



Global Storage Mgt – APAC

Automation and Reporting - Alert / Monitoring



Objective

Objective of this presentation is to document and explain

- The in-house-generated scripts and programs.
 - How to use the scripts and the outputs derived.
 - How these scripts could be used to generate reports.
 - How to do health checks of storage subsystems
 - How some of these scripts are automated and how the alerts are implemented.
- Also to reduce considerable amount of time for Storage administrators in the day to day BAU.

Scope

- This scripts are written and automated using Unix shell scripts
- Management hosts in SG & HK.
- This covers, general day-to-day Storage administration tools, diagnostics, report generation, Alert implementation etc.
- This is designed or aimed to have ease of use, to alleviate manual commands, and also to save time by automation of validations.

SCRIPT TITLE : `symm_dev_allocation.ksh`

CATEGORY : Reporting

DESCRIPTION : Generate allocation report via symaccess and symmaskdb outputs

ARGUMENTS : Symmetrix ID

TECHNOLOGY : EMC DMX/VMAX

ACTION : Save to reports folder (.out file with all device info, .xls file with total capacity for each server)

SCHEDULE : Weekly

SAMPLE OUTPUT

```
[ss84555@slixip167 31_08_2015]$
[ss84555@slixip167 31_08_2015]$ cat 000292600224.out |grep -i sgeqtm5p
05F4,RDF1+TDEV,34526,sgeqtm5p,sgeqtm5p,sgeqtm6p,sgeqtm6p,::#05E-0:092:12E-0:092:#
05F5,RDF1+TDEV,34526,sgeqtm5p,sgeqtm5p,sgeqtm6p,sgeqtm6p,::#05E-0:093:12E-0:093:#
05F6,RDF1+TDEV,34526,sgeqtm5p,sgeqtm5p,sgeqtm6p,sgeqtm6p,::#05E-0:094:12E-0:094:#
05F7,RDF1+TDEV,34526,sgeqtm5p,sgeqtm5p,sgeqtm6p,sgeqtm6p,::#05E-0:095:12E-0:095:#
0633,RDF1+TDEV,34526,sgeqtm5p,sgeqtm5p,sgeqtm6p,sgeqtm6p,::#05E-0:0C4:12E-0:0C4:#
0634,RDF1+TDEV,34526,sgeqtm5p,sgeqtm5p,sgeqtm6p,sgeqtm6p,::#05E-0:0C5:12E-0:0C5:#
[ss84555@slixip167 31_08_2015]$ cat 000292600224.out |grep -i sgeqtm3p
0494,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:04B:12E-0:04B:#
0495,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:04C:12E-0:04C:#
0496,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:04D:12E-0:04D:#
050B,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:051:12E-0:051:#
050C,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:052:12E-0:052:#
050D,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:053:12E-0:053:#
0589,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:004:12E-0:004:#
058A,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:072:12E-0:072:#
058B,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:073:12E-0:073:#
058C,RDF1+TDEV,34526,sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,::#05E-0:074:12E-0:074:#
[ss84555@slixip167 31_08_2015]$
[ss84555@slixip167 31_08_2015]$ cat 000292600224.xls |grep -i sgeqtm5p
sgeqtm5p,sgeqtm5p,sgeqtm6p,sgeqtm6p,:RDF1+TDEV:207156
[ss84555@slixip167 31_08_2015]$
[ss84555@slixip167 31_08_2015]$
[ss84555@slixip167 31_08_2015]$ cat 000292600224.xls |grep -i sgeqtm3p
sgeqtm3p_NoLog,sgeqtm3p_NoLog,sgeqtm4p_NoLog,sgeqtm4p_NoLog,:RDF1+TDEV:345260
[ss84555@slixip167 31_08_2015]$ pwd
/apstor/reports/symm_usage/31_08_2015
[ss84555@slixip167 31_08_2015]$
```

SCRIPT TITLE : vsp_dev_allocation.ksh

CATEGORY : Reporting

DESCRIPTION : Generate usage report for VSP frames via Raidcom

ARGUMENTS : VSP Frame Number

TECHNOLOGY : HDS

ACTION : Save to management server reports folder, (.out file with all device info, .xls file with total capacity for each server)

SCHEDULE : Weekly

SAMPLE OUTPUT

```
[UAT root @ hlixui170 /apstor/reports/hds_usage/31_08_2015]
# ls -lrt
total 7904
-rw-rw-r-- 1 root root    916890 Aug 31 12:37 53755.out
-rw-rw-r-- 1 root root     19967 Aug 31 12:37 53755.xls
-rw-rw-r-- 1 root root     673227 Aug 31 12:53 53762.out
-rw-rw-r-- 1 root root      15732 Aug 31 12:54 53762.xls
-rw-rw-r-- 1 root root     768100 Aug 31 13:07 53643.out
-rw-rw-r-- 1 root root      26114 Aug 31 13:08 53643.xls
-rw-rw-r-- 1 root root     596745 Aug 31 13:09 53732.out
-rw-rw-r-- 1 root root     258861 Aug 31 13:09 53732.xls
-rw-rw-r-- 1 root root     958110 Aug 31 13:13 53587.out
-rw-rw-r-- 1 root root      23710 Aug 31 13:13 53587.xls
-rw-rw-r-- 1 root root     238583 Aug 31 13:19 53584.out
-rw-rw-r-- 1 root root      7057 Aug 31 13:19 53584.xls
-rw-rw-r-- 1 root root     58735 Aug 31 13:21 53630.out
-rw-rw-r-- 1 root root      4191 Aug 31 13:21 53630.xls
-rw-rw-r-- 1 root root    1177206 Aug 31 13:35 53789.out
-rw-rw-r-- 1 root root     45640 Aug 31 13:36 53789.xls
-rw-rw-r-- 1 root root     316692 Aug 31 13:40 53796.out
-rw-rw-r-- 1 root root     10205 Aug 31 13:40 53796.xls
-rw-rw-r-- 1 root root    2909105 Aug 31 14:05 53799.out
-rw-rw-r-- 1 root root      47048 Aug 31 14:06 53799.xls

[UAT root @ hlixui170 /apstor/reports/hds_usage/31_08_2015]
# grep -i apcsgcvhsac001 *
53584.out:00:61:9e,CVS_AOU_100,1563004,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcs
cvhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C11-C-34-LUN-0:CL2-G-36-LUN-0:CL2-G-35-LUN-0:CL2-G-34-LUN-0:CL2-C-36-LUN-0:CL2-C-35-LUN-0:CL2-C-34-LUN-0:CL1-G-36-LUN-0:CL1-G-35-LUN-0:
CL1-G-34-LUN-0:CL1-C-36-LUN-0:CL1-C-35-LUN-0#
53584.out:00:61:9f,CVS_AOU_100,1563004,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcs
cvhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C11-C-34-LUN-1:CL2-G-36-LUN-1:CL2-G-35-LUN-1:CL2-G-34-LUN-1:CL2-C-36-LUN-1:CL2-C-35-LUN-1:CL2-C-34-LUN-1:CL1-G-36-LUN-1:CL1-G-35-LUN-1:
CL1-G-34-LUN-1:CL1-C-36-LUN-1:CL1-C-35-LUN-1#
53584.out:00:61:97,CVS_AOU_100,1563004,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgc
vhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C11-C-34-LUN-7:CL2-G-36-LUN-7:CL2-G-35-LUN-7:CL2-G-34-LUN-7:CL2-C-36-LUN-7:CL2-C-35-LUN-7:CL2-C-34-LUN-7:CL1-G-36-LUN-7:CL1-G-35-LUN-7:CL
1-G-34-LUN-7:CL1-C-36-LUN-7:CL1-C-35-LUN-7#
53584.out:00:62:01,CVS_AOU_100,71046,apcsgcvhsac001,apcsgcvhsac002,apcsgcvhsac003,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgc
vhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C11-C-34-LUN-8:CL2-G-36-LUN-8:CL2-G-35-LUN-8:CL2-G-34-LUN-8:CL2-C-36-LUN-8:CL2-C-35-LUN-8:CL2-C-34-LUN-8:CL1-G-36-LUN-8:CL1-G-35-LUN-8:CL
1-G-34-LUN-8:CL1-C-36-LUN-8:CL1-C-35-LUN-8#
53584.out:00:62:05,CVS_AOU_100,355228,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgc
vhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C11-C-34-LUN-9:CL2-G-36-LUN-9:CL2-G-35-LUN-9:CL2-G-34-LUN-9:CL2-C-36-LUN-9:CL2-C-35-LUN-9:CL2-C-34-LUN-9:CL1-G-36-LUN-9:CL1-G-35-LUN-9:C
L1-G-34-LUN-9:CL1-C-36-LUN-9:CL1-C-35-LUN-9#
53584.out:00:62:08,CVS_AOU_100,532842,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgc
vhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C11-C-34-LUN-12:CL2-G-36-LUN-12:CL2-G-35-LUN-12:CL2-G-34-LUN-12:CL2-C-36-LUN-12:CL2-C-35-LUN-12:CL2-C-34-LUN-12:CL1-G-36-LUN-12:CL1-G-35-
LUN-12:CL1-C-36-LUN-12:CL1-C-35-LUN-12#
53584.out:00:62:09,CVS_AOU_100,781502,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgc
vhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C11-C-34-LUN-13:CL2-G-36-LUN-13:CL2-G-35-LUN-13:CL2-G-34-LUN-13:CL2-C-36-LUN-13:CL2-C-35-LUN-13:CL2-C-34-LUN-13:CL1-G-36-LUN-13:CL1-G-35-
LUN-13:CL1-G-34-LUN-13:CL1-C-36-LUN-13:CL1-C-35-LUN-13#
53584.out:00:62:0c,CVS_AOU_100,532842,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgc
vhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C11-C-34-LUN-14:CL2-G-36-LUN-14:CL2-G-35-LUN-14:CL2-G-34-LUN-14:CL2-C-36-LUN-14:CL2-C-35-LUN-14:CL2-C-34-LUN-14:CL1-G-36-LUN-14:CL1-G-35-
LUN-14:CL1-G-34-LUN-14:CL1-C-36-LUN-14:CL1-C-35-LUN-14#
53584.xls:apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcs
gcvhsac002,CVS_AOU_100:S470514
53643.out:00:62:75,CVS_AOU_100,1598527,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcs
cvhsac001,apcsgcvhsac003,apcsgcvhsac002,:#C15-A-31-LUN-8:CL6-E-34-LUN-8:CL6-E-33-LUN-8:CL6-E-32-LUN-8:CL6-A-33-LUN-8:CL6-A-32-LUN-8:CL6-A-31-LUN-8:CL5-E-34-LUN-8:CL5-E-33-LUN-8:
CL5-E-32-LUN-8:CL5-A-33-LUN-8:CL5-A-32-LUN-8#
53643.xls:apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcsgcvhsac001,apcsgcvhsac003,apcsgcvhsac002,apcs
gcvhsac002,CVS_AOU_100:1598527

[UAT root @ hlixui170 /apstor/reports/hds_usage/31_08_2015]
```

SCRIPT TITLE : cx_dev_allocation.ksh

CATEGORY : Reporting

DESCRIPTION : Generates allocation details for all CX via navisecli output

ARGUMENTS : CX/VNX IP

TECHNOLOGY : EMC CX/VNX

ACTION : Save to reports folder (.out file with all device info, .xls file with total capacity for each server)

SCHEDULE : Weekly

SAMPLE OUTPUT

```
=====
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:53 FCNCP102500122.out
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:53 FCNCP102500122.xls
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:53 FCNCP102500033.out
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:53 FCNCP102500033.xls
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:54 CK200085100183.out
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:54 CK200085100183.xls
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:54 CK200085000975.out
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:54 CK200085000975.xls
-rw-rw-r-- 1 pr72496 storageonly 179 Aug 31 15:54 FCNMM105000280.out
-rw-rw-r-- 1 pr72496 storageonly 68 Aug 31 15:54 FCNMM105000280.xls
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:54 SL7F11050000005.out
-rw-rw-r-- 1 pr72496 storageonly 41 Aug 31 15:54 SL7F11050000005.xls
-rw-rw-r-- 1 pr72496 storageonly 6346 Aug 31 15:55 CKM00143801112.out
-rw-rw-r-- 1 pr72496 storageonly 445 Aug 31 15:55 CKM00143801112.xls
bash-3.2$ cat SL7F1110100001.out
5(3),:EXSGPF32:71680:exsgpf32,exsgpf32,exsgpf32,exsgpf32,
3(3),:EXSGPF30:71680:exsgpf30,exsgpf30,exsgpf30,exsgpf30,
9(2),:EXSGPF32:424960:exsgpf32,exsgpf32,exsgpf32,exsgpf32,
7(2),:EXSGPF31:424960:exsgpf31,exsgpf31,exsgpf31,exsgpf31,
6(1),:EXSGPF31:384000:exsgpf31,exsgpf31,exsgpf31,exsgpf31,
4(3),:EXSGPF31:71680:exsgpf31,exsgpf31,exsgpf31,exsgpf31,
2(2),:EXSGPF30:424960:exsgpf30,exsgpf30,exsgpf30,exsgpf30,
8(1),:EXSGPF32:384000:exsgpf32,exsgpf32,exsgpf32,exsgpf32,
1(1),:EXSGPF30:384000:exsgpf30,exsgpf30,exsgpf30,exsgpf30,
bash-3.2$ cat SL7F1110100001.xls
exsgpf30,exsgpf30,exsgpf30,exsgpf30,:EXSGPF30,:880640
exsgpf31,exsgpf31,exsgpf31,exsgpf31,:EXSGPF31,:880640
exsgpf32,exsgpf32,exsgpf32,exsgpf32,:EXSGPF32,:880640
bash-3.2$
```

SCRIPT TITLE : emc_r1r2r3bcv.ksh

CATEGORY : Reporting

DESCRIPTION : Generate R1, R2, BCV mapping for all Symmetrix devices

ARGUMENTS : Symmetrix ID

TECHNOLOGY : EMC DMX/VMAX

ACTION : Save to reports folder

SCHEDULE : Weekly

SAMPLE OUTPUT

```
=====
000292600224_dmx.r1r2bcv:05F4:sgeqtm5p,sgeqtm6p,sgeqtm6p:000292600224:RDF1:34526:05Ea(p)-00000092-12Ea(p)-
00000092::Enabled::NONE::05F4:000292600269:Asynchronous:15:0BB4:05Ea(p)-00000092-12Ea(p)-00000092:Synchronized
000292600224_dmx.r1r2bcv:05F5:sgeqtm5p,sgeqtm6p,sgeqtm6p:000292600224:RDF1:34526:05Ea(p)-00000093-12Ea(p)-
00000093::Enabled::NONE::05F5:000292600269:Asynchronous:15:0BB5:05Ea(p)-00000093-12Ea(p)-00000093:Synchronized
000292600224_dmx.r1r2bcv:05F6:sgeqtm5p,sgeqtm6p,sgeqtm6p:000292600224:RDF1:34526:05Ea(p)-00000094-12Ea(p)-
00000094::Enabled::NONE::05F6:000292600269:Asynchronous:15:0BB6:05Ea(p)-00000094-12Ea(p)-00000094:Synchronized
000292600224_dmx.r1r2bcv:05F7:sgeqtm5p,sgeqtm6p,sgeqtm6p:000292600224:RDF1:34526:05Ea(p)-00000095-12Ea(p)-
00000095::Enabled::NONE::05F7:000292600269:Asynchronous:15:0BB7:05Ea(p)-00000095-12Ea(p)-00000095:Synchronized
```

SCRIPT TITLE : vsp_r1r2bcv.ksh

CATEGORY : Reporting

DESCRIPTION : Obtain R2 and BCV device info, including HUR and BCV pair status, and COB host

ARGUMENTS : Uses the output from vsp_dev_allocation.ksh script

TECHNOLOGY : HDS

ACTION : Save to management server reports folder

SCHEDULE : Weekly

SAMPLE OUTPUT

```
=====
-rw-rw-r-- 1 rd02079 storageonly 1003695 May 13 21:27 53762.53587.13_05_2015.out
-rw-rw-r-- 1 rd02079 storageonly 1072139 May 14 00:14 53643.53789.13_05_2015.out
-rw-rw-r-- 1 rd02079 storageonly 935616 May 14 01:22 53643.53732.13_05_2015.out
-rw-rw-r-- 1 rd02079 storageonly 159822 May 14 01:34 53630.53732.13_05_2015.out
-rw-rw-r-- 1 rd02079 storageonly 271256 May 14 02:15 53584.53796.13_05_2015.out
-rw-r--r-- 1 rd02079 storageonly 3442528 May 14 22:02 VSP_R1R2BCV_14May2015
[UAT root @ hlixui170 /apstor/reports/vsp_r1r2bcv]
# cat 53584.53796.13_05_2015.out |grep -i haixc138_si
00:70:1c;CVS_HORC_AOU_110;35523;53584;saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,;CL1-A-41-LUN-261:CL2-E-42-LUN-261:CL2-E-41-LUN-261:CL2-A-42-LUN-261
:CL2-A-41-LUN-261:CL1-E-42-LUN-261:CL1-E-41-LUN-261:CL1-A-42-LUN-261;00:70:1c;53796;ASYN;PAIR;P-VOL;53796;00:a0:1c;PAIR;haixc138_si,haixc138_si,haixc138_si,haixc138_si,
00:70:1d;CVS_HORC_AOU_110;35523;53584;saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,;CL1-A-41-LUN-262:CL2-E-42-LUN-262:CL2-E-41-LUN-262:CL2-A-42-LUN-262
:CL2-A-41-LUN-262:CL1-E-42-LUN-262:CL1-E-41-LUN-262:CL1-A-42-LUN-262;00:70:1d;53796;ASYN;PAIR;P-VOL;53796;00:a0:1d;PAIR;haixc138_si,haixc138_si,haixc138_si,haixc138_si,
00:70:1e;CVS_HORC_AOU_110;35523;53584;saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,;CL1-A-41-LUN-263:CL2-E-42-LUN-263:CL2-E-41-LUN-263:CL2-A-42-LUN-263
:CL2-A-41-LUN-263:CL1-E-42-LUN-263:CL1-E-41-LUN-263:CL1-A-42-LUN-263;00:70:1e;53796;ASYN;PAIR;P-VOL;53796;00:a0:1e;PAIR;haixc138_si,haixc138_si,haixc138_si,haixc138_si,
00:70:1f;CVS_HORC_AOU_110;35523;53584;saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,;CL1-A-41-LUN-264:CL2-E-42-LUN-264:CL2-E-41-LUN-264:CL2-A-42-LUN-264
:CL2-A-41-LUN-264:CL1-E-42-LUN-264:CL1-E-41-LUN-264:CL1-A-42-LUN-264;00:70:1f;53796;ASYN;PAIR;P-VOL;53796;00:a0:1f;PAIR;haixc138_si,haixc138_si,haixc138_si,haixc138_si,
00:70:20;CVS_HORC_AOU_110;35523;53584;saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,;CL1-A-41-LUN-265:CL2-E-42-LUN-265:CL2-E-41-LUN-265:CL2-A-42-LUN-265
:CL2-A-41-LUN-265:CL1-E-42-LUN-265:CL1-E-41-LUN-265:CL1-A-42-LUN-265;00:70:20;53796;ASYN;PAIR;P-VOL;53796;00:a0:20;PAIR;haixc138_si,haixc138_si,haixc138_si,haixc138_si,
00:70:21;CVS_HORC_AOU_110;35523;53584;saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,saixp138,saixp142,;CL1-A-41-LUN-266:CL2-E-42-LUN-266:CL2-E-41-LUN-266:CL2-A-42-LUN-266
:CL2-A-41-LUN-266:CL1-E-42-LUN-266:CL1-E-41-LUN-266:CL1-A-42-LUN-266;00:70:21;53796;ASYN;PAIR;P-VOL;53796;00:a0:21;PAIR;haixc138_si,haixc138_si,haixc138_si,haixc138_si,
```

SCRIPT TITLE : symm_fa_usage.ksh

CATEGORY : Reporting

DESCRIPTION : Generate FA Capacity usage information

ARGUMENTS : Symmetrix ID

TECHNOLOGY : EMC DMX/VMAX

ACTION : Save to management server reports folder.

SCHEDULE : N/A

SAMPLE OUTPUT

SYMMETRIX	FA	PORT	PLATFORM	NO_Of_Devices	Total_Size_MB	ActiveHosts	Usage(%)
000292603979	6E	0	LINUX	16	48	0	0.00
000292603979	7E	0	AIX	293	10677240	14	33.00
000292603979	8E	0	AIX	293	10677240	14	33.00
000292603979	9E	0	AIX	293	10677240	14	33.00
000292603979	10E	0	AIX	293	10677240	14	33.00
000292603979	11E	0	LINUX	20	60	0	0.00
000292603979	5F	0	AIX	135	4592025	2	14.19
000292603979	6F	0	AIX	599	21587664	4	66.73
000292603979	11F	0	AIX	599	21587664	4	66.73
000292603979	12F	0	AIX	135	4592025	2	14.19
000292603979	5G	0	LINUX	15	45	5	0.00
000292603979	6G	0	LINUX	7	233064	0	0.72
000292603979	7G	0	AIX	599	21587664	6	66.73
000292603979	8G	0	AIX	133	4436657	2	13.71
000292603979	9G	0	AIX	133	4436657	2	13.71
000292603979	10G	0	AIX	599	21587664	6	66.73
000292603979	11G	0	AIX	7	233064	0	0.72
000292603979	12G	0	LINUX	15	45	5	0.00

SCRIPT TITLE : cisco_mds_allcation.ksh

CATEGORY : Reporting

DESCRIPTION : Generate switch port details via Flogi database and ZoneSet information output

ARGUMENTS : Switch IP

TECHNOLOGY : Cisco MDS

ACTION : Save to reports folder (flogi.out file, and zoneset.out file)

SCHEDULE : Daily

SAMPLE OUTPUT

flogi.out & Zoneset.out

```
=====
-rw-r--r-- 1 storbg1 storageonly 44 Sep 1 19:34 HKACD06AE010_flogi.out
-rw-r--r-- 1 storbg1 storageonly 37 Sep 1 19:34 HKACD06BE010_zoneset.out
-rw-r--r-- 1 storbg1 storageonly 44 Sep 1 19:34 HKACD06BE010_flogi.out
-rw-r--r-- 1 storbg1 storageonly 37 Sep 1 19:34 HKACD06AE011_zoneset.out
-rw-r--r-- 1 storbg1 storageonly 44 Sep 1 19:34 HKACD06AE011_flogi.out
-rw-r--r-- 1 storbg1 storageonly 37 Sep 1 19:34 HKACD06BE011_zoneset.out
-rw-r--r-- 1 storbg1 storageonly 44 Sep 1 19:34 HKACD06BE011_flogi.out
-rw-r--r-- 1 storbg1 storageonly 37 Sep 1 19:34 HKACD06AE012_zoneset.out
-rw-r--r-- 1 storbg1 storageonly 1209 Sep 1 19:34 HKACD06AE012_flogi.out
-rw-r--r-- 1 storbg1 storageonly 37 Sep 1 19:34 HKACD06BE012_zoneset.out
-rw-r--r-- 1 storbg1 storageonly 1209 Sep 1 19:34 HKACD06BE012_flogi.out
-rw-r--r-- 1 storbg1 storageonly 410 Sep 1 19:34 SGCCTL1AT001_zoneset.out
-rw-r--r-- 1 storbg1 storageonly 522 Sep 1 19:34 SGCCTL1AT001_flogi.out
-rw-r--r-- 1 storbg1 storageonly 225 Sep 1 19:34 SGCCTL1BT001_zoneset.out
-rw-r--r-- 1 storbg1 storageonly 514 Sep 1 19:34 SGCCTL1BT001_flogi.out
bash-3.2$ cat SGCCTL1AT001_zoneset.out
Zoneset:Zone:Status:PWNN:Status:PWNN
TAPE_FABRIC_A:SLIXNBUPMS005_T_SGCINSL3000_ROB:ONLINE:10000000c9d2f73a:ONLINE:500104f000b22848
TAPE_FABRIC_A:SLIXNBUPMS005_T_SGCINSL3000_D0:ONLINE:10000000c9d2f73a:ONLINE:500104f000b22858
TAPE_FABRIC_A:SLIXNBUPMS005_T_SGCINSL3000_D1:ONLINE:10000000c9d2f73a:ONLINE:500104f000b2285b
TAPE_FABRIC_A:SLIXNBUPMS005_T_SGCINSL3000_D2:ONLINE:10000000c9d2f73a:ONLINE:500104f000b2285e
bash-3.2$ cat SGCCTL1AT001_flogi.out
Zoneset:Interface:VSAN:FCID:PWNN:NWNN:ALIAS
TAPE_FABRIC_A:fc1/2:4:0x350000:500104f000b22848:500104f000b22847:SGCINSL3000_ROB
NONE:fc1/3:4:0x350100:10000000c9d2d0e4:20000000c9d2d0e4:SLIXNBUPMS006_T
TAPE_FABRIC_A:fc1/14:4:0x350500:500104f000b22858:500104f000b22857:SGCINSL3000_D0
TAPE_FABRIC_A:fc1/15:4:0x350200:10000000c9d2f73a:20000000c9d2f73a:SLIXNBUPMS005_T
TAPE_FABRIC_A:fc1/26:4:0x350300:500104f000b2285b:500104f000b2285a:SGCINSL3000_D1
TAPE_FABRIC_A:fc1/38:4:0x350400:500104f000b2285e:500104f000b2285d:SGCINSL3000_D2
bash-3.2$ grep -i SGCINSL3000_D1 *flogi*
SGCCTL1AT001_flogi.out:TAPE_FABRIC_A:fc1/26:4:0x350300:500104f000b2285b:500104f000b2285a:SGCINSL3000_D1
bash-3.2$ grep -i SGCINSL3000_D1 *
SGCCTL1AT001_flogi.out:TAPE_FABRIC_A:fc1/26:4:0x350300:500104f000b2285b:500104f000b2285a:SGCINSL3000_D1
SGCCTL1AT001_zoneset.out:TAPE_FABRIC_A:SLIXNBUPMS005_T_SGCINSL3000_D1:ONLINE:10000000c9d2f73a:ONLINE:500104f000b2285b
bash-3.2$
```

SCRIPT TITLE : mds_event_mon.ksh

CATEGORY : Monitoring – Alerts

DESCRIPTION : Filter latest event from MDS syslog files on syslog server, and send email alerts for switch events (FCIP, port down, bit errors, etc.)

ARGUMENTS : N/A

TECHNOLOGY : Cisco MDS

ACTION : Send email to group DL with alert details

SCHEDULE : Hourly

SAMPLE OUTPUT

```
=====
From: *GT AP APPC MR STORAGE OPERATIONS
Sent: Friday, September 04, 2015 6:13 AM
To: *GT AP APPC MR STORAGE OPERATIONS;
Subject: CISCO_MDS_Events
```

EVENT- 1.

```
MDS           :          hkacd06bs001.apac.nsroot.net
Time          :          2015 Sep 4 05:48:03 SST
Category      :          %PORT-CHANNEL-5-PORT
Details       :          DOWN port-channel11 fcip5 is down
```

EVENT- 2.

```
MDS           :          hkacd06bs001.apac.nsroot.net
Time          :          2015 Sep 4 05:48:03 SST
Category      :          %PORT-5-IF
Details       :          DOWN TCP MAX RETRANSMIT %VSAN 1% Interface fcip5 is down(TCP conn. closed - retransmit failure) port-channel11
```

EVENT- 3.

```
MDS           :          hkacd06bs001.apac.nsroot.net
Time          :          2015 Sep 4 05:48:03 SST
Category      :          %PORT-CHANNEL-5-FOP
Details       :          CHANGED port-channel11 first operational port changed from fcip6 to fcip4
```

EVENT- 4.

```
MDS           :          hkacd06bs001.apac.nsroot.net
Time          :          2015 Sep 4 05:48:03 SST
Category      :          %PORT-CHANNEL-5-PORT
Details       :          DOWN port-channel11 fcip6 is down
```

SCRIPT TITLE : sym_event_mon.ksh

CATEGORY : Monitoring - Alerts

DESCRIPTION : Check symevent for new alerts via solutions enabler symcli

ARGUMENTS : Symmetrix ID

TECHNOLOGY : EMC DMX/VMAX

ACTION : Send email to group DL with alert details

SCHEDULE : Hourly

SAMPLE OUTPUT

```
=====
From: *GT AP APPC MR STORAGE OPERATIONS
To: *GT AP APPC MR STORAGE OPERATIONS; pr12282@imcnam.smb.com
Cc:
Subject: 000492600122_New_Event(s)

Sent: Thu 9/3/2015 12:09 PM

Symmetrix ID: 000492600122
Time Zone : SGT

Event at Thu Sep 3 10:35:00 2015:
Reporting Director : DF-7A
Source : Symmetrix
Category : Disk
Severity : Informational
Numeric Code : 0x0052
Event Code Symbol : SPARE_INVOKED
Description : A Spare was invoked against a Symmetrix Disk

Event at Thu Sep 3 10:35:00 2015:
Reporting Director : DF-7A
Source : Symmetrix
Category : Disk
Severity : Informational
Numeric Code : 0x0006
Event Code Symbol : SPARE_INVOKED
Description : A Spare was invoked against a Symmetrix Disk

Event at Thu Sep 3 10:35:00 2015:
Reporting Director : DF-7A
Source : Symmetrix
Category : RDF
Severity : Informational
Numeric Code : 0x000c
Event Code Symbol : SPARE_INVOKED_REMOTE
Description : A Spare was invoked against the Disk of the R2 mirror in Symmetrix remotely-attached via RDF links
```

SCRIPT TITLE : ksh check_links.ksh

CATEGORY : Monitoring - Alerts

DESCRIPTION : Check the replication Links for all Frames

ARGUMENTS : Symmetrix ID

TECHNOLOGY : EMC DMX/VMAX

ACTION : Send email to group DL with alert details

SCHEDULE : Daily

SAMPLE OUTPUT

```
=====
[ss84555@slixipl67 scripts]$ ksh check_links.ksh
Checking EMC frame 000290105366 for Dynamic Group 15 status => Empty [OK]
Checking EMC frame 000290105366 for Dynamic hotspare status => no hotspare invoked [OK]
Checking EMC frame 000290301222 for Dynamic Group 1 status => Synchronized [OK]
Checking EMC frame 000290301222 for Dynamic Group 10 status => Synchronized [OK]
Checking EMC frame 000290301222 for Dynamic Group 121 status => Consistent [OK]
Checking EMC frame 000290301222 for Dynamic Group 221 status => Consistent [OK]
Checking EMC frame 000290301222 for Dynamic Group 30 status => Empty [OK]
Checking EMC frame 000290301222 for Dynamic hotspare status => no hotspare invoked [OK]
Checking EMC frame 000292600224 for Dynamic Group 15 status => Consistent [OK]
Checking EMC frame 000292600224 for Dynamic Group 236 status => Empty [OK]
Checking EMC frame 000292600224 for Dynamic Group 30 status => Empty [OK]
Checking EMC frame 000292600224 for Dynamic Group 70 status => Consistent [OK]
Checking EMC frame 000292600224 for Dynamic hotspare status => no hotspare invoked [OK]
Checking EMC frame 000292602662 for Dynamic Group 15 status => Consistent [OK]
```

SCRIPT TITLE : sym_env_data_check.ksh

CATEGORY : Monitoring - Alerts

DESCRIPTION : Check symcfg env_data output for any alerts

ARGUMENTS : Symmetrix ID

TECHNOLOGY : EMC DMX/VMAX

ACTION : Send email to group DL with alert details

SCHEDULE : Daily

SAMPLE OUTPUT

=====

From: *GT AP APPC MR STORAGE OPERATIONS

Sent: Friday, August 21, 2015 5:01 PM

To: *GT AP APPC MR STORAGE OPERATIONS;

Subject: 000292602662_Symm_env_Failure_alert

DMX:DATE-TIME:BAY:ENCLOSURE:CRU:STATUS

000292602662:08/21/2015-17:01:15:SB-1::SPS-5A:Failed

SCRIPT TITLE : rdfg_mon.ksh

CATEGORY : Monitoring

DESCRIPTION : Check all frames, and all RDFG for Suspended or SyncInProg status

ARGUMENTS : N/A

TECHNOLOGY : EMC DMX/VMAX

ACTION : Send email to group DL with alert details

SCHEDULE : Hourly

SAMPLE OUTPUT

=====

From: root [mailto:root@slxip167.apac.nsroot.net]

Sent: Sunday, August 30, 2015 12:15 PM

To: *GT AP APPC MR STORAGE OPERATIONS

Subject: RDF_SUSPENDED

FRAME 000295700613 Please check RDFG: R1:30

SCRIPT TITLE : dmx_pool_mon_wrapper_wl.ksh

CATEGORY : Reporting

DESCRIPTION : Obtain thin pool information for all frames, and consolidate into single report.

ARGUMENTS : N/A

TECHNOLOGY : EMC DMX/VMAX

ACTION : Send email to group DL with report details

SCHEDULE : Daily

SAMPLE OUTPUT

From: root <root@slxip167.apac.nsroot.net>
To: *GT AP APPC MR STORAGE OPERATIONS
Cc:
Subject: VMAX_Pool_usage_consolidated_slxip167

Sent: Wed 9/2/2015 12:49 AM

SYMMETRIX THIN POOLS											
Symmetrix ID	Pool Name	Flags	Dev PTECSL Config	Total GBs	Usable GBs	Free GBs	Used GBs	Full (%)	Subs (%)	Comp (%)	Shared GBs
000292600224	146R6_T1_ID0	TFDEI	RAID-6(14+2)	16833.4	16833.4	8732.9	8100.6	48	196	0	0.0
000292602662	450R6_T1_ID0	TFDEI	RAID-6(14+2)	66371.6	66371.6	21556.1	44815.7	67	206	0	0.0
000292603607	3607_PRD_STD	TFDEI	RAID-6(6+2)	54828.7	54828.7	9556.2	45272.6	82	216	0	0.0
000292603613	3613_PRD_STD	TFDEI	RAID-6(6+2)	74547.8	74547.8	11118.8	63429.2	85	174	0	0.0
000292603628	3628_PRD_STD	TFDEI	RAID-6(6+2)	95228.8	95228.8	30664.5	64564.6	67	202	0	0.0
000292603943	3943_PRD_R1	TFDEI	RAID-6(14+2)	138033.8	138033.8	39288.2	98745.9	71	116	0	0.0
000292603943	3943_PRD_STD	TFDEI	RAID-6(14+2)	55309.7	55309.7	9916.4	45393.4	82	195	0	0.0
000292603979	3979_PRD_R1	TFDEI	RAID-6(14+2)	49297.8	49297.8	8564.8	40733.1	82	87	0	0.0
000292603979	3979_PRD_STD	TFDEI	RAID-6(14+2)	5771.5	5771.5	2947.9	2823.6	48	96	0	0.0
000292603979	3979_PRD_BCV	TFDEI	RAID-6(14+2)	33185.8	33185.8	4579.2	28606.7	86	95	0	0.0
000295700499	0499_PRD_R1	TFDEI	RAID-6(6+2)	150925.8	150925.8	85717.1	65208.5	43	160	0	0.0
000295700507	0507_PRD_R1	TFDEI	RAID-6(6+2)	146691.3	146691.3	45840.0	100851.2	68	132	0	0.0
000295700597	0597_PRD_R1	TFDEI	RAID-6(6+2)	106675.3	106675.3	83086.5	23588.7	22	54	0	0.0
000295700608	0608_300GB	TFDEI	RAID-6(6+2)	122479.1	122479.1	24524.0	97954.9	79	140	0	0.0
000295700613	0613_PRD_R1	TFDEI	RAID-6(6+2)	122479.1	122479.1	28768.2	93710.7	76	125	0	0.0
000295700832	EFD3R5	TEFDEI	RAID-5(3+1)	8805.0	8805.0	426.0	8379.0	95	0	0	0.0
000295700832	SAS10K2WVM	TFDEI	2-Way Mir	83196.1	83196.1	50485.7	32709.3	39	172	0	0.0
000295700832	SATA72K6R6	TSFDEI	RAID-6(6+2)	129622.5	129622.5	124410.0	5211.3	4	0	0	0.0
000295700873	EFD3R5	TEFDEI	RAID-5(3+1)	8805.0	8805.0	5413.0	3392.0	38	0	0	0.0
000295700873	SAS10K2WVM	TFDEI	2-Way Mir	83196.1	83196.1	71959.0	11236.0	13	220	0	0.0
000295700873	SATA72K6R6	TSFDEI	RAID-6(6+2)	129622.5	129622.5	128848.3	773.1	0	0	0	0.0
000492600122	0122_PRD_STD	TFDEI	RAID-6(14+2)	44247.8	44247.8	16575.6	27672.3	62	199	0	0.0
000492600122	0122_PRD_R1	TFDEI	RAID-6(14+2)	49778.7	49778.7	12365.6	37413.3	75	158	0	0.0
000492600146	450R6_T1_ID0	TFDEI	RAID-6(14+2)	54828.7	54828.7	11800.3	43028.6	78	160	0	0.0
000492600393	0393_PRD_STD	TFDEI	RAID-6(6+2)	95228.8	95228.8	19698.5	75530.6	79	179	0	0.0
000495700035	0035_PRD_R1	TFDEI	RAID-6(6+2)	146691.3	146691.3	23182.1	123508.8	84	159	0	0.0
000292600269	COB_T1_ID0	TFDEI	RAID-6(14+2)	16833.4	16833.4	4319.7	12513.7	74	196	0	0.0
000292600269	BCV_T1_ID0	TFDEI	RAID-6(14+2)	16833.4	16833.4	4319.7	12513.7	74	196	0	0.0
000292601529	1529_300R6T1	TFDEI	RAID-6(14+2)	62044.9	62044.9	10770.7	51274.0	82	123	0	0.0
000292601529	1529_400R6T0	TEFDEI	RAID-6(14+2)	5055.5	5055.5	2776.8	2278.7	45	49	0	0.0
000292601599	1599_300R6T1	TFDEI	RAID-6(14+2)	62274.7	62274.7	18928.6	43345.9	69	95	0	0.0
000292601601	1601_300R6T1	TFDEI	RAID-6(14+2)	25277.4	25277.4	5045.4	20232.1	80	109	0	0.0
000292601601	1601_400R6T0	TEFDEI	RAID-6(14+2)	5055.5	5055.5	4815.8	239.7	4	14	0	0.0

SCRIPT TITLE : `symm_space_usage.ksh`
CATEGORY : Reporting
DESCRIPTION : Generate Symmetrix usage reports via symcli for capacity reporting
ARGUMENTS : N/A
TECHNOLOGY : EMC DMX/VMAX
ACTION : Send email to group DL, and save to reports folder
SCHEDULE : Weekly

SAMPLE OUTPUT

```
=====
From: root [mailto:root@slxip167.apac.nsroot.net]
Sent: Monday, August 31, 2015 7:12 AM
To: Viswanath, Vivek [CCC-OT NE]
Subject: Symm_Allocation_status

Symmetrix,ThinPools,Raw_Capacity,Usable_THICK,RDF1_THICK_ALLOCATED,RDF2_THICK_ALLOCATED,BCV_THICK_ALLOCATED,RAID5/6_THICK_ALLOCATED,RAID1_THICK_ALLOCATED,UNPROTECTED_THICK_ALLOCATED,RDF1_THICK_FREE,BCV_THICK_FREE,RAID5/6_THICK_FREE,RAID1_THICK_FREE,UNPROTECTED_THICK_FREE,ThinUsable,ThinConsumed,ThinSubscribed,RDF1_THIN_ALLOCATED,RDF2_THIN_ALLOCATED,BCV_THIN_ALLOCATED,TDEV_ALLOCATED

290105366,No,45924592,33948492,0,0,0,33611266,291,0,0,0,336648,285,2,0,0,0,0,0,0
290301222,No,11201120,8096824,2330520,1553680,1553680,0,75,0,0,86320,2572336,213,0,0,0,0,0,0
292600224,Yes,36501216,3557021,2787997,0,0,725050,375,0,0,0,43158,441,0,17237428,8294339,18644041,15191441,0,0,3452600
292602662,Yes,96080424,12361240,10858522,0,0,207531,0,146738,0,319384,829065,0,67964520,45890804,109067634,105028092,0,0,4039542
292603607,Yes,84858560,816,0,0,0,618,0,0,0,198,0,56144612,46356012,108066786,0,0,0,108066786
292603613,Yes,113889120,816,0,0,0,609,0,0,0,207,0,76336952,64930484,129084124,0,0,0,129084124
292603628,Yes,147385920,483,0,0,0,483,0,0,0,0,97514280,66092144,197135037,1519144,0,0,195615893
292603943,Yes,234477600,816,0,0,0,387,0,0,0,429,0,197983760,147578352,275875276,155653647,0,1622727,118598902
292603979,Yes,107189760,816,0,0,0,639,0,0,0,177,0,90373176,73888552,43943075,32117904,0,11592119,233052
295700507,Yes,209913656,816,0,0,0,585,0,0,0,231,0,150211872,102986440,185077544,176034818,0,0,9042726
492600122,Yes,133987200,4817472,0,0,0,501,0,0,0,267,0,112781776,56035328,37659331,0,4902692,33585263,4281224
492600146,Yes,69282984,1036596,0,0,0,276592,0,0,0,760004,0,56144612,44033924,75204154,72885536,0,0,2318618
492600393,Yes,147385920,483,0,0,0,483,0,0,0,0,97514280,77266688,173537713,828624,0,0,172709089
495700035,Yes,209913656,816,0,0,0,585,0,0,0,231,0,150211872,126420000,219032138,209633829,0,0,9398309
295700613,Yes,178649600,816,0,0,0,465,0,0,0,351,0,125418552,95918936,141891239,138944019,0,0,2947220
290300751,No,8960896,6456820,1553680,2330520,0,69052,129,0,0,0,2503280,159,0,0,0,0,0,0
292600268,No,14747808,528,0,0,0,99,0,0,0,429,0,0,0,0,0,0,0
290105338,No,81488148,67896626,0,0,32351151,0,297,0,0,1596920,33948075,183,0,0,0,0,0,0
290301196,No,15681568,12913360,0,3884200,3884200,0,99,0,0,2572336,2572336,189,0,0,0,0,0,0
292600269,Yes,73142544,7113184,0,2787997,3556205,0,339,0,0,0,768208,429,6,34474856,25627116,25065877,0,0,25065877,0
292604047,Yes,133987200,768,0,0,0,501,0,0,0,267,0,112781776,56035328,37659331,0,4902692,33585263,4281224
292604132,Yes,401961600,768,0,0,0,363,0,0,0,405,0,339330432,236072544,256338308,0,716417,154039551,101582340
295700517,Yes,419827312,768,0,0,0,465,0,0,0,303,0,300423744,193196960,165211081,0,0,165187365,23716
295700527,Yes,419827312,768,0,0,0,465,0,0,0,303,0,300423744,249459392,191115412,0,4108594,187006818,0
492600105,Yes,189871464,23685848,0,11005260,11005260,0,339,0,0,319384,319384,1036209,12,135929040,91413464,109309316,0,0,109309316,0
492600106,Yes,241176960,9634116,0,0,0,339,0,0,4816656,4816656,429,36,112535520,80861040,118042758,0,0,87274579,30768179
492600150,Yes,136276584,1036552,0,0,0,339,0,0,0,1036209,4,112289224,76548800,45474045,0,690520,44780291,3234
295700608,Yes,178649600,816,0,0,0,408,0,0,0,408,0,125418552,100036088,172725767,0,0,172725767
295700499,Yes,218845760,816,0,0,0,369,0,0,0,447,0,154548016,66667148,123406717,122683245,0,0,723472
295700478,Yes,437691520,768,0,0,0,291,0,0,0,477,0,309096032,123243008,91021101,0,5513230,84734591,773280
295700832,Yes,361792640,816,0,0,0,387,0,0,0,429,0,226942592,47364756,134714829,0,3072009,0,131642820
295700873,Yes,361792640,816,0,0,0,411,0,0,0,405,0,226942592,15740388,161064252,0,7975506,0,153088746
295700597,Yes,156318400,816,0,0,0,423,0,0,0,393,0,109235512,24153832,40479242,40371454,0,0,107788
295700518,Yes,357299200,768,0,0,0,339,0,0,0,429,0,250837104,38240296,32576049,0,12255576,20216889,103584
```

SCRIPT TITLE : clariion_space_usage.ksh

CATEGORY : Reporting

DESCRIPTION : Generate summarized report of all Clariions for capacity reporting

ARGUMENTS : CX/VNX IP

TECHNOLOGY : EMC CX/VNX

ACTION : Save to reports folder

SCHEDULE : Weekly

SAMPLE OUTPUT

From: *GT AP APPC MR STORAGE OPERATIONS

Sent: Monday, August 31, 2015 6:13 PM

To: *GT AP APPC MR STORAGE OPERATIONS

Subject: CX_Allocation_status

```
CLARiiON,Location,RAW_Capacity,Usable_Capacity(RAID-5),R5_Allocated,R5_Free,Hotspare,Env,Loaner,TechRefresh,ThinRaw,ThinUsable,ThinConsumed,ThinSubscribed
CKM00121400520,AU,12093180,6999550,5127944,1871606,268679,PROD,No,No,0,0,0,0
CKM00122000372,AU,12093180,6999550,6198702,800848,537359,PROD,No,No,0,0,0,0
FCNCX094800174,AU,41228300,15403903,12342952,3060951,2661209,PROD,No,No,0,0,0,0
CK200083601025,TW,3158045,2029546,1661592,367954,270583,PROD,No,No,0,0,0,0
CKM00105200038,ID,3158045,1623503,952792,670711,270583,PROD,No,No,0,0,0,0
CKM00141101132,ID,75039760,811740,0,811740,0,PROD,No,No,70360536,35130240,18629082,30541968
CK200072400943,CT,288038084,811740,0,811740,0,PROD,No,No,0,0,0,0
CK200081900323,CT,15880077,11724993,11373017,351976,673747,PROD,No,No,0,0,0,0
CK200081900324,CT,25324280,19270959,16436429,2834530,673747,PROD,No,No,0,0,0,0
CK200071500503,CT,16015896,11724993,11242953,482040,673747,PROD,No,No,0,0,0,0
FCNCX101000064,HK,46309319,9741423,5110800,4630623,1623604,UAT,No,No,3.0233e+07,2.41064e+07,5.23296e+06,8.89808e+06
CKM00101800043,CT,41361561,30054860,29111831,943029,3247208,PROD,No,No,0,0,0,0
CKM00102100004,HK,80389635,64150849,41860091,22290758,3247208,PROD,No,No,0,0,0,0
FCNCX103800158,HK,50706321,8659222,1,8659221,1623604,UAT,No,No,3.95778e+07,2.9640465,1.90762e+07,2.70875e+07
CKM00093200604,IND,63492572,36988484,36780823,207661,1059461,PROD,No,No,0,0,0,0
SL7E1093500033,IND,10019549,4453921,4367727,86194,404778,PROD,No,No,0,0,0,0
CKM00093900037,CN,32499170,18494242,18390412,103830,1059461,PROD,No,No,0,0,0,0
SL7E1093500057,CN,9185393,4042329,3631709,410620,404778,PROD,No,No,0,0,0,0
CKM00093400132,TAI,16787626,9247121,9195206,51915,1059461,PROD,No,No,0,0,0,0
SL7E1093500042,TAI,9048505,4042329,3631709,410620,404778,PROD,No,No,0,0,0,0
FCNCX100400203,AUS,39328282,22193090,15299128,6893962,1059461,PROD,No,No,0,0,0,0
SL7EA100200038,AUS,5072339,2021164,1815854,205310,404778,COB,No,No,0,0,0,0
CKM00104200269,KL,3158045,1623503,883224,740279,270583,PROD,No,No,0,0,0,0
```

SCRIPT TITLE : pinger.ksh
CATEGORY : Monitoring
DESCRIPTION : Polls all storage equipment management IPs every hour to check status.
ARGUMENTS : IP address
TECHNOLOGY : All
ACTION : Send email to group DL if ping fails
SCHEDULE : Hourly

SAMPLE OUTPUT

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```

From: root [mailto:root@hlixiu170.apac.nsroot.net]
Sent: Tuesday, August 25, 2015 1:14 PM
To: *GT AP APPC MR STORAGE OPERATIONS
Subject: Ping_Failed_172.19.232.81_Centera-CK200064600688_IAD27-E-17,22,28,40,43

172.19.232.81	Centera-CK200064600688	IAD27-E-17,22,28,40,43
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SCRIPT TITLE : clariion_DISK_check_state.ksh

CATEGORY : Monitoring - Alerts

DESCRIPTION : Get disk info from naviseccli and report disk failures

ARGUMENTS : CX/VNX IP

TECHNOLOGY : EMC CX/VNX

ACTION : Send email to group DL with alert details

SCHEDULE : Hourly

SAMPLE OUTPUT

From: *GT AP APPC MR STORAGE OPERATIONS

Sent: Thursday, August 27, 2015 7:14 PM

To: *GT AP APPC MR STORAGE OPERATIONS; pp95975@imcnam.smb.com

Subject: CX_163.37.143.220_CK200081900324_CT_PROD_Failure_DISK

Bus 0 Enclosure 1 Disk 7

Vendor Id: SEAGATE

Product Id: STT14685 CLAR146

Product Revision: 6316

Lun: 375 40 76 112 148 184 220 311

Type: 375: RAID5 40: RAID5 76: RAID5 112: RAID5 148: RAID5 184: RAID5 220: RAID5 311: RAID5

State: Equalizing

Hot Spare: 375: NO 40: NO 76: NO 112: NO 148: NO 184: NO 220: NO 311: NO

Prct Rebuilt: 375: 47 40: 0 76: 0 112: 0 148: 0 184: 0 220: 0 311: 0

Prct Bound: 375: 100 40: 100 76: 100 112: 100 148: 100 184: 100 220: 100 311: 100

Serial Number: 3LN4GP01

Sectors: 188743680 (92160)

Capacity: 136888

Private: 375: 69704 40: 75567176 76: 113315912 112: 226562120 148: 339808328 184: 434180168 220: 453054536 311: 811667528

Bind Signature: 0xbd9e, 1, 7

SCRIPT TITLE : clariion_CRU_check_state.ksh

CATEGORY : Monitoring - Alerts

DESCRIPTION : Get CRU info from naviseccli and report CRU failures

ARGUMENTS : CX/VNX IP

TECHNOLOGY : EMC CX/VNX

ACTION : Send email to group DL with alert details

SCHEDULE : Hourly

SAMPLE OUTPUT

From: Super-User [mailto:root@ssunsmm01.apac.nsroot.net]

Sent: Tuesday, August 25, 2015 11:17 AM

To: *GT AP APPC MR STORAGE OPERATIONS

Subject: Clariion_CK200081900324_CT_PROD_CRU_Errors_25_08_2015

```
08/25/2015 10:34:33 Enclosure 1 Disk 10 (602) CRU Enabled [0x00] 2000d8 d40019
08/25/2015 10:34:33 Enclosure 1 Disk 10 (6a9) CRU unit Proactive Copy Started. [0x00] ffff00a6 f4017a
08/25/2015 10:35:55 Enclosure 1 Disk 10 (602) CRU Enabled [0x00] 2000a6 f40019
```

SCRIPT TITLE : cx_media_err_monitor.ksh

CATEGORY : Monitoring - Alerts

DESCRIPTION : Grep media errors from navisecli logs output

ARGUMENTS : CX/VNX IP

TECHNOLOGY : EMC CX/VNX

ACTION : Send email to group DL with alert details

SCHEDULE : Hourly

SAMPLE OUTPUT

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=====
From: Super-User [mailto:root@ssunsmm01.apac.nsroot.net]
Sent: Sunday, August 30, 2015 10:08 PM
To: *GT AP APPC MR STORAGE OPERATIONS; pp95975@imcnam.ssmb.com
Subject: Clariion_CKM00102100004_HK_PROD_Media_Errors_30_08_2015
```

08/30/2015 12:25:35 Bus 0 Enclosure 1 Disk 1(820) Soft Media Error	[0x00] 5048955 11000005
08/30/2015 12:25:37 Bus 0 Enclosure 1 Disk 1(820) Soft Media Error	[0x00] 5048955 11000005
08/30/2015 12:25:40 Bus 0 Enclosure 1 Disk 1(820) Soft Media Error	[0x00] 5048955 11000005
08/30/2015 12:25:41 Bus 0 Enclosure 1 Disk 1(820) Soft Media Error	[0x00] 5048955 11000005
08/30/2015 12:25:42 Bus 0 Enclosure 1 Disk 1(689) Sector Reconstructed	[0x00] 168edb48 13004000
08/30/2015 20:00:00 N/A (177d)The system uptime is 3696602 seconds.	

SCRIPT TITLE : cx_pool_mon_wrapper.ksh
CATEGORY : Reporting
DESCRIPTION : Generate summarized report of CX thin pools usage
ARGUMENTS : CX/VNX IP
TECHNOLOGY : EMC CX/VNX
ACTION : Save to reports folder
SCHEDULE : Weekly

SAMPLE OUTPUT

Clariion	Pool	ID	Raid	RawCap(GB)	UserCap(GB)	ConsumCap(GB)	AvailCap(GB)	PoolUsage(%)	Subscribed(GB)	Subscription(%)	Date	Time
FCNCX103800158	0	0	r_6	38650.197	28945.767	18629.137	10316.630	64.359	26452.614	91.387	09/03/15	11:57:21
FCNCX103800158	0	0	r_6	38650.197	28945.767	18629.137	10316.630	64.359	26452.614	91.387	09/03/15	11:57:21
FCNCX101000064	POOL_0	0	r_5	16104.249	12840.784	1696.104	11144.680	13.209	3079.188	23.980	09/03/15	11:57:31
FCNCX101000064	POOL_1	1	r_5	13420.207	10700.653	3414.208	7286.445	31.907	5610.342	52.430	09/03/15	11:57:31
FCN00122300102	VMFS_Pool	2	r_6	21472.332	16026.240	15872.941	153.299	99.043	15872.941	99.043	09/03/15	11:57:42
FCN00122300102	Prem_DB_Pool	4	r_10	264147.104	131818.957	130605.592	1213.365	99.080	130605.592	99.080	09/03/15	11:57:42
FCN00122300102	Prem_Log_Pool	3	r_10	22012.259	10984.412	3852.510	7131.902	35.073	3852.510	35.073	09/03/15	11:57:42
FCN00122300102	STD_Pool	0	r_10	205448.861	102287.391	100638.176	1649.215	98.388	100638.176	98.388	09/03/15	11:57:42
FCN00122300102	Snapshot_Pool	1	r_10	12883.399	6393.463	6357.393	36.070	99.436	6357.393	99.436	09/03/15	11:57:42
FCN00122300102	STD_Recov_Pool	5	r_10	7337.459	3653.121	1717.348	1935.773	47.010	1717.348	47.010	09/03/15	11:57:42
FCN00122300105	Prem_DB_Pool	4	r_10	176098.069	87879.305	87071.730	807.574	99.081	87071.730	99.081	09/03/15	11:58:03
FCN00122300105	VMFS_Pool	2	r_6	21472.332	16026.240	15049.336	976.904	93.904	15049.336	93.904	09/03/15	11:58:03
FCN00122300105	STD_Pool	0	r_10	205448.861	102287.391	100638.176	1649.215	98.388	100638.176	98.388	09/03/15	11:58:03
FCN00122300105	Snapshot_Pool	1	r_10	8588.933	4262.309	4241.268	21.041	99.506	4241.268	99.506	09/03/15	11:58:03
FCN00122300105	Prem_Log_Pool	3	r_10	14674.839	7323.275	2570.010	4753.266	35.094	2570.010	35.094	09/03/15	11:58:03
FCN00122300105	STD_Recov_Pool	5	r_5	7337.459	5497.717	1717.348	3780.369	31.237	1717.348	31.237	09/03/15	11:58:03
FCN00122200039	Snapshot_Pool	1	r_10	17177.865	8524.617	8473.518	51.100	99.401	8473.518	99.401	09/03/15	11:58:24
FCN00122200039	STD_Pool	0	r_10	168761.564	84021.785	81881.613	2140.172	97.453	81881.613	97.453	09/03/15	11:58:24
FCN00122200039	Prem_DB_Pool	2	r_10	176098.069	87879.305	87071.730	807.574	99.081	87071.730	99.081	09/03/15	11:58:24
FCN00122200039	Prem_Log_Pool	3	r_10	14674.839	7323.275	2570.010	4753.266	35.094	2570.010	35.094	09/03/15	11:58:24
FCN00122200039	VMFS_Pool	4	r_6	21472.332	16026.240	15872.941	153.299	99.043	15872.941	99.043	09/03/15	11:58:24
FCN00122300103	Prem_DB_Pool	3	r_10	176098.069	87879.305	87071.730	807.574	99.081	87071.730	99.081	09/03/15	11:58:44
FCN00122300103	Snapshot_Pool	0	r_10	25766.798	12786.926	12769.893	17.033	99.867	12769.893	99.867	09/03/15	11:58:44
FCN00122300103	STD_Pool	4	r_10	168761.564	84021.785	81881.613	2140.172	97.453	81881.613	97.453	09/03/15	11:58:44
FCN00122300103	VMFS_Pool	1	r_6	21472.332	16026.240	15049.336	976.904	93.904	15049.336	93.904	09/03/15	11:58:44
FCN00122300103	Prem_Log_Pool	2	r_10	14674.839	7323.275	2570.010	4753.266	35.094	2570.010	35.094	09/03/15	11:58:44
CKM00143801112	STD_Pool	0	r_6	8588.933	7510.140	264.015	7246.125	3.515	1426.781	18.998	09/03/15	11:59:09

SCRIPT TITLE : vsp_pool_mon.ksh

CATEGORY : Monitoring

DESCRIPTION : Retrieve thin pool info via Raidcom for all VSP frames

ARGUMENTS : N/A

TECHNOLOGY : HDS

ACTION : Send email to group DL with consolidated info for daily monitoring of pool usage

SCHEDULE : Daily

SAMPLE OUTPUT

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PID	POLS	U(%)	AV_CAP(MB)	TP_CAP(MB)	W(%)	H(%)	Num	LDEV#	LCNT	TL_CAP(MB)	Date	Time	VSP#	Subscription(%)
100	POLF	91	17761464	207775596	90	90	126	16384	9441	404742264	21_07_2014	00:43:49	53755	194.798
100	POLF	78	11332398	52765272	75	80	32	16446	903	54120160	21_07_2014	00:43:49	53762	102.568
110	POLF	72	29351532	105534744	70	80	64	16384	3041	107863175	21_07_2014	00:43:49	53762	102.206
100	POLF	87	1416450	11539122	70	80	7	16446	452	17635094	21_07_2014	00:43:49	53643	152.829
110	POLF	87	14900424	117078066	70	80	71	16384	4727	178766294	21_07_2014	00:43:49	53643	152.69
100	POLN	20	5236182	6591984	70	80	4	16414	38	1848477	21_07_2014	00:43:49	53732	28.0413
110	POLN	68	22844430	72553824	78	90	44	16388	1473	87487226	21_07_2014	00:43:49	53732	120.583
120	POLN	74	18805542	72553824	78	90	44	16640	1637	91635954	21_07_2014	00:43:49	53732	126.301
100	POLN	49	3349416	6591984	70	80	4	16392	218	7654974	21_07_2014	00:43:49	53587	116.125
110	POLF	76	22446186	95640468	70	80	58	16384	2831	99821678	21_07_2014	00:43:49	53587	104.372
120	POLF	74	25573506	98938560	70	80	60	16640	2794	98095360	21_07_2014	00:43:49	53587	99.1478
100	POLF	70	6253338	21433398	70	80	13	16392	419	22871688	21_07_2014	00:43:49	53584	106.711
110	POLF	85	3851400	26380536	70	80	16	16384	952	37658817	21_07_2014	00:43:49	53584	142.752
100	POLF	83	4885650	29678628	70	80	18	16414	162	61568538	21_07_2014	00:43:49	53630	207.451
110	POLN	59	16113720	39572904	70	80	24	16384	237	44331262	21_07_2014	00:43:49	53630	112.024
100	POLF	73	4302228	16486260	70	80	10	16384	361	15510509	21_07_2014	00:43:49	53744	94.0814
100	POLN	59	4007094	9890076	70	80	6	16446	313	16021035	21_07_2014	00:43:49	53789	161.991
110	POLF	86	13189260	95640468	70	80	58	16384	3672	140802207	21_07_2014	00:43:49	53789	147.22
120	POLF	93	6502692	95640468	70	80	58	16448	3672	140802207	21_07_2014	00:43:49	53789	147.22
100	POLN	0	3293892	3293892	70	80	2	16415	5	3191	21_07_2014	00:43:49	53796	0.0968763
110	POLF	91	2167578	26380536	70	90	16	16384	980	38653461	21_07_2014	00:43:49	53796	146.523
120	POLF	91	2164554	26380536	70	95	16	16640	980	38653461	21_07_2014	00:43:49	53796	146.523
100	POLF	95	12554934	283631712	95	95	172	16384	13011	551515487	21_07_2014	00:43:49	53799	194.448