                 0          94         94         OK
A  Spin-up Retry Count                  0          100        100        OK
B  Drive Calibration Retry Count        0          100        100        OK
C  Drive Power Cycle Count              0          99         99         OK
C0 Power-Off Retract Count              0          198        198        OK
C1 Emergency Retract Cycle Ct          0          200        200        OK
C2 HDD Temperature                     0          120        86         OK
C4 Relocation Event Count               0          200        200        OK
C5 Current Pending Sector Count         0          200        200        OK
C6 Off-line Scan Uncorrectable Sector Count 0          100        253        OK
C7 Ultra ATA CRC Error Rate             0          200        161        OK
C8 Multi-zone Error Rate                0          100        253        OK
-----

```

query arrays

This command lists information for all configured arrays. It will list each array's ID, capacity, RAID level, and status information.

Note: An array ID is generally represented by number or set of numbers. For RAID1/0 arrays; each sub-array will be represented by an ID in the format "1-1", "1-2". An array ID is used in the command line where an array needs to be specified.

Attributes

Type:

The array's type. (RAID0, RAID1, RAID3, RAID5, RAID6, JBOD, RAID10, RAID50)

Status:

DISABLED:	Array is disabled.
EXP/IMG:	Array is expanding or migrating.
REBUILDING:	Array is being rebuilt
VERIFYING:	Array is verifying
NEED EXP/IMG:	Expanding/Migrating is not complete
INIT(F)	Initialize array using Foreground mode
INIT(B)	Initialize array using Background mode
UNINITIALIZED	Array is not initialized
CRITICAL	Array is degraded status (no data redundancy)
NORMAL	Array status is normal

Block:

Array Block size

Sector:

Bytes per sector

Cache:

Array Cache Policy

WT: Write Through

WB: Write Back

NONE: No Cache policy enabled

Example

HPT CLI> query arrays

Typical output:

HPT CLI > query arrays							
ID	Capacity<GB>	Type	Status	Block	Sector	Cache	Name
1	1000.12	RAID1	REBUILDING	--	512B	NONE	RAID_1_0

query arrays {array_id}

This command will present information of each disk of a specified array.

Attributes

Progress :

The progress of array's tasks (verifying, rebuilding, initializing, EXP/MIG)

Example

HPT CLI> query arrays 1

Typical output:

```
HPT CLI > query arrays 1
```

ID:	1	Name:	RAID_1_0
Type:	RAID1	Status:	REBUILDING
Capacity(GB):	1000.12	BlockSize:	--
SectorSize:	512B	CachePolicy:	NONE
Progress:	57.80%		

ID	Capacity	MaxFree	Flag	Status	ModelNumber
1/8	1000.12	0	NORMAL	CRITICAL	WDC WD10EARS-00Y5B1
1/7	1000.12	0	NORMAL	RAID	WDC WD10EARS-22Y5B1

Create Command

This command allows you to create a new RAID array, or add a spare disk, or expand/migrate an existing array.

Syntax

```
create {RAID0|RAID1|RAID10|RAID3|RAID5|RAID6|RAID50|JBOD|spare}
[create-options]
```

Parameters

You can specify one or more create options for this command, separated by space. The options can be typed in any order.

You can specify one or more create options for this command, separated by space. The options can be typed in any order.

disks= specifies member disks which will compose a new array, e.g. disks=1/1,1/2, disks=*. The character * means all available drives.

NOTE:When you enter a complete command with parameters disks=* at the shell prompt,the correct writing is disks="*".

For example:

hptraidconf -u RAID -p hpt create RAID0 disks="*".

- init= specifies initialization option (foreground, background, quickinit, keepdata). The default option is create-only. The create-only option is applicable for all the RAID types, which is to create an array without any initialization process. Initialization is needed for redundant arrays to provide data redundancy.
- foreground : Initialize array using foreground mode. This is the recommended method when creating redundant RAID arrays.
- background : Initialize array using background mode. The array is accessible during array initialization.
- quickinit : Do a quick init.
- keepdata : Create RAID array but keep existing data on RAID array. This option should be selected when trying to recover a RAID array.
- name= specifies the name for the array being created.
- If the option is omitted, the utility will assign a default name for the array.
- src= specifies an existing array to be expanded/migrated. All data on the source array will be redistributed online to the target array. If this parameter is omitted, a new array is created.
- capacity= specifies the capacity, in size of MB, for the target array. Maximum capacity is default.
- bs= specifies the block size, in KB, for the target array. This option is only valid for striped RAID levels. 64KB is default.
- sector= specifies the logical sector size, in B/KB, for the target array. This option is only valid for striped RAID levels. 512 Bytes is default.
- matrix=n*m
(RAID50 only) specifies the number of RAID5's members (n) and the number of RAID0's members (m).
- cp= Cache policy options.
WB: write back.
WT: write through.
NONE: none cache policy.

Examples

- **HPT CLI> create RAID0 name=myraid0 disks=1/3,1/4**

This command instructs the system to create an RAID 0 array using the disks attached to controller 1 channels 3 and 4, and name it **myraid0**.

- **HPT CLI> create RAID5 disks=* src=1**

This command instructs the controller to expand an existing array using all the available disks to a **RAID5** array.

- **HPT CLI> create spare disks=1/4**

This command indicates that you will set the disk on controller 1 channel 4 to be a spare disk.

Delete Command

This command allows you to delete an existing RAID array or remove a spare disk. After deletion, the original array and all data on it will be lost. All the member disks will be listed as available single disks.

Syntax

delete {array_or_spare_ID}

Examples

- **HPT CLI> delete 1/3**

This command indicates to remove the spare disk on controller 1 channel 3.

- **HPT CLI> delete 1**

This command indicates to delete the array whose id is “1”. You can query the array ID before the deletion.

Unplug Command

This command allows you to remove an array or disk from a running system without shutting down.

Syntax

unplug {array_id or device_id}

Example

HPT CLI> unplug 1

This command instructs the controller to disconnect the array “1” and then you can disconnect the drives safely.

Init Commands

You can use init commands to initialize disks or arrays. **A drive must be initialized first before being used to create arrays.**

Syntax

- `init {device_id}`
- `init {array_id} {start|stop}`

init {device_id}

This command initialize a disk for first use or a legacy disk on the controller.

Example

```
HPT CLI> init 1/3
```

This command instructs the controller to initialize the disk on controller 1 channel 3. All data on the disk will be destroyed.

Init {array_id} {start|stop}

This command starts/stops initialization process on a redundant array.

Example

```
HPT CLI> init 1 stop
```

This command instructs the controller to stop initialization process on array 1. You can continue the initialization at a later time.

Rebuild Commands

You can use rebuild commands to rebuild a RAID1, RAID1/0 or RAID5 array when it is critical or broken.

Syntax

- `rebuild {array_id} {device_id}`
- `rebuild {array_id} {start|stop}`

rebuild {array_id} {device_id}

This command allows you to add the specified disk to a broken array and rebuild it.

Example

HPT CLI> rebuild 1 1/3

This command instructs the controller to add the disk “1/3” to rebuild the array “1”. You can use the query commands first to verify the device ID and the array ID information before the rebuild command.

Rebuild {array_id} {start|stop}

This command allows you to start or stop the rebuilding process on the specified array. After you stopped a rebuilding process, you can resume it at a later time by the rebuild start command.

Examples

■ **HPT CLI> rebuild 1 start**

This command starts the rebuilding process on the array “1”.

■ **HPT CLI> rebuild 1 stop**

This command stops the rebuilding process on the array “1”.

Verify Command

Syntax

■ **verify {array_id} {start|stop}**

This command starts or stops the verify process on the specified array.

Examples

■ **HPT CLI> verify 1 start**

This command starts to verify the array “1”.

■ **HPT CLI> verify 1 stop**

This command stops the verify process on the array “1”.

OCE/ORLM Command

Syntax

■ **OCE/ORLM {array_id} {start|stop}**

This command starts or stops the **Online Capacity Expand/ Online RAID Level Migration** process on the specified array.

Examples

■ **HPT CLI> OCE/ORLM 1 stop**

This command stops OCE/ORLM process on array “1”. You can resume the process at later time.

Rescan Command

This command will rescan all of the physical devices attached to the RAID controller.

Syntax

rescan

Example

```
HPT CLI> rescan
```

Lscard Commands

The lscard command is used to list multi RAID controllers.

Syntax

lscard

Example

```
HPT CLI> lscard
```

Typical output:

```
HPT CLI > lscard
CARD_ID      NAME                                     ACTIVED
-----
0            Controller<1>: RR272x_1x               Inactive
1            Controller<2>: RR4520                  Active
```

Switch Commands

The switch command is used to switch active card in multi RAID controllers.

Syntax

switch {card_id}

Example

```
HPT CLI> switch 0
```

Typical output:

```

HPT CLI > lscard
CARD_ID      NAME                                     ACTIVED
-----
0            Controller<1>: RR272x_1x             Inactive
1            Controller<2>: RR4520               Active
HPT CLI > switch 0

HPT CLI > lscard
CARD_ID      NAME                                     ACTIVED
-----
0            Controller<1>: RR272x_1x             Active
1            Controller<2>: RR4520               Inactive
HPT CLI >

```

Events Commands

The CLI system will automatically record three types of events: Information (shortened to “Inf”), Warning (shortened to “War”), and Error (shortened to “Err”) on the screen output. These commands allow you to query, save, or clear the logged events.

Syntax

- events
- events clear
- events save {file_name}

events

This command will display a list of all the logged events.

Example

HPT CLI> events

Typical output:

```

HPT CLI > events
1  Inf  [11/21/2013 14:44:28]      Array 'RAID_1_0' initializing (background) started.

2  War  [11/21/2013 14:44:28]      Plugging device detected.<'SEAGATE ST3146855SS-3LN5Y1G3' at Controller1-Channel6>

3  War  [11/21/2013 14:44:24]      Plugging device detected.<'SEAGATE ST3146855SS-3LN5XKZG' at Controller1-Channel5>

4  War  [11/21/2013 14:44:24]      Plugging device detected.<'SEAGATE ST3146855SS-3LN461FK' at Controller1-Channel7>

```

Events clear

This command will clear all the logged events.

Example

```
HPT CLI> events clear
```

Events save {file_name}

This command will save all the logged events as a plain text file.

Example

```
HPT CLI> events save j:/raidlog.txt
```

This command will save all the events to `j:/raidlog.txt`.

Mail Commands

Syntax

- mail recipient
- mail recipient add {recipient_name} {mail_address} [Inf|War|Err]
- mail recipient delete {recipient_name}
- mail recipient test {recipient_name}
- mail recipient set {recipient_name} {Inf|War|Err}
- mail server
- mail server set {server_address} {port} { status } {from_address}
[username] [password]
- mail server set {a|p|s|m|u|t} {value}

mail recipient

--- List all the mail recipients

Example

```
HPT CLI> mail recipient
```

Typical output:

```
HPT CLI > mail recipient
```

ID	Name	Mail Address	Notify Types
1	RAID	test@somecompany.com	Information Warning Error

Mail recipient add {recipient_name} {mail_address}

[Inf|War|Err]

--- Add a not exist recipient

Example

```
HPT CLI> mail recipient add admin admin@somecompany.com Inf War Err
```

This command will setup the RAID system to send mail to admin@somecompany.com about all logged events.

Mail recipient delete {recipient_name}

--- Delete an exist recipient.

Example

```
HPT CLI> mail recipient delete Ferry
```

mail recipient test {recipient_name}

--- Send a testing mail to specified recipient.

Example

```
HPT CLI> mail recipient test RAID
```

mail recipient set {recipient_name} {Inf|War|Err}

--- Set the notification type for a recipient.

Example

```
HPT CLI> mail recipient set admin War Err
```

mail server

--- Print the SMTP server information

Example

HPT CLI> mail server

```
HPT CLI>mail server
ServerAddress      Port    ssl  Status  Mail From      User Name
-----
secure.emailsrvr.com465    1    Enabled  yzang@highpoint-tech.comyzang@highpoint-tech.com
```

Typical output:

mail server set {server_address} {port} {ssl} {status}
{from_address}
[username] [password]

--- Use this command to configure mail server settings.

{server_address} – SMTP server address

{port} – port, generally 25

{ssl} – used ssl, '1' for enable and port need 465, '0' for disable

{status} – status, 'e' for enable or 'd' for disable

{from_address} – mail from address

{username} – username

{password} – the user's password

Examples:

HPT CLI> mail server set secure.emailsrvr.com 465 1 e name@somecompany.com
 name@somecompany.com password

HPT CLI> mail server set mail.somecompany.com 25 0 e admin@somecompany.com

mail server set {a|p|s|m|u|t} {value}

--- Use this to separate set your mail server value

Parameters

a – SMTP server address

p – port, generally 25

s – status, 'e' for enable or 'd' for disable

m – mail from address

u – username

t – user's password

Examples:

HPT CLI> mail server set a smtp.somecompany.com

--- Change the server address

HPT CLI> mail server set p 25

--- Change the port

HPT CLI> mail server set s d

--- Disable mail notification

HPT CLI> mail server set s e

--- Enable mail notification

Task Commands

When an array requires regularly verification or rebuilding, you can use the task commands to automate this process in the background. As long as you have the appropriate privileges, you can add new tasks, and modify or delete existing tasks.

Syntax

- task
- task rebuild {array_id} {name=} {once|daily|monthly|weekly}={day}
interval={interval} start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss
- task verify {array_id} {name=} {once|daily|monthly|weekly}={day}
interval={interval} start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss
- task delete {task_id}
- task enable {task_id}
- task disable {task_id}

task

This command displays detailed information about all scheduled tasks.

Example

HPT CLI> task

This command displays the current background tasks.

```
HPT CLI> task rebuild {array_id} {name=} {once|daily|weekly|monthly}={day} interval={interval}  
start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss
```

This command allows you to schedule the frequency by once, daily, weekly or monthly and the detailed time range to rebuild a specified array. The first `mm/dd/yyyy` specifies the task start date, while the second `mm/dd/yyyy` specifies the task end date.

Note:

When you add a task to rebuild a selected array **once**, the parameter **{day}** should be omitted.

Examples

- **HPT CLI> task rebuild 1 name=test once start=10/8/2005 time=12:35:46**

This command adds a task schedule named `test` to rebuild the array "1" at 12:35:46 on 10/8/2005. The rebuild frequency is set to `once`.

- **HPT CLI> task rebuild 4 name=myraid4 daily=2 start=2/8/2005 end=2/22/2005
time=13:49:58**

This command adds a task schedule named `myraid4` to rebuild the array "4" at 13:49:58 every 2 days from 2/8/2005 to 2/22/2005.

- **HPT CLI> task rebuild 3 name=myraid3 weekly=2 interval=3 start=2/8/2004
end=2/22/2008 time=13:49:58**

This command adds a task schedule named `myraid3` to rebuild the array "3" at 13:49:58 on **Monday** (the 2nd day in a week) every 3 weeks from 2/8/2004 to 2/22/2008.

- **HPT CLI> task rebuild 2 name=myraid2 monthly=3 interval=4 start=2/8/2004
end=2/8/2006 time=12:30:33**

This command adds a task schedule named `myraid3` to rebuild the array "2" at 12:30:33 on the 3rd day of a month every 4 months from 2/8/2004 to 2/8/2006.

```
HPT CLI>task verify {array_id} {name=} {once|daily|weekly|monthly}={day} interval={interval}  
start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss
```

This command allows you to schedule a verify task. The usage of this command is the same as adding a rebuild task schedule.

task delete {task_id}

This command allows you to delete a scheduled task. You can query the task ID by `task` command.

Example

```
HPT CLI> task delete 2
```

This command will delete the task "2".

task enable {task_id}

This command will enable a disabled task.

Example

```
HPT CLI> task enable 1
```

This command will enable the disabled task "1".

task disable {task_id}

This command will disable a scheduled task manually.

Example

```
HPT CLI> task disable 1
```

This command will disable the scheduled task "1".

Set Commands

Note: Not all controllers and drivers support this command.

Syntax

- **set [name]={value}**
- **set**

set

Show the system settable parameters.

Typical output:

```
HPT CLI > set
-----
                Show the system settable parameters.
-----
[AR] Auto Rebuild                Disable
[CE] Continue Rebuild On Error   Enable
[AA] Audible Alarm               Enable
[RP] Rebuild Priority             Medium
[SD] Spindown Idle Disk <minutes> Disable
[BP] Beeper                      Enable
-----
```


set RP={0-100}

Change rebuilding priority. If controller is not specified, this command will set the global rebuilding priority.

Note:

[0-12]	Lowest
[13-37]	Low
[38-67]	Medium
[68-87]	High
[>88]	Highest

Example

```
HPT CLI> set RP=50
```

set AR={y|n}

- Set enable or disable to the [Auto Rebuild] parameter.

Example

```
HPT CLI> set AR=y
```

set AA={y|n}

- Set enable or disable to the [Audible Alarm] parameter.

Example

```
HPT CLI> set AA=y
```

set SS={y|n}

- Set enable or disable to the [Staggered Spinup] parameter.

Example

```
HPT CLI> set SS=y
```

set DS={seconds(1-4)}

- Set the value(1-4) of [Delay between spinup] parameter.

Example

```
HPT CLI> set DS=2
```

set CE={y|n}

- Set enable or disable to the [Continue Rebuilding On Error] parameter.

Example

```
HPT CLI> set CE=y
```

set BP={y|n}

- Set enable or disable beeper.

Example

```
HPT CLI> set BP=y
```

set SD={minutes}

- Set value of [Spindown Idle Disk]

[1-10]	10
[11-20]	20
[21-30]	30
[31-60]	60
[61-120]	120
[121-180]	180
[181-240]	240

Example

```
HPT CLI> set SD=10
```

set IT={y|n}

- Set enable or disable to the [INT 13 support] parameter.

Example

```
HPT CLI> set IT=y
```

set {device id} tcq={y|n} ncq={y|n} wc={y|n} ra={y|n} smart={y|n}

- Set parameters of device

The options are:

- **tcq={y|n}**

Set enable or disable to the tcq parameter.

- **ncq={y|n}**

Set enable or disable to the ncq parameter.

- **wc={y|n}**

Set enable or disable to the wc parameter.

- **ra={y|n}**

Set enable or disable to the ra parameter.

- **smart={y|n}**

Set enable or disable to the smart parameter.

Example

```
HPT CLI> set 1/2 tcq=y ra=y
```

```
HPT CLI> set 1/2 ncq=n
```

```
HPT CLI> set 1/2 wc=y
```

```
HPT CLI> set 1/2 ra=y
```

Please note that each command allows at most one argument.

set PUIS= {y|n} disks={device id}

- set disk's PUIS feature

Example:

```
HPT CLI> set PUIS=y disks= 1/1,1/2
```

```
HPT CLI> set PUIS=y disks=*
```

set {array id} name={name} cp={wt|wb|none}

The options are:

- **{array id}**

The array ID.

- **name={name}**

Set the array name. This is an option to rename an array.

- `cp={wt|wb|none}`

Set the cache policy of an array.

Example

```
HPT CLI>set 1 name=my_arr
```

```
HPT CLI>set 1 init=y
```

```
HPT CLI>set 1 cp=none
```

Please note that each command allows at most one argument.

Help Commands

Syntax

- `help`
- `help {command}`

help

- Show generic help about this utility.

Example

```
HPT CLI> help
```

help {command}

- Show help about a specific command.

Example

```
HPT CLI> help create
```

Exit Command

Syntax

`exit`

Exit from the interactive mode and close to the window.

Clear Commands

This command is used to clear screen.

Syntax

clear/cls/clr

Appendix A Revision History

Version	Date	Updates
1.0.0	2013/12/20	First release.
1.0.2	2014/08/08	Fix some text errors in file.
1.0.3	2015/01/07	Fix some example mistakes.
1.0.4	2015/01/08	Update Copyright.
1.0.5	2015/01/09	Update task command sample.
1.0.6	2015/01/12	Fix a date mistake.
1.0.7	2015/12/03	Update set command sample.