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

Last Updated: November 1, 2018

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/iSCSI/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: PS4100 PS4110 PS4210 PS6100 PS6110 PS6210 PS6610	iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	With a large number of luns (over 20), change the REMOTETIMEOUT setting in /etc/default/LifeKeeper to REMOTETIMEOUT=600.
			Single Path (DMMP)	YES	DMMP ARK		
	MD3800f MD3820f MD3860f	FC	vSphere (RDM)	No	-	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
	MD3800i MD3820i MD3860i	iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			Single Path	No	-		
	MD3400 MD3420 MD3460	SAS	vSphere (RDM)	No	-	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
	SCv3000 Series: SCv3000 SCv3020	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			Single Path	No	-		
		SAS	vSphere	No	-	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
	SCv2000 Series: SCv2000 SCv2020 SCv2080	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			Single Path	No	-		
		SAS	vSphere	No	-	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
	Dell Storage: SC7020 SC5020 SC4020	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			Single Path	No	-		
	Dell Compellent: SC9000 SC8000	FC	vSphere (RDM)	No	-	-	
			Multi Path (DMMP)	No	-		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			Single Path	No	-		
Fujitsu	ETERNUS: DX60 S2 DX80 S2 DX90 S2 DX410 S2 DX440 S2 DX8100 S2 DX8700 S2 DX60 S3 DX100 S3 DX200 S3 DX500 S3 DX600 S3 DX8700 S3 DX8900 S3 DX200F DX60 S4 DX100 S4 DX200 S4 DX500 S4 DX600 S4 AF250 AF650 AF250 S2 AF650 S2	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Multi Path (EMPD)	YES	No Multipath ARK		
			Single Path	YES	No Multipath ARK		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			Multi Path (EMPD)	YES	No Multipath ARK		
			Single Path	YES	No Multipath ARK		
Hitachi / Hitachi Vantara	Hitachi Virtual Storage Platform G1000 Hitachi Virtual Storage Platform G1500 Hitachi Virtual Storage Platform F1500	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (HDLM)	YES	HDLM ARK		
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	YES	-		
		iSCSI	Multi Path (HDLM)	No	-	-	
			Single Path	No	-		
	Hitachi Virtual Storage Platform	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (HDLM)	YES	HDLM ARK		
			Single Path	YES	-		
		iSCSI	Multi Path (HDLM)	No		-	
			Single Path	No	-		
	Hitachi Virtual Storage Platform Mid Range Family: Hitachi Virtual Storage Platform F900 (VSP F900) Hitachi Virtual Storage Platform F700 (VSP F700) Hitachi Virtual Storage Platform F370 (VSP F370) Hitachi Virtual Storage Platform F350 (VSP F350) Hitachi Virtual Storage Platform G900 (VSP G900) Hitachi Virtual Storage Platform G700 (VSP G700) Hitachi Virtual Storage Platform G370 (VSP G370) Hitachi Virtual Storage Platform G350 (VSP G350) Hitachi Virtual Storage Platform G150 (VSP G150) Hitachi Virtual Storage Platform G130 (VSP G130)	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (HDLM)	YES	HDLM ARK		
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	YES	No Multipath ARK		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			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) 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 - v9.3.1	
			Multi Path (HDLM)	YES	HDLM ARK		
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	YES	No Multipath ARK		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			Single Path	YES	No Multipath ARK		
	Hitachi Unified Storage VM (HUS VM)	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (HDLM)	YES	HDLM ARK		
			Single Path	YES	No Multipath ARK		
		iSCSI	Multi Path (HDLM)	No	-	-	
			Single Path	No	-		
	Hitachi Unified Storage 100 Series: Hitachi Unified Storage 150 (HUS 150) Hitachi Unified Storage 130 (HUS 130) Hitachi Unified Storage 110 (HUS 110)	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (HDLM)	YES	HDLM ARK		
			Single Path	YES	No Multipath ARK		
		iSCSI	Multi Path (HDLM)	No	-	-	
			Single Path	No	-		
Hitachi	BR1200	iSCSI	Multi Path (HDLM)	No	-	-	
			Multi Path (DMMP)	No	-		
			Single Path	No	-		
		SAS	Multi Path (RDAC)	YES	No Multipath ARK	v9.0 - v9.3.1	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		
	BR1250	iSCSI	Multi Path (HDLM)	No	-	-	
			Multi Path (DMMP)	No	-		
			Single Path	No	-		
		SAS	Multi Path (NECSPS)	YES	NEC SPS ARK	v9.0 - v9.3.1	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 iStorage StoragePathSavior (NECSPS) Recovery Kit on RHEL7 environment.
			Single Path (NECSPS)	YES	NEC SPS ARK		
	BR1650E BR1650S	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (HDLM)	YES	HDLM ARK		
			Single Path	YES	-		
		iSCSI	Multi Path (HDLM)	No	-	-	
			Single Path	No	-		
HPE	Nimble Storage: AF20 AF20Q AF40 AF60 AF80 AF1000 AF3000 AF5000 AF7000 AF9000 CS1000H CS1000 CS3000 CS5000 CS7000 HF20C HF20H HF20 HF40 HF60	iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.2.2 - v9.3.1	
			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 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
	3PAR : 3PAR StoreServ 7400 3PAR StoreServ 7400c 3PAR StoreServ 7440 3PAR StoreServ 7440c 3PAR StoreServ 7450 3PAR StoreServ 7450c	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	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	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	Note: 3PAR StoreServ 7400 iSCSI returns a reservation conflict. To avoid this conflict, set the following parameter in "/etc/default/LifeKeeper": DMMP_REGISTER_IGNORE=TRUE
			Single Path	No	-		
	3PAR: 3PAR StoreServ 7200 3PAR StoreServ 7200c	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	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	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
	3PAR: 3PAR StoreServ 9450 3PAR StoreServ 20800 R2 3PAR StoreServ 20840 R2 3PAR StoreServ 20850 R2	FC	vSphere (RDM)	YES	No Multipath ARK	v9.2.1 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
	3PAR: 3PAR StoreServ 20450 3PAR StoreServ 20800 3PAR StoreServ 20840 3PAR StoreServ 20850	FC	vSphere (RDM)	YES	No Multipath ARK	v9.1 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
	3PAR StoreServ 10400	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
	3PAR StoreServ 10800	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	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	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
	MSA: MSA2050 MSA2052	FC	vSphere (RDM)	YES	No Multipath ARK	v9.2 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.2 - v9.3.1	
			Single Path	No	-		
		SAS	vSphere (RDM)	No	-	-	
			Multi Path (DMMP)	No	-		
			Single Path	No	-		
	MSA: MSA2042	FC	vSphere (RDM)	YES	No Multipath ARK	v9.1 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.1 - v9.3.1	
			Single Path	No	-		
		SAS	vSphere (RDM)	YES	No Multipath ARK	v9.1 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
	MSA: MSA1040 MSA2040	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.0 - v9.3.1	
			Single Path	No	-		
		SAS	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
	StoreVirtual (LeftHand) Series LeftHand OS version 12.6	FC	vSphere (RDM)	No	-	-	eftHand OS (SAN/iQ) version 12.6 is supported in HPE StoreVirtual (LeftHand) storage.All StoreVirtual series are supported, including HC250 / HC380 and StoreVirtual VSA as the virtual storage appliance.See the release note of each version of LeftHand OS (SAN/iQ) to know the virtual storage applicance in detail.
			Multi Path (DMMP)	No	-		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK	v9.1 - v9.3.1	
			Single Path	No	-		
	HP P9500	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	YES	No Multipath ARK		
	XP7 Storage System	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (HDLM)	YES	HDLM ARK		
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	YES	No Multipath ARK		
IBM	IBM SAN Volume Controller * * IBM TotalStorage Proven	FC	vSphere (RDM)	No	-	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	YES	No Multipath ARK		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
	IBM Storwize V7000	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	YES	DMMP ARK Quorum/Witness Server Kit	v9.0 - v9.3.1	The IBM Storwize V7000 (Firmware Version 6.3.0.1) has been certified by partner testing using iSCSI (iscsi-initiator-utils-6.2.0.872-34.el6.x86_64) with DMMP (device-mapper-1.02.66-6.el6, device-mapper-multipath-0.4.9-46.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	No	-		
	IBM Storwize V3700	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
		SAS	vSphere (RDM)	No	-	-	
			Multi Path (DMMP)	No	-		
			Single Path	No	-		
	IBM XIV Storage System	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	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)	YES	DMMP ARK		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
Lenovo	Lenovo Storage V3700 V2 Lenovo Storage V3700 V2 XP	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
		SAS	vSphere (RDM)	No	-	-	
			Multi Path (DMMP)	No	-		
			Single Path	No	-		
	IBM Storwize V3700	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		
		SAS	vSphere (RDM)	No	-	-	
			Multi Path (DMMP)	No	-		
			Single Path	No	-		
NEC	NEC iStorage: M10e M11e M100 M110 M300	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	LifeKeeper for Linux v9.1 or later can be used for NEC iStorage StoragePathSavior (NECSPS) Recovery Kit on RHEL7 environment.
			Multi Path (NECSPS)	YES	NECSPS ARK		
			Single Path (NECSPS)	YES	NECSPS ARK		
		iSCSI	Multi Path (NECSPS)	YES	NECSPS ARK	v9.0 - v9.3.1	
			Single Path (NECSPS)	No	-		
		SAS	vSphere (RDM)	No	-	v9.0 - v9.3.1	
			Multi Path (NECSPS)	YES	NECSPS ARK		
			Single Path (NECSPS)	YES	NECSPS ARK		
	NEC iStorage: M310 M310F M500 M510 M700 M710 M710F	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (NECSPS)	YES	NECSPS ARK		
			Single Path (NECSPS)	YES	NECSPS ARK		
		iSCSI	Multi Path (NECSPS)	YES	NECSPS ARK	v9.0 - v9.3.1	
			Single Path (NECSPS)	No	-		
	NEC iStorage: M12e M120 M320	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (NECSPS)	YES	NECSPS ARK		
			Single Path (NECSPS)	YES	NECSPS ARK		
		SAS	vSphere (RDM)	No	-	v9.0 - v9.3.1	
			Multi Path (NECSPS)	YES	NECSPS ARK		
			Single Path (NECSPS)	YES	NECSPS ARK		
	NEC iStorage: M320F	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (NECSPS)	YES	NECSPS ARK		
			Single Path (NECSPS)	YES	NECSPS ARK		
Pure Storage	FA-400 Series	FC	vSphere (RDM)	YES	No Multipath ARK	v9.0 - v9.3.1	
			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	No	-		
		iSCSI	Multi Path (DMMP)	No	-	-	
			Single Path	No	-		

	FlashArray//m Series
	//m10
	//m20
	//m50
	//m70
		FC	vSphere (RDM)	No	-	v9.0 - v9.3.1	

			Multi Path (DMMP)	YES	DMMP ARK		
			Single Path	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

(*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 iStorage 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

(*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.

(*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.

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