

<Supported Storage List of SIOS Protection Suite for Linux v9>

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The table below is a list of supported storages by LifeKeeper for Linux v9. Please use this when considering hardware configuration for your environment.

[About Supported Storages]

Storages used as shared storage in LifeKeeper require certification depending on types.

You need to use supported storages for shared storages such as SCSI/FC/SCSI/SAS that refer to the same data from multiple nodes for which LifeKeeper's IO fencing with SCSI-2/3 Reservation is required.

Storages for which prerequisite is not to perform reservation with SCSI-2/3 using Quorum/Witness Server Kit also requires certification. Please check the table below.

[Configuration which does not require certification]

- Following configuration doesn't require storage certification:
 - NAS storage (requires NAS Recovery Kit)
 - All disk devices that make up data replication by DataKeeper (both built-in and external)

[Unsupported hardware]

- Consumer storages that are connected via USB or IEEE1394 are not supported.

Vendor (*1)	Storage Model	Bus Type	Connect Type (*2)	Support Status	Required ARK (*3) (i.e. Multipath ARK)	Supported LK Version (*4)	Note	
DELL	Dell EqualLogic P9410 P9410 P9420 P9510 P9610 P9620 P9660	SCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.2.1	With a large number of LUNs (over 20), change the REMOTETHEOUT setting in /etc/default/LifeKeeper to REMOTETHEOUT=600.	
			Single Path (DMMP)	YES	DMMP ARK			
			vSphere (RDM)	YES	-			
			Multi Path (DMMP)	YES	DMMP ARK			
	MD3800F MD3820F MD3860F	FC	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.2.1		
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
	MD3800 MD3820 MD3860	SCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.2.1		
			Single Path	No	-			
			vSphere (RDM)	YES	No Multipath ARK			
	MD3400 MD3420 MD3460	SAS	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.2.1		
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
	SC/2000 Series SC2000 SCV2020 SCV2080	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
		SAS	vSphere	No	-	v9.0 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
		Dell Storage SC4020	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1	
				Multi Path (DMMP)	YES	DMMP ARK		
			SCSI	Single Path	No	-	v9.0 - v9.2.1	
vSphere (RDM)				No	-			
Dell Compellent SC8000	FC	Multi Path (DMMP)	No	-				
		Single Path	No	-				
	SCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.2.1			
		Single Path	No	-				
Fujitsu	ETERNUS DX90	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Multi Path (EMPD)	YES	No Multipath ARK			
			Single Path	YES	No Multipath ARK			
	ETERNUS: DX80 DX80 DX810 DX810 DX8100 DX8400 DX8700 DX86 S2 DX88 S2 DX88 S2 DX140 S2 DX440 S2 DX8100 S2 DX8700 S2	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1	When using the LifeKeeper DMMP ARK for multipath configurations it is necessary to set the following parameters in /etc/multipath.conf: prio alua path_grouping_policy group_by_srio failback immediate no_path_retry 10 path_checker tur	
			Multi Path (DMMP)	YES	DMMP ARK			
			Multi Path (EMPD)	YES	No Multipath ARK			
			Single Path	YES	No Multipath ARK			
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	YES	No Multipath ARK			
		SCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.2.1		
			Single Path	No	-			
			vSphere (RDM)	YES	No Multipath ARK			
			Multi Path (EMPD)	YES	No Multipath ARK			
			Single Path	YES	No Multipath ARK			
			Multi Path (DMMP)	YES	DMMP ARK			
	Hitachi / Hitachi Data Systems	Hitachi Virtual Storage Platform G1000 Hitachi Virtual Storage Platform G1500 Hitachi Virtual Storage Platform F1500	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1	
				Multi Path (HDLM)	YES	HDLM ARK		
				Multi Path (DMMP)	YES	DMMP ARK		
				Single Path	YES	-		
		Hitachi Virtual Storage Platform	FC	Multi Path (HDLM)	No	-	v9.0 - v9.2.1	
				Single Path	No	-		
			SCSI	Multi Path (HDLM)	No	-		
				Single Path	No	-		
Hitachi Virtual Storage Platform Mid Range Family: Hitachi Virtual Storage Platform G800 (VSP G800) Hitachi Virtual Storage Platform G600 (VSP G600) Hitachi Virtual Storage Platform G400 (VSP G400) Hitachi Virtual Storage Platform G200 (VSP G200) Hitachi Virtual Storage Platform G100 (VSP G100)		FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1		
			Multi Path (HDLM)	YES	HDLM ARK			
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	YES	No Multipath ARK			
Hitachi Virtual Storage Platform Mid Range Family: Hitachi Virtual Storage Platform F800 (VSP F800) Hitachi Virtual Storage Platform F600 (VSP F600) Hitachi Virtual Storage Platform F400 (VSP F400)	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1			
		Multi Path (HDLM)	YES	HDLM ARK				
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	YES	No Multipath ARK				
Hitachi Unified Storage VM (HUS VM)	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1			
		Multi Path (HDLM)	YES	HDLM ARK				
	SCSI	Multi Path (HDLM)	No	-				
		Single Path	No	-				
Hitachi Unified Storage 100 Series: Hitachi Unified Storage 110 (HUS 110) Hitachi Unified Storage 130 (HUS 130) Hitachi Unified Storage 110 (HUS 110)	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1			
		Multi Path (HDLM)	YES	HDLM ARK				
		Single Path	YES	No Multipath ARK				
		Multi Path (HDLM)	No	-				
Hitachi	BR1200	SAS	Multi Path (RDAC)	YES	No Multipath ARK	v9.0 - v9.2.1	Both the single path and multipath configurations require the RDAC driver. Only the BR1200 configuration using the RDAC driver is supported. The BR1200 configuration using HDLM (HDLM ARK) is not supported.	
			Single Path (RDAC)	YES	No Multipath ARK			
			Multi Path (HDLM)	No	-			
			Single Path (HDLM)	No	-			
	BR1250	SAS	Multi Path (NECSPS)	YES	NEC SPS ARK	v9.0 - v9.2.1	Both the single path and multipath configurations require the NEC SPS ARK. The BR1250 configuration using HDLM (HDLM ARK) is not supported. LifeKeeper for Linux v9.1 or later can be used for NEC Storage StoragePathSavior (NECSPS) Recovery Kit on RHEL7 environment.	
			Single Path (NECSPS)	YES	NEC SPS ARK			
			vSphere (RDM)	YES	No Multipath ARK			
			Multi Path (HDLM)	YES	HDLM ARK			
	BR1650E BR1650	FC	Multi Path (HDLM)	YES	HDLM ARK	v9.0 - v9.2.1		
			Single Path	YES	-			
			Multi Path (HDLM)	No	-			
			Single Path	No	-			
	3PAR 3PAR StoreServ 8200 3PAR StoreServ 8400 3PAR StoreServ 8440 3PAR StoreServ 8450	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
	3PAR StoreServ 7400 3PAR StoreServ 7400c 3PAR StoreServ 7450 3PAR StoreServ 7450c	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1	Note: 3PAR StoreServ 7400 returns a reservation conflict with the default path checker setting. To avoid this conflict, set the following parameter in "/etc/default/LifeKeeper": DMMP_REGISTRATION_TYPE=hba User friendly device mapping is not supported. Set the following parameter in "multipath.conf" "user_friendly_names no" * When using the vSphere(RDM) for multipath configurations, no configuration parameters need to be set.	
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
	3PAR StoreServ 7200 3PAR StoreServ 7200c	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1	Note: 3PAR StoreServ 7200 returns a reservation conflict with the default path checker. To avoid this conflict, set the following parameter in "/etc/default/LifeKeeper": DMMP_REGISTRATION_TYPE=hba	
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
3PAR StoreServ 20450 3PAR StoreServ 20800 3PAR StoreServ 20840 3PAR StoreServ 20850	FC	vSphere (RDM)	YES	No Multipath ARK	v9.1 - v9.2.1			
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	No	-				
		Multi Path (DMMP)	No	-				
3PAR StoreServ 10400	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1			
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	No	-				
		Multi Path (DMMP)	No	-				
3PAR StoreServ 10800	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1	Note: 3PAR StoreServ 10800 FC returns a reservation conflict with the default path checker setting. To avoid this conflict, set the following parameter in "/etc/default/LifeKeeper": DMMP_REGISTRATION_TYPE=hba User friendly device mapping is not supported. Set the following parameter in "multipath.conf" "user_friendly_names no" * When using the vSphere(RDM) for multipath configurations, no configuration parameters need to be set.		
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	No	-				
		Multi Path (DMMP)	No	-				
HPE	MSA MSA1050 MSA2052	FC	vSphere (RDM)	YES	No Multipath ARK	v9.2 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
	MSA MSA2042	SAS	vSphere (RDM)	No	-			
			Multi Path (DMMP)	No	-			
			Single Path	No	-			
			Multi Path (DMMP)	No	-			
	MSA MSA1040 MSA2040	FC	vSphere (RDM)	YES	No Multipath ARK	v9.1 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path	No	-			
			Multi Path (DMMP)	YES	DMMP ARK			
StoreVirtual (LeftHand) Series LeftHand OS version 11.0 / 11.5 / 12.6	SCSI	vSphere (RDM)	No	-	v9.1 - v9.2.1	LeftHand OS (SAN/Q) version 12.6 is supported in HPE StoreVirtual (LeftHand) storage.All StoreVirtual series are supported, including HC350 / HC360 and StoreVirtual VSA as the virtual storage appliance. See the release note of each version of LeftHand OS (SAN/Q) to know the virtual storage appliance in detail.		
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	No	-				
		Multi Path (DMMP)	YES	DMMP ARK				
StoreVirtual (LeftHand) Series LeftHand OS version 11.0 / 11.5 / 12.5	SCSI	vSphere (RDM)	No	-	v9.0 - v9.2.1	LeftHand OS (SAN/Q) version 11.0 / 11.5 / 12.5 are supported in HPE StoreVirtual (LeftHand) storage.All StoreVirtual series are supported, including HC350 / HC360 and StoreVirtual VSA as the virtual storage appliance. See the release note of each version of LeftHand OS (SAN/Q) to know the virtual storage appliance in detail.		
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	No	-				
		Multi Path (DMMP)	No	-				
HP P9500	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1			
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	YES	No Multipath ARK				
		Multi Path (DMMP)	YES	DMMP ARK				
IBM	IBM SAN Volume Controller * * IBM TotalStorage Proven	FC	vSphere (RDM)	No	-	v9.0 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path (DMMP)	YES	No Multipath ARK			
			Multi Path (DMMP)	YES	DMMP ARK			
	IBM Storwize V7000	SCSI	Multi Path (DMMP)	YES	DMMP ARK Quorum/Witness Server Kit	v9.0 - v9.2.1	The IBM Storwize V7000 (Firmware Version 6.3.0.1) has been certified by partner testing using SCSI (iscsi-initiator-id=6.2.0.873.34-els-ark_60) with DMMP (device-mapper-1.02.66-6-els, device-mapper-multipath-0.4.9-45.el6). The test was performed with LifeKeeper for Linux v7.5 using RHEL 6.2. Restriction: IBM Storwize V7000 must be used in combination with the Quorum/Witness Server Kit and STONITH. See the online documentation for the LifeKeeper version that you are using for more information. http://docs.us.sios.com/	
			Single Path (DMMP)	No	-			
			vSphere (RDM)	YES	No Multipath ARK			
			Multi Path (DMMP)	YES	DMMP ARK			
IBM Storwize V3700	SCSI	Multi Path (DMMP)	No	-				
		Single Path	No	-				
	SAS	vSphere (RDM)	No	-				
		Multi Path (DMMP)	No	-				
IBM XIV Storage System	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1	If you are creating more than 32 LUNs on an IBM XIV Storage System using LifeKeeper, please contact IBM for further details.		
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path (DMMP)	No	-				
		Multi Path (DMMP)	No	-				
Lenovo	Lenovo Storage V3700 V2 Lenovo Storage V3700 V2 XP	SCSI	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path (DMMP)	No	-			
			Multi Path (DMMP)	No	-			
	IBM Storwize V3700	SCSI	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1		
			Multi Path (DMMP)	YES	DMMP ARK			
			Single Path (DMMP)	No	-			
			Multi Path (DMMP)	No	-			
NEC	NEC Storage: H116 H110 H110 H100	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1		
			Multi Path (NECSPS)	YES	NECSPS ARK			
			Single Path (NECSPS)	YES	NECSPS ARK			
			Multi Path (NECSPS)	YES	NECSPS ARK			
	NEC Storage: H510 H510 H710	SCSI	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1	LifeKeeper for Linux v9.1 or later can be used for NEC Storage StoragePathSavior (NECSPS) Recovery Kit on RHEL7 environment.	
			Multi Path (NECSPS)	YES	NECSPS ARK			
			Single Path (NECSPS)	YES	NECSPS ARK			
			Multi Path (NECSPS)	YES	NECSPS ARK			
Pure Storage	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1			
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	No	-				
		Multi Path (DMMP)	No	-				
FlashArray//m Series //m10 //m20 //m70	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.2.1			
		Multi Path (DMMP)	YES	DMMP ARK				
		Single Path	No	-				
		Multi Path (DMMP)	No	-				

(*1): EMC storage for use
LifeKeeper acquired the E-Lab certification. See the matrix below for the EMC storage support.
<http://www.emc.com/interoperability>

(*3): Multipath Software
The support information by maker must be referred about the connectivity information of each Multipath software.
Please refer to the release notes for the details about Multipath software support by LifeKeeper.

(*2): Connecting Configurations

vSphere (RDM)	Connected a shared disk using Raw Device Mapping (RDM) on the VMWare ESX server
Multi Path (DMMP)	Multipath configuration of the shared disk using the Device Mapper Multipath driver
Multi Path (EMPD)	Multipath configuration of the shared disk using the ETERNUS Multipath Driver
Multi Path (HDLM)	Multipath configuration of the shared disk using the Hitachi Dynamic Link Manager driver
Multi Path (RDAC)	Multipath configuration of the shared disk using the IBM Redundant Disk Array Controller driver
Multi Path (NECSPS)	Multipath configuration of the shared disk using the Storage StoragePathSavior driver
Single Path (DMMP)	Single path configuration of the shared disk using the Device Mapper Multipath driver
Single Path (RDAC)	Single path configuration of the shared disk using the IBM Redundant Disk Array Controller
Single Path	Single path connection not using a specific multipath driver

(*4): Supported version of LifeKeeper
This document is written for LifeKeeper for Linux v9.
If you are using a previous version of LifeKeeper, you must refer to the Release Notes for that version for the supported storage list.