



Global Distributed Storage Engineering
Citi Architecture & Technology Engineering

V-MAX TimeFinder/Mirror

GDSE-09037-RN

Release Notes

Version 1.2

VERSION CONTROL

Version and Date of Issue	Author	Comment
V1.0 13/10/09	Chris Clayton	Initial Release
V1.1 20/05/10	Chris Clayton	Removed restriction on thin BCVs
V1.2 15/06/10	Chris Clayton	Updated to cover RHEL support.

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Latest Versions

It is recommended that the latest version of the document be used from the GDSE website

<http://catecollaboration.citigroup.net/domains/platstor/gdse/products/default.aspx>

Newer versions may include expanded scope, or comments on issues discovered after deployment.

Regional Reviewers

Region	Reviewed By
Asia Pacific	No feedback received
Banamex	No feedback received
Europe, Middle East, Africa	No feedback received
Japan	No feedback received
Latin America	No feedback received
North America	No feedback received

1 V-MAX TimeFinder/Mirror (symmir) Certification Matrix

TimeFinder/Mirror is no longer available on Symmetrix V-Max systems.

TimeFinder/Clone is the only full copy local replication option on Symmetrix V-Max systems.

TimeFinder/Mirror Emulation mode continues to be available for TimeFinder/Clone so that user scripts and applications written using TimeFinder/Mirror syntax (i.e using the symmir command) continue to work. In environments running Enginuity 5874 and higher (i.e. V-MAX), all TimeFinder/Mirror scripts are executed in Clone Emulation mode. When running in Emulation Mode, TimeFinder/Clone transparently performs TimeFinder/Mirror commands and executes scripts that were written for Solutions Enabler up through version 6.5.2 running on Symmetrix arrays using Enginuity 5773 and earlier

This document briefly discusses the use of the symmir command, (which as already explained is really using TimeFinder/Clone in emulation mode). TimeFinder/Mirror (which uses mirror positions to create copies of data) no longer exists on V-MAX.

Certification Matrix for symmir on V-MAX

Solutions Enabler Version	7.0.1 or later (7.1.1 for thin BCVs)
Storage arrays supported	V-MAX
Microcode Version	5874.157.xx or later (5874.229.182 or later for thin BCVs)
Use of symmir command in existing scripts.	Certified
Use of symmir for SRDF/A resynchronization point-in-time copies.	Certified and recommended (5874.229.182 or later for SRDF/A with thin BCVs)
Use of symmir for new point-in-time copy requirements.	It is recommended for <u>new</u> requirements that the symclone command be used rather than symmir

2 References

Document	Location
EMC documentation	
EMC Solutions Enabler Symmetrix TimeFinder Family CLI Product Guide Version 7.x	EMC powerlink site
GDSE documentation	
V-MAX TimeFinder/Clone Certification Solutions Guide	https://catecollaboration.citigroup.net/domains/platstor/gdse/products/platforms/Symmetrix/05008-SG-v2.0.pdf

3 V-MAX symmir pre-requisites

3.1 Software

Solutions Enabler (SE) 7.0 or later is needed as this is the minimum SE that supports V-MAX.

3.2 Licensing

Use of clone technology via symmir requires a TimeFinder Clone license for the Symmetrix. This is included for V-MAX purchased with the VPA HA license bundle. It is not included in the VPA Standard bundle. For regions that have signed an EMA agreement with EMC, this takes this restriction away as they are allowed to use each licence up to the capacity limit for that Licence, as described in the regional EMA.

The TimeFinder/Clone license must be installed to in order to use clone emulation i.e. it is needed to use the symmir command on V-MAX. The required License Feature (as it appears in the symapi_licenses.dat file) is TF-Clone.

4 Known limitations and changes

4.1 TimeFinder/Mirror Operations on V-MAX

For V-MAX configurations, the TimeFinder/Mirror functions (accessed via the symmir command) described herein will be performed through TimeFinder/Clone software using a process called Clone Emulation. Clone Emulation mode makes the use of RAID-protected BCVs transparent to the TimeFinder/Mirror user.

For backward compatibility, TimeFinder/Clone Emulation mode transparently performs TimeFinder/Mirror commands and executes scripts written for Solutions Enabler up through version 6.5.2 running on Symmetrix arrays using Enginuity release levels 5773 and earlier.

4.2 Mirror Positions

As symmir no longer uses TimeFinder/Mirror, copies created using symmir no longer consume mirror positions.

Furthermore, all RAID type on V-MAX only consume a single mirror position, including 2-Way Mir devices. Hence, the remaining 3 mirror positions are available for use by SRDF, Optimizer, disk sparing and Virtual LUN. Local (TimeFinder) copies never consume mirror positions on V-MAX.

5 Appendix A – Test Plan and Results

5.1 Certification environment

Testing was undertaken with the following test facility components.

Component Matrix	
V-MAX hardware	2-Engine V-MAX-1
Enginuity Level	5874.122 & 5874 157 or later
Solutions Enabler server OS	Solaris 10 RHEL 5.4 or later
Solutions Enabler version	7.0.0.0 & 7.0.1.0

Although testing was undertaken using the Solaris version of Solutions Enabler, the use of clones is being certified on any SAN certified platform.

5.2 Legacy symmir testing

Legacy symmir command testing was undertaken as part of this project as with V-MAX, this changes to always using clone technology under the covers. Symmir will continue to be used for SRDF/A R2 point-in-time copies and in other legacy scripts.

Testing has been rudimentary as symmir is not a strategic product going forward and there are no new features to test (Transparent use of clone emulation via symmir has been in place for RAID-5 for several years, but now applies to all RAID types).

We are relying heavily on EMC testing of legacy symmir functionality on V-MAX.

ID	Task description	Pass/Fail	Comments / Results
Test Basic Clone Emulation for each RAID type • RAID-1 • RAID-5 • RAID-6			
	Convert an existing mirrored device into a BCV # symconfigure -f convert_2-Way-Mir_to_BCV -sid 232 commit [convert dev 00D1 to 2-Way-BCV-	PASS	

	Mir;]		
	Establish with a standard 2-Way-Mir <pre># symdg create cac01 # symld -g cac01 add dev 00D2 -sid 232 # symbcv -g cac01 add dev 00D1 -sid 232 # symmir establish -full -g cac01 # symmir -g cac01 query -i 10 # symdev show 00D1 -sid 232</pre>	PASS	Synced at about 60MB/s Symdev show on device shows <pre>Mirror Set Type : [RAID-1,N/A,N/A,N/A]</pre> i.e. one mirror position used. Also <pre>BCV State Flags : (CantRevSpl) (Emulation)</pre> i.e. clone emulation is automatically invoked for RAID-1 BCVs.
	Remove BCV relationship and reset device type for BCV device back to being a STD <pre># symmir -g cac01 split # symmir -g cac01 cancel DEV001 bcv ld BCV001 # symbcv -g cac01 disassociate ld BCV001 # symld -g cac01 remove DEV001 # symdg delete cac01</pre> # symconfigure -f convert_BCV_to_2-Way-Mir -sid 232 commit [convert dev 00D1 to 2-Way-Mir;]	PASS	
	RAID-5		
	Convert an existing RAID-5 device into a BCV <pre># symconfigure -f convert_RAID5_to_BCV -sid 232 commit</pre> [convert dev 010B to BCV+R-5;]	PASS	
	Establish with a standard RAID-5 <pre># symdg create cac02 # symld -g cac02 add dev 010A -sid 232 # symbcv -g cac02 add dev 010B -sid 232 # symmir establish -full -g cac02 # symmir -g cac02 query -i 10 # symdev show 010A -sid 232</pre>	PASS	Synced at 160-175MB/s Symdev show on STD device shows <pre>Mirror Set Type : [RAID-5,N/A,N/A,N/A]</pre> i.e. one mirror position used. Also

			BCV State Flags : (CantRevSpl) (Emulation)
	Remove BCV relationship and reset device type for BCV device back to being a STD <pre># symmir -g cac02 split # symmir -g cac02 cancel DEV001 bcv ld BCV001 # symbcv -g cac02 disassociate ld BCV001 # symld -g cac02 remove DEV001 # symdg delete cac02 # symconfigure -f convert_BCV_to_RAID5 -sid 232 commit [convert dev 010B to RAID-5;]</pre>	PASS	
	RAID-6		
	Convert an existing RAID-6 device into a BCV <pre># symconfigure -f convert_RAID6_to_BCV -sid 232 commit [convert dev 011B to BCV+R-6;]</pre>	PASS	
	Establish with a standard RAID-6 <pre># symdg create cac03 # symld -g cac03 add dev 011A -sid 232 # symbcv -g cac03 add dev 011B -sid 232 # symmir establish -full -g cac03 # symmir -g cac03 query -i 10 # symdev show 011A -sid 232</pre>	PASS	
	Remove BCV relationship and reset device type for BCV device back to being a STD <pre># symmir -g cac03 split # symmir -g cac03 cancel DEV001 bcv ld BCV001 # symbcv -g cac03 disassociate ld BCV001 # symld -g cac03 remove DEV001 # symdg delete cac03 # symconfigure -f convert_BCV_to_RAID6 -sid 232 commit</pre>	PASS	Synced at 280-315MB/s Symdev show on STD device shows <pre>Mirror Set Type : [RAID-6,N/A,N/A,N/A]</pre> i.e. one mirror position used. Also <pre>BCV State Flags : (CantRevSpl) (Emulation)</pre>

	[convert dev 011B to RAID-6;]		
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