



Intel® RSTe Command Line Interface (RSTCLI) Overview

Rev 1.3

November 2017

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Document History

Document Revision Table

Revision	Date	Changes
0.8	November 2010	Pre-Alpha Release 3.0.0.1040
1.1	June 2014	RSTe 4.1 minor updates
1.2	August 2014	Removed reverence to RAID 6
1.3	November 2017	Updated to adhere to RSTe 4.7 PV CLI version

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1 Description

RSTCLI is an end user command line utility used to do basic RAID operations on Intel(R) RSTe enabled systems. Intel® RSTe supports RAID0, RAID1, RAID5, and RAID10 volumes. RSTCLI supports creating RAID volumes through the create mode and managing RAID volumes through the Manage mode. In addition there are miscellaneous options such as help, status and version.

2 Options

Flag	Name	Description
-A	--add	Add a new disk(s) to an existing RAID Volume
-a	--array	List the information about the array(s) in the storage system
-C	--create	Creates a volume and array if one does not already exist, creates a new volume on an existing array; used to denote Create Mode
-c	--controller	List information about the controllers in the storage system
-D	--delete	Specify the RAID Volume to be deleted
-d	--disk	List the information about the disks in the storage system
-E	--create-from-existing	Identified the disk that contains the data that is to be migrated into a new RAID Volume (Disk is identified by the SCSI address)
-e	--enclosure	List the information about the enclosures that are attached to the storage system
-F	--normal	Resets a failed or SMRT event disk to normal
-f	--normal-volume	Resets a failed RAID 0 Volume to normal and recovers the data (if possible)
-h	--help	Displays help documentation for command line utility modes, options, usage, examples, and return codes. When used with a mode switch (create, information, manage, modify, or accelerate), instructions for that mode display. For example, --create --help displays Create option help.
-I	--information	Displays controller, array, volume, enclosure and disk information; used to denote Information Mode
-l	--level	Changes the RAID type of an existing RAID Volume (RAID1 to RAID0 or RAID5; RAID0 to RAID5; RAID10 to RAID5)
-L	--locate	Specifies the disk to locate by blinking the LED (disk identifier is the SCSI address)
-M	--manage	Manages specific components of arrays, volumes and disks; used to denote Manage Mode
-m	--modify	Modifies a volume or an array; used to denote Modify Mode
-N	--not-spare	Resets a spare disk back to available
-n	--name	Specifies the name for a RAID Volume being created or rename an existing RAID volume in Modify mode
-p	--verify-repair	Specifies the RAID Volume to be verified and repaired
-q	--quiet	Suppress output for create, modify and manage. This will limit output to error return codes only. This mode is used to facilitate the use of command line scripts.

-R	--rebuild	Specifies the RAID Volume to be rebuilt
-r	--rescan	Forces the system to rescan for hardware changes.
-S	--spare	Specifies the disk to be marked as a spare
-s	--stripe-size	Specifies the stripe size in kilobytes (2^{10}bytes) for a RAID Volume (valid when creating a RAID Volume or changing the RAID Volume type) Options: 4, 8, 16, 32 and 128KB
-T	--delete-metadata	Specifies the disk to delete the metadata (Disk is identified by the SCSI address)
-t	--target	Specifies the pass-through disk to be used for rebuilding a degraded RAID Volume
-U	--verify	Specifies the RAID Volume to be verified
-u	--unlock	Unlocks a disk
-V	--version	Prints version information. Output will resemble the following: Intel(R)RSTCLI Middleware Version: <major>.<minor> Driver Version: <major>.<minor> OROM Version: <major>.<minor>
-v	--volume	List the information on the RAID Volumes in the storage system. Also used to specify the RAID Volume to act upon when used in conjunction with Modify and Manage
-X	--expand	Expands a RAID Volume to consume all of the available space in the array
-x	--cancel-verify	Specifies the RAID Volume to cancel the verify operation in progress
-Z	--delete-all-metadata	Deletes metadata from all RSTe managed disks
	--xml	Reports out the current system state information in an XML format
	--xmlfile	Specifies the name of the XML output file to contain the system state information

2.1 General Use Options

Options for Intel(R) RSTe are case sensitive. Both long and short versions of the options are given:

Flag	Name	Description
-C	--create	Creates a volume and array if one does not already exist, creates a new volume on an existing array; used to denote Create Mode
-I	--information	Displays controller, array, volume, enclosure and disk information; used to denote Information Mode
-M	--manage	Manages specific components of arrays, volumes and disks; used to denote Manage Mode
-m	--modify	Modifies a volume or an array; used to denote Modify Mode
-h	--help	Prints documentation of how to invoke the program

The general command line format of the Intel® RSTe 3.0 Command Line Interface (CLI) is as follows:

```
rstcli [optional mode] <raid-device> [option][[options]]<component-device>
```

Note: rstcli.exe is for 32-bit Windows* operating systems and rstcli64.exe is for 64-bit. For the purposes of this document, rstcli will be used.

To see all available commands and options enter the following:

```
rstcli --help
```

To obtain additional information on a particular optional mode enter the following command:

```
rstcli [mode] --help
```

2.1.1 Create

The create option is used to create RAID volumes. To create a RAID volume, enter the following:

```
rstcli --create --level x [--size y] [--strip-size z] --name string [--create-from-existing diskId] diskId {[diskId]}
```

Create Options:

Flag	Name
-C	--create <i>Creates a volume and array if one does not already exist. Creates a new volume on an existing array; used to denote Create Mode.</i>
-E <<host>-<bus>-<target>-<lun>>	--create-from-existing <<host>-<bus>-<target>-<lun>> <i>If data is to be migrated from one of the disks, specify the disk with this flag. Disk identifier is SCSI address.</i>
-l	--level
-n <Volume name>	--name <Volume name>
-s	--strip-size
-z <size in GB>	--size <size in GB> <i>Size in gigabytes. This is an optional switch. If switch is not used or size is specified to 0, then the maximum size available will be used.</i>

Create Examples:

```
-C -l 1 -n Volume 0-1-0-0 0-2-0-0
--create -l 0 -z 5 --name RAID0Volume 0-3-0-0 0-4-0-0 0-5-0-0
-C - 1 -E 0-1-0-0 -n VolumeWithData 0-2-0-0
--create --help
```

2.1.2 Information

The Information option will provide information on arrays, controllers, disks, enclosures and volumes. To obtain the desired information, enter the following:

```
rstcli --information --controller|--array|--disk|--enclosure|--volume {[device]}
```

Information Options:

Flag	Name
-l	--information <i>Displays controller, array, volume, enclosure, and disk information; used to denote Information Mode.</i>
-a	--array <i>Lists information about the arrays on the system.</i>
-c	--controller <i>Lists information about the controllers on the system.</i>
-d	--disk <i>Lists information about the disks in the system.</i>
-e	--enclosure <i>Lists information about the enclosures on the system.</i>
-v	--volume <i>Lists information about the volumes on the system when used in Info mode. Stipulates the volume to act on in Modify or Manage.</i>

Information Examples:

```
-l -v Volume
-l -d 0-5-0-0
--information --array Array_0000
--information --help
```

2.1.3 Manage

The Manage option will be used to manage specific components of arrays, volumes and disks. To perform the desired management function, enter one the following:

```
rstcli --manage --cancel-verify volumeName
--manage--delete volumeName
--manage--verify-repair volumeName
--manage--normal-volume volumeName
--manage--normal diskId
--manage--initialize volumeName
--manage--locate diskId {[diskId]}
--manage--delete-metadata diskId
--manage--not-spare diskId
--manage--volume-cache-policy off|wb --volume volumeName
--manage--rebuild volumeName --target diskId
--manage--spare diskId
--manage--verify volumeName
--manage--write-cache true|false --array arrayName
```


Manage Options:

Flag	Name
-M	--manage <i>Manages specific components of arrays, volumes and disks; used to denote Manage Mode.</i>
-x <Volume name>	--cancel-verify <Volume name>
-D <Volume name>	--delete <Volume name>
-p <Volume name>	--verify-repair <Volume name> <i>Verifies and repairs the volume.</i>
-f <Volume name>	--normal-volume <Volume name> <i>Marks failed volume as normal.</i>
-F <<host>-<bus>-<target>-<lun>>	--normal <<host>-<bus>-<target>-<lun>> <i>Marks failed disk as normal.</i>
-I <Volume name>	--initialize <Volume name> <i>Initializes the redundant data on a volume.</i>
-L <<host>-<bus>-<target>-<lun>>	--locate <<host>-<bus>-<target>-<lun>> <i>Locates device and blinks the LED.</i>
-T <<host>-<bus>-<target>-<lun>>	--delete-metadata <<host>-<bus>-<target>-<lun>>
-N <<host>-<bus>-<target>-<lun>>	--not-spare <<host>-<bus>-<target>-<lun>> <i>Resets a spare disk to available.</i>
-P <Volume name>	--volume-cache-policy <Volume name> <i>Sets volume cache policy to either off, wt (write-through) or wb (write-back)</i>
-R <Volume name>	--rebuild <Volume name>
-S <<host>-<bus>-<target>-<lun>>	--spare <<host>-<bus>-<target>-<lun>>
-t <<host>-<bus>-<target>-<lun>>	--target <<host>-<bus>-<target>-<lun>> <i>Indicates the pass-through disk for a rebuild.</i>
-U <Volume name>	--verify <Volume name>
-w <true or false>	--write-cache <true or false>
-Z	--delete-all-metadata

Manage Examples:

```
--manage --spare 0-3-0-0
-M -D VolumeDelete
-M --normal 0-2-0-0
--manage -w true -array Array_0000
-M -U VolumeVerify
--manage -help
--manage -Z
```

2.1.4 Modify

The Modify option is used to modify volumes and arrays. To perform a modification, enter the one of the following:

```
rstcli --modify --volume VolumeName --add diskId {[diskId]}
--modify --volume VolumeName --expand
--modify --volume VolumeName --level L [--add diskId {[diskId]} [--strip-size s] [--name N]
--modify --volume VolumeName --name n
```

Modify Options:

Flag	Name
-m	--modify
-A <<host>-<bus>-<target>-<lun>>	--Add <<host>-<bus>-<target>-<lun>>
-X	--expand
-l <0, 1, 5, 10>	--level <0, 1, 5, 10> <i>Raid level options are 0, 1, 5 and 10.</i>
-n	--name
-s <size in KB>	--strip-size <size in KB> <i>Strip size in kilobytes (2^10 bytes). Valid for RAID 0, RAID 5 and RAID 10. Options are 4, 8, 16, 32, 64 and 128.</i>
-v	--volume

Modify Examples:

```
-m -v Volume_0000 -A 0-3-0-0 0-4-0-0
-m --volume ModifyVolume --level 5
--modify -v Volume -n RenameVolume
--modify --help
```

3 Return Codes

Return codes listed are generalized. Specific details returned will depend on the call being made.

Code	Return	Description
0	SUCCESS	Successful completion of request
1	FAILURE	At least some part of request failed
2	INVALID_REQUEST	Unrecognized command; request formatted incorrectly
3	INVALID_DEVICE	Request not formatted correctly, device passed in does not exist. Detail return message will include device identifier and operation. Detail message will be returned unless --quiet switch is used.
4	REQUEST_FAILED	Request was formatted correctly but failed to execute. Detail message will be returned unless --quiet switch is used.

5	REQUEST_UNSUPPORTED	Request is not supported on this system. Request was formatted correctly, but is not supported on this system (this would probably indicate a bug, as unsupported requests should result in an INVALID_REQUEST return).
6	DEVICE_STATE_INVALID	Device specified in this request is not in a state that supports this operation. Detail message will include device identification and state that device is in. Detail message will be returned unless --quiet switch is used.

Code	Return	Description
20	INVALID_STRIP_SIZE	Strip size is not supported
21	INVALID_NAME	Name of volume is too long or has invalid characters
22	INVALID_SIZE	Size requested is invalid
23	INVALID_NUMBER_DISKS	Number of disks is invalid
24	INVALID_RAID_LEVEL	RAID level requested is not valid