FUJITSU Software BS2000 SHC-OSD

Version 13.0C
January 2019

Readme

1 Introduction

This Readme file contains the changes and extensions for SHC-OSD V13.0C, implemented after manual publication.

1.1 Related manual

The changes described below concern the following manual:

[1] SHC-OSD V13.0
Storage Management for BS2000
User Guide
Order number U41000-J-Z125-14-76
Issued: December 2018

1.2 Dependencies

SHC-OSD requires the following components

- StorMan V8.0.2

  StorMan V8.0.2 supports encrypted connections between StorMan server and the SMI-S Provider on ETERNUS DX/AF using https port 5989.

  The usage is transparent for SHC-OSD as it is configured directly on the StorMan Server (e.g. MU).

- SYMAPI V9.0

Please refer to the Release Notes of SHC-OSD V13.0C for a detailed description of the supported hardware and software configuration.

2 Software extensions

2.1 Extensions for Storage Cluster (SCO) Support

SHC-OSD provides extended information functions as part of Storage Cluster (SCO) support for ETERNUS DX/AF.

2.1.1 Configuration of Storage Cluster Monitoring (CR A0612414)

Chapter 3.3.2 Configuration of SHC-OSD

Parameter `STORAGE-CLUSTER-MONITORING`

SHC-OSD offers configuration settings for the existing monitoring functions of Storage Clusters on ETERNUS DX/AF with the new parameter `STORAGE-CLUSTER-MONITORING` in SHC-OSD parameter file `SYSPAR.SHC-OSD.<ver>`.

`STORAGE-CLUSTER-MONITORING=`
The parameter controls the monitoring function for Storage Clusters with the following settings:

`STORAGE-CLUSTER-MONITORING=BS2-VOLUMES`
Default value.
Only Storage Clusters containing BS2000 volumes are monitored.
Changes are logged by messages on BS2000 console.

`STORAGE-CLUSTER-MONITORING=ON`
All Storage Clusters are monitored.
Changes are logged by messages on BS2000 console.

`STORAGE-CLUSTER- MONITORING=OFF`
Storage Cluster are not monitored.
No changes are logged on BS2000 console.

2.1.2 Storage Cluster Information with `/SHOW-CLONE-SESSION-STATUS`

Chapter 13 Commands

Additional operand `INFORMATION`

Information output for volumes of a Storage Cluster with command `/SHOW-CLONE-SESSION-STATUS` have been extended. This applies especially to information related to ContinuousCopy usage of volumes. The operand `INFORMATION` is only evaluated if `CLONE-TYPE=*COPY` is selected.

INFORMATION
<u>*STD</u> | ***CONTINUOUS-COPY**

…

<u>*STD</u>
The output format is not changed.
This is the default setting.

***CONTINUOUS-COPY**
The output contains the extended ContinuousCopy information.

SYSOUT example:

```
/SHOW-CLONE-SESSION 4D80,INFORMATION=*CONTINUOUS-COPY
%  ------------------------------------------------------------------------------
%                    !           PRIMARY           !          SECONDARY
%  UNIT       VOLUME!LOG-VOL    SERIAL-NO  MODE   !LOG-VOL   SERIAL-NO   MODE
%  ------------------------------------------------------------------------------
%       CLONE VOLUME!   LOG-VOL STATE      %COPIED!   LOG-VOL STATE      %COPIED
%  ------------------------------------------------------------------------------
%                    !           ACTIVE-FOR        !           ACTIVE-FOR
%  ==============================================================================
%   4D80             !002AC      4621637022 ACTIVE !00218      4631508013 STANDBY
%        4D82        !     002AE SPLIT          99%!     0021A SPLIT          99%
%                    !             16.18:29:15     !             16.18:29:15
%        4D83        !     002AF SPLIT          99%!     0021B SPLIT          99%
%                    !             16.18:29:15     !             16.18:29:15
%  ------------------------------------------------------------------------------
```

The following new S-Variables are supported:

```
OPS(*LIST).UNIT = 4D80
OPS(*LIST).UNIT-VOL =
OPS(*LIST).PRIMARY.UNIT-LOGIC-VOL = 2AC
OPS(*LIST).PRIMARY.SERIAL-NO =     4621637022
OPS(*LIST).PRIMARY.MODE = *ACTIVE
OPS(*LIST).SECONDARY.UNIT-LOGIC-VOL = 218
OPS(*LIST).SECONDARY.SERIAL-NO =     4631508013
OPS(*LIST).SECONDARY.MODE = *STANDBY
OPS(*LIST).NUM-OF-CLONE-UNITS = 1
OPS(*LIST).CLONE-UNIT(*LIST).UNIT = 4D82
OPS(*LIST).CLONE-UNIT(*LIST).VOL =
OPS(*LIST).CLONE-UNIT(*LIST).PRIMARY.LOGIC-VOL = 2AE
OPS(*LIST).CLONE-UNIT(*LIST).PRIMARY.STA = *SPLIT
OPS(*LIST).CLONE-UNIT(*LIST).PRIMARY.PERCENT-COPIED = 99
OPS(*LIST).CLONE-UNIT(*LIST).PRIMARY.ACTIVE-FOR =   42.18:38:25
OPS(*LIST).CLONE-UNIT(*LIST).SECONDRARY.LOGIC-VOL = 21A
OPS(*LIST).CLONE-UNIT(*LIST).SECONDRARY.STA = *SPLIT
OPS(*LIST).CLONE-UNIT(*LIST).SECONDRARY.PERCENT-COPIED = 99
OPS(*LIST).CLONE-UNIT(*LIST).SECONDRARY.ACTIVE-FOR =   42.18:38:25
```

All used output fields and values are already documented as part of existing information functions.

2.1.3 Abbreviation for `CLUSTER-NAME` in Command Input

All chapters with Storage Cluster commands

List of concerned commands:

- `/SHOW-STORAGE-CLUSTER-CONFIG`
- `/FAILOVER-STORAGE-CLUSTER`
- `/FAILBACK-STORAGE-CLUSTER`

Concerned operand: `CLUSTER-NAME`

The input of operand value for `CLUSTER-NAME` may be abbreviated to a minimum of 3 characters as far as it is unique for the existing Storage Clusters. The processing is the same as for operand `SERIAL-NUMBER`.

The abbreviation is supported as a wildcard format, i.e. for:

- Command `/SHOW-STORAGE-CLUSTER-CONFIG`:
  Information is output for all Storage Cluster names containing the input string e.g.:

```
/SHOW-STORAGE-CLUSTER DX5
%  ------------------------------------------------------------------------------
%  CLUSTER-NAME     PHASE          FAILOVER FAILBACK SPLIT!PRIMARY    SECONDARY
%                   STATUS         HALT-FACTOR       #BS2V!MODE       MODE
%  ==============================================================================
%  DX500_1-DX500_2  NORMAL         AUTO     MANUAL   WRITE!4621347002 4621349005
%                   NORMAL         NONE                 0 !ACTIVE     STANDBY
%  ------------------------------------------------------------------------------
%  DX500_2-DX500_1  NORMAL         MANUAL   MANUAL   WRITE!4621349005 4621347002
%                   NORMAL         NONE                 0 !ACTIVE     STANDBY
%  ------------------------------------------------------------------------------
```

- Commands /FAILOVER-STORAGE-CLUSTER and /FAILBACK-STORAGE-CLUSTER:
  if the input string is not unique the command is rejected with:

  NDE1607 STORAGE CLUSTER NAME <insert> NOT UNIQUE

  The input string may be any unique part of the Storage Cluster name.

2.1.4 SCO Volume Selection in /SHOW-STORAGE-DEVICE-CONFIG

Chapter 13 Commands

Additional operand CONFIGURATION=*SCO-PAIRS

Command /SHOW-STORAGE-DEVICE-CONFIG extends the existing selection options of operand CONFIGURATION by option *SCO-PAIRS to support an additional selection by SCO pairs.

The selection for CONFIGURATION=*SCO-PAIRS provides the SCO pairs for the specified UNIT. The values *BY-VOLUME, *BY-PUBSET, <alphanum-name_2..2> or <x-text_4..4> are supported for UNIT.

CONFIGURATION
<u>*STD</u> | …| ***SCO-PAIRS**

…

***SCO-PAIRS**
The output contains information for two volumes of the SCO pair in Primary and Secondary storage system.
The option can be specified for single Units only (no lists).

SYSOUT example:

```
/SHOW-STORAGE-DEVICE-CONFIG 4D80,CONFIG=*SCO-PAIRS
%  ------------------------------------------------------------------------------
%   UNIT   VOL   TYPE   SERIAL-NO  LOG-  STA TIER RAID REM LOC  SCO     SIZE:
%                                  VOLUME    TYPE       COPY        CURR/MAX.
%  ==============================================================================
%   4D80        D3435   4621637022 002AC RDY SSDM   0  -  -/-/U  P    - /  14 GB
%  #0218                4631508013 00218 N-R SAS    0  -  -/-/U  S    - /  14 GB
```

2.1.5 Requirement for manual Failover

Chapter 12.3.1 Failover (manual)

The setting of SPLIT-MODE for the Storage Cluster should be checked before processing of a planned, manual Failover. The Failover processing with SPLIT-MODE=*READ set, would lead to an interruption of the servers IO activity and therefor to an interrupt of applications.

I order to assure the availability of applications after a manual Failover, before the execution of a manual Failover, the SPLIT-MODE should be set to WRITE for the Storage Cluster using ETERNUS SF.

2.1.6 Reject /FAILBACK-STORAGE-CLUSTER with NDE1608

Chapter 13 Commands

Command /FAILBACK-STORAGE-CLUSTER is rejected for a Storage-Cluster with message NDE1608 if

- automatic Failover mode is set and
- the FC paths from server to Primary storage are not available.

This prevents the Storage Cluster from an automatic Failover processing caused by the not available FC path directly after /FAILBACK-STORAGE-CLUSTER command processing, that would reverse the initial command.

2.1.7 Command /SHOW-STORAGE-CLUSTER: Status FAILED-OVER

Chapter 13 Commands

Processing of command /FAILOVER-STORAGE-CLUSTER may lead to a change of the internal REC-Status of the SCO volumes to status FAILED-OVER.
SHC-OSD supports this status output when selecting option INFORMATION=*VOLUMES.
Therefor a differentiation to the existing mapping to status IN-HOLD is in place.

SYSOUT example:

```
/ SHOW-STORAGE-CLUSTER CLUSTER-NAME=TFO_BS,INFORMATION=*VOLUME
%  ------------------------------------------------------------------------------
%   UNIT VOLUME!PRIM SEC !STORAGE-CLUSTER:»···································
%              !VOLUME   !NAME             STATUS  SYNC-STATE SYNC! CONT-COPY»··
%  ==============================================================================
%   3000 Z3.000!03E9 03E9!TFO_BS          !F-OVER  SYNC       100%!     NO»·····
%   3001 Z4.000!03EA 03EA!TFO_BS          !IN-HOLD SYNC       100%!     NO»·····
```

The following new S-Variable is supported:

```
OPS(*LIST). VOLS.REM-COPY-STA = FAILED-OVER
```

2.2 Rename Pubset for Command /RESTORE-FROM-SNAP

The integrated renaming function for pubsets is provided for command /RESTORE-FROME-SNAP.

Chapter 13 Commands

Additional operand RENAME-PUBSET in structure UNIT=*BY-PUBSET

The function and command syntax is realized as for /RESTORE-FROM-CLONE.

RENAME-PUBSET
***NO** | *SAME | <cat-id 1..4>*

…

***NO**
No renaming is done.
This is the default setting.

***SAME**
The catid of the Snap pubset is renamed to the catid of the original pubset.

<cat-id 1..4>
The catid of the Snap pubset is renamed to the specified catid.
The general renaming rules apply.

2.3 SED Information in /SHOW-STORAGE-DEVICE-CONFIG

Chapter 13 Commands

Additional Output SED for INFORMATION=*PHYSICAL

The output field SED shows if the volume is configured in a storage pool with self encrypting disks (SED).

SYSOUT example:

```
/ SHOW-STORAGE-DEVICE-CONFIG 4600,INFORMATION=*PHYSICAL
%  ------------------------------------------------------------------------------
%   UNIT   VOL   TYPE   SERIAL-NO  LOG-  STA TIER RAID REM LOC  SCO     SIZE:
%                                  VOLUME    TYPE       COPY        CURR/MAX.
%  ==============================================================================
%   4600 AFN2.0 D3435   4621637022 00000 RDY MIX    F  -  U/-/-  -    14/  14 GB
%  ------------------------------------------------------------------------------
%   UNIT   VOL   HOST-LUN   OWNING-CONTR  POOL-NAME          CLUSTER-NAME     SED
%  ==============================================================================
%   4600 AFN2.0    0          -           AST_Pool                             Y
```

The following new S-Variable is supported:

```
SLIST(*LIST).SELF-ENCRYPTED-DISC = *NO/*YES
```

2.4 Information about LAST-STA-CHNG in /SHOW-REMOTE-COPY

Chapter 13 Commands

Value of LAST-STA-CHNG

For a correct value output of LAST-STA-CHNG with format DDDD:HH:MM:SS the time values of BS2000 and the Storage Systems must be synchronized.

2.5 Updated Output for /SHOW-CLONE-SESSION-STATUS

Chapter 13 Commands

Option *DISCOVER of operand UPDATE

The command /SHOW-CLONE-SESSION STATUS provides the option *DISCOVER with operand UPDATE.

UPDATE
***STD** | ***NO | *DISCOVER**

…

***DISCOVER**
An update process for the configuration data of StorMan and SHC-OSD starts before the command processing. This speeds up the automatic detection of configuration changes and availability information for the storage systems.

Due to the asynchronous discovery and update processing, the availability of the updated data might be delayed, and displayed with a subsequent SHOW- command only.