

Software Product Description

PRODUCT NAME: MIRA Shadow Disk, Version 2.2

SPD 25.A2.02

DESCRIPTION

MIRA Shadow Disk is a software package available on VMS systems that enhances data availability by maintaining multiple redundant copies of data. It duplicates all data by writing them on compatible "virtual disks" forming a "shadow set." Each "virtual disk" allows the division of a disk unit into multiple segments (each being a standard FILES-11 file) having their own disk initialization and mount characteristics, thus allowing shadowing of the whole or part of a physical disk unit with another disk of the same or different type and size.

In the event of failure of a disk unit, disk inputs/outputs continue with the remaining members of the shadow set, provided that they do not reside on the failed disk unit.

MIRA Shadow Disk is a third-party product owned and developed by BEAR COMPUTER SYSTEMS Inc.

Backup Procedure

Since it does not provide recovery from accidental file deletion, MIRA Shadow Disk is not a substitute for regular BACKUP operations.

MIRA Shadow Disk allows shadow set members to be removed and added with no disruption of the application.

A backup on tape can be done from the removed volume, insuring against data changes during volume backup procedures.

Data Resiliency

Shadow set members should reside on different disk units if the shadow set is to be resilient to disk unit failures.

Transparency to the End User

The shadow set appears to act as a single disk, that is, the data are automatically propagated to all the members of a shadow set by MIRA Shadow Disk.

MIRA Shadow Disk is invisible to application programs and users. All commands and program language features that address data on non-shadowed disks can be used to address data on shadowed disks with no changes.

Enabling and disabling shadowing for a particular virtual disk requires that it be mounted and dismounted.

Shadow sets are managed by the operator using the MIRA Shadow Disk set of commands.

Shadow Set Transitions

A virtual disk is removed from the shadow set either by operator command or when the disk unit on which it resides becomes inoperative. In the latter case, the removal is performed automatically with no operator intervention required.

A virtual disk is added to the shadow set only upon operator command. MIRA Shadow Disk ensures that, within a reasonable period of time, the newly added shadow set member is made identical to the other member. Read/write access to the shadow set is permitted during the "catch-up" process. This catch-up process can be used for making "hot backups" of virtual disks without interrupting normal operations.

MIRA Shadow Disk software permits cluster-wide shadowing without the need to serve the shadow master unit. This will often show a significant improvement of performance and system availability. It does this by eliminating the problem of single point of failure and by eliminating or reducing served I/Os.

A virtual disk or shadow set must be either local or cluster wide, once defined as cluster wide, it is no longer available as a local device.

Access to the data in a cluster-wide virtual disk is interrupted upon failure of the last node with direct access to the disk. For cluster-wide shadow sets, access is also interrupted upon failure of the last (and only) valid disk unit in the shadow set. If this occurs, the shadow master may go into mount verification, which may be recoverable by operator intervention.

Performance

Performance on read is improved due to automatic load balancing between disk units.

Restrictions

As the virtual disks are standard RMS files, the files of the virtual disk can only be accessed via MIRA Shadow Disk.

Virtual disks residing on the system disk can be shadowed, however, VMS page files, etc., cannot be shadowed.

A quorum disk cannot be shadowed in a VAXcluster system.

SOURCE CODE INFORMATION

The following source code modules are provided with binary, single-use license options on all magnetic distribution media:

- DCL interface generation source

INSTALLATION

Only experienced customers should attempt installation of this product. Digital recommends that all other customers purchase Digital's Installation Services. These services provide for installation of the software product by an experienced Digital Software Specialist.

HARDWARE REQUIREMENTS

Processor and/or hardware configuration as specified in the System Support Addendum (SSA 25.A2.02-x).

SOFTWARE REQUIREMENTS

- VMS Operating System
- Local Area VAXcluster Software for cluster-wide volume shadowing (for sharing disks on DSSI between both CPUs of MIRA)

ORDERING INFORMATION

Software Licenses, Media, and Documentation:
QB-VHYA*-**

Software Documentation Only: QA-VHYA*-**

Software Product Services: QT-VHYA*-**

* Denotes variant fields. For additional information on available licenses, services, and media, refer to the appropriate price book.

SOFTWARE LICENSING

This software is furnished under the licensing provisions of Digital Equipment Corporation's Standard Terms and Conditions. For more information about Digital's licensing terms and policies, contact your local Digital office.

SOFTWARE PRODUCT SERVICES

A variety of service options are available from Digital. For more information contact your local Digital office.

SOFTWARE WARRANTY

Warranty for this product is provided by Digital with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

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System Support Addendum

PRODUCT NAME: MIRA Shadow Disk, Version 2.2

SSA 25.A2.02-A

HARDWARE REQUIREMENTS

Processors Supported:

MicroVAX: MicroVAX II,
MicroVAX 3100, MicroVAX 3300,
MicroVAX 3400, MicroVAX 3500,
MicroVAX 3600, MicroVAX 3800,
MicroVAX 3900

VAXstation: VAXstation 3100 Series

VAXserver: VAXserver 3100, VAXserver 3500,
VAXserver 3600, VAXserver 3800,
VAXserver 3900

Processors Not Supported:

VAX: VAX 4000 Model 200,
VAX 4000 Model 300,
VAX 4000 Model 500

VAX 6000 Model 200 Series,
VAX 6000 Model 300 Series,
VAX 6000 Model 400 Series,
VAX 6000 Model 500 Series,
VAX 6000 Model 600 Series

VAX 8200, VAX 8250, VAX 8300, VAX 8350,
VAX 8500, VAX 8530, VAX 8550, VAX 8600,
VAX 8650, VAX 8700, VAX 8800, VAX 8810,
VAX 8820, VAX 8830, VAX 8840

VAX 9000 Model 110,
VAX 9000 Model 210,
VAX 9000 Model 300 Series,
VAX 9000 Model 400 Series

VAXft Model 110,
VAXft Model 310,
VAXft Model 410,
VAXft Model 610,
VAXft Model 612

VAX-11/725, VAX-11/730, VAX-11/750,
VAX-11/780, VAX-11/782, VAX-11/785,
VAXstation 8000

MicroVAX: MicroVAX I, MicroVAX 2000

VAXstation: VAXstation I, VAXstation II,
VAXstation 2000, VAXstation 3200,
VAXstation 3500, VAXstation 3520,
VAXstation 3540

VAXstation 4000 VLC,
VAXstation 4000 Model 60

VAXserver: VAXserver 3300, VAXserver 3400,
VAXserver 3500, VAXserver 3600,
VAXserver 3602, VAXserver 3800,
VAXserver 3900

VAXserver 4000 Model 200,
VAXserver 4000 Model 300,
VAXserver 4000 Model 500

VAXserver 6000 Model 210,
VAXserver 6000 Model 220,
VAXserver 6000 Model 310,
VAXserver 6000 Model 320,
VAXserver 6000 Model 410,
VAXserver 6000 Model 420,
VAXserver 6000 Model 510,
VAXserver 6000 Model 520,
VAXserver 6000 Model 610,
VAXserver 6000 Model 620,
VAXserver 6000 Model 630

Processor Restrictions

The processor must be part of a valid MIRA system.

Disk Space Requirements (Block Cluster Size = 1):

Disk space required for installation: 2,500 blocks
(1,280 Kbytes)

Disk space required for use (permanent): 1,650 blocks
(844.8 Kbytes)

These counts refer to the disk space required on each system disk. The sizes are approximate; actual sizes may vary depending on the user's system environment, configuration, and software options selected.

OPTIONAL HARDWARE

RA70, RA81, RA82 and RA90 disks
RF30, RF71 DSSI disks
RZ23, RZ24 SCSI disks

CLUSTER ENVIRONMENT

This layered product is fully supported when installed on any valid and licensed VAXcluster* configuration with the exception of cluster disk failover. The *HARDWARE REQUIREMENTS* sections of this product's Software Product Description and System Support Addendum detail any special hardware required by this product.

* V5.x VAXcluster configurations are fully described in the VAXcluster Software Product Description (29.78.xx) and include CI, Ethernet, and Mixed Interconnect configurations.

SOFTWARE REQUIREMENTS

- VMS Operating System V5.4 - V5.5
- Local Area VAXcluster Software V1.0 for cluster-wide volume shadowing (if sharing disks on DSSI between the both CPUs of MIRA is required)

VMS Tailoring:

For more information on VMS classes and tailoring, refer to the VMS Operating System Software Product Description (SPD 25.01.xx).

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the minimum requirements of the current version.

DISTRIBUTION MEDIA

TK50 Streaming Tape

ORDERING INFORMATION

Software Licenses, Media, and Documentation:

QB-VHYA*^{-**}

Software Documentation Only: QA-VHYA*^{-**}

Software Product Services: QT-VHYA*^{-**}

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The above information is valid at the time of release. Please contact your local Digital office for the most up-to-date information.

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