

Datasheet

FUJITSU Software BS2000 SHC-OSD V11.0

Storage Host Component for BS2000

Storage management for BS2000

The SHC-OSD software product is the BS2000 host component for the management of the main functions of the disk storage systems FUJITSU ETERNUS DX and EMC Symmetrix VMAX and DMX. Commands and information services for controlling the replication functions Equivalent Copy, Remote Equivalent Copy (synchronous and asynchronous) and SnapOPC+ of the ETERNUS DX storage systems are offered and the ETERNUS SF functionalities Advanced Storage Tiering and Thin Provisioning are supported by SHC-OSD. It also provides information services and commands for controlling the Symmetrix functions SRDF (Symmetrix Remote Data Facility) and TimeFinder and supports Virtual Provisioning.

SHC-OSD allows the use and control of functions for local and remote replication of storage systems via BS2000 command interfaces. Control of these mirroring functions can be integrated in procedures. This results in a high level of automation and reliable processing in critical operating situations.



Topics

ETERNUS DX Functions

Information Function

A global Show function provides selected information about the configuration, of the ETERNUS DX (e.g. firmware level and cache size), external ports and Snap Device and Thin pools. The device-specific Show function provides information about device names, device type, status, RAID mode, volume size, etc. The Show functions to the mirrored pairs allow the user to call up information about the status of local clone pairs and remote mirrored volumes. A Snap Show function displays the current processing status of snap pairs.

This functionality is not restricted to the volumes defined on the local BS2000 system. That means, for example, that volumes of multiple VM2000 or other systems as well as remote volumes can be controlled centrally from one BS2000 system without the need for additional I/O paths (particularly relevant with mirroring over long distances). In addition to the information output at the interactive interface, information is also set in S variables.

Monitor Function

SHC-OSD provides for ETERNUS DX systems a monitoring function for the storage subsystem and for individual volumes, also with regard to active data mirroring. When status changes are detected, descriptive messages are output to the console, enabling manual or automatic responses to be made.

Local mirroring with Equivalent Copy (EC)

Equivalent Copy (EC) provides local, continuous mirroring on a volume basis with separable mirrors. A local mirror volume of identical size is allocated to an original volume and after initial synchronization is also carried as a mirror. The copy, referred to as clone unit, is available directly after its activation. Together, the original and clone unit form the clone pair, which is administrated via Equivalent Copy. A maximum of 16 EC mirrors are supported for one original by SHC-OSD. Multiple mirroring is supported for a total of max. 32 mirror volumes. Equivalent Copy is integrated in the HSMS Concurrent Copy function, i.e. backup data can be read from split-off Clone units.

Local Snapshots with SnapOPC+

The function SnapOPC+ of ETERNUS DX storage systems offers the possibility to create one or multiple snapshots of a logical unit on base of 'copy-on-first-write'. The snapshot, which is also called a snap unit, is a logical copy of the original unit at a specific point in time. Whereas the data on the original unit is subsequently changed, the snap unit retains the state of the data at the time the snapshot was created.

Synchronous remote mirroring with Remote Equivalent Copy (REC)

It supports mirroring on a volume basis with separable mirrors between 2 or more ETERNUS DX systems. A mirror volume of identical size is allocated to a local original volume in the remote ETERNUS DX and after initial synchronization is also carried as a mirror. At present a maximum of 16 remote ETERNUS DX systems can be connected. Multiple mirroring is supported for a total of max. 32 mirror volumes. A maximum of 4 simultaneous REC mirrors are supported by SHC-OSD for one original (concurrent remote copy).

Asynchronous remote mirroring with Remote Equivalent Copy

SHC-OSD supports the asynchronous Remote Replication for disaster recovery scenarios for ETERNUS DX as of S3. Two different modes are available for the user:

In addition to a Consistency Mode, that ensures consistency in the remote storage system, a Stack Mode with delayed transmission for example for migration purposes is also supported.

The administration of asynchronous REC pairs is carried out via extended SHC-OSD commands and information functions.

Cascaded and Concurrent Remote Copy

The functions Cascaded and Concurrent Remote Copy form the basis for combined HA/DR configurations and offer a significant extension of the configuration options.

With Cascaded Remote Copy the target unit of a synchronous REC pair is simultaneously also the source unit of a cascaded remote copy replication (synchronous or asynchronous) on a further target unit via remote connection. Concurrent Remote Copy describes the simultaneous mirroring (synchronous or asynchronous) on multiple target units. Cascaded REC and Concurrent REC including the asynchronous remote replication are supported for ETERNUS DX S3.

Thin Provisioning

Thin provisioning helps to avoid unused, cost-intensive memory and to improve performance. It is based on Thin Provisioned Volumes (TPV), i.e. volumes which are configured from a server point of view with a capacity that is larger than its actually existing capacity and Thin Provisioned Pools (TPP), i.e. pre-defined pools of physical disks for the provision of physical storage space. From a server point of view, a TPV does not differ from a normal volume.

SHC-OSD supports Thin Provisioning with the information and monitoring functions and so enables the operator to use this highly modern functionality for BS2000 applications in a safe and integrated way.

Automated Storage Tiering

The Automated Storage Tiering functionality automatically moves the storage resources between different storage tiers (SSD, SAS, NL-SAS) within one ETERNUS DX and offers at any time optional performance and resource utilization also on changing performance requirements. The definition of the pools/volumes and the administration of policies is carried out via ETERNUS SF. SHC-OSD V11.0 integrates the

Automated Storage Tiering for BS2000 by providing information and monitoring functions for monitoring the AST volumes and pools and by active management (EC, REC, SnapOPC+).

Symmetrix Functions

Information Function

The global Show function provides selected information about the Symmetrix configuration, such as Engenuity version, cache size and remote link configuration. The device-specific Show function provides information about device names, device type, status, RAID mode, volume size, etc.

The SRDF Show functions allow the user to call up information about the status of remote mirrored volumes and about SRDF settings. The TimeFinder Show function displays the current processing status of the local mirroring function.

This functionality is not restricted to the volumes defined on the local BS2000 system. That means, for example, that volumes of multiple VM2000 or other systems as well as remote volumes (single hop, i.e. only one connection node allowed) can be controlled centrally from one BS2000 system without the need for additional I/O paths (particularly relevant with SRDF over long distances).

In addition to the information output at the interactive interface, information is also set in S variables.

Monitor Function

SHC-OSD provides a monitoring function to detect status changes in the Symmetrix configuration and status changes in volumes, TimeFinder and SRDF pairs. When status changes are detected, descriptive messages are output to the console, enabling manual or automatic responses to be made.

TimeFinder Functions

Commands for the TimeFinder functions can control the mirroring of volumes on additional volumes supporting mirroring by TimeFinder/Clone, TimeFinder/Snap and TimeFinder/Mirror (BCV).

TimeFinder/Clone is a flexible, highly functional way to create pointer-based full volume copies of Symmetrix-volumes, also usable for volume migration.

With the function Cascaded TimeFinder/Clone for Symmetrix VMAX, a clone unit can be used simultaneously also as an original for a further TimeFinder/Clone mirroring.

TimeFinder/Snap is a flexible, highly functional way to create pointer-based space-saving copies of Symmetrix-volumes.

TimeFinder/Snap is integrated with the new SnapSet features.

TimeFinder/Mirror (BCV) is a way to non-disruptively create highly-available mirror images of Symmetrix volumes. This is now completely mapped to TimeFinder/Clone and supported by EMC Corp. only for compatibility reasons.

TimeFinder is integrated in the HSMS Concurrent Copy function, i.e. backup data can be read from split-off Clone/ BCV units or Snapsets.

SRDF Function

SHC-OSD can also be used now to set and dissolve dynamically remote mirroring. The Symmetrix can differentiate between synchronous (SRDF/S), asynchronous consistent (SRDF/A) and self-adapting modes. Similarly, it is possible to define the response required if errors occur in the remote configuration or in connections to the remote configuration. The SRDF function has commands to control the activation or deactivation of SRDF paths or link directors.

The functions Concurrent SRDF and Switched SRDF open a new variety of configuration options and scenarios.

With the function 'Cascaded' SRDF a SRDF mirroring can be cascaded for Symmetrix VMAX, i.e. a SRDF target unit can be simultaneously used as an SRDF source unit for a further SRDF mirroring.

Virtual Provisioning

Virtual provisioning is based on the option of configuring a large so-called "thin" device (i.e. volume) for a server or application and of making it accessible. Depending on requirements, this thin device uses physical memory from a jointly used "thin pool". Sufficient capacity, which can be dynamically extended, is provided in the thin pool for the applications.

SHC-OSD supports Virtual Provisioning and so enables the operator to use this highly modern functionality for BS2000 applications in a safe and integrated way.

Architecture

ETERNUS DX

Management of ETERNUS DX for BS2000 is performed with SHC-OSD via StorMan on an external server with StorMan taking on the encapsulation for the storage systems.

On the new SE servers the StorMan is integrated on the Management Unit.

For ETERNUS DX Fujitsu provides an embedded SMI-S provider, that provides the complete management functionality.

The corresponding components are supplied with SHC-OSD by default.

Symmetrix

SHC-OSD is based on open Symmetrix interface SYMAPI from EMC Corp., available to EMC partners within the framework of the EMC Velocity² Tech & ISV Program. SYMAPI is a POSIX application in BS2000. SYMAPI guarantees compatibility and stability also on support of new Engenuity versions and hardware models.

Technical Details

Requirements

Technical Requirements Hardware	<p>For ETERNUS DX: BS2000 Business Server of the SE, S and SQ Series ETERNUS DX410 S2/ DX440 S2 and DX8700 S2 (Firmware level: as of V10L55) ETERNUS DX500 S3/DX600 S3 (Firmware level: as of V10L20) For StorMan a Windows or Linux Server is required. On SE Servers the StorMan of the Management Unit is used; it is integrated in the SE Manager. On SQ Servers the StorMan integrated on MARS can be used. For the use of Thin Provisioning or Automated Storage Tiering the ETERNUS SF SW and the ETERNUS DX firmware license Thin Provisioning Feature is required. To use the replication functions for ETERNUS DX S2 storage systems the ETERNUS DX Advanced Copy license is required (hardware license).</p> <p>For Symmetrix: BS2000 Business Server Symmetrix VMAX 20K with Enginuity 5876 Symmetrix VMAX 40K with Enginuity 5876 (for S servers only) Symmetrix VMAX-1 with Enginuity 5876 Symmetrix DMX-4 with Enginuity 5773 Symmetrix DMX-3 with Enginuity 5773 Use of SRDF and TimeFinder functions requires the corresponding firmware licenses.</p>
Technical Requirements Software	<p>BS2000/OSD-BC V8.0 or higher (for S servers) or OSD/XC V8.5 or higher (for SE servers) or OSD/XC V4.0 or higher (for SQ servers)</p> <p>Use of replication functions on ETERNUS DX requires the installation of the products SHC-CM-LR and/or SHC-CM-RR</p> <p>optional: SDF-P (if S variables are used)</p>
Demands on the user	Knowledge of BS2000
Installation and operation	
Operating mode	Interactive (dialog) and batch mode
Implementation language	C, SPL, Assembler
User interface	Commands in English, message texts in German/English (optional)
Installation	By the customer according to the release notice
Documentation and training	
Documentation	SHC-OSD / SCCA-BS2 User guide StorMan User guide
Training	See course offer (German)
Purchasing	
Conditions	This software product can be leased by the customer in accordance with the conditions for the use of software products.
Ordering and delivery	This software product may be obtained from your local Fujitsu Technology Solutions GmbH regional office.

More information

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In addition to BS2000, Fujitsu offers a full portfolio of other computing products:

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More information

To learn more about BS2000, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website. <http://www.fujitsu.com/fts/bs2000>

Fujitsu green policy innovation

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