S2A6620

Command Line User Interface (CLUI)
Command Reference

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S2A6620 CLUI Command Reference

Scope

This Command Reference contains the *Command Line User Interface* (CLUI) commands for the *administrator* level access. Commands are listed alphabetically. Description and usage examples are given for each command. The examples given resulted from commands running firmware SFA OS 1.2 on a S2A6620.

List of Commands

Definition of Common Terms

This list is maintained to validate the uniqueness of keywords.

Channel (RAID) – is the data path between storage disk and controller.

Channel (APPLICATION) – is the data path to the controller.

Channel-ID – is the object-id of an EnabledClientChannel; there are two channels 0 and 1 for each controller.

Controller – provides connection of high performance, scalability, and flexibility to the storage enclosures.

Object ID – is a system generated identifier used to "name" an object within the scope of the system.

Processor – is part of the controller that aids data flow to memory.

Sub-System – consists of one or more RAID Processors.

Shortcuts

PHYSICAL_DISKS	PD
VIRTUAL_DISKS	VD
=	Optional, a space is acceptable
APPLICATION	APP

NOTE: Input is assumed to be DECIMAL, HEX can be used if preceded by '0x'.

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APPLICATION CHANNEL

All APPLICATION CHANNEL object commands have a APPLICATION subject and include a CHANNEL=<object-id> object specification.

COMMANDS Description
APPLICATION SET CHANNEL =<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] Sets the specified channel name to the associated attributes listed.
APPLICATION SHOW CHANNEL =<object-id> [ALL_ATTRIBUTES] Displays the physical disks associated with a specified APPLICATION CHANNEL.
APPLICATION SHOW CHANNEL =<object-id> [COUNTERS] Displays all attributes for the specified APPLICATION CHANNEL.

ATTRIBUTES Description
MODE=<STANDARD | MAC_OS> Controls channel-specific behavior such as the way that Fibre Channel Node_Names are assigned.

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To display APPLICATION channels using a wild-card <object-id>:

```
RAID[0]$ APPLICATION SHOW CHANNEL *

                              |SPEED|                          |          WORLD WIDE NAME (WWN)          |
INDEX|TYPE|STATE|  PORT ID   | GB/S|CTRL|RP|PORT|  MODE  |     NODE NAME      |     PORT NAME      |
-------------------------------------------------------------------------------------------------------
00000  FC    UP    0X010600     4     0    0    0     STD    0X20000001FF0722BE 0X20000001FF0722BE
00001  FC    UP    0X010000     4     0    0    1     STD    0X20000001FF0722BE 0X20010001FF0722BE
00002  FC    UP    0X010100     4     1    0    0     STD    0X20000001FF0722BE 0X20100001FF0722BE
00003  FC    UP    0X010200     4     1    0    1     STD    0X20000001FF0722BE 0X20110001FF0722BE

TOTAL CHANNELS: 4
```

- To display an APPLICATION channel using a specified <object-id>:

```
RAID[0]$ APPLICATION SHOW CHANNEL 0

                              |SPEED|                          |          WORLD WIDE NAME (WWN)          |
INDEX|TYPE|STATE|  PORT ID   | GB/S|CTRL|RP|PORT|  MODE  |     NODE NAME      |     PORT NAME      |
-------------------------------------------------------------------------------------------------------
00000  FC    UP    0X010600     4     0    0    0     STD    0X20000001FF0722BE 0X20000001FF0722BE

TOTAL CHANNELS: 1
```

- To display an APPLICATION channel using the ALL parameter:

```
RAID[0]$ APPLICATION SHOW CHANNEL 0 ALL_ATTRIBUTES

  OID:                  0X081E0000
```

```
  OID INDEX:            00000
  TYPE:                 FC
  MODE:                 STANDARD
  LINK STATE:           UP
  CURRENT SPEED:        4GB/S
  AVAILABLE SPEEDS:     4
  CONTROLLER:           0
  RP:                   0
  PORT:                 0
  PORT ID:              0X010600
  NODE NAME:            0X20000001FF0722BE
  PORT NAME:            0X20000001FF0722BE
  VENDOR ID:            0X1077
  PRODUCT ID:           0X2532
  HW VERSION:           0X1006
  FW VERSION:           4.06.00

TOTAL CHANNELS: 1
```


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APPLICATION DISCOVERED INITIATORS

All APPLICATION DISCOVERED INITIATORS object commands have a APPLICATION subject and include a DISCOVERED INITIATORS=<object-id> object specification.

COMMANDS Description
APPLICATION IMPORT DISCOVERED_INITIATOR=<object-id> HOST=<object-id> Creates an INITIATOR object that is associated with the specified Host.
APPLICATION SHOW DISCOVERED_INITIATOR=<object-id> [ALL_ATTRIBUTES] Displays the attributes of a specified APPLICATION DISCOVERED_INITIATORS.
APPLICATION SHOW DISCOVERED_INITIATOR=<object-id> [COUNTERS] Displays the counters of a specified APPLICATION DISCOVERED_INITIATORS.

ATTRIBUTES Description
none

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

The initiator is automatically created when the APPLICATION IMPORT DISCOVERED_INITIATOR command is used.

Examples

- To display APPLICATION discovered_initiators using a wild-card <object-id>:

```
RAID[0]$ APPLICATION SHOW DISCOVERED_INITIATOR *

                          |          WORLD WIDE NAME (WWN)          |                  |
INDEX | TYPE | PORT ID |     NODE NAME      |     PORT NAME      | CTRL 0 | CTRL 1 |
-------------------------------------------------------------------------------------
00002   FC    0X010400  0X20000000C9874263 0X10000000C9874263   0  1     0  1
00003   FC    0X010500  0X20000000C9874262 0X10000000C9874262   0  1     0  1

TOTAL FC INITIATORS: 2
```

- To display APPLICATION discovered_initiators using a specified <object-id>:

```
RAID[0]$ APPLICATION SHOW DISCOVERED_INITIATOR 2

                          |          WORLD WIDE NAME (WWN)          |                  |
INDEX | TYPE | PORT ID |     NODE NAME      |     PORT NAME      | CTRL 0 | CTRL 1 |
-------------------------------------------------------------------------------------
00002   FC    0X010400  0X20000000C9874263 0X10000000C9874263   0  1     0  1

TOTAL FC INITIATORS: 1
```

- To display APPLICATION discovered_initiators using the ALL parameter:

```
RAID[0]$ APPLICATION SHOW DISCOVERED_INITIATOR 2 ALL_ATTRIBUTES

  OID:                  0X30190002
  OID INDEX:            00002
  TYPE:                 FC
  PORT ID:              0X010400
```

```
  NODE NAME:            0X20000000C9874263
  PORT NAME:            0X10000000C9874263
  CHANNEL MASK:         0X0000000300000003

TOTAL FC INITIATORS: 1
```

APPLICATION HOST

All APPLICATION HOST object commands have a APPLICATION subject and include a HOST=<object-id> object specification, except for the create command.

COMMANDS Description
APPLICATION CREATE HOST [STACK=<stack-object-id>] [ID="string"] [OSTYPE=CUSTOM|DEFAULT|GENERIC|LINUX|MAC_OS|WINDOWS] Creates a HOST_STACK. In the case of a FCP target Application Stack, the ID string is not used. In the case of the Lustre OSS, the ID String is the name of a block device. The default OSTYPE is GENERIC.
APPLICATION DELETE HOST =<object-id> Deletes the specified HOST.
APPLICATION SET HOST=<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] OSTYPE=CUSTOM|DEFAULT|GENERIC|LINUX|MAC_OS|WINDOWS] Sets the specified attribute to the specified Application Host.
APPLICATION SHOW HOST=<object-id> [ALL_ATTRIBUTES] Displays the attributes of a specified APPLICATION HOST.
APPLICATION SHOW HOST=<object-id> [COUNTERS] Displays the COUNTERS associated with the specified APPLICATION HOST.
APPLICATION SHOW HOST=<object-id> [PRESENTATIONS] Displays the PRESENTATIONS associated with the specified APPLICATION HOST.
APPLICATION SHOW HOST=<object-id> [INITIATORS] Displays the INITIATORS associated with the specified APPLICATION HOST.

ATTRIBUTES Description
NAME="string"

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

If you use the CUSTOM OSTYPE parameter, you must define it by selecting an additional value.

Examples

- To display APPLICATION hosts using a wild-card <object-id>:

```
RAID[0]$ APPLICATION SHOW HOST *

                                          | STACK |  OPERATING  |
INDEX | HOST NAME                         | INDEX | SYSTEM MODE |
-------------------------------------------------------------
00000   HOST_0000                         00000   WINDOWS
00001   HOST_0001                         00000   WINDOWS
00002   HOST_0002                         00000   LINUX
00003   HOST_0003                         00000   GENERIC
```

```
TOTAL HOSTS: 4
```

- To display an APPLICATION host using a specified <object-id>:

```
RAID[0]$ APPLICATION SHOW HOST 0

                                          | STACK |  OPERATING  |
INDEX | HOST NAME                         | INDEX | SYSTEM MODE |
-------------------------------------------------------------
00000   HOST_0000                         00000   WINDOWS

TOTAL HOSTS: 1
```

- To display an APPLICATION host using the ALL parameter:

```
RAID[0]$ APPLICATION SHOW HOST 0 ALL_ATTRIBUTES

  OID:                  0X18100000
  OID INDEX:            00000
  STACK OID:            0X10000000
  STACK OID INDEX:      00000
  NAME:                 HOST_0000
  OS TYPE:              WINDOWS

TOTAL HOSTS: 1
```

- To display all the initiators associated with an APPLICATION host:

```
RAID[0]$ APPLICATION SHOW HOST 0 INITIATORS

              | HOST  |         WORLD WIDE NAME (WWN)         |
INDEX | TYPE  | INDEX |    NODE NAME      |    PORT NAME      |
-------------------------------------------------------------
00000   FC     00000  0X20000000C9874263 0X10000000C9874263
00001   FC     00000  0X20000000C9874262 0X10000000C9874262

TOTAL FC INITIATORS: 2
```

- To display all the presentations to an APPLICATION host:

```
RAID[0]$ APPLICATION SHOW HOST 0 PRESENTATIONS

PRES. | HOST                          HOST  |  VD   |     | HOME | READ |      CHANNEL       |
INDEX | NAME                          INDEX | INDEX | LUN | ONLY | ONLY |       MASK         |
-------------------------------------------------------------------------------------------
00006   HOST_0000                     00000   00000   009   OFF    R/W   0XFFFFFFFFFFFFFFFF

TOTAL PRESENTATIONS: 1
```

APPLICATION INITIATOR

All APPLICATION INITIATOR object commands have a APPLICATION subject and include a INITIATOR=<object-id> object specification.

COMMANDS Description
APPLICATION BIND INITIATOR=<object-id> HOST=<object-id>
APPLICATION CREATE INITIATOR HOST=<object-id> WWPN=<integer> | GUID=<integer> Creates an APPLICATION INITIATOR for the specified Host. When WWPN is specified, the type is FCP and the UID is the specified WWPN. When GUID is specified, the type is IB and the UID is the specified GUID.
APPLICATION DELETE INITIATOR=<object-id> Deletes the specified INITIATOR.
APPLICATION SHOW INITIATOR=<object-id>[ALL_ATTRIBUTES][COUNTERS] Displays the attributes of a specified APPLICATION INITIATOR.
APPLICATION UNBIND INITIATOR=<object-id> HOST=<object-id>

ATTRIBUTES Description
None

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

The initiator is automatically created when the APPLICATION IMPORT DISCOVERED_INITIATOR command is used.

Examples

- To display APPLICATION INITIATORS using a wild-card <object-id>:

```
RAID[0]$ APPLICATION SHOW INITIATOR *

             | HOST  |          WORLD WIDE NAME (WWN)          |
INDEX | TYPE | INDEX |     NODE NAME      |     PORT NAME      |
-------------------------------------------------------------
00000   FC     00000  0X20000000C9874263 0X10000000C9874263
00001   FC     00000  0X20000000C9874262 0X10000000C9874262

TOTAL FC INITIATORS: 2
```

- To display an APPLICATION INITIATOR using a specified <object-id>:

```
RAID[0]$ APPLICATION SHOW INITIATOR 0

             | HOST  |          WORLD WIDE NAME (WWN)          |
INDEX | TYPE | INDEX |     NODE NAME      |     PORT NAME      |
-------------------------------------------------------------
00000   FC     00000  0X20000000C9874263 0X10000000C9874263
```

```
TOTAL FC INITIATORS: 1
```

- To display an APPLICATION INITIATORS using the ALL parameter:

```
RAID[0]$ APPLICATION SHOW INITIATOR 0 ALL_ATTRIBUTES

  OID:                  0X28110000
  OID INDEX:            00000
  HOST OID:             0X18100000
  HOST OID INDEX:       00000
  TYPE:                 FC
  NODE NAME:            0X20000000C9874263
  PORT NAME:            0X10000000C9874263

TOTAL FC INITIATORS: 1
```

APPLICATION PRESENTATION

All APPLICATION PRESENTATION object commands have a APPLICATION subject and include a PRESENTATION=<object-id> object specification.

COMMANDS Description
APPLICATION CREATE PRESENTATION VIRTUAL_DISK=<object-id> HOST=<object-id> |ALL [,attribute-name>=<name>…] Creates a PRESENTATION to a VIRTUAL DISK for the specified Host.
APPLICATION DELETE PRESENTATION VIRTUAL_DISK=<object-id> HOST=<object-id> [FORCE] Deletes a PRESENTATION to a VIRTUAL DISK for the specified Host. Optional parameter of FORCE deletes without asking questions.
APPLICATION DELETE PRESENTATION=<object-id> [FORCE] Deletes the specified PRESENTATION. Optional parameter of FORCE deletes without asking questions.
APPLICATION DELETE PRESENTATION*[FORCE] Deletes all PRESENTATIONs using wildcard. Optional parameter of FORCE deletes without asking questions.
APPLICATION SET PRESENTATION VIRTUAL_DISK=<object-id> HOST=<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] Sets the specified attribute to the specified value.
APPLICATION SET PRESENTATION=<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] Sets the specified attribute to the specified value.
APPLICATION SHOW PRESENTATION VIRTUAL_DISK=<object-id> HOST=<object-id> =<object-id> [ALL_ATTRIBUTES][COUNTERS] Displays the attributes of a specified value.
APPLICATION SHOW PRESENTATION=<object-id> [COUNTERS] Displays the COUNTERS associated with the specified APPLICATION PRESENTATION.
APPLICATION SHOW PRESENTATION=<object-id> [ALL_ATTRIBUTES] Displays the PRESENTATIONS associated with the specified APPLICATION PRESENTATION.

ATTRIBUTES Description
ENABLE=ALL|NONE|<channel-id> The channel-id is the object-id of an EnabledClientChannel.
LUN=<integer> The integer is a Logical Unit Number (LUN) that will be used to present the associated Virtual Disk to the associated Host. NOTE: Each LUN integer entered for a presentation is cumulative and does not replace the previous entry.
HOME_ONLY[=TRUE|FALSE] Enables/disables the home_only parameter.

READ_ONLY[=TRUE|FALSE]

Enables/disables read_only.

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To display APPLICATION presentations using a wild-card <object-id>:

```
RAID[0]$ APPLICATION SHOW PRESENTATION *

PRES. | HOST                          HOST  |  VD   |     | HOME | READ |      CHANNEL       |
INDEX | NAME                          INDEX | INDEX | LUN | ONLY | ONLY |       MASK         |
-------------------------------------------------------------------------------------------------
00006   HOST_0000                     00000   00000   009   OFF    R/W   0XFFFFFFFFFFFFFFFF

TOTAL PRESENTATIONS: 1
```

- To display an APPLICATION presentation using a specified <object-id>:

```
RAID[0]$ APPLICATION SHOW PRESENTATION 6

PRES. | HOST                          HOST  |  VD   |     | HOME | READ |      CHANNEL       |
INDEX | NAME                          INDEX | INDEX | LUN | ONLY | ONLY |       MASK         |
-------------------------------------------------------------------------------------------------
00006   HOST_0000                     00000   00000   009   OFF    R/W   0XFFFFFFFFFFFFFFFF

TOTAL PRESENTATIONS: 1
```

- To display an APPLICATION presentation using the ALL parameter:

```
RAID[0]$ APPLICATION SHOW PRESENTATION 6 ALL_ATTRIBUTES

  OID:                  0X20130006
  OID INDEX:            00006
  HOST OID:             0X18100000
  HOST OID INDEX:       00000
  VD OID:               0X891D0000
  VD OID INDEX:         00000
  LUN:                  9
  READ ONLY:            FALSE
  PRESENT HOME ONLY:    FALSE
  CHANNEL MASK:         0XFFFFFFFFFFFFFFFF
  QUALITY OF SERVICE:   0X0000000000000000

TOTAL PRESENTATIONS: 1
```

- To temporarily remove presentations from an APPLICATION host without deleting any APPLICATION presentations:

```
RAID[0]$ APPLICATION SET PRESENTATION HOST 0 VD * ENABLE=NONE
ALL VD(S) TO HOST 0 PRESENTATION SET ATTRIBUTES STATUS='SUCCESS' (0X0)
RAID[0]$ APPLICATION SHOW PRESENTATION *

PRES.  | HOST                          HOST   |  VD    |      | HOME | READ |      CHANNEL       |
INDEX  | NAME                          INDEX  | INDEX  | LUN  | ONLY | ONLY |       MASK         |
-------------------------------------------------------------------------------------------------
00006    HOST_0000                     00000    00000    009    OFF    R/W    0X0000000000000000

TOTAL PRESENTATIONS: 1
```

- To re-enable all the presentations to an APPLICATION host:

```
RAID[0]$ APPLICATION SET PRESENTATION HOST 0 VD * ENABLE=ALL
ALL VD(S) TO HOST 0 PRESENTATION SET ATTRIBUTES STATUS='SUCCESS' (0X0)
RAID[0]$ APPLICATION SHOW PRESENTATION *

PRES.  | HOST                          HOST   |  VD    |      | HOME | READ |      CHANNEL       |
INDEX  | NAME                          INDEX  | INDEX  | LUN  | ONLY | ONLY |       MASK         |
-------------------------------------------------------------------------------------------------
00006    HOST_0000                     00000    00000    009    OFF    R/W    0XFFFFFFFFFFFFFFFF

TOTAL PRESENTATIONS: 1
```

APPLICATION STACK

All APPLICATION STACK object commands have a APPLICATION subject and include a STACK=<object-id> object specification except for the CREATE command.

COMMANDS Description
APPLICATION BIND STACK =<object-id> IOC=<object-id> .
APPLICATION CREATE STACK-TYPE =LUP | LKM | KVM Corresponds to the ExecutionEnvironment.
APPLICATION DELETE STACK =<object-id> Deletes the specified APPLICATION STACK.
APPLICATION DO STACK =<object-id> COMMAND="string" Corresponds to the ExecutePassthruCommand.
APPLICATION SET STACK =<object-id> <attribute-name>=<value>[<attribute-name>=<value>…] .
APPLICATION SHOW STACK =<object-id> [COUNTERS] Displays the counters for the specified APPLICATION STACK.
APPLICATION SHOW STACK =<object-id> [ALL_ATTRIBUTES] Displays all attributes for the specified APPLICATION STACK.
APPLICATION SHUTDOWN STACK =<object-id> [RESTART] .
APPLICATION UNBIND STACK =<object-id> IOC=<object-id> .

ATTRIBUTES Description
AUTO_RECOVER[=TRUE | FALSE] Specifies the value of AutoRecover.
AUTO_START[=TRUE | FALSE] Specifies the value of AutoStart.
CORES_PENDING=<integer> Specifies the value of CoresPending.
IMAGE_PENDING="string" Specifies the value of ImagePending.

MEMORY_PENDING=<integer> Specifies the value of MemoryCapacityPending.
NAME="string" Specified by the user to identify (set the name of) the Application Stack. If there are spaces in the name, the name must be enclosed with quotes ("). To clear a previously entered name, enter an empty string as follows: NAME="".
PROCESSOR_PENDING=<integer> Specifies the value of ApPending.

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To display APPLICATION stacks using a wild-card <object-id>:

```
RAR-6620-9 RAID[1]$ APP SHOW STACK * ALL

  OID:                    0X10010000
  OID INDEX:              00000
  NAME:                   STACK_0000
  OS TYPE:                GENERIC
  OS CHARACTERISTICS:     0X0000000000000001
  MAXIMUM CONTROLLERS:    2
  CURRENT CONTROLLERS:    2
  MAXIMUM  RPS /CTRL:     1
  CURRENT  RPS /CTRL:     1
  MAXIMUM PORTS/ RP :     2
  CURRENT PORTS/ RP :     2

TOTAL STACKS: 1


THU NOV 19 17:04:24 2009
RAR-6620-9 RAID[1]$
```

RAID CONTROLLER

The RAID CONTROLLER object has a RAID subject and includes a CONTROLLER=<object-id> object specification.

COMMANDS Description
RAID LOCATE CONTROLLER=<object-id> Illuminates the locate beacon of the controller for LocateDwellTime seconds.
RAID SET CONTROLLER=<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] Sets the specified controller name to the associated attributes listed. This command is restricted to manufacturing and field service.
RAID SHOW CONTROLLER=<object-id> [ALL_ATTRIBUTES] Displays all attributes of the specified controller.
RAID SHOW CONTROLLER=<object-id> LOG [ASCEND_ORDER|DESCEND_ORDER] [NEWER|OLDER] [START_SEQUENCE][NUMBER] Displays the event log on the RAID CONTROLLER. NUMBER events are displayed starting at the START_SEQUENCE number. NEWER and OLDER control whether events are displayed that are newer or older than the START_SEQUENCE number and ASCEND_ORDER and DESCEND_ORDER control whether those are displayed in ascending or descending sequence number order. By default, the last 100 events are displayed in ascending order.
RAID SHUTDOWN CONTROLLER=<object-id> Performs a shutdown to the controller specified with a confirmation response required.
RAID SHUTDOWN CONTROLLER=<object-id> [RESTART] [FORCE] Performs a shutdown followed by a restart of the controller specified.
RAID UPDATE_FIRMWARE CONTROLLER=<object-id> FILE="<file-specification>" Updates the firmware in the controller.

ATTRIBUTES

All attributes are restricted to manufacturing and field service.

Usage Guidelines

A wild-card object-id may be used in the SHOW command.

Default time in the logs will be UTC (Coordinated Universal Time or GMT) time.

Examples

- To display a RAID controller using a wild-card <object-id>:

```
RAID[0]$ SHOW CONTROLLER *
OID: 0X38000000 INDEX: 0X0000 NAME: A LOCAL PRIMARY
OID: 0X38000001 INDEX: 0X0001 NAME: B REMOTE SECONDARY
```

- To display a RAID controller using a specified <object-id>:

```
RAID[0]$ SHOW CONTROLLER 0X38000000
OID: 0X38000000 INDEX: 0X0000 NAME: 0 LOCAL PRIMARY
```

- To display a LOCAL RAID controller using ALL parameter:

```
RAID[0]$ SHOW CONTROLLER LOCAL ALL
INDEX:                    0
OID:                      0X38000000
FIRMWARE VERSION:
  RELEASE:                1.2.0.0
  SOURCE VERSION:         3489
  FULLY CHECKED IN:       YES
  PRIVATE BUILD:          YES
  BUILD TYPE:             PRODUCTION
  BUILD DATE AND TIME:    2009-12-04-10:41:EST
  BUILDER USERNAME:       ROOT
  BUILDER HOSTNAME:       EREO-DEBIAN2
  BUILD FOR CPU TYPE:     AMD-64-BIT
HARDWARE VERSION:         0X0
STATE:                    RUNNING
LOCAL AP OID:             0X00000000
MEMORY SIZE:              0X0
MAX Q OF S ID:            0X0
UP TIME:                  26 MINUTES 14 SECONDS
LAST EVENT SEQUENCE #:    0X42F3
CRASH DUMP ENABLED:       TRUE
LOG DISK ENABLED:         TRUE
RP COUNT:                 0X1
RESTART PENDING:          FALSE
NAME:                     B
CONTROLLER:               LOCAL        (PRIMARY)
CONTROLLER ID:            0X0015B2A10E500000
ENCLOSURE OID:            0X50000000 (INDEX 0)
UNIVERSAL LAN ADDRESS:    0X00000001FF070E50
MIR REASON:               NONE


TOTAL CONTROLLERS: 1
```

- To display the event log on the RAID CONTROLLER 0 starting at the START_SEQUENCE number in ascending sequence number order.

```
RAID[0]$ SHOW CONTROLLER LOCAL LOG ASCEND
000001 2009-02-05 12:13:31:3387789  G=0 S=0 T=1 RP=0 VP=63
LOG_JOI_BUILD_INFO1    JOI FW VERSION ON PROCESSOR 0X40 = (1.0.3.1-0).
000002 2009-02-05 12:13:31:3387798  G=0 S=0 T=1 RP=0 VP=63
LOG_JOI_BUILD_INFO2    JOI FW WAS BUILT ON JJDEBIAN        AT
2009-02-05-14:17:MST (PRODUCT).
000003 2009-02-05 12:13:52:8320854  G=3 S=1 T=1 RP=0 VP=1
LOG_LOGDISK_ENABLE_RECEIVED_FROM_STATE    LOG RECEIVED FROM STATE
```

- To display the event log on RAID CONTROLLER 1 starting at the START_SEQUENCE number in descending sequence number order.

```
RAID[0]$ SHOW CONTROLLER REMOTE LOG DESCEND
000024 2009-02-11 05:08:48:7027390  G=0 S=0 T=1 RP=0 VP=1                    LOG_JOI_TIME_SET    JOI TIME
 WAS SET BY AN ADMINISTRATOR AT 2009-2-11 5:8:48; NEARBY LOG ENTRIES MAY APPEAR OUT OF TIME ORDER. OFFSET
= 0X1C987C765CD3B2B.
000023 2009-02-06 04:49:20:5069068  G=3 S=1 T=1 RP=0 VP=1  LOG_LOGDISK_ENABLE_RECEIVED_FROM_STATE    LOG
RECEIVED FROM STATE
000022 2009-02-06 04:49:20:4952631  G=0 S=0 T=1 RP=0 VP=1                    LOG_JOI_TIME_SET    JOI TIME
 WAS SET BY AN ADMINISTRATOR AT 2009-2-6 4:49:20; NEARBY LOG ENTRIES MAY APPEAR OUT OF TIME ORDER. OFFSET
= 0X1C987C7A302483D.
```

- To display the event log on the RAID CONTROLLER 1 starting at the specified START_SEQUENCE number in ascending sequence number order.

```
RAID[0]$ SHOW CONTROLLER REMOTE LOG ASCEND START_SEQUENCE 20
000021 2009-02-06 04:49:20:4731906  G=4 S=2 T=1 RP=0 VP=1                    LOG_ST_MIR_STATE  STATE MIR
    STATE    STATE:000A
000022 2009-02-06 04:49:20:4952631  G=0 S=0 T=1 RP=0 VP=1                    LOG_JOI_TIME_SET    JOI TIME
 WAS SET BY AN ADMINISTRATOR AT 2009-2-6 4:49:20; NEARBY LOG ENTRIES MAY APPEAR OUT OF TIME ORDER. OFFSET
= 0X1C987C7A302483D.
000023 2009-02-06 04:49:20:5069068  G=3 S=1 T=1 RP=0 VP=1  LOG_LOGDISK_ENABLE_RECEIVED_FROM_STATE    LOG
RECEIVED FROM STATE
000024 2009-02-11 05:08:48:7027390  G=0 S=0 T=1 RP=0 VP=1                    LOG_JOI_TIME_SET    JOI TIME
 WAS SET BY AN ADMINISTRATOR AT 2009-2-11 5:8:48; NEARBY LOG ENTRIES MAY APPEAR OUT OF TIME ORDER. OFFSET
```

```
= 0X1C987C765CD3B2B.
```

RAID ENCLOSURE

All RAID ENCLOSURE object commands have a RAID subject and include a ENCLOSURE=<object-id> object specification.

COMMANDS Description
RAID LOCATE ENCLOSURE =<object-id> [ALL_OFF|ALL_ON] Send the identify command to the object id and blink the blue identify LED on that object.
RAID SHOW ENCLOSURE =<object-id> [COUNTERS][ALL_ATTRIBUTES [UPDATE_FIRMWARE_PROGRESS] Displays all counters and attributes for the specified RAID CHANNEL.
UPDATE_FIRMWARE ENCLOSURE=<object-id>FILE="<file-specification>" Updates the firmware for the enclosure with the specified firmware located in the file specified.

ATTRIBUTES Description
none

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To display all enclosures attributes using wild card * :

```
6620-8 RAID[0]$ SHOW ENCLOSURE * ALL
INDEX:                    0
ENCLOSURE:                0X50000000
TYPE:                     CONTROLLER
LOGICAL ID:               0X0015B2A10E500000
VENDOR ID:                DDN
PRODUCT ID:               S2A6620
REVISION:                 CD00
ZONES:                    0
FAULT INDICATOR:          OFF
PREDICTED FAILURE IND:    OFF
LOCATE INDICATOR:         OFF
LOCATION:                 BAY 1
BASEBOARD PART NUMBER:    PSG-M-DATACD51-112
BASEBOARD VERSION:        02
BASEBOARD DATE:           20090526
FIRMWARE VERSION:         1.2.0.0

INDEX:                    1
ENCLOSURE:                0X50000001
TYPE:                     DISK
LOGICAL ID:               0X50001FF106841000
VENDOR ID:                DDN
PRODUCT ID:               S2A6620
REVISION:                 0093
ZONES:                    1
FAULT INDICATOR:          OFF
PREDICTED FAILURE IND:    OFF
LOCATE INDICATOR:         OFF
LOCATION:
MIDPLANE PART NUMBER:     TCA-00302-01-B
MIDPLANE SERIAL NUMBER:   MXSCI0008BRVB1F7
BASEBOARD PART NUMBER:    TCA-00301-01-D
```

```
BASEBOARD SERIAL NUMBER:MXE340008CDVA028
FIRMWARE VERSION:       D02.011

INDEX:                  2
ENCLOSURE:              0X50000002
TYPE:                   CONTROLLER
LOGICAL ID:             0X0015B2A121A20000
VENDOR ID:              DDN
PRODUCT ID:             S2A6620
REVISION:               CD00
ZONES:                  0
FAULT INDICATOR:        OFF
PREDICTED FAILURE IND:  OFF
LOCATE INDICATOR:       OFF
LOCATION:               BAY 0
BASEBOARD PART NUMBER:  PSG-M-DATACD51-112
BASEBOARD VERSION:      02
BASEBOARD DATE:         20090526
FIRMWARE VERSION:       1.2.0.0


TOTAL ENCLOSURES: 3


6620-8 RAID[0]$
```


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RAID EXPANDER

All RAID EXPANDER object commands have a RAID subject and include a EXPANDER=<object-id> object specification.

COMMANDS Description
RAID LOCATE EXPANDER =<enclosure-id>, <expander-id> Send the identify command to the object id and blink the blue identify LED on that object.
RAID SHOW EXPANDER =<enclosure-id>, <expander-id>[COUNTERS][ALL_ATTRIBUTES] Displays all counters and attributes for the specified expander.

ATTRIBUTES Description
none

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To show all expanders using wild card * :

```
RAID[0]$ SHOW EXPANDER *

                          INDICATORS
IDX|ENCL|POS|PRESENT|FAILURE|LOCATE|SES STATUS
-------------------------------------------------------------------------
  1    1   1   TRUE    OFF    OFF   OK
  2    1   2   TRUE    OFF    OFF   OK
  3    1   3   TRUE    OFF    OFF   OK
  4    1   4   TRUE    OFF    OFF   OK
  5    1   5   TRUE    OFF    OFF   OK
  6    1   6   TRUE    OFF    OFF   OK
  7    1   7   TRUE    OFF    OFF   OK
  8    1   8   TRUE    OFF    OFF   OK
  9    1   9   TRUE    OFF    OFF   OK
 10    1  10   TRUE    OFF    OFF   OK

TOTAL EXPANDERS: 10

6620-8 RAID[0]$ SHOW EXPANDER 1 1 ALL
SUB INDEX:               1
SUB OID:                 0X78000001
ENCLOSURE INDEX:         1
ENCLOSURE OID:           0X50000001
POSITION:                1
SES STATUS:              OK
PRESENT:                 TRUE
PREDICTED FAILURE IND:   OFF
LOCATE INDICATOR:        OFF
LOCATION:                CTLBAY 1
FIRMWARE VERSION:        0093

TOTAL EXPANDERS: 1
```

RAID FAN

All RAID FAN object commands have a RAID subject and include a FAN=<object-id> object specification.

COMMANDS Description
RAID LOCATE FAN =<enclosure-id>, <fan-id> Send the identify command to the object id and blink the blue identify LED on that object.
RAID SHOW FAN =<enclosure-id>, <fan-id>[COUNTERS][ALL_ATTRIBUTES] Displays all counters and attributes for the specified power supply.

ATTRIBUTES Description
none

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To show all fans using wild card *:

```
RAID[0]$ SHOW FAN *

                          |POWER|         |     INDICATORS       |
IDX|ENCL|POS|  RPM  |CODE|STATE|PRESENT|FAULT|FAILURE|LOCATE|SES STATUS
-------------------------------------------------------------------------
  1    1   1 10180   7    ON    TRUE   OFF    OFF     OFF    OK
  2    1   2   120   7    ON    TRUE   OFF    OFF     OFF    OK
  3    1   3   110   7    ON    TRUE   OFF    OFF     OFF    OK
  4    1   4   110   7    ON    TRUE   OFF    OFF     OFF    OK

TOTAL COOLING ELEMENTS: 4

6620-8 RAID[0]$ SHOW FAN 1 1 ALL
SUB INDEX:               1
SUB OID:                 0X68000001
ENCLOSURE INDEX:         1
ENCLOSURE OID:           0X50000001
POSITION:                1
SES STATUS:              OK
MEASURED SPEED (RPM):    10200
REQUESTED SPEED CODE :   7
POWER STATE:             ON
PRESENT:                 TRUE
FAULT INDICATOR:         OFF
PREDICTED FAILURE IND:   OFF
LOCATE INDICATOR:        OFF
LOCATION:                PS1 FAN1
PART NUMBER:             PWR-00028-02-A
SERIAL NUMBER:           CATEC0008ARVF040


TOTAL COOLING ELEMENTS: 1
```

RAID JOB

The RAID JOB object corresponds to the Background Job object. All JOB object commands have a RAID subject and include a JOB=<object-id> object specification. There are two types of jobs: INITIALIZE and REBUILD.

COMMANDS Description
RAID PAUSE JOB=<object-id> Pauses the specified RAID JOB.
RAID RESUME JOB=<object-id> Resumes the specified RAID JOB that was previously paused..
RAID SET JOB=<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] Sets a RAID JOB with a specified object ID and assigns it a priority..
RAID SHOW JOB=<object-id> [ALL_ATTRIBUTES] Displays the specified JOB with its associated attributes. Use wildcard (*) to show all jobs in progress. Currently, there are two types of jobs: INITIALIZE or REBUILD
RAID SHUTDOWN JOB=<object-id> Kills the specified job.

ATTRIBUTES Description
PRIORITY=<priority> Specifies the fraction of the system resources that should be devoted to the background job. The higher its value, the faster the background job will run and the more the background job will impact client IO performance. While Priority is a number between 1 and 99, Priority should not be thought of as a percentage or a mathematical fraction of the available resources. For example, two Background Jobs with Priority=50 will not use 100% of the RP Subsystem's resources. And, the RP Subsystem may or may not limit the number of Background Jobs to keep the total of their Priorities below 100. On creation, the value of this attribute is determined by defaults associated with the Pool in which the Target object resides. The priority is an integer in the range between 1 and 99.

Usage Guidelines

A wild-card object-id (*) may be used in the SHOW command.

Examples

- To pause a specified RAID JOB.

```
RAID[0]$ PAUSE JOB 0X28010001
JOB 1 OID=0X28010001 PAUSED WITH STATUS=' SUCCESS' (0X0)
```

- To resume a specified RAID JOB previously paused.

```
RAID[0]$ RESUME JOB 0X28010001
JOB 1 OID=0X28010001 RESUMED WITH STATUS=' SUCCESS' (0X0)

RAID[0]$ SHOW JOB * ALL
  OID:               0X28010001
  TARGET:            0X18370001
  TYPE:              INITIALIZE
  STATUS:            RUNNING
  PRIORITY:          50
  FRACTION COMPLETE:11%
```

- To display RAID JOBs with wild-card <object id> with ALL parameter.

```
S2A 6620-9 RAID[1]$ SHOW JOB *

                                                 |FRACTION|
IDX| TYPE           | TARGET         | STATE     |COMPLETE| STATUS   | PRIORITY | TIME
-------------------------------------------------------------------------------------
  8  INITIALIZE      POOL:   9       RUNNING       22%                 50%      NA
  0  FULL REBUILD    POOL:   0       RUNNING       38%                 80%      NA
  3  FULL REBUILD    POOL:   3       RUNNING        1%                 80%      NA
  8  FULL REBUILD    POOL:   8       RUNNING        1%                 80%      NA

TOTAL BACKGROUND JOBS: 4

S2A 6620-9 RAID[1]$ SHOW JOB 0 ALL
  OID:                0X2B030000
  TARGET:             0X183D0000
  TYPE:               REBUILD
  STATE:              RUNNING
  COMPLETION STATUS:  UNKNOWN
  PRIORITY:           80%
  FRACTION COMPLETE:  38%
  TIME:               NA


TOTAL BACKGROUND JOBS: 1
```

RAID PHYSICAL_DISK (PD)

All PHYSICAL_DISK object commands have a RAID subject and include a PHYSICAL_DISK=<object-id> object specification.

COMMANDS Description
RAID ASSIGN PHYSICAL_DISK=<object-id> TO_POOL=<pool_id | spare_pool_id> [SET_SPARE] Assign the Physical Disk to the specified Pool. If SET_SPARE, Physical_Disk is also the spare. Note that the assign command is used to assign a drive to a spare pool or user to manually spare a drive into a pool that has a spare drive.
RAID CLEAR PHYSICAL_DISK=<object-id> FAILED Forces the specified disk's health to GOOD.
RAID LOCATE PHYSICAL_DISK [FAILED] Illuminates the LED on drives and that have failed if specified.
RAID SET PHYSICAL_DISK [FAILED] Forces the specified disk's health to FAILED. If specified disk was a SPARE, then it will no longer be a spare. This command is only used when you are manually sparing a drive into a reduced pool. If issued on a disk that is a member of a pool, the drive will be failed out of that pool. This command will not work on a reduced or nonredundant pool. It will work on either a normal or degraded pool.
RAID REPLACE PHYSICAL_DISK=<object-id> NEW_DISK=<object-id> Designates a replacement Physical Disk as part of the manual disk sparing policy. Replace does not change the HealthState of the Physical Disk
RAID SHOW PHYSICAL_DISK=<object-id> [ALL_ATTRIBUTES] Displays all attributes of the specified PHYSICAL_DISK.

ATTRIBUTES

None

Usage Guidelines

A wild-card object-id (*) may be used in the SHOW command.

The alias PD can be used in place of PHYSICAL_DISK.

Examples

- To display the unassigned PHYSICAL DISK that have failed:

```
RAID[0]$ SHOW UNASS PD FAILED
OID: 0X20080009 INDEX: 0X0009
```

- To display all information about the unassigned PHYSICAL DISK that have failed:

```
RAID[0]$ SHOW UNASS PD FAILED ALL
 OID:              0X20080009
 POOL OID:         UNASSIGNED
 CAPACITY:         417792 MBS (0X33000000 BLOCKS)
 RAW CAPACITY:     429247 MBS (0X3465F870 BLOCKS)
 BLOCK SIZE:       512
 ENABLED DISK CH:  0X14  0X11
 DISK SLOT:        1:56
```

```
 VENDOR ID:         SEAGATE
 PRODUCT ID:        ST3450856SS
 PRODUCT REVISION:  0004
 SERIAL NUMBER:     3QQ0FDZ700009915W3K9
 HEALTH STATE:      FAILED
 ROTATION SPEED:    15000 RPM
 DEVICE TYPE:       SAS
 MEMBER STATE:      UNASSIGNED
 SPARE:             FALSE
 FAILED:            TRUE
 UUID:              0X5000C50004D2A8C40
```

- Continuing from the above example, to clear and then display all information about the unassigned PHYSICAL DISK:

```
RAID[0]$ CLEAR PD 0X20080009 FAILED
PHYSICAL_DISK 9 OID=0X20080009 CLEAR ATTRIBUTES STATUS='SUCCESS' (0X0)
RAID[0]$ SHOW PD 0X20080009 ALL
  OID:               0X20080009
  POOL OID:          UNASSIGNED
  CAPACITY:          417792 MBS (0X33000000 BLOCKS)
  RAW CAPACITY:      429247 MBS (0X3465F870 BLOCKS)
  BLOCK SIZE:        512
  ENABLED DISK CH:   0X14  0X11
  DISK SLOT:         1:56
  VENDOR ID:         SEAGATE
  PRODUCT ID:        ST3450856SS
  PRODUCT REVISION:  0004
  SERIAL NUMBER:     3QQ0FDZ700009915W3K9
  HEALTH STATE:      GOOD
  ROTATION SPEED:    15000 RPM
  DEVICE TYPE:       SAS
  MEMBER STATE:      UNASSIGNED
  SPARE:             FALSE
  FAILED:            FALSE
  UUID:              0X5000C50004D2A8C40
```

Note: In the above example that the Failed field indicates false.

- To locate a specified PHYSICAL DISK.

```
RAID[0]$ LOCATE PD=0X002C
PHYSICAL_DISK 44 OID=0X202C002C LOCATED WITH STATUS=' SUCCESS' (0X0)
```

- To display the PHYSICAL DISK using a wild-card <object id>.

```
RAID[0]$ SHOW PD *

                                                                                                  |HEALTH|
ENCL|SLOT| VENDOR |      PRODUCT ID      |TYPE|CAP GB | RPM|REVISION|     SERIAL NUMBER    |POOL|STATE | IDX|STATE
|       WWN       |
-------------------------------------------------------------------------------------------------------------------
------------------
   1    1  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ12MDA000099131EAA    8  GOOD    80 NORM
5000C5000A79B9D8
   1    2  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13QDQ00009916ECFB    0  GOOD     3 NORM
5000C5000A7ADCCC
   1    3  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13Q9P00009916BBCU    8  GOOD    77 NORM
5000C5000A7ADA74
   1    4  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ142PT000099174M2U    4  GOOD    42 NORM
5000C5000A7B5DC8
   1    5  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ142L500009916F87T    3  GOOD    40 NORM
5000C5000A7B60BC
   1    6  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143X500009916F94Q    2  GOOD    21 NORM
5000C5000A7B4864
   1    7  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13Q5Q00009916F9ZT    0  GOOD     7 NORM
5000C5000A7AD7FC
   1    8  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13QDN00009916EDZJ    0  GOOD     1 NORM
5000C5000A7ADCC4
   1    9  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ12J35000099143TCZ    4  GOOD    45 NORM
5000C5000A79AD88
   1   10  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143PN000099174MH7    4  GOOD    44 NORM
5000C5000A7B54DC
   1   11  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13JHJ000099173Z28    2  GOOD    27 NORM
5000C5000A7B5E74
   1   12  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ145NC00009916F8Q7    6  GOOD    49 NORM
5000C5000A7B46FC
```

```
   1   13  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143PQ000099174KPB    1  GOOD    14 NORM
5000C5000A7B6030
   1   14  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ144E100009916EAVK    4  GOOD    43 NORM
   5000C5000A7B4EE0
   1   15  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ142SH000099173XXP    1  GOOD    19 NORM
5000C5000A7B6048
   1   16  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143PH00009916EGP7    2  GOOD    25 NORM
5000C5000A7B5A68
   1   17  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143NS000099174K1S    3  GOOD    33 NORM
5000C5000A7B5694
   1   18  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ142KL000099174MCY    1  GOOD    15 NORM
5000C5000A7B6034
   1   19  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ142Q500009917ZG6M    1  GOOD    12 NORM
5000C5000A7B6018
   1   20  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13NL1000099174N7Y    0  GOOD     9 NORM
5000C5000A7B5208
   1   21  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ142MV000099174N7X    3  GOOD    36 NORM
5000C5000A7B5C98
   1   22  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ145E800009916EAN4    2  GOOD    30 NORM
5000C5000A7B4198
   1   23  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ145G400009916ECWR    2  GOOD    24 NORM
5000C5000A7B4274
   1   24  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ1456200009916F7MN    6  GOOD    48 NORM
5000C5000A7B44FC
   1   25  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ142MX000099174FX2    8  GOOD    74 NORM
5000C5000A7B5FE8
   1   26  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143L1000099173XQF    7  SPARE   50 NORM
5000C5000A7B5008
   1   27  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13QA100009916BHB4    0  GOOD     6 NORM
5000C5000A7ADAE4
   1   28  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143S8000099174J4Z    1  GOOD    18 NORM
5000C5000A7B5450
   1   29  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ145MW00009916F8TA    3  GOOD    31 NORM
5000C5000A7B4B98
   1   30  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ12M1S000099131FGU    8  GOOD    72 NORM
5000C5000A79B194
   1   31  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ1256300009916BGYJ    2  GOOD    26 NORM
5000C5000A7B4F78
   1   32  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ1458M00009916F7HL    7  SPARE   20 NORM
5000C5000A7B4464
   1   33  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13P8Q00009916F7MT    3  GOOD    34 NORM
5000C5000A7B44A8
   1   34  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ11AQV00009913R75E    4  GOOD    41 NORM
5000C5000A7ADE44
   1   35  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13MRX000099174M0H    8  GOOD    79 NORM
5000C5000A7B5DF4
   1   36  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143KW00009917X6UE    5  GOOD    47 NORM
5000C5000A7B4FEC
   1   37  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ14BDP00009916F68V    1  GOOD    17 NORM
5000C5000A7B7928
   1   38  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ145FG00009916EAF7    1  GOOD    11 NORM
5000C5000A7B4234
   1   39  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ1362Q00009916EEHZ    5  GOOD    46 NORM
5000C5000A7B78C0
   1   40  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ145DC00009916F8J4    1  GOOD    13 NORM
5000C5000A7B4148
   1   41  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13P4K00009917X63F    0  GOOD     4 NORM
5000C5000A7AE0C8
   1   42  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13Q5X00009916FA02    2  GOOD    29 NORM
5000C5000A7AD800
   1   43  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ14214000099174MAM    3  GOOD    35 NORM
   5000C5000A7B559C
   1   44  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143SM000099174L37    2  GOOD    28 NORM
5000C5000A7B5480
   1   45  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13PZ000009916BHQ4    3  GOOD    32 NORM
5000C5000A7AD710
   1   46  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13NBW000099174NJ7    1  GOOD    16 NORM
5000C5000A7B534C
   1   47  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ137G200009916F2W6    0  GOOD     5 NORM
5000C5000A7ADBDC
   1   48  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ144JN000099174MF3    2  GOOD    23 NORM
5000C5000A7B525C
   1   49  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13QBP00009916C6B8    1  GOOD    82 NORM
5000C5000A7ADBC0
   1   50  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13QC800009916EDL2    3  GOOD    37 NORM
5000C5000A7ADC20
   1   51  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ1465200009916F8NZ    0  GOOD    10 NORM
5000C5000A7B3F24
```

```
   1   52  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13Q4600009916BBHY    3  GOOD    39 NORM
5000C5000A7AD734
   1   53  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13Q6G00009916EEQ3    8  GOOD    76 NORM
5000C5000A7AD874
   1   54  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ10TVM00009916F9W2    3  GOOD    38 NORM
5000C5000A7ADF24
   1   55  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ14403000099174G20    2  GOOD    22 NORM
5000C5000A7B4D60
   1   56  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ1341F00009916EBME    8  GOOD    73 NORM
5000C5000A7AD86C
   1   57  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13QB500009916EBKN    8  GOOD    78 NORM
5000C5000A7ADB74
   1   58  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ13QBF00009916BDQX    0  GOOD    81 NORM
5000C5000A7ADBBC
   1   59  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ12MA5000099131CZX    0  GOOD     2 NORM
5000C5000A79B7EC
   1   60  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ11KXG000099131CCR    8  GOOD    75 NORM
5000C5000A79B894

TOTAL PHYSICAL DISKS:      60
TOTAL ASSIGNED DISKS:      60
TOTAL UNASSIGNED DISKS:    0
  TOTAL SAS DISKS:         60
  TOTAL MEMBER STATE NORMAL:   60
```

- To display all attributes of a specified PHYSICAL DISK.

```
6620-8 RAID[0]$ SHOW PD 50 ALL
  INDEX:             50
  OID:               0X20820032
  POOL INDEX:        7
  POOL OID:          0X18770007
  CAPACITY:          352 GB
  RAW CAPACITY:      372 GB(BASE 2)/400 GB(BASE 10)
  BLOCK SIZE:        512
  ENABLED DISK CH:   0X20  0X20
  ENCLOSURE INDEX:   1
  ENCLOSURE OID:     0X50000001
  DISK SLOT:         26  (1:26)
  VENDOR ID:         SEAGATE
  PRODUCT ID:        ST3400755SS
  PRODUCT REVISION:  0003
  SERIAL NUMBER:     3RJ143L1000099173XQF
  HEALTH STATE:      GOOD
  ROTATION SPEED:    7200 RPM
  DEVICE TYPE:       SAS
  MEMBER STATE:      NORMAL
  STATE:             READY
  SPARE:             TRUE
  FAILED:            FALSE
  UUID:              0X5000C5000A7B5008


TOTAL PHYSICAL DISKS:      1
TOTAL ASSIGNED DISKS:      1
TOTAL UNASSIGNED DISKS:    0
  TOTAL SAS DISKS:         1
  TOTAL MEMBER STATE NORMAL:   1
```

RAID POOL

A Storage Pool contains Physical Disks whose extents are parts of RAID sets that in turn are used to realize pools.

The RAID POOL object represents a Storage Pool. All RAID POOL object commands have a RAID subject and include a POOL=<object-id> object specification.

COMMANDS Description
RAID ASSIGN POOL =<object-id>NUMBER=<n> [PHYSICAL_DISK=<id1>,…,<idn>] Assigns specified pool to a number and to an actual disk location where n is the number of physical disks to assign.
RAID CLEAR POOL =<object-id> AUTO_WRITE_LOCK|CRITICAL [FORCE] Clears the specified condition of the pool (either auto_write_lock or critical) which allows the user to re-write that block of data, thus clearing a bad block. Optional parameter of FORCE clears the pool without asking questions. A wild card (*) for <object-id> may be used to clear the condition for all Pools within the subsystem.
RAID CREATE POOL [BLOCK_SIZE=<value>][CHUNK_SIZE=<value>] [ASSIGN_POLICY=([SAS|SATA],15000RPM|10000RPM|7200RPM|5400RPM|0RPM|SSD],[<capacity-raw>GB])][NUMBER=<n> [PHYSICAL_DISK=<id1>, …, <idn>]] Create a POOL of a specified BLOCK_SIZE and CHUNK_SIZE in an integer number of KiB and defines it as either SAS or SATA and a specified physical location. Omission of a member of the ASSIGN_POLICY n-tuple indicates no constraint in that dimension. Default block size is 512 bytes; default chunk size is 128K. Default Assign_Policy is None. SSD is a synonym for 0 RPM.
RAID DELETE POOL=<object-id> [FORCE] Deletes the specified RAID POOL. POOL must be emptied before it is deleted. Note: To empty the pool is to remove all VDS that reside in the pool, (not empty physical disks.)
RAID LOCATE POOL=<object-id> Illuminates the LED on drives in the pool specified.
RAID SET POOL=<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] Assigns the listed attributes to the specified pool as listed below.
RAID SHOW POOL=<object-id> [VIRTUAL_DISKS] [PHYSICAL_DISKS] [ALL_ATTRIBUTES] Displays the specified RAID POOL with its associated VIRTUAL_DISKS, PHYSICAL_DISKS, and attributes.

ATTRIBUTES Description
ASSIGN_POLICY=([SAS|SATA],15000RPM|10000RPM|7200RPM|5400RPM|0RPM|SSD],[<capacity-raw>GB]) Defines whether drives should be treated as SAS or SATA. Note that the Omission of a member of the ASSIGN_POLICY n-tuple indicates no constraint in that dimension location of the system.
DISK_TIMEOUT=<timeout>|NONE Specifies the timeout to wait between when a powered Physical Disk becomes inaccessible and when a RebuildFull begins. Default value is 10 minutes. The range of values is zero (0) to 240 minutes. If DISK_TIMEOUT is 0 and the disk disappears to the system, the drive will be failed immediately.

ERASE_POLICY=(SECURE|ZERO|NOERASE,<priority> Priority is an integer with a range of 1 to 99.
FULL_STRIPED_WRITE_CACHING[=TRUE|FALSE] Enables/disables full_striped_write_caching per pool.
INITIALIZE_POLICY=(ALLOW_IO|NO_IO,<priority> Priority is an integer with a range of 1 to 99.
MIRRORED_WRITE_BACK_CACHE[=TRUE|FALSE] Enables/disables the mirror write back cache coherency per pool.
NAME="string" This is how you name a pool. Specified by the user to identify (set the name of) the Application Stack. If there are spaces in the name, the name must be enclosed with quotes ("). To clear a previously entered name, enter an empty string as follows: NAME="".
PARITY_CHECK_ON_READ[=TRUE|FALSE] Enables/disables parity_check_on_read per pool.
RAID_LEVELS_SUPPORTED=RAID-0|RAID-1|RAID-5|RAID-6
READ_AHEAD_CACHING[=TRUE|FALSE] Enables/disables read_ahead_caching per pool.
REBUILD_FULL_POLICY=<priority> Specifies the policy to be used when a Physical Disk that is associated with the Storage Pool is fully rebuilt. It specifies the Priority for the Background Job that will perform the RebuildFull. Default value specifies a Priority of 80%. Priority is an integer with a range of 1 to 99.
REBUILD_PARTIAL_POLICY=<priority> Specifies the policy to be used when a Physical Disk that is associated with the Storage Pool is partially rebuilt.. It specifies the Priority for the Background Job that will perform the RebuildPartial. Default value specifies a Priority of 90%. Priority is an integer with a range of 1 to 99.
SCRUB_POLICY=<priority> Priority is an integer with a range of 1 to 99.
SPARE_POOL=<object-id> Specifies the Global Spare Pool . Default value is null.
SPARING_POLICY=AUTOMATIC|MANUAL|DISTRIBUTED Specifies the policy used to repair failed disks within the Storage Pool. Default is AUTOMATIC

VERIFY_POLICY=<priority> Priority is an integer with a range of 1 to 99.
WRITE_BACK_CACHING[=TRUE|FALSE] Enables/disables write_back_caching per pool.

Usage Guidelines

Storage Pools must be explicitly created by the user.

A wild-card object-id may be used in the SHOW command.

The shortcut VD can be used in place of VIRTUAL_DISK.

CRITICAL STATE: If SATAssure is enabled for RAID5 array and one of the drives returns bad data, the VD would be marked as "CRITICAL" since in RAID5, system is not able to correct data. The CRITICAL STATE would indicate a bad block of data. Use the RAID CLEAR POOL CRITICAL command to clear the condition (and the bad block) and allow the user to re-write the data. A power off condition will also trigger a critical state.

Examples

- To create a POOL with a specified raid level of RAID6, chunk size of 256 kb and 10 blocks.

```
RAID[0]$ CREATE POOL RAID_LEVEL=RAID6 CHUNK=256KB_BLOCKS NUMBER=10
POOL 0 OID=0X18330000 CREATE STATUS=' SUCCESS' (0X0)
        (CAN SHORTEN)
RAID[0]$ CREATE POOL RAID=RAID6 CHUNK=256K NUMBER=10
```

- To delete a specified POOL (0).

```
RAID[0]$ DELETE POOL=0
ARE YOU SURE YOU WANT TO DELETE POOL 0X0 [YES]?
POOL 0 OID=0X18330000 DELETION STATUS=' SUCCESS' (0X0)

RAID[0]$ SHOW POOL *
NO POOLS SUBSIST
```

- Note: you cannot use wild-card <object-id> to delete any or all POOLs.

```
RAID[0]$ DELETE POOL *
WILDCARD NOT ALLOWED, PLEASE BE SPECIFIC:
VALUE DESCRIPTION FOR 'POOL':
   POOL <OBJECT-ID>
                    PROVIDE AN OBJECT IDENTIFIER
```

- To locate a specified RAID POOL:

```
RAID[0]$ LOCATE POOL 1
POOL 1 OID=0X18370001 LOCATED WITH STATUS=' SUCCESS' (0X0)
```

- To set a RAID SET POOL with a specified object ID and assigns it the specified name.

```
RAID[0]$ SET POOL=1 NAME=POOL-1
POOL 1 OID=0X18370001 ATTRIBUTES SET WITH STATUS=' SUCCESS' (0X0)
RAID[0]$ SHOW POOL *
OID: 0X18370001 INDEX: 0X0001 NAME: POOL-1
```

- To display the specified RAID POOL with its associated attributes.

```
TOTAL STORAGE POOLS: 8


6620-8 RAID[0]$ SHOW POOL 0 ALL
  INDEX:                0
  OID:                  0X18690000
  TYPE:                 STORAGE
  NAME:                 POOL-0
  CHUNK SIZE:           256KB (0X200 BLOCKS)
  BLOCK SIZE:           512
  RAID TYPE:            RAID6
  FREE RAID6 CAPACITY:  0 GB
  MAX VD SIZE:          0 GB
  TOTAL CAPACITY:       3520 GB
  UUID:                 60001FF070E500000000000D18690000
  GLOBAL SPARE POOL:    0X18770007
  DISKTIMEOUT(FRT):     10 MINUTES
  INIT POLICY:          ALLOW_IO
  INIT PRIORITY:        50%
  FULL REBUILD PRIORITY:        80%
  FRACTIONAL REBUILD PRIORITY:  90%
  SPARING POLICY:       AUTOMATIC
  ASSIGN POLICY:
    DEVICE TYPE:        SAS
    ROTATION SPEED:     NA
    RAW CAPACITY:       NA
  SATASSURE:            TRUE
  CACHE SETTINGS:
    FULL STRIPE WRITE:  TRUE
    IO ROUTING:         TRUE
    MIRRORING:          TRUE
    READ AHEAD:         TRUE
    WRITE BACK:         TRUE
  INITIALIZING:         FALSE
  REBUILDING:           FALSE
  PAUSED:               FALSE
  AUTOWRITELOCK:        FALSE
  CRITICAL:             FALSE
  CURRENT HOME:         0X38000000  0X00000000 (LOCAL)
  FUTURE HOME:          0XFFFFFFFF  0X00000000
  PREFERRED HOME:       0X38000000  0X00000000 (LOCAL)
  BKGDJOB OID:          INACTIVE
  TOTAL PHY DISKS       10
  STATE:                NORMAL
  MEMBER SIZE:          352 GB
    PID     STATE     UUID
    0X0001  NORM      0X5000C5000A7ADCC4
    0X0002  NORM      0X5000C5000A79B7EC
    0X0003  NORM      0X5000C5000A7ADCCC
    0X0004  NORM      0X5000C5000A7AE0C8
    0X0005  NORM      0X5000C5000A7ADBDC
    0X0006  NORM      0X5000C5000A7ADAE4
    0X0007  NORM      0X5000C5000A7AD7FC
    0X0051  NORM      0X5000C5000A7ADBBC
    0X0009  NORM      0X5000C5000A7B5208
    0X000A  NORM      0X5000C5000A7B3F24


TOTAL STORAGE POOLS: 1
```

- To display the all RAID POOL using wild card *:

```
6620-8 RAID[0]$ SHOW POOL *

                                          |TOTAL |FREE  |MAX   |                |     |DISK|   GLOBAL   |SPARE |
IDX|NAME           |STATE      |CHUNK|RAID|  FAULTS |CAP GB|CAP GB|VD GB | SETTINGS  | JOBS |T/O |SPARE POOL|POLICY|
```

```
-------------------------------------------------------------------------------------------------------------------
  0 POOL-0           NORMAL       256   6              3520      0      0 S W M R F I          10  0X18770007  AUTO
  1 POOL-1           NORMAL       128   6              3520      0      0 S W M R F I          10  0X18770007  AUTO
  2 POOL-2           NORMAL        64   6              3520      0      0 S W M R F I          10  0X18770007  AUTO
  3 POOL-3           NORMAL        32   6              3520      0      0 S W M R F I          10  0X18770007  AUTO
  4 POOL-4           NORMAL       256   5              1760      0      0 S W M R F I          10  0X18770007  AUTO
  5 POOL-5           NORMAL        NA   1               704      0      0 S W M R F I          10  0X18770007  AUTO
  6 POOL-6           NORMAL        NA   1               704      0      0 S W M R F I          10  0X18770007  AUTO
  8 POOL-8           NORMAL        32   5              3168      0      0   W M R F I          10  0X18770007  AUTO
```

RAID POWER_SUPPLY

All RAID POWER_SUPPLY object commands have a RAID subject and include a PWER_SUPPLY=<object-id> object specification.

COMMANDS Description
RAID LOCATE POWER_SUPPLY =<enclosure-id>, <power-supply-id> Send the identify command to the power supply and blink the blue identify LED on it.
RAID SHOW POWER_SUPPLY =<enclosure-id>, <power-supply-id>[COUNTERS][ALL_ATTRIBUTES] Displays all counters and attributes for the specified power supply.

ATTRIBUTES Description
none

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To display all attributes of all power supplies:

```
6620-8 RAID[0]$ SHOW POWER_SUPPLY *

             |POWER|                          |       INDICATORS          |
IDX|ENCL|POS|STATE|PRESENT|AC FAIL|DC FAIL|OK  |FAULT|FAILURE|LOCATE|SES STATUS
-------------------------------------------------------------------------------
  1    1   1   ON    TRUE    FALSE   FALSE   ON  OFF    OFF     OFF    OK
  2    1   2   ON    TRUE    FALSE   FALSE   ON  OFF    OFF     OFF    OK

TOTAL POWER SUPPLIES: 2
```

- To display all attributes of a specified power supply:

```
6620-8 RAID[0]$ SHOW POWER_SUPPLY 1 1 ALL
SUB INDEX:              1
SUB OID:                0X60000001
ENCLOSURE INDEX:        1
ENCLOSURE OID:          0X50000001
POSITION:               1
SES STATUS:             OK
POWER STATE:            ON
PRESENT:                TRUE
AC MAINS FAILED:        FALSE
DC FAILED:              FALSE
OK INDICATOR:           ON
FAULT INDICATOR:        OFF
PREDICTED FAILURE IND:  OFF
LOCATE INDICATOR:       OFF
LOCATION:               PSU 1
PART NUMBER:            PWR-00028-02-A
SERIAL NUMBER:          CATEC0008ARVF040
FIRMWARE VERSION:       C103

TOTAL POWER SUPPLIES: 1
```

RAID PROCESSOR

All RAID PROCESSOR object commands have a RAID subject and include a PROCESSOR =<object-id> object specification.

COMMANDS Description
RAID SHOW PROCESSOR =<object-id> [ALL_ATTRIBUTES] Displays all attributes for the specified RAID PROCESSOR.

ATTRIBUTES

None.

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To display the attributes of a specified RAID PROCESSOR 0:

```
6620-8 RAID[0]$ SHOW PROCESSOR 0 ALL
INDEX:                       0
OID:                         0X40000000
NAME:                        0
PARENT RP CONTROLLER INDEX: 0
PARENT RP CONTROLLER OID:   0X38000000


TOTAL RAID PROCESSORS: 1
```

- To display all attributes of the all RAID PROCESSORS:

```
6620-8 RAID[0]$ SHOW PROCESSOR *
OID: 0X40000000 INDEX: 0000 NAME: 00000000
OID: 0X40000001 INDEX: 0001 NAME: 00000001

TOTAL RAID PROCESSORS: 2
```

RAID SLOT

All RAID SLOT object commands have a RAID subject and include a SLOT =<object-id> object specification.

COMMANDS Description
RAID SHOW SLOT =<object-id> [ALL_ATTRIBUTES] Displays all attributes for the specified RAID PROCESSOR.

ATTRIBUTES

None.

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To display the attributes of using wild card *:

```
RAID[0]$ SHOW SLOT *
6620-8 RAID[0]$ SHOW SLOT *

                    PHYSICAL DISK                    POWER          INDICATORS
IDX ENCL POS  IDX ID                  TYPE  STATE   PRESENT  OK   FAULT FAILURE LOCATE SES STATUS
---------------------------------------------------------------------------------------------------
  1    1   1   80 0X5000C5000A79B9D8 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
  2    1   2    3 0X5000C5000A7ADCCC UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
  3    1   3   77 0X5000C5000A7ADA74 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
  4    1   4   42 0X5000C5000A7B5DC8 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
  5    1   5   40 0X5000C5000A7B60BC UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
  6    1   6   21 0X5000C5000A7B4864 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
  7    1   7    7 0X5000C5000A7AD7FC UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
  8    1   8    1 0X5000C5000A7ADCC4 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
  9    1   9   45 0X5000C5000A79AD88 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 10    1  10   44 0X5000C5000A7B54DC UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 11    1  11   27 0X5000C5000A7B5E74 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 12    1  12   49 0X5000C5000A7B46FC UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 13    1  13   14 0X5000C5000A7B6030 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 14    1  14   43 0X5000C5000A7B4EE0 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 15    1  15   19 0X5000C5000A7B6048 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 16    1  16   25 0X5000C5000A7B5A68 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 17    1  17   33 0X5000C5000A7B5694 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 18    1  18   15 0X5000C5000A7B6034 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 19    1  19   12 0X5000C5000A7B6018 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 20    1  20    9 0X5000C5000A7B5208 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 21    1  21   36 0X5000C5000A7B5C98 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 22    1  22   30 0X5000C5000A7B4198 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 23    1  23   24 0X5000C5000A7B4274 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 24    1  24   48 0X5000C5000A7B44FC UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 25    1  25   74 0X5000C5000A7B5FE8 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 26    1  26   50 0X5000C5000A7B5008 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 27    1  27    6 0X5000C5000A7ADAE4 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 28    1  28   18 0X5000C5000A7B5450 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 29    1  29   31 0X5000C5000A7B4B98 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 30    1  30   72 0X5000C5000A79B194 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 31    1  31   26 0X5000C5000A7B4F78 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 32    1  32   20 0X5000C5000A7B4464 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 33    1  33   34 0X5000C5000A7B44A8 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 34    1  34   41 0X5000C5000A7ADE44 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 35    1  35   79 0X5000C5000A7B5DF4 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 36    1  36   47 0X5000C5000A7B4FEC UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 37    1  37   17 0X5000C5000A7B7928 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 38    1  38   11 0X5000C5000A7B4234 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 39    1  39   46 0X5000C5000A7B78C0 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 40    1  40   13 0X5000C5000A7B4148 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 41    1  41    4 0X5000C5000A7AE0C8 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
 42    1  42   29 0X5000C5000A7AD800 UNKN    ON      TRUE   OFF   OFF     OFF     OFF    OK
```

```
 43    1  43   35 0X5000C5000A7B559C UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 44    1  44   28 0X5000C5000A7B5480 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 45    1  45   32 0X5000C5000A7AD710 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 46    1  46   16 0X5000C5000A7B534C UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 47    1  47    5 0X5000C5000A7ADBDC UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 48    1  48   23 0X5000C5000A7B525C UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 49    1  49   82 0X5000C5000A7ADBC0 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 50    1  50   37 0X5000C5000A7ADC20 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 51    1  51   10 0X5000C5000A7B3F24 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 52    1  52   39 0X5000C5000A7AD734 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 53    1  53   76 0X5000C5000A7AD874 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 54    1  54   38 0X5000C5000A7ADF24 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 55    1  55   22 0X5000C5000A7B4D60 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 56    1  56   73 0X5000C5000A7AD86C UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 57    1  57   78 0X5000C5000A7ADB74 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 58    1  58   81 0X5000C5000A7ADBBC UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 59    1  59    2 0X5000C5000A79B7EC UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK
 60    1  60   75 0X5000C5000A79B894 UNKN    ON    TRUE  OFF  OFF    OFF    OFF   OK

TOTAL DISK SLOTS: 60
```

- To display the attributes of a specified RAID SLOT 1:

```
6620-8 RAID[0]$ SHOW SLOT 1 1 ALL
SUB INDEX:                1
SUB OID:                  0X58000001
ENCLSOURE INDEX:          1
ENCLOSURE OID:            0X50000001
POSITION:                 1
SES STATUS:               OK
PHYSICAL DISK INDEX:      80
PHYSICAL DISK OID:        0X20660050
PHYSICAL DISK ID:         0X5000C5000A79B9D8
TYPE:                     UNKNOWN
POWER STATE:              ON
PRESENT:                  TRUE
OK INDICATOR:             OFF
FAULT INDICATOR:          OFF
PREDICTED FAILURE IND:    OFF
LOCATE INDICATOR:         OFF


TOTAL DISK SLOTS: 1
```

RAID SPARE_POOL

A Global Spare Pool contains Physical Disks that can be used as spare disks in one or more Storage Pools.

All RAID SPARE_POOL object commands have a RAID subject and include a SPARE_POOL=<object-id> object specification.

COMMANDS Description
RAID CREATE SPARE POOL [BLOCK_SIZE=<value> Creates a SPARE_POOL in the specified block size.
RAID DELETE SPARE_POOL=<object-id> [FORCE] Deletes the specified RAID SPARE_POOL.
RAID LOCATE SPARE_POOL=<object-id> Illuminates the LED on the disk in the slot.
RAID SET SPARE_POOL=<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] Assigns the listed attributes to the specified pool.
RAID SHOW SPARE_POOL=<object-id> [ALL_ATTRIBUTES] [COUNTERS] Displays the attributes of a specified RAID SPARE_POOL.
RAID SHOW SPARE_POOL=<object-id> [PHYSICAL_DISKS] [POOLS] Displays the physical disks associated with the specified RAID SPARE_POOL.

ATTRIBUTES Description
DISK_TIMEOUT=<timeout>|NONE Specifies the timeout to wait between when a powered Physical Disk becomes inaccessible and when a RebuildFull begins. Default value is 10 minutes. The range of values is zero (0) to 240 minutes. If DISK_TIMEOUT is 0 and the disk disappears to the system, the drive will be failed immediately.
SPARE_POOL=<object-id> Specifies the Global Spare Pool . Default value is null.
NAME="string" Specified by the user to identify the Spare Pool. If there are spaces in the name, the name must be enclosed with quotes (“).

Usage Guidelines

Global Spare Pools must be explicitly created with management directives. On creation, the value of the DISK_TIMEOUT is set to 10 minutes.

Each Storage Pool has an attribute that designates its Global Spare Pool that must be designated by the user.

A wild-card object-id may be used in the SHOW command.

Examples

- To create a Spare Pool:

```
RAID[0]$ CREATE SPARE
SPARE POOL 8 OID=0X1E910008 CREATE STATUS='SUCCESS' (0X0)
RAID[0]$ SHOW SPARE 8 ALL
 OID:               0X1E910008
 TYPE:              GLOBAL SPARE
 NAME:              1E910008
 BLOCK SIZE:        0X200
 DISKTIMEOUT(FRT): 10 MINUTES
 TOTAL CAPACITY:    0 MBS
 UUID:              0X00
 TOTAL PHY DISKS    0
```

- To set RAID SET SPARE_POOL (8); note the DiskTimeout Value compared with the create spare output:

```
RAID[0]$ SET SPARE 8 DISK=20
SPARE POOL 8 OID=0X1E910008 ATTRIBUTES SET WITH STATUS='SUCCESS' (0X0)
RAID[0]$ SHOW SPARE 8 ALL
  OID:               0X1E910008
  TYPE:              GLOBAL SPARE
  NAME:              1E910008
  BLOCK SIZE:        0X200
  DISKTIMEOUT(FRT): 20 MINUTES
  TOTAL CAPACITY:    0 MBS
  UUID:              0X00
  TOTAL PHY DISKS    0
```

- To assign PD to the spare and then display them:

```
RAID[0]$ ASSIGN PD 0X268F005E TO_POOL 8
PHYSICAL_DISK 94 OID=0X268F005E ASSIGNED  TO POOL 8 OID=0X1E910008
STATUS='SUCCESS' (0X0)
        [COMMENT: NOW ISSUE THE SHOW SPARE_POOL=8 PD]
RAID[0]$ SHOW SPARE 8 PD
OID: 0X268F005E INDEX: 0X005E
RAID[0]$ SHOW SPARE 8 PD ALL
  OID:               0X268F005E
  POOL OID:          0X1E910008
  CAPACITY:          417792 MBS (0X33000000 BLOCKS)
  RAW CAPACITY:      429247 MBS (0X3465F870 BLOCKS)
  BLOCK SIZE:        512
  ENABLED DISK CH:   0X11  0X14
  DISK SLOT:         1:59
  VENDOR ID:         SEAGATE
  PRODUCT ID:        ST3450856SS
  PRODUCT REVISION: 0004
  SERIAL NUMBER:     3QQ069M0000099171WCU
  HEALTH STATE:      GOOD
  ROTATION SPEED:    15000 RPM
  DEVICE TYPE:       SAS
  MEMBER STATE:      NORMAL
  SPARE:             TRUE
  FAILED:            FALSE
  UUID:              0X5000C50004D4D0880
```

- To show all spares using wild card *:

```
RAID[0]$ SHOW SPARE *

                                |DISK |TOTAL |TOTAL|STORAGE |
IDX|NAME                      |BLOCKS| T/O |CAP GB| PDS |POOL IDX|
-------------------------------------------------------------
  7 SPARE_POOL-7                512    10     704    2       0
                                                             1
                                                             2
                                                             3
                                                             4
                                                             5
                                                             6
                                                             8

TOTAL SPARE POOLS: 1
```

- To show all attributes of specified spare pool:

```
RAID[0]$ SHOW SPARE 7 ALL
  INDEX:                7
  OID:                  0X18770007
  TYPE:                 GLOBAL SPARE
  NAME:                 SPARE_POOL-7
  BLOCK SIZE:           512
  DISKTIMEOUT(FRT):     10 MINUTES
  TOTAL CAPACITY:       704 GB
  UUID:                 0X0000000000000000
  TOTAL PHY DISKS:      2
  STORAGE POOL LIST:    INDEX: 0  OID:0X18690000
                        1  OID:0X186B0001
                        2  OID:0X186D0002
                        3  OID:0X186F0003
                        4  OID:0X18710004
                        5  OID:0X18730005
                        6  OID:0X18750006
                        8  OID:0X187F0008


TOTAL SPARE POOLS: 1
```

- To show physical disk of specified spare pool:

```
RAID[0]$ SHOW SPARE 7 PD

                                                                                                |HEALTH|
ENCL|SLOT| VENDOR |      PRODUCT ID      |TYPE|CAP GB | RPM|REVISION|     SERIAL NUMBER    |POOL|STATE | IDX|STATE
|       WWN        |
-------------------------------------------------------------------------------------------------------------------
------------------
   1   26  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ143L1000099173XQF    7  SPARE   50 NORM
5000C5000A7B5008
   1   32  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ1458M00009916F7HL    7  SPARE   20 NORM
5000C5000A7B4464

TOTAL PHYSICAL DISKS:      2
TOTAL ASSIGNED DISKS:      2
TOTAL UNASSIGNED DISKS:    0
  TOTAL SAS DISKS:         2
  TOTAL MEMBER STATE NORMAL:   2
```

- To show all attributes of the physical disk of specified spare pool:

```
6620-8 RAID[0]$ SHOW SPARE 7 PD ALL
  INDEX:             50
  OID:               0X20820032
  POOL INDEX:        7
  POOL OID:          0X18770007
  CAPACITY:          352 GB
  RAW CAPACITY:      372 GB(BASE 2)/400 GB(BASE 10)
  BLOCK SIZE:        512
  ENABLED DISK CH:   0X20  0X20
  ENCLOSURE INDEX:   1
  ENCLOSURE OID:     0X50000001
  DISK SLOT:         26  (1:26)
  VENDOR ID:         SEAGATE
  PRODUCT ID:        ST3400755SS
  PRODUCT REVISION:  0003
  SERIAL NUMBER:     3RJ143L1000099173XQF
  HEALTH STATE:      GOOD
  ROTATION SPEED:    7200 RPM
  DEVICE TYPE:       SAS
  MEMBER STATE:      NORMAL
  STATE:             READY
  SPARE:             TRUE
  FAILED:            FALSE
  UUID:              0X5000C5000A7B5008


  INDEX:             20
  OID:               0X20140014
  POOL INDEX:        7
  POOL OID:          0X18770007
  CAPACITY:          352 GB
  RAW CAPACITY:      372 GB(BASE 2)/400 GB(BASE 10)
  BLOCK SIZE:        512
  ENABLED DISK CH:   0X2  0X2
  ENCLOSURE INDEX:   1
  ENCLOSURE OID:     0X50000001
  DISK SLOT:         32  (1:32)
  VENDOR ID:         SEAGATE
  PRODUCT ID:        ST3400755SS
  PRODUCT REVISION:  0003
  SERIAL NUMBER:     3RJ1458M00009916F7HL
  HEALTH STATE:      GOOD
  ROTATION SPEED:    7200 RPM
  DEVICE TYPE:       SAS
  MEMBER STATE:      NORMAL
  STATE:             READY
  SPARE:             TRUE
  FAILED:            FALSE
  UUID:              0X5000C5000A7B4464


TOTAL PHYSICAL DISKS:       2
TOTAL ASSIGNED DISKS:       2
TOTAL UNASSIGNED DISKS:     0
  TOTAL SAS DISKS:          2
  TOTAL MEMBER STATE NORMAL:   2
```

RAID SUBSYSTEM

All RAID commands begin with the subject, RAID. All RAID SUBSYSTEM object commands have a RAID subject and include a SUBSYSTEM object specification with no object-id.

COMMANDS Description
RAID CLEAR SUBSYSTEM MIR_STATE [UID=<value>] Resolves the MIR (Manual Intervention Required) state of the subsystem.
RAID CLEAR SUBSYSTEM ULA [FORCE] Clears the ULA stored by the Subsystem and reacquires it from a present Controller. The CLUI will ask for confirmation UNLESS the FORCE qualifier is specified.
RAID CLEAR SUBSYSTEM CONFIGURATION Clears the current configuration of the subsystem.
RAID SET SUBSYSTEM <attribute-name>=<value> [<attribute-name>=<value>…] Assigns the listed attributes to the specified subsystem.
RAID SHOW SUBSYSTEM [ALL_ATTRIBUTES] Displays all attributes of the subsystem.
RAID SHOW SUBSYSTEM [COUNTERS] Displays COUNTERS of the subsystem.
RAID SHUTDOWN SUBSYSTEM [SHUTDOWN] Shuts down the subsystem.
RAID SHUTDOWN SUBSYSTEM [RESTART][FORCE] Performs a shutdown followed by a restart of the system**.**

ATTRIBUTES Description
DATE_AND_TIME=(<year>:<month>:<day>:<hour>:<minute>:<second>) Sets the current date and time of the controllers. Time will be in GMT (Greenwich Mean Time) time zone. Changing time zones is not supported currently.
LICENSE_KEY="string" Add a new license key to the RAID subsystem.
LOCATE_DWELL_TIME=<integer> Sets a time in seconds that locate beacons within the RAID Subsystem remain on until they are automatically turned off. Default value is 120 seconds. Valid values are between 0 and 65535 seconds.
NAME="string" Specified by the user to identify the subsystem**.** If there are spaces in the name, the name must be enclosed with quotes (“).

Usage Guidelines

Manual Intervention Required (MIR) represents a condition with the Controller that requires the user to provide a solution before proceeding with normal controller operations. This is to guard against the controller firmware from executing operations that may not necessarily be the desired operation of the user. These conditions will most likely be seen in a new system installation environment. For example, when a system is booted and the backend physical disks have never been installed behind the Controllers, the controller firmware has never had a chance to write out configuration metadata. The Controller recognizes that there is no valid metadata and requires the user to acknowledge proceeding or not.

Examples

- To resolve the MIR (Manual Intervention Required) state:

```
RAID[0]$ CLEAR SUBSYSTEM MIR
RAID SUBSYSTEM MIR_STATE CLEARED STATUS=' SUCCESS' (0X0)
```

- To change the locate dwell time from 130 to 30 seconds.

```
RAID[0]$ SET SUBSYSTEM LOCATE_DWELL_TIME=30
SUBSYSTEM ATTRIBUTES SET STATUS=' SUCCESS' (0X0)
```

- To set the current date and time of the controllers.

```
RAID[0]$ SET SUBSYSTEM DATE_AND_TIME=2009:02:11:11:38:00
SUBSYSTEM ATTRIBUTES SET STATUS=' SUCCESS' (0X0)
```

- To display all attributes of the subsystem.

```
RAID[0]$ SHOW SUB ALL
RP SUBSYSTEM NAME:      6620-8
UID:                    60001FF070E500000000000030000000
SUBSYSTEM TIME:         FRI DEC  4 15:51:25 2009
LOCATE DWELL TIME:      120 SECONDS
ENABLED LICENSES:       RAID6 SATASSURE
```

- Shuts down the subsystem (RAID firmware) but not the underlying Linux file system:

```
RAID[0]$ SHUTDOWN SUBSYSTEM
RAID SUBSYSTEM SHUTTING DOWN WITH STATUS=' SUCCESS' (0X0)
```

RAID SYNCHRONIZE

All RAID SYNCHRONIZE object commands have a RAID subject and include a SYNCHRONIZE=<object-id> object specification.

COMMANDS Description
RAID SYNCHRONIZE SUBSYSTEM =<CONTROLLER-ID> Synchronize the specified controller.
RAID SYNCHRONIZE SUBSYSTEM LOGS Synchronize the controllers log disk.

ATTRIBUTES Description
none

Examples

- To synchronize the controllers log disk, which syncs the Event Logs, ensures any logs currently in memory are saved to the eventlog disk.

```
6620-8 RAID[0]$ SYNCHRONIZE SUBSYSTEM LOGS
SUBSYSTEM LOGS SYNCHRONZIED WITH STATUS='SUCCESS' (0X0)
6620-8 RAID[0]$
```

RAID TEMPERATURE

All RAID TEMPERATURE object commands have a RAID subject and include a TEMPERATURE=<object-id> object specification.

COMMANDS Description
RAID SHOW TEMPERATURE =<enclosure-id>, <temperature-id>[COUNTERS][ALL_ATTRIBUTES] Displays all counters and attributes for the specified.

ATTRIBUTES Description
none

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To show all temperature attributes of all enclousures using wild card:

```
RAID[0]$ SHOW TEMP *

                                |   OVER TEMP    |   INDICATORS   |
IDX|ENCL|POS|TEMP(C)|PRESENT|WARNING|FAILURE|FAILURE|LOCATE|SES STATUS
-------------------------------------------------------------------------
  1    0   1    36     TRUE   FALSE   FALSE    OFF    OFF   OK
  2    0   2    62     TRUE   FALSE   FALSE    OFF    OFF   OK
  3    0   3    66     TRUE   FALSE   FALSE    OFF    OFF   OK
  4    0   4    43     TRUE   FALSE   FALSE    OFF    OFF   OK
  1    1   1    33     TRUE   FALSE   FALSE    OFF    OFF   OK
  2    1   2    31     TRUE   FALSE   FALSE    OFF    OFF   OK
  3    1   3    25     TRUE   FALSE   FALSE    OFF    OFF   OK
  4    1   4    26     TRUE   FALSE   FALSE    OFF    OFF   OK
  5    1   5    30     TRUE   FALSE   FALSE    OFF    OFF   OK
  6    1   6    31     TRUE   FALSE   FALSE    OFF    OFF   OK
  1    2   1    36     TRUE   FALSE   FALSE    OFF    OFF   OK
  2    2   2    55     TRUE   FALSE   FALSE    OFF    OFF   OK
  3    2   3    60     TRUE   FALSE   FALSE    OFF    OFF   OK
  4    2   4    40     TRUE   FALSE   FALSE    OFF    OFF   OK

TOTAL TEMPERATURE SENSORS: 14

6620-8 RAID[0]$ SHOW TEMP 0 1 ALL
SUB INDEX:               1
SUB OID:                 0X70000001
ENCLOSURE INDEX:         0
ENCLOSURE OID:           0X50000000
POSITION:                1
SES STATUS:              OK
TEMPERATURE (DEG C):     36
PRESENT:                 TRUE
OVER TEMP FAILURE:       FALSE
OVER TEMP WARNING:       FALSE
PREDICTED FAILURE IND:   OFF
LOCATE INDICATOR:        OFF

TOTAL TEMPERATURE SENSORS: 1
```

RAID UNASSIGNED_POOL

NOTE: There is only one Unassigned Disk Pool and it cannot be created or deleted.

The Unassigned Disk Pool contains both newly discovered Physical Disks and those that have:

- NOT been assigned to another Pool and
- FAILED and/or have been automatically replaced per sparing policy.

All RAID UNASSIGNED_POOL object commands have a RAID subject and include an UNASSIGNED_POOL object specification with no object-id.

COMMANDS Description
RAID SHOW UNASSIGNED_POOL [FAILED] Displays any UNASSIGNED_PHYSICAL_DISKS and those that have failed
RAID LOCATE UNASSIGNED_POOL [FAILED] Illuminates the LED on drives that are unassigned and that have failed if specified.
RAID SHOW UNASSIGNED_POOL [ALL_ATTRIBUTES] Displays all attributes of the UNASSIGNED_POOL.
RAID SHOW UNASSIGNED_POOL [PHYSICAL_DISKS] Displays a list of the currently unassigned physical disks.

ATTRIBUTES

None

Usage Guidelines

A wild-card object-id (*) may be used in the SHOW command.

EXAMPLE

- To display all unassigned physical disks:

```
6620-8 RAID[0]$ SHOW UNASSIGNED PD

                                                                                                  |HEALTH|
ENCL|SLOT| VENDOR |      PRODUCT ID      |TYPE|CAP GB | RPM|REVISION|     SERIAL NUMBER    |POOL|STATE | IDX|STATE
|        WWN        |
-------------------------------------------------------------------------------------------------------------------
------------------
   1   40  SEAGATE          ST3400755SS  SAS     372 7.2K     0003 3RJ145DC00009916F8J4 UNAS  GOOD    13 READY
5000C5000A7B4148

TOTAL PHYSICAL DISKS:      1
TOTAL ASSIGNED DISKS:      0
TOTAL UNASSIGNED DISKS:    1
  TOTAL SAS DISKS:         1
```

- To display all unassigned pools:

```
RAID[0]$ SHOW UNASSIGNED -ALL
  INDEX:             65535
  OID:               0X1800FFFF
  TYPE:              UNASSIGNED
  CAPACITY:          8 GB
  FAILED CAPACITY:   0 GB
  TOTAL PHY DISKS    1

TOTAL UNASSIGNED POOLS: 1
```

RAID UPS

All RAID UPS object commands have a RAID subject and include a UPS=<object-id> object specification.

COMMANDS Description
RAID LOCATE UPS =<enclosure-id>, <ups-id> Send the identify command to the UPS and blink the blue identify LED on it.
RAID SHOW UPS =<enclosure-id>, <ups-id>[COUNTERS][ALL_ATTRIBUTES] Displays all counters and attributes for the specified UPS.

ATTRIBUTES Description
none

Usage Guidelines

A wild-card <object-id> (*) may be used in the SHOW command.

Examples

- To display all UPS using wild card *:

```
6620-8 RAID[0]$ SHOW UPS *

                                                                                  |      INDICATORS      |
IDX|ENCL|POS|PRESENT|CHARGE|HOLD UP|ENABLED|AC FAIL|  HEALTH|FAULT|FAILURE|LOCATE|SES STATUS
-------------------------------------------------------------------------------------------------------
  1    0   1   TRUE   UNKN   UNSUPP   TRUE   FALSE     OK    OFF    OFF    OFF   OK
  1    2   1   TRUE   UNKN   UNSUPP   TRUE   FALSE     OK    OFF    OFF    OFF   OK

TOTAL UPS: 2
```

- To display all information for specified UPS :

```
6620-8 RAID[0]$ SHOW UPS 0 1 ALL
SUB INDEX:                1
SUB OID:                  0X80000001
ENCLOSURE INDEX:          0
ENCLOSURE OID:            0X50000000
POSITION:                 1
SES STATUS:               OK
CHARGE LEVEL:             UNKNOWN
HOLD-UP TIME REMAINING:   UNSUPPORTED
ENABLED:                  TRUE
AC FAILED:                FALSE
PRESENT:                  TRUE
BATTERY HEALTH            OK
FAULT INDICATOR:          OFF
PREDICTED FAILURE IND:    OFF
LOCATE INDICATOR:         OFF


TOTAL UPS: 1
```

RAID VIRTUAL_DISK (VD)

The RAID VIRTUAL_DISK object represents a partition of a pool, where VD is an alias for VIRTUAL_DISK. All VIRTUAL_DISK object commands have a RAID subject and include a VIRTUAL_DISK=<object-id> object specification.

COMMANDS Description
RAID CREATE VIRTUAL_DISK CAPACITY=<integer>|MAXIMUM POOL =<object-id> RAID_LEVEL=RAID0|RAID1|RAID5|RAID5H|RAID6 [BLOCK_SIZE=<integer>] Creates a RAID VIRTUAL_DISK with the specified capacity at the specified RAID level. CAPACITY is an integer number in multiples of 8 GB. Therefore, a CAPACITY=28 results in a VD that is 32 GB in size. When Maximum pool is specified, a RAID VIRTUAL_DISK is created with all available storage within the POOL. The BLOCK_SIZE value is an integer number of bytes.
RAID DELETE VIRTUAL_DISK =<object-id> [SECURE|ZERO|NOERASE] [FORCE] Deletes the specified VIRTUAL_DISK.
RAID SET VIRTUAL_DISK=<object-id> <attribute-name>=<value> [<attribute-name>=<value>…] Assigns the listed attributes to the specified VIRTUAL_DISK.
RAID SHOW VIRTUAL_DISK =<object-id> [ALL_ATTRIBUTES] Displays all attributes of the specified RAID VIRTUAL_DISK.

ATTRIBUTES Description
NAME="string" Specified by the user to identify the VD**.** If there are spaces in the name, the name must be enclosed with quotes (“).
COUNTERS .

Usage Guidelines

A wild-card object-id may be used in the SHOW command.

The alias VD can be used in place of VIRTUAL_DISK.

The actual capacity of the VD created may be larger than the size specified.

Examples

- To create a RAID VIRTUAL_DISK with all available storage within the POOL with a specified object ID:

```
RAID[0]$ CREATE VIRTUAL_DISK POOL=0 CAPACITY=MAX
VIRTUAL_DISK 0 OID=0X88350000 CREATION STATUS=' SUCCESS' (0X0)
```

- To delete a specified RAID VIRTUAL_DISK:

```
RAID[0]$ DELETE VD=0
ARE YOU SURE YOU WANT TO DELETE VIRTUAL_DISK 0X0 [YES]?
VIRTUAL_DISK 0 OID=0X88350000 DELETION STATUS=' SUCCESS' (0X0)
RAID[0]$ SHOW VD *
NO VIRTUAL_DISKS SUBSIST
```

- To display a list of the specified RAID VIRTUAL_DISK (0) using the ALL parameter:

```
RAID[0]$ SHOW VD 0 ALL
  INDEX:             0
  OID:               0X88780000
  NAME:              VD-0_0
  POOL INDEX:        0
  POOL OID:          0X18690000
  CAPACITY:          2808 GB
  OFFSET:            0X0
  STATE:             READY
  RAIDLEVEL:         RAID6
  IO ROUTING:        TRUE
  WBC:               TRUE
  MIRRORED:          TRUE
  INITIALIZING:      FALSE
  PAUSED:            FALSE
  AUTOWRITELOCK:     FALSE
  CRITICAL:          FALSE
  CURRENT HOME:      0X38000000  0X00000000 (LOCAL)
  FUTURE HOME:       0XFFFFFFFF  0X00000000
  PREFERRED HOME:    0X38000000  0X00000000 (LOCAL)
   BKGDJOB OID:       INACTIVE
  UUID:              60001FF070E500000000000D88780000


TOTAL VIRTUAL DISKS: 1
```

- To display a list of RAID VIRTUAL_DISK wild card *:

```
RAID[0]$ SHOW VD *

                                                                    |       HOME        |BACKGROUND|
IDX|NAME             | STATE  |POOL|RAID|CAP GB|SETTINGS| JOBS    |CURRENT|PREFERRED|   JOB    |
-------------------------------------------------------------------------------------------------
  0 VD-0_0            READY     0  6     2808   W M I            0(L) 0   0(L) 0   INACTIVE
  1 VD-1_1            READY     1  6     2808   W M I            1(R) 0   1(R) 0   INACTIVE
  2 VD-2_2            READY     2  6     2808   W M I            0(L) 0   0(L) 0   INACTIVE
  3 VD-3_3            READY     3  6     2808   W M I            1(R) 0   1(R) 0   INACTIVE
  4 VD-4_4            READY     4  5     1400   W M I            0(L) 0   0(L) 0   INACTIVE
  5 VD-5_5            READY     5  1      344   W M I            1(R) 0   1(R) 0   INACTIVE
  6 VD-6_6            READY     6  1      344   W M I            0(L) 0   0(L) 0   INACTIVE
  7 VD-7_8            READY     8  5     2808   W M I            1(R) 0   1(R) 0   INACTIVE

TOTAL VIRTUAL DISKS: 8
```

- To set a RAID CHANNEL with a specified object ID (0) and assign it the specified name (LINUX VD0) and to show all associated information for this virtual disk using ALL parameter:

```
6620-8 RAID[0]$ SET VD 0 NAME="LINUX VD0"
VIRTUAL_DISK 0 OID=0X88780000 SET ATTRIBUTES STATUS='SUCCESS' (0X0)
6620-8 RAID[0]$ SHOW VD 0 ALL
  INDEX:             0
  OID:               0X88780000
  NAME:              LINUX VD0
  POOL INDEX:        0
  POOL OID:          0X18690000
  CAPACITY:          2808 GB
  OFFSET:            0X0
  STATE:             READY
  RAIDLEVEL:         RAID6
  IO ROUTING:        TRUE
  WBC:               TRUE
  MIRRORED:          TRUE
  INITIALIZING:      FALSE
  PAUSED:            FALSE
  AUTOWRITELOCK:     FALSE
  CRITICAL:          FALSE
  CURRENT HOME:      0X38000000  0X00000000 (LOCAL)
  FUTURE HOME:       0XFFFFFFFF  0X00000000
  PREFERRED HOME:    0X38000000  0X00000000 (LOCAL)
   BKGDJOB OID:       INACTIVE
  UUID:              60001FF070E500000000000D88780000
```

```
TOTAL VIRTUAL DISKS: 1

  UUID:             600000000000000000000000288390002
```

- To show all virtual disks and associated counters:

```
RAID[0]$ SHOW VD * COUNTERS
NO PREVIOUS COUNTERS OF THIS TYPE
6620-8 RAID[0]$ SHOW VD * COUNTERS
VIRTUAL DISK COUNTERS:  ELAPSED TIME = 1.333 SECONDS
  IDX  IOS/SEC   KB/SEC    KB/IO FWD IO/S FWD KB/S | IOS/SEC   KB/SEC    KB/IO FWD IO/S FWD KB/S |
-------------------------------------------------------------------------------------------------
    0      276     3633       53       0       0 |       0       0        0       0       0 |
    1        0        0        0       0       0 |      81    1113       55       0       0 |
    2       60    30382     2048       0       0 |       0       0        0       0       0 |
    3        0        0        0       0       0 |      56   28132     2048       0       0 |
    4      271     3666       55       0       0 |       0       0        0       0       0 |
    5        0        0        0       0       0 |      60   30007     2048       0       0 |
    6      260     2857       44       0       0 |       0       0        0       0       0 |
    7        0        0        0       0       0 |      60   30382     2048       0       0 |
```

UI CLI

All UI commands begin with the subject, UI. All UI CLI object commands have a UI subject and include a CLI object specification with no <object-id>.

COMMANDS Description
UI SET CLI DEFAULT_SUBJECT=RAID Sets the default command subject to RAID for the session. This is the DEFAULT setting. The default command subject is pre-pended to each command and echoed in the command prompt.
UI SET CLI DEFAULT_SUBJECT=APPLICATION Sets the default command subject to APPLICATION for the session. The default command subject is pre-pended to each command and echoed in the command prompt.
UI SET CLI DEFAULT_SUBJECT=UI Sets the default command subject to UI for the session. The default command subject is pre-pended to each command and echoed in the command prompt.
UI SET CLI DEFAULT_SUBJECT=NONE Clears the CLI default command subject for the session.
UI SET CLI –PROVIDE_FEEDBACK=[TRUE] Default. When TRUE, each command provides feedback, even upon successful completion.
UI SET CLI –PROVIDE_FEEDBACK=[FALSE] When FALSE, commands return successful completion silently.
UI SET CLI –TIMESTAMP=[TRUE] When TRUE, each command prompt includes a timestamp.
UI SET CLI –TIMESTAMP=[FALSE] Default. When FALSE, command prompts do not include timestamps return successful completion silently.
UI SHOW CLI=* SHOW all instances of the CLUI Server. Indicate which CLUI Server is this instance.
UI SHOW [-ALL_ATTRIBUTES] [-COUNTERS] Displays the mode, the default subject, OID, and the CLI version of this instance of the CLUI Server.

ATTRIBUTES Description
none

Usage Guidelines

By default, the CLI default command subject is set to RAID, so that the user is saved from having to enter the keyword RAID on every RAID command. The CLI shall return an error if the user attempts to set the default command subject to an invalid subject.

The user may override the CLI default command subject on one command by specifying the full command. However, if the command does not have a valid subject then the error message may report an unrecognized verb keyword.

Examples

- To set the default command subject to RAID from UI for the session:

```
RAID[0]$ UI SET CLI DEFAULT_SUBJECT=RAID
CLI DEFAULT SUBJECT HAS BEEN SET TO RAID WITH STATUS=' SUCCESS' (0X0)
UI$ SET CLI DEFAULT_SUBJECT=RAID
```

- To set the default command subject to UI for the session:

```
RAID[0]$ UI SET CLI DEFAULT_SUBJECT=UI
CLI DEFAULT SUBJECT HAS BEEN SET TO UI WITH STATUS=' SUCCESS' (0X0)
UI$ SET CLI DEFAULT_SUBJECT=RAID
CLI DEFAULT SUBJECT HAS BEEN SET TO RAID WITH STATUS=' SUCCESS' (0X0)
```

- To clear the CLUI default command subject for the session:

```
RAID[0]$ UI SET CLI DEFAULT_SUBJECT=NONE
CLI DEFAULT SUBJECT HAS BEEN SET TO NONE WITH STATUS=' SUCCESS' (0X0)
$
```

- To receive feedback, even upon successful completion of command:

```
RAID[0]$ UI SET CLI PROVIDE_FEEDBACK=TRUE
CLI FEEDBACK MODE HAS BEEN SET TO ON WITH STATUS=' SUCCESS' (0X0)
```

- To silence feedback:

```
RAID[0]$ UI CLI SET PROVIDE_FEEDBACK=FALSE
RAID[0]$ UI CLI SET VERB_OBJECT
RAID[0]$ SHOW POOL *
OID: 0X18370001 INDEX: 0X0001 NAME: POOL-1
RAID[0]$ UI SET CLI PROVIDE_FEEDBACK=TRUE
CLI FEEDBACK MODE HAS BEEN SET TO ON WITH STATUS=' SUCCESS' (0X0)
RAID[0]$ UI SET CLI OBJECT_VERB
CLI COMMAND LINE STRUCTURE HAS BEEN SET TO OBJECT-VERB WITH STATUS=' SUCCESS' (0X0)
```

- To display the mode, the default subject, OID, and the CLI version of this instance of the CLUI Server.

```
S2A 6620-9 RAID[1]$ UI SHOW CLI ALL

           CLI VERSION : 0.9
    CLI STRUCTURE MODE : VERB-OBJECT
   CLI DEFAULT SUBJECT : RAID
CLI MINIMUM MATCH MODE : OFF
 CLI FEEDBACK SENTENCE : ON
    CLI TIMESTAMP MODE : OFF
```

UI NETWORK_INTERFACE

All UI commands begin with the subject, UI. All UI CLI object commands have a UI subject and include a CLI object specification with no <object-id>.

COMMANDS Description
UI SHOW NETWORK_INTERFACE=(<controller-id>,<network-id>) [ALL_ATTRIBUTES][COUNTERS] Displays attributes, such as IP ADDRESS, for the specified Network Interfaces, plus the interface's MAC address, speed, and link state.
UI SET NETWORK_INTERFACE= (<controller-id>, <network-id>) <attribute-name>=<value> [<attribute-name>=<value>…] Sets the network-interface to a specified controller-id and a network id and assigns values to the listed attributes, for example, IP_ADDRESS.
UI TEST NETWORK_INTERFACE=(<controller-id>,<network-id>) PING=(<ip-address>) Pings the specified ip-address from the specified NETWORK_INTERFACE.

ATTRIBUTES Description
IP_ADDRESS=<ip-address> Refers to the IP Address of the system in the format aaa.bbb.ccc.ddd
IP_GATEWAY=<ip-address> Refers to the current gateway in the network routing table as applied to the internet address in the format aaa.bbb.ccc.ddd
IP_MASK=<ip-mask> The netmask address of the system in the format aaa.bbb.ccc.ddd

Usage Guidelines

<object-id> zero is always the controller that is the one to which the UI client is connected and **<object-id> one** is always the other controller.

The keywords LOCAL and REMOTE may be used in place of the UI Controller's <object-id>.

Ideally, it should be possible to set the network interface attributes from either controller; however, it is acceptable to limit this ability to the LOCAL controller.

Wild-card object-IDs may be used in the SHOW command.

The UI CONTROLLER may have one or more NETWORK_INTERFACEs.

The UI CONTROLLER NETWORK_INTERFACE commands support the configuration and testing of these NETWORK_INTERFACEs.

Examples

- To display a list of the Network Interfaces with their associated controller IDs and object ID values.

```
RAID[0]$ UI SHOW NETWORK_INTERFACE *
NETWORK DEVICE ID 0
    ADDRESS 10.32.31.218
    NETMASK 255.255.240.0
```

```
    GATEWAY 10.32.16.2
```

- To set the network-interface to a specified controller-id and a network id and assigns values to the listed attributes:

```
RAID[0]$ UI SET NETWORK_INTERFACE 0 0 IP_ADDRESS=192.168.0.10 IP_MASK=255.255.255.0  IP_GATEWAY=192.168.01
NETWORK DEVICE ID 0
    ADDRESS 192.168.0.10
    NETMASK 255.255.255.0
    GATEWAY 192.168.0.1
```

UI EMAIL_AGENT

All UI commands begin with the subject, UI. All UI CLI object commands have a UI subject and include a CLI object specification with no <object-id>.

COMMANDS Description
UI SHOW EMAIL_AGENT [ALL_ATTRIBUTES][COUNTERS] Displays attributes, such as IP ADDRESS, for the specified EMAIL_AGENTS.
UI SET EMAIL_AGENT <attribute-name>=<value> [<attribute-name>=<value>…] Sets the email agent and assigns values to the listed attributes, for example, IP_ADDRESS.

ATTRIBUTES Description
IP_ADDRESS=<ip-address> Refers to the IP Address of the system in the format aaa.bbb.ccc.ddd
IP_PORT=<ip-port-number> Refers to the current gateway in the network routing table as applied to the internet address in the format aaa.bbb.ccc.ddd
FROM="string" Specified by the user to be included on the "From" line of the email notification messages sent by the agent. Note: There needs to be an @ sign or it will not be accepted.
SUBJECT="string" Specified by the user to be included on the "Subject" line of the email notification messages sent by the agent.
TO="string" Specified by the user to be included on the "To" line of the email notification messages sent by the agent.

Usage Guidelines

There is only one logical EMAIL_AGENT for the subsystem. While each controller has an EMAIL_AGENT, the two are ideally managed as a single, logical SNMP_AGENT in that all of their settable attribute values are shared.

Wild-card object-IDs may be used in the SHOW command.

Automatic emails will be sent as notification of a selected group of warning and error events that have occurred on the controller.

Examples

- To set email address:

```
S2A 6620-9 RAID[1]$ UI SET EMAIL IP_ADDRESS=10.255.128.38 IP_PORT=30 FROM="6620@DDN.COM" TO="6620_USER@DDN.COM"
SUBJECT="DDN S2A6620-9-2:EVENT NOTIFICATION"
EMAIL AGENT SET WITH STATUS='SUCCESS' (0X0)
```

- To show all email address attributes:

```
S2A 6620-9 RAID[1]$ UI SHOW EMAIL ALL
E-MAIL AGENT ATTRIBUTES
  IP_ADDRESS=10.255.128.38
  IP_PORT=30
  FROM=6620@DDN.COM
  TO=6620_USER@DDN.COM
  SUBJECT=DDN S2A6620-9-2:EVENT NOTIFICATION
```

UI SNMP_AGENT

All UI commands begin with the subject, UI. All UI CLI object commands have a UI subject and include a CLI object specification with no <object-id>.

COMMANDS Description
UI SHOW SNMP_AGENT [ALL_ATTRIBUTES][COUNTERS] Displays attributes, such as IP ADDRESS, for the specified SNMP_AGENTS.
UI SET SNMP_AGENT <attribute-name>=<value> [<attribute-name>=<value>…] Sets the email agent and assigns values to the listed attributes, for example, IP_ADDRESS.

ATTRIBUTES Description
COMMUNITY=”string” Specified by the user to be included on the “From” line of the email notification messages sent by the agent..
IP_ADDRESS=<ip-address> Specifies the IP Address of the SNMP trap destination to be used by the subsystem in the format aaa.bbb.ccc.ddd This is sometimes called the trap host or the network management system.

Usage Guidelines

There is one logical SNMP_AGENT for the subsystem.

While each controller has an SNMP_AGENT, the two are managed as a single, logical SNMP_AGNET in that all of their settable attribute values are shared.

Wild-card object-IDs may be used in the SHOW command.

The Simple Network Management Protocol (SNMP) monitors network attached devices for conditions that warrant administrative attention. In Version 1.1, SNMP traps have been implemented to monitor critical and warning events. A management information base (MIB) has also been created to be used to provide inquiry objexts and events to the user’s monitoring application. The provided SNMP traps expose management data on the managed system in the areas of temperature senor, fans, power supplies, pools, and physical disks as well as a variety of real-time critical and error events.

Examples

- To set snmp ip address:

```
S2A 6620-9 RAID[1]$ UI SET SNMP IP_ADDRESS=101.243.23.10 COMMUNITY="DDN 6620"
SNMP AGENT SET WITH STATUS='SUCCESS' (0X0)
```

- To show all SNMP trap agent attributes:

```
S2A 6620-9 RAID[1]$ UI SHOW SNMP ALL
SNMP TRAP AGENT ATTRIBUTES

  IP_ADDRESS=101.243.23.10
  COMMUNITY=DDN 6620

S2A 6620-9 RAID[1]$
```