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SteelFusion 6.4.1 Interoperability Matrix

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PREFACE

Welcome to the *SteelFusion Interoperability Matrix*. Read this preface for an overview of the information provided in this document and contact information. This preface includes the following sections:

- *About this Document*
- *Audience*
- *Contacting Riverbed*
- *Finding further information*

About this Document

The SteelFusion Interoperability Matrix lists system configurations that have been qualified by Riverbed for use with SteelFusion appliances. The system configuration information includes storage array software and firmware revisions, hypervisor versions, SteelFusion Core configuration and release-specific information, and qualified backup software.

This matrix is intended to be used together with the following documentation:

- *SteelFusion Design Guide*
- *SteelFusion Core Installation and Configuration Guide*
- *SteelFusion Core User Guide*
- *SteelFusion Edge Installation and Configuration Guide*
- *SteelFusion Edge User Guide*

Audience

This document is written for storage, backup and network administrators familiar with Storage Area Networks (SANs), Network Attached Storage (NAS), Fibre Channel, NFS and iSCSI protocols.

For more details on SteelFusion, see: https://www.riverbed.com/products/steelfusion.html

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Contacting Riverbed

This section describes how to contact departments within Riverbed. For questions regarding specific compatibility checks, please contact support@riverbed.com.

Internet

You can learn about Riverbed products through the company website: http://www.riverbed.com.

Technical Support

If you have problems installing, using, or replacing Riverbed products, contact Riverbed Support or your channel partner who provides support. To contact Riverbed Support, open a trouble ticket by calling 1-888-RVBD-TAC (1-888-782-3822) in the United States and Canada or +1 415 247 7381 outside the United States. You can also go to https://support.riverbed.com.

Professional Services

Riverbed has a staff of professionals who can help you with installation, provisioning, network redesign, project management, custom designs, consolidation project design, and custom coded solutions. To contact Riverbed Professional Services, email proserve@riverbed.com or go to http://www.riverbed.com/us/products/professional_services/.

For More Information

In addition to this document, several other resources can help you configure the SteelFusion appliance in conjunction with different storage systems. Use the storage system vendor's documentation for setup questions.

- *SteelFusion Backup Solution Guide*
- *SteelFusion Solution Guide – SteelFusion with NetApp Storage Systems*
- *SteelFusion Solution Guide – SteelFusion with VNX Storage Systems*
- *SteelFusion Solution Guide – SteelFusion with EqualLogic Storage Arrays*
- *Solution Guide – Deploying SteelFusion with HPE 3PAR Storage*
- *Solution Guide – SteelFusion with IBM v7000/SVC*
- *The Riverbed Community website*

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End of Support Notice

EX Models will not be supported with SteelFusion version 6.0 onwards.
Core Models GC2000 and GC3000 will be out of support with SteelFusion version 6.0 onwards.
VGC Models 1000 and 1500 will be out of support with SteelFusion version 6.1.1 onwards.

Storage Systems and SteelFusion

Storage Array Compatibility List

The Storage Array Compatibility List below shows the storage array and array software versions that have been qualified for use with SteelFusion, along with the *first* SteelFusion Core release which added support for that array, array version and mode of connectivity. Different modes of connectivity and snapshot supportability are reported in different columns.

WARNING: Please adhere strictly to this compatibility list. Use only supported combinations of storage array and SteelFusion Core software versions. Carefully review any footnotes associated with each array/version combination to ensure your SteelFusion Core and storage array are configured properly.

Storage Array			First SteelFusion Software Version Supported			
Vendor	Series/Model	Version	iSCSI	Fibre Channel	NFS	Snapshots
Dell	EqualLogic Series	8.1.1[1]	4.5	NA	NA	4.5
Dell	EqualLogic Series	9.0.2[1]	5.0	NA	NA	5.0
Dell	EqualLogic Series	9.1.4[1]	5.5.1	NA	NA	5.5.1
Dell	EqualLogic Series	10.0.3[1]	6.4.0	NA	NA	6.4.0
Dell/EMC	Unity	4.2.1.9535982	5.5	5.5	NA	5.5
Dell/EMC	Unity	4.3.1.1525703027	6.0	6.0	NA	6.0
Dell/EMC	Unity	4.5	6.0.1	6.0.1	NA	6.0.1
Dell/EMC	Unity	5.0.7	6.4.0	6.4.0	NA	6.4.0
Dell/EMC	Unity	5.2.0	6.4.0	6.4.0	NA	6.4.0
EMC	VNX Series	Block software: 05.33.000.5.052	2.5	2.5	NA	2.5
EMC	VNX2 Series	Block software: 05.33.000.5.052	3.0	3.0	NA	3.0
HPE	3PAR	3.2.2.290[2]	4.5	4.5	NA	4.5
HPE	3PAR	3.3.1 MU3	6.0.1	6.0.1	NA	6.0.1
HPE	3PAR	3.3.1 MU5	6.3.0	6.3.0	NA	6.3.0
IBM	V7000 Series	7.4	2.6	2.6	NA	2.6
IBM	V7000 Series, SVC	7.8.1.9	4.6	4.6	NA	4.6
IBM	FlashSystem 5010	8.2.1.8	6.3.0	6.3.0	NA	6.3.0
EMC Isilon	X-Series	OneFS v7.2.1.1	NA	NA	5.1	5.1
EMC Isilon	X-Series	OneFS v8.0.1.1	NA	NA	5.1	5.1
EMC Isilon	X-Series	OneFS v8.2.2.0	NA	NA	6.3.0	6.3.0

[1] Write serialization must be enabled to ensure proper operation and data integrity when SteelFusion is used in an iSCSI configuration with EqualLogic array. SteelFusion Core 4.5 and later enable write serialization by default for EqualLogic array. However, customers who have used EqualLogic 8.x or newer with SteelFusion Core older than 4.5 may be susceptible to interoperability issues in the iSCSI data path. For such older releases, or **planned downgrades** to older releases, please see KB article S32205.

[2] Write serialization must be enabled to ensure proper operation and data integrity when SteelFusion is used in an iSCSI configuration with this array and array software version. SteelFusion Core versions 5.5, 4.6.3, 5.1.2 and later enable write serialization by default for all storage arrays. For older SteelFusion Core releases, or planned downgrades to older releases, please see KB article S32205.

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Storage Array			First SteelFusion Software Version Supported			
Vendor	Series/Model	Version	iSCSI	Fibre Channel	NFS	Snapshots
Microsoft	StorSimple 8000 Series	5.0 (6.3.9600.17845)[2]	4.3	NA	NA	NA
Microsoft	StorSimple 8000 Series	5.1 (6.3.9600.17885)[2]	6.3.0	NA	NA	NA
NetApp	FAS Series running Data OnTAP	8.x (7-mode) [3]	3.0	3.0	NA	3.0
NetApp	FAS Series running Data OnTAP	8.x (C-mode)[3]	4.6	4.6	NA	4.6
NetApp	FAS Series running Data OnTAP	9.0[2]	5.1	5.1	NA	5.1
NetApp	FAS Series running Data OnTAP	9.1[2]	5.1	5.1	5.1	5.1
NetApp	FAS Series running Data OnTAP	9.2[2]/9.3[2]	5.5	5.5	5.5	5.5
NetApp	FAS Series running Data OnTAP	9.4	6.0	6.0	6.0	6.0
NetApp	FAS Series running Data OnTAP	9.5	6.0.1	6.0.1	6.0.1	6.0.1
NetApp	FAS Series running Data OnTAP	9.6	6.2.0	NA	NA	6.2.0
NetApp	FAS Series running Data OnTAP	9.7	6.2.0	6.2.0	6.2.0	6.2.0
NetApp	FAS Series running Data OnTAP	9.8	6.2.2	6.2.2	6.2.2	6.2.2
NetApp	FAS Series running Data OnTAP	9.9.1	6.4.0	6.4.0	6.4.0	6.4.0
Nimble	CS220G	5.0.7[4]	5.5.1	NA	NA	6.0
Nimble	HF20	5.2.1[4]	6.2.2	NA	NA	6.2.2
Nimble	HF20	5.3.1[4]	6.3.0	NA	NA	6.3.0
Pure Storage	Purity//FA	5.1.2	6.0.2[5]	6.1	NA	6.1[5]
Pure Storage	Purity//FA	6.1.5	6.4.0[5]	6.4.0	NA	6.4.0[5]
Zadara	400/Basic	17.11-242	6.0	NA	NA	6.0
Zadara	400/Basic	20.01-308	6.2.2	NA	NA	6.2.2

Fibre Channel (FC) Data Path Only Support

Riverbed SteelFusion leverages VMware's RDM technology to provide data path connectivity for Fibre Channel (FC) storage arrays. FC storage arrays on VMware's Compatibility guide are supported. Currently, only Physical RDMs are supported. Please consult the VMware Compatibility Guide for specific vendor, model and version information.

VMware ESXi Server Interoperability Matrix

The following ESXi versions have been qualified for hosting SteelFusion Core Virtual Edition.

Virtual SteelFusion Core Appliance	Minimum SteelFusion Release Version	Supported VMware ESXi Version(s)
VSFC2500 series	5.5.0	6.5 ≥ Patch 2 6.7 ≥ GA 7.0 ≥ GA

[3] Customers who wish to upgrade their NetApp filers from OnTAP 8.x to OnTAP 9.x may be affected by an iSCSI write serialization issue during and after the upgrade. These customers should upgrade to SteelFusion Core 5.5 **prior to beginning the upgrade of their NetApp filer**. Alternatively, customers who do not wish to upgrade to SteelFusion Core versions 5.5, 4.6.3 or 5.1.2 should refer to KB article S32205 to manually apply write serialization settings **prior to beginning their NetApp upgrade**.

[4] Currently Nimble Storage arrays do not support LUN Data Protection for Windows

[5] Refer SteelFusion KB: **S33695** and **S33696** for limitations with Pure Storage and iSCSI

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ESXi 6.0 End of support

Riverbed periodically assesses adoption of hypervisor versions to support the most widely used versions and prioritize compatibility testing. SteelFusion 6.2 will include version vSphere 6.5 P02 as the default version and will no longer support versions older than 6.5 specifically vSphere 6.0 and older.

Proxy VMware ESXi Server Interoperability

The ESXi proxy version must be at least the same version and within the same major vSphere release as the embedded hypervisor versions on the SteelFusion Edge appliances in your deployment. Please refer to the RiOS, SteelFusion Edge, SteelFusion Core and vSphere Release Matrix for iSCSI/FC section in this document.

Backup Applications Matrix

The following table includes the backup vendors we have tested and qualified.

Backup Application	Latest Version	Full Backups	Incremental Backups	First SteelFusion Version Supported	Latest Validated SteelFusion Version	Windows Proxy Backup Support	ESX Proxy Backup Support
Avamar	19.4	Yes	Yes	2.5	6.4.1		Yes
Commvault, Virtual Server Protection	11.20	Yes	Yes	3.0	6.4.1	Yes	Yes
Veeam	10.0.0	Yes	Yes	4.5	6.4.1		Yes
Veritas BackupExec	21.0	Yes	Yes	2.5	6.4.1	Yes	Yes
Veritas NetBackup	8.3	Yes	Yes	2.5	6.4.1		Yes

SteelFusion Appliances – Minimum Supported Releases

The following table lists the minimum supported SteelFusion software releases required by SteelFusion Edge and SteelFusion Core platforms.

SteelFusion Edge and Core Platform	BASE SKUs	Minimum Supported SteelFusion Release
VSFC 2500	VSFC-2500-C1, VSFC-2500-C2, VSFC-2500-C3, VSFC-2500-C4, VSFC-2500-C5	5.5
SFCR3500	SFCR-03500-B010	4.0
SFED 2200	SFED-02200-B010	4.0
SFED 3100	SFED-03100-B010	4.0
SFED 5100	SFED-05100-B010	4.0

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RiOS, SteelFusion Edge, SteelFusion Core and vSphere Release Matrix for iSCSI/FC/NFS

The following table shows a mapping between RiOS, SteelFusion Edge, SteelFusion Core, and vSphere releases.

		RiOS Release		Granite / BlockStream / Storage Edge Software Versions				
SteelFusion Edge Release	Included RiOS release	Lowest Supported RiOS release for datacenter SteelHead	Highest Supported RiOS release for datacenter SteelHead	Edge Granite / BlockStream / Storage Edge Release	Corresponding Core Release	Lowest Supported Core Release	Highest Supported Core Release	Included vSphere Release
SFED 6.4.1	9.12.1	9.10.0	9.12.1	6.4.1	6.4.1	6.2	6.4.1	6.5 Patch 2[14]
SFED 6.4.0	9.12.0	9.10.0	9.12.0	6.4.0	6.4.0	6.2	6.4.1	6.5 Patch 2[14]
SFED 6.3.0	9.10.1	9.8	9.10.1	6.3.0	6.3.0	6.1	6.4.1	6.5 Patch 2[14]
SFED 6.2.2	9.10.0a	9.8	9.10.0a	6.2.2	6.2.2	6.0	6.4.1	6.5 Patch 2[13]
SFED 6.2.1	9.10.0	9.8	9.10.0	6.2.1	6.2.1	6.0	6.4.1	6.5 Patch 2[12]
SFED 6.2	9.10.0	9.8	9.10.0	6.2	6.2	6.0	6.4.1	6.5 Patch 2[12]
SFED 6.1.1	9.9.2	9.7	9.9	6.1.1	6.1.1	5.5	6.3.0	6.0 Patch 6[7]
SFED 6.1	9.9.2	9.7	9.9	6.1	6.1	5.5	6.3.0	6.0 Patch 6[6]
SFED 6.0.2	9.8.1	9.6	9.8	6.0.2	6.0.2	5.1	6.2.2	6.0 Patch 6[7]
SFED 6.0.1	9.8.0b	9.6	9.8	6.0.1	6.0.1	5.1	6.2.2	6.0 Patch 6[7]
SFED 6.0	9.8.0a	9.6	9.8	6.0	6.0	5.1	6.2.2	6.0 Patch 6[7]
SFED 5.5.2	9.7.1	9.5	9.7	5.5.2	5.5.2	5.0	6.1	6.0 Patch 6[7]
SFED 5.5.1	9.7.1	9.5	9.7	5.5.1	5.5.1	5.0	6.1	6.0 Patch 6[7]
SFED 5.5	9.7.0.a	9.5	9.7	5.5	5.5	5.0	6.1	6.0 Patch 6[7]
SFED 5.1.2	9.6.2	9.2	9.7	5.1.2	5.1.2	4.6	6.0	5.5 Patch 9[9]
SFED 5.1	9.6.0.a	9.2	9.7	5.1	5.1	4.6	6.0	5.5 Patch 9[7]
SFED 5.0	9.5.0.a	9.1	9.7	5.0	5.0	4.5	5.5	5.5 Patch 9[7]

[6] Multiple versions of ESXi are supported on this platform. Customers may optionally upgrade to vSphere 6.5 patch 2 or vSphere 6.7 Update 3

[7] Multiple versions of ESXi are supported on this platform. Customers may optionally run to vSphere 6.5 patch 2, or vSphere 5.5 patch 9

[8] Multiple versions of ESXi are supported on this platform. Customers may optionally upgrade to vSphere 6.0 Express Patch 4

[9] Multiple versions of ESXi are supported on this platform. Customers may optionally upgrade to vSphere 6.7 Update 3 or vSphere 6.7 patch 1

[10] Multiple versions of ESXi are supported on this platform. Customers may optionally upgrade to vSphere 6.0 Patch 3

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Hypervisor Limited Qualification

(Previously known as "Limited Support" in SteelFusion releases prior to 5.5)

On SteelFusion Edge, customers can upgrade to newer versions of vSphere and ESXi on the OS host and proxy host, provided major and minor version numbers do not change. This upgrade is called "**Hypervisor Limited Qualification**". It is intended to allow customers to install VMware-issued security patches and critical bug fixes in a timely fashion without transitioning to an unsupported configuration. For example: customers can upgrade an existing ESXi 6.5-based system to any 6.5.x release, but not ESXi 6.7 (unless supported by that SteelFusion release). You can find out more about Hypervisor Limited Qualifications in the following KB articles:

- *https://supportkb.riverbed.com/support/index?page=content&id=S27008 for SteelFusion Edge*

About Riverbed

Riverbed®, The Digital Performance Company™, enables organizations to maximize digital performance across every aspect of their business, allowing customers to rethink possible. Riverbed's unified and integrated Digital Performance Platform™ brings together a powerful combination of Digital Experience, Cloud Networking and Cloud Edge solutions that provides a modern IT architecture for the digital enterprise, delivering new levels of operational agility and dramatically accelerating business performance and outcomes. At more than $1 billion in annual revenue, Riverbed's 30,000+ customers include 98% of the *Fortune* 100 and 100% of the *Forbes* Global 100. Learn more at riverbed.com.

[14] Multiple versions of ESXi are supported on this platform. Customers may optionally upgrade to vSphere 6.5 EP20, vSphere 6.7 Update 3, vSphere 6.7 Patch 1 or vSphere 7.0 Update 1b

[13] Multiple versions of ESXi are supported on this platform. Customers may optionally upgrade to vSphere 6.5 EP20, vSphere 6.7 Update 3 or vSphere 6.7 Patch 1

[10] Multiple versions of ESXi are supported on this platform. Customers may optionally upgrade to vSphere 6.0 Express Patch 4.

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