

IBM Spectrum Virtualize 8.5 delivers Non-Volatile Memory Express (NVMe) remote direct memory access (RDMA) support and multifactor authentication

Table of contents

1 Overview	8 Technical information
1 Key requirements	13 Ordering information
3 Planned availability date	15 Terms and conditions
3 Description	20 Prices
4 Program number	21 Order now
7 Publications	21 Regional availability

Overview

IBM Spectrum^(R) Virtualize 8.5 delivers NVMe RDMA support and multifactor authentication. NVMe RDMA allows you to use end-to-end NVMe from the host right down to the storage using 25 Gb and 100 Gb Ethernet connections. Multifactor authentication introduces the option of using authentication methods beyond just a login password to create a more secure environment.

Key requirements

Software requirements

IBM^(R) SAN Volume Controller (SVC) (5641-VC8, 5641-CP8, 5725-M19, and 5725-H04) requires the base software feature. All other features are optional.

IBM Spectrum Virtualize software for SAN Volume Controller Encryption (5641-B08 and 5725-Y35) requires PID 5641-VC8 or 5725-M19.

IBM Spectrum Virtualize Software for Storwize^(R) V7000 (5639-CB8, 5639-XB8, and 5639-EB8) requires the base software feature. All other features are optional.

IBM Spectrum Virtualize software for FlashSystem 5100 External Data Virtualization Software (5639-ET8) requires the base software feature. All other features are optional.

IBM Spectrum Virtualize software for FlashSystem 5100 (5639-SV9) requires the base software feature. All other features are optional.

IBM Spectrum Virtualize software for FlashSystem 7000 (5639-DB8) requires the base software feature. Externally virtualized storage is subject to the same capacity-based licenses as SVC and is optional.

IBM Spectrum Virtualize software for FlashSystem 7000 Expansions (5639-XD8) requires at least one IBM FlashSystem^(R) 7000 expansion enclosure (2076-12G, 2076-24G, or 2076-92G) for installation. The high-density enclosures (2076-92G) require four of the base software charge codes to support the number of drive slots in the system.

IBM Spectrum Virtualize software for FlashSystem 9110 (5639-FA2) requires the base software feature. Externally virtualized storage is subject to the same capacity-based licenses as SVC and is optional.

IBM Spectrum Virtualize software for FlashSystem 9150 and 9200 (5639-FA3) requires the base software feature. Externally virtualized storage is subject to the same capacity-based licenses as SVC and is optional.

IBM Spectrum Virtualize software for FlashSystem 9x00 Expansions (5639-FA1) requires at least one IBM FlashSystem 9100 expansion enclosure (9846-AFF, 9846-A9F, 9848-AFF, or 9848-A9F) for installation. The high-density enclosures (9846-A9F and 9848-A9F) require four of the base software charge codes to support the number of drive slots in the system.

IBM Spectrum Virtualize software for FlashSystem 7000 (5639-F7K) requires the base software feature. Externally virtualized storage is subject to the same capacity-based licenses as SVC and is optional.

IBM Spectrum Virtualize software for FlashSystem 7000 Expansions (5639-EC1) requires at least one IBM FlashSystem 7000 expansion enclosure (4664-12G, 4664-24G, or 4664-92G) for installation. The high-density enclosures (4664-92G) require four of the base software charge codes to support the number of drive slots in the system.

IBM Spectrum Virtualize software for FlashSystem 9000 (5639-EA4) requires the base software feature. Externally virtualized storage is subject to the same capacity-based licenses as SVC and is optional.

Hardware requirements

IBM Spectrum Virtualize software for SAN Volume Controller requires at least one pair of IBM System Storage SVC (2145-SV1, 2145-DH8, 2145-SA2, 2145-SV2, 2145-SV3, 2147-SV1, 2147-SA2, 2147-SV2, or 2147-SV3) storage engines for installation. This software is also used to license External Data Virtualization on the IBM FlashSystem 7000 and 9000 families.

IBM Spectrum Virtualize software for SAN Volume Controller Encryption (5641-B08 and 5725-Y35) requires Encryption Enablement Feature ACE2 or ACE5.

IBM Spectrum Virtualize Software for Storwize V7000 Controller (5639-CB8) requires at least one IBM Storwize V7000 control enclosure (2076-724 or 2076-U7B) for installation.

IBM Spectrum Virtualize Software for Storwize V7000 Expansion software (5639-XB8) requires at least one IBM Storwize V7000 expansion enclosure (2076-A9F, 2076-92F, 2076-AFF, 2076-12F, or 2076-24F) for installation. The high-density enclosures (2076-A9F or 2076-92F) require four of the base software charge codes to support the number of disk slots in the system.

IBM Spectrum Virtualize Software for Storwize V7000 External Data Virtualization (5639-EB8) requires at least one IBM Storwize V7000 enclosure (2076-724) for installation.

IBM Spectrum Virtualize software for FlashSystem 5100 (5639-SV9) requires at least one IBM FlashSystem 5100 (2077-4H4, 2078-4H4, or 2078-UHB) or IBM Storwize V5100 control enclosure (2077-AF4, 2077-424, 2078-AF4, 2078-424, or 2078-U5B) for installation.

IBM Spectrum Virtualize software for FlashSystem 7000 Controller software (5639-DB8) requires at least one IBM FlashSystem 7000 control enclosure (2076-824 or 2076-U7C) for installation.

IBM Spectrum Virtualize software for FlashSystem 7000 Expansion software (5639-XD8) requires at least one IBM FlashSystem 7000 expansion enclosure (2076-12G, 2076-24G, 2076-92G) for installation. The high-density enclosures (2076-92G) require four of the base software charge codes to support the number of drive slots in the system.

IBM Spectrum Virtualize software for FlashSystem 5100 External Data Virtualization (5639-ET8) requires at least one IBM Storwize V5000 control enclosure (2077-AF4, 2077-424, 2077-AF3, 2077-312, 2077-324, 2078-AF4, 2078-424, 2078-AF3,

2078-312, or 2078-324) or one FlashSystem 5100 control enclosure (2077-4H4, 2078-4H4, or 2078-UHB) for installation.

IBM Spectrum Virtualize software for FlashSystem 5100 (5639-SV9) requires at least one IBM FlashSystem 5100 (2077-4H4, 2078-4H4, or 2078-UHB) or IBM Storwize V5100 control enclosure (2077-AF4, 2077-424, 2078-AF4, 2078-424, or 2078-U5B) for installation.

IBM Spectrum Virtualize software for FlashSystem 9110 Controller (5639-FA2) requires at least one IBM FlashSystem 9110 control enclosure (9846-AF7, 9848-AF7, or 9848-UF7) for installation.

IBM Spectrum Virtualize software for FlashSystem 9150 and 9200 Controller (5639-FA3) requires at least one IBM FlashSystem 9150 control enclosure (9846-AF8, 9848-AF8, or 9848-UF8), or one IBM FlashSystem 9200 (9846-AG8, 9848-AG8, or 9848-UG8), for installation.

IBM Spectrum Virtualize software for FlashSystem 9x00 Expansions (5639-FA1) requires at least one IBM FlashSystem 9100 expansion enclosure (9846-AFF, 9846-A9F, 9848-AFF, or 9848-A9F) for installation. The high-density enclosures (9846-A9F and 9848-A9F) require four of the base software charge codes to support the number of drive slots in the system.

IBM Spectrum Virtualize software for FlashSystem 7000 Controller with PID 5639-F7K is only installable on IBM FlashSystem 7000 MTMs 4664-824 and 4664-U7C.

IBM Spectrum Virtualize software for FlashSystem 7000 Expansion with PID 5639-EC1 is only installable on IBM FlashSystem 7000 MTMs 4664-12G, 4664-24G, and 4664-92G.

IBM Spectrum Virtualize software for FlashSystem 9000 Controller with PID 5639-EA4 is only installable on IBM FlashSystem 9000 MTMs 4666-AG8 and 4666-UG8.

Current support summaries, including specific software, hardware, and firmware levels supported, are maintained at their respective support websites.

- [SAN Volume Controller](#)
- [IBM FlashSystem 5000](#)
- [IBM FlashSystem 5100](#)
- [IBM FlashSystem 7200](#)
- [IBM FlashSystem 9100](#)
- [IBM FlashSystem 9200](#)

Planned availability date

April 29, 2022.

Availability within a country is subject to local legal requirements.

See the [Availability of national languages](#) section for national language availability.

Description

Clients today face a challenging business environment. There is a need to store more information to make their business more competitive and for IT to be more responsive and support initiatives, all while controlling IT costs and limiting the amount of staff required to support IT. Clients are also embarking on the journey of IT transformation, transitioning from traditional data centres to using five or more private and public cloud providers in their business environments.

IBM Spectrum Virtualize software delivers a cross-industry offering for clients who are dealing with these levels of complexity, as well as increasing storage requirements. These clients are also focused on scaling capacity and performance (scale up and scale out), data efficiency capabilities (deduplication, compression, thin provisioning, and iSCSI Unmap), high availability functionalities (stretched cluster, HyperSwap^(R), and mirrored volumes), security functions (Safeguarded Copy, encryption, multifactor authentication), disaster recovery functions (Global and Metro Mirror), local copy services (FlashCopy^(R)), and performance features (flash drives and Easy Tier^(R)) at a reasonable cost.

IBM Spectrum Virtualize also enables migration of data from existing storage systems to new ones, simplifying implementation and minimizing disruption. These are offerings for clients with existing SAN or Ethernet networks who seek to reduce the complexities and costs of managing their storage.

IBM Spectrum Virtualize has been enhanced with flash optimizations to support workloads demanding low latencies. Version 8.5 has added support for NVMe RDMA and multifactor authentication.

IBM Spectrum Virtualize systems deliver management of storage from entry-level and midrange up to enterprise storage systems, and enable hosts to attach through Fibre Channel and Ethernet. IBM Spectrum Virtualize is designed to be easy to use, enabling existing staff to start working with it rapidly. IBM Spectrum Virtualize uses virtualization, thin provisioning, and compression technologies to improve storage utilization and meet changing needs quickly and easily. In this way, IBM Spectrum Virtualize products are the ideal complement to server virtualization strategies.

Reference information

For complete information about the IBM Storage Expert Care Service and Support offerings, see Services Announcement [A21-0398](#), dated August 17, 2021.

Availability of national languages

Planned and supported geography translations will be available for download by April 29, 2022, at the following product websites:

- [SAN Volume Controller](#)
- [FlashSystem 5000](#)
- [FlashSystem 5100](#)
- [FlashSystem 7200](#)
- [FlashSystem 9100](#)
- [FlashSystem 9200](#)
- [IBM Spectrum Virtualize](#)

Translation information, if available, can be found at the [Translation Reports](#) website.

Program number

Program number	VRM	Program name
5639-CB8	8.5.0	IBM Spectrum Virtualize Software for Storwize V7000 Controller Software
5639-XB8	8.5.0	IBM Spectrum Virtualize Software for Storwize V7000 Expansion Software
5639-EB8	8.5.0	IBM Spectrum Virtualize Software for Storwize

Program number	VRM	Program name
		V7000 External Data Virtualization Software
5639-ET8	8.5.0	IBM Spectrum Virtualize Software for FlashSystem 5100 External Data Virtualization Software
5639-SV9	8.5.0	IBM Spectrum Virtualize Software for FlashSystem 5100
5639-FA2	8.5.0	IBM Spectrum Virtualize Software for FlashSystem 9110 Controller
5639-FA3	8.5.0	IBM Spectrum Virtualize Software for FlashSystem 9150 and 9200 Controller
5639-FA1	8.5.0	IBM Spectrum Virtualize Software for FlashSystem 9x00 Expansions
5639-DB8	8.5.0	IBM Spectrum Virtualize Software for FlashSystem 7000 Controller
5639-XD8	8.5.0	IBM Spectrum Virtualize Software for FlashSystem 7000 Expansion
5639-F7K	8.5.0	IBM Spectrum Virtualize SW for FlashSystem 7000 Controller
5639-EC1	8.5.0	IBM Spectrum Virtualize SW for FlashSystem 7000 Expansion
5639-EA4	8.5.0	IBM Spectrum Virtualize SW for FlashSystem 9000 Controller

IBM Spectrum Virtualize Software for Storwize V7000 Controller Software 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-CB8	5639-CBA	5639-CBF	5639-CBC	5639-CBG	5639-CBH
	5639-CBB		5639-CBD		
			5639-CBE		

IBM Spectrum Virtualize Software for Storwize V7000 Expansion Software 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-XB8	5639-XBA	5639-XBF	5639-XBC	5639-XBG	5639-XBH
	5639-XBB		5639-XBD		
			5639-XBE		

IBM Spectrum Virtualize Software for Storwize V7000 External Data Virtualization Software 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-EB8	5639-EBA	5639-EBF	5639-EBC	5639-EBG	5639-EBH
	5639-EBB		5639-EBD		
			5639-EBE		

IBM Spectrum Virtualize Software for FlashSystems 5100 External Data Virtualization Software 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-ET8	5639-ETA	5639-ETF	5639-ETC	5639-ETG	5639-ETH
	5639-ETB		5639-ETD		
			5639-ETE		

IBM Spectrum Virtualize Software for FlashSystem 5100 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-SV9	5639-SAV	5639-SCV	5639-SDV	5639-SGV	5639-SHV
	5639-SBV		5639-SEV		
			5639-SFV		

IBM Spectrum Virtualize Software for FlashSystem 9110 Controller 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-FA2	5639-FAJ	5639-FAP	5639-FAL	5639-FAQ	5639-FAR
	5639-FAK		5639-FAM		
			5639-FAN		

IBM Spectrum Virtualize Software for FlashSystem 9150 and 9200 Controller 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-FA3	5639-FAS	5639-FAX	5639-FAU	5639-FAY	5639-FAZ
	5639-FAT		5639-FAV		
			5639-FAW		

IBM Spectrum Virtualize Software for FlashSystem 9x00 Expansions 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-FA1	5639-FAA	5639-FAF	5639-FAC	5639-FAG	5639-FAH
	5639-FAB		5639-FAD		
			5639-FAE		

IBM Spectrum Virtualize Software for FlashSystem 7000 Controller 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-DB8	5639-DBA	5639-DBC	5639-DBD	5639-DBG	5639-DBH
	5639-DBB		5639-DBE		
			5639-DBF		

IBM Spectrum Virtualize Software for FlashSystem 7000 Expansion 8

Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-XD8	5639-XDA	5639-XDF	5639-XDC	5639-XDG	5639-XDH
	5639-XDB		5639-XDD		
			5639-XDE		

IBM SV SW for FlashSystem 7000 Controller 8

Program number	Maintenance 3-month Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-F7K	5639-EA2	5639-NAB	5639-NAA	5639-NA9	5639-NA8	5639-NA7

IBM SV SW for FlashSystem 7000 Expansion 8

Program number	Maintenance 3-month Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-EC1	5639-EC2	5639-NAG	5639-NAF	5639-NAE	5639-NAD	5639-NAC

IBM SV SW for FlashSystem 9000 Controller 8

Program number	Maintenance 3-month Program number	Maintenance 1-year Program number	Maintenance 2-year Program number	Maintenance 3-year Program number	Maintenance 4-year Program number	Maintenance 5-year Program number
5639-EA4	5639-EA3	5601-A01	5601-A02	5601-A03	5601-A04	5601-A05

Education support

IBM training provides education to support many IBM offerings. Descriptions of courses for IT professionals and managers can be found on the [IBM Training and Skills](#) website.

Call IBM training at 800-IBM-TEACH (426-8322) for catalogues, schedules, and enrollments.

Offering Information

Product information is available on the [IBM Offering Information](#) website.

More information is also available on the [Passport Advantage and Passport Advantage Express](#) website.

Publications

The following publications can be downloaded in PDF format from the individual product websites:

Title	Order number
<i>ENUG</i>	Z125-5823
<i>IBM Systems Safety Notices</i>	G229-9054

To download these free PDF format publications, go to the [IBM Publications Center](#) website.

To access IBM Documentation and to directly download any publications in PDF format, go to the individual IBM Documentation product website:

- [SAN Volume Controller](#)
- [IBM FlashSystem 5200, 5000, 5100, Storwize V5100 and V5000E](#)
- [IBM FlashSystem 7200 and Storwize V7000](#)
- [IBM FlashSystem 9200 and 9100](#)

Technical information

Specified operating environment

Hardware requirements

IBM Spectrum Virtualize software for SAN Volume Controller 8 requires at least one pair of IBM System Storage SVC storage engines (2145-SV1, 2145-DH8, 2145-SA2, 2145-SV2, 2147-SV1, 2147-SA2, 2147-SV2, 2145-SV3, or 2147-SV3) for installation. This software is also used to license external data virtualization on the IBM FlashSystem 7000 and 9000 families.

IBM Spectrum Virtualize software for SAN Volume Controller Encryption 8 (5641-B08 and 5725-Y35) requires Encryption Enablement Feature ACE2 or ACE5.

IBM Spectrum Virtualize software for SAN Volume Controller utility requires at least one pair of IBM System Storage SAN Volume Controller storage engines (2145-SV1, 2145-DH8, 2145-SA2, 2145-SV2, 2147-SV1, 2147-SA2, 2147-SV2, 2145-SV3, or 2147-SV3) for installation. This software is also used to license external data virtualization on the IBM FlashSystem 7000 and 9000 families.

IBM Spectrum Virtualize software for Storwize V7000 Controller (5639-CB8) requires at least one IBM Storwize V7000 control enclosure (2076-724 or 2076-U7B) for installation.

IBM Spectrum Virtualize software for Storwize V7000 Expansion (5639-XB8) requires at least one IBM Storwize V7000 expansion enclosure (2076-A9F, 2076-92F, 2076-AFF, 2076-12F, or 2076-24F) for installation. The high-density enclosures (2076-A9F or 2076-92F) require four of the base software charge codes to support the number of disk slots in the system.

IBM Spectrum Virtualize software for Storwize V7000 External Data Virtualization (5639-EB8) requires at least one IBM Storwize V7000 enclosure (2076-724) for installation.

IBM Spectrum Virtualize software for FlashSystem 5100 (5639-SV9) requires at least one IBM FlashSystem 5100 (2077-4H4, 2078-4H4, or 2078-UHB) or IBM Storwize V5100 control enclosure (2077-AF4, 2077-424, 2078-AF4, 2078-424, or 2078-U5B) for installation.

IBM Spectrum Virtualize software for FlashSystem 7000 Controller (5639-DB8) requires at least one IBM FlashSystem 7000 control enclosure (2076-824 or 2076-U7C) for installation.

IBM Spectrum Virtualize software for FlashSystem 7000 Expansion (5639-XD8) requires at least one IBM FlashSystem 7000 expansion enclosure (2076-12G, 2076-24G, or 2076-92G) for installation. The high-density enclosures (2076-92G) require four of the base software charge codes to support the number of drive slots in the system.

IBM Spectrum Virtualize software for FlashSystem 5100 External Data Virtualization (5639-ET8) requires at least one IBM Storwize V5000 control enclosure (2077-AF4, 2077-424, 2077-AF3, 2077-312, 2077-324, 2078-AF4, 2078-424, 2078-AF3, 2078-312, or 2078-324) or one FlashSystem 5100 control enclosure (2077-4H4, 2078-4H4, or 2078-UHB) for installation.

IBM Spectrum Virtualize software for FlashSystem 5100 8 (5639-SV9) requires at least one IBM FlashSystem 5100 (2077-4H4, 2078-4H4, or 2078-UHB) or IBM Storwize V5100 control enclosure (2077-AF4, 2077-424, 2078-AF4, 2078-424, or 2078-U5B) for installation.

IBM Spectrum Virtualize software for FlashSystem 9110 Controller (5639-FA2) requires at least one IBM FlashSystem 9110 control enclosure (9846-AF7, 9848-AF7, or 9848-UF7) for installation.

IBM Spectrum Virtualize software for FlashSystem 9150 and 9200 Controller (5639-FA3) requires at least one IBM FlashSystem 9150 control enclosure (9846-AF8, 9848-AF8, or 9848-UF8) or one IBM FlashSystem 9200 (9846-AG8, 9848-AG8, or 9848-UG8) for installation.

IBM Spectrum Virtualize software for FlashSystem 9x00 Expansions (5639-FA1) requires at least one IBM FlashSystem 9100 expansion enclosure (9846-AFF, 9846-A9F, 9848-AFF, or 9848-A9F) for installation. The high-density enclosures (9846-A9F and 9848-A9F) require four of the base software charge codes to support the number of drive slots in the system.

IBM Spectrum Virtualize Software for FlashSystem 7000 Controller (5639-F7K) can only be ordered with FlashSystem 7000 machine type-model 4664-824 or 4664-U7C.

IBM Spectrum Virtualize Software for FlashSystem 7000 Expansions (5639-EC1) can only be ordered with FlashSystem 7000 machine type-model 4664-12G, 4664-24G, or 4664-92G.

IBM Spectrum Virtualize Software for FlashSystem 9000 Controller (5639-EA4) can only be ordered with FlashSystem 9000 machine type-model 4666-AG8 or 4666-UG8.

Current support summaries, including specific software, hardware, and firmware levels supported, are maintained at their respective support websites:

- [SAN Volume Controller](#)
- [IBM FlashSystem 5000](#)
- [IBM FlashSystem 5100](#)
- [IBM FlashSystem 7200](#)
- [IBM FlashSystem 9100](#)
- [IBM FlashSystem 9200](#)

Software requirements

For information about upgrading, current hardware and software interoperability dependencies, and other product environment and configuration information, see the respective support website:

- [SAN Volume Controller](#)
- [IBM FlashSystem 5000](#)
- [IBM FlashSystem 5100](#)

- [IBM FlashSystem 7200](#)
- [IBM FlashSystem 9100](#)
- [IBM FlashSystem 9200](#)

IBM includes one year of software maintenance with each program license acquired. The initial period of software maintenance can be extended by the purchase of the applicable two-, three-, four-, or five-year software maintenance registration program number and features.

Note: Only IBM Spectrum Virtualize software for SVC, IBM Spectrum Virtualize software only, and IBM Spectrum Virtualize for Public Cloud can be ordered through Passport Advantage. IBM Spectrum Virtualize for Public Cloud is only offered as a monthly term license through Passport Advantage which includes subscription and support together with the software license.

When ordering using the program number with feature codes, software maintenance can be extended by selecting the applicable two-, three-, four-, or five-year software maintenance registration program number and features. For IBM Spectrum Virtualize for SVC software only, all software maintenance renewals will be managed and invoiced through Passport Advantage.

For all current storage systems and host environments supported, go to the respective support website:

- [SAN Volume Controller](#)
- [IBM FlashSystem 5000](#)
- [IBM FlashSystem 5100](#)
- [IBM FlashSystem 7200](#)
- [IBM FlashSystem 9100](#)
- [IBM FlashSystem 9200](#)

Compatibility

For further information about currently supported environments and operating guidelines, go to the respective support website:

- [SVC](#)
- [IBM FlashSystem 5000](#)
- [IBM FlashSystem 5100](#)
- [IBM FlashSystem 7200](#)
- [IBM FlashSystem 9100](#)
- [IBM FlashSystem 9200](#)

Limitations

This program only operates on specified storage hardware as detailed in the [Hardware requirements](#) section.

For additional information, see the [Usage restrictions](#) section in the [Terms and conditions](#) section of this announcement, and the License Information document that is available on the [IBM Software License Agreement](#) website.

Additional information on configuration limitations and configuration guidelines is further documented in the README file accompanying the IBM Spectrum Virtualize software or in furnished publications for this product available at the [IBM SVC](#), [IBM FlashSystem 5000](#), [IBM FlashSystem 5100](#), [IBM FlashSystem 9100](#), [IBM FlashSystem 9200](#), [IBM FlashSystem 7200](#), and [IBM Spectrum Virtualize](#) support websites.

Encryption and other functions in this announcement may be subject to limitations and restrictions for supported configurations, environments, and use. See the *IBM Spectrum Virtualize V8.5 Configuration Limits and Restrictions* document for details.

To view this document, access the [IBM Systems Support](#) website.

Select the applicable product (such as FlashSystem 5000) in the **Product Finder** menu.

Enter *V8.5 Configuration Limits and Restrictions* in the Search Support field and check the *Search only...* box.

IBM Support

[IBM Support](#) is your gateway to technical support tools and resources that are designed to help you save time and simplify support. IBM Support can help you find answers to questions, download fixes, troubleshoot, submit and track problem cases, and build skills. Learn and stay informed about the transformation of IBM Support, including new tools, new processes, and new capabilities, by going to the [IBM Support Insider](#).

Additional IBM support

IBM Client Engineering

Client Engineering is a framework for accelerating digital transformation. It helps you generate innovative ideas and equips you with the practices, technologies, and expertise to turn those ideas into business value in weeks. When you work with Client Engineering, you bring pain points into focus. You empower your team to take manageable risks, adopt leading technologies, speed up solution development, and measure the value of everything you do. Client Engineering has experts and services to address a broad array of use cases, including capabilities for business transformation, hybrid cloud, analytics and AI, infrastructure systems, security, and more. Contact Client Engineering at sysgarage@ibm.com.

Planning information

Client responsibilities

Planning for and provisioning of the required power and environmental support for an IBM Spectrum Virtualize family product, including its storage engines, is a client responsibility.

Planning considerations for IBM Spectrum Virtualize software are listed in IBM Documentation under the respective product:

- [SAN Volume Controller](#)
- [FlashSystem 7200 and Storwize V7000](#)
- [FlashSystem 5000, 5100, and Storwize V5000E](#)
- [FlashSystem 9100 and 9200](#)

Clients with a 5641-VC8 or 5641-CP8 license are responsible to combine the total terabytes managed for each function from individual SVC license manager (cluster) reports to ensure they are within the enterprise license entitlement (within that country) for each function.

Clients with enclosure licenses for optional functions, such as Easy Tier^(R) and FlashCopy^(R), are responsible to combine the total number of enclosures managed for each function to ensure they are within the enterprise license entitlement (within that country) for each function.

Packaging

This offering is available from [IBM Marketplace](#). On IBM Marketplace, you can discover, try, and buy software, hardware, and services from IBM and third-party providers.

New order packaging

License information documents for IBM Spectrum Virtualize software programs ship with the hardware on which these programs are preloaded.

The *IBM Agreement for Acquisition of Support and Addendum for Support*, Z125-6011, is shipped with each new IBM Spectrum Virtualize software order.

SVC

IBM Spectrum Virtualize software for SVC 8 (5641-VC8, 5641-CP8, and 5641-B08) is pre-installed on, and shipped with, the required IBM 2145 or 2147 SVC storage engines.

After receipt of an order for IBM Spectrum Virtualize software for SVC 5641-VC8, the IBM Business Partner or client will be required to register and accept Passport Advantage or Passport Express terms and conditions. Upon registration, the client will be authorized for the electronic download of software code updates. The product includes the license and one year of support, with up to four additional years available for purchase with the product.

In addition to the IBM Agreement for Acquisition of Software Maintenance, the following are shipped with each new IBM System Storage SVC order:

- *License Information for IBM System Storage SAN Volume Controller V8*, GI13-2841
- *IBM System Storage SAN Volume Controller Read First file*, GA32-0843

IBM FlashSystem 7000

IBM Spectrum Virtualize software for FlashSystem 7000 8 (5639-DB8 and 5639-XD8) is pre-installed on, and shipped with, the required IBM 2076 FlashSystem 7000 systems.

In addition to the *IBM Agreement for Acquisition of Software Maintenance*, the License Information for IBM FlashSystem 7000 8, GI13-2841, is shipped with each new IBM FlashSystem 7200 controller order.

IBM FlashSystem 5100

IBM Spectrum Virtualize software for FlashSystem 5100 (5639-SV9) is pre-installed on, and shipped with, the required IBM 2077 or 2078 IBM FlashSystem 5100 systems.

The paid invoice acts as Proof of Entitlement (PoE) for all orders of IBM Spectrum Virtualize software 8. All associated media listed in the [Publications](#) section are also shipped with the new hardware order. One media set per IBM Spectrum Virtualize system will be shipped.

IBM FlashSystem 9100 and 9200

IBM FlashSystem 9100 and 9200 software (5639-FA1, 5639-FA2, and 5639-FA3) is pre-installed on, and shipped with, IBM 9846 and 9848 FlashSystem 9100 and 9200 systems.

IBM Spectrum Virtualize Software for FlashSystem 9000 (5639-EA4 and 5639-EB2) is pre-installed on, and shipped with, the required IBM 4666 FlashSystem 9000 storage system.

In addition to the *IBM Agreement for Acquisition of Software Maintenance*, the License Information is shipped with each new controller order.

The paid invoice acts as PoE for all orders of IBM Spectrum Virtualize software 8. All associated media listed in the [Publications](#) section are also shipped with the new hardware order. One media set per IBM Spectrum Virtualize system will be shipped.

IBM FlashSystem 7200

IBM Spectrum Virtualize Software for FlashSystem 7000 (5639-F7K and 5639-EC1) is pre-installed on, and shipped with, the required IBM 4664 FlashSystem 7000 storage system.

In addition to the *IBM Agreement for Acquisition of Software Maintenance*, the License Information is shipped with each new IBM FlashSystem 7200 order.

Subsequent media orders

For additional available publications, see the [Publications](#) section.

For assistance in placing orders with or without media features, contact your IBM representative.

Publications are in English.

Security, auditability, and control

IBM Spectrum Virtualize software can use an existing LDAP for authentication, for example interfacing with Microsoft™ Active Directory.

Use of supplementary antivirus software is recommended, but not required.

The client is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Ordering information

Products announced as dual-pipe are available for ordering by program number and feature number or by part number. Products can be obtained by part number through [Passport Advantage](#).

For more information, contact your IBM representative or IBM Business Partner.

This program is available only through Passport Advantage.

IBM Configurator for e-business (e-config)

There is no new ordering information in this release. For available feature numbers, see the following Software Announcements:

- [A20-0042](#), dated February 11, 2020
- [A21-0368](#), dated August 17, 2021
- [A20-0651](#), dated November 3, 2020
- [A21-0435](#), dated August 17, 2021

This software license includes Software Maintenance, previously referred to as Software Subscription and Technical Support.

Extending coverage for a total of three years or five years from the date of acquisition may be elected. Order the program number, feature number, and quantity to extend coverage for your software licenses. If maintenance has expired, specify the after license feature number.

Charge metric

The charge metrics for these licensed products can be found in the following License Information documents:

Program identifier	Program Name	License Information document number
5639-CB8	IBM Spectrum Virtualize Software for Storwize V7000 Controller Software 8.5.0	L-SVGY-C9RNLM
5639-EB8	IBM Spectrum Virtualize Software for Storwize V7000 External Data Virtualization Software 8.5.0	L-SVGY-C9RNLM
5639-XB8	IBM Spectrum Virtualize Software for Storwize V7000 Expansion Software 8.5.0	L-SVGY-C9RNLM
5639-CB8	IBM Spectrum Virtualize Software for Storwize V7000 Controller Software 8.5.0	L-SVGY-C9RNLM
5639-EB8	IBM Spectrum Virtualize Software for Storwize V7000 External Data Virtualization Software 8.5.0	L-SVGY-C9RNLM
5639-XB8	IBM Spectrum Virtualize Software for Storwize V7000 Expansion Software 8.5.0	L-SVGY-C9RNLM
5639-ET8	IBM Spectrum Virtualize Software for FlashSystem 5100 External Data Virtualization Software 8.5.0	L-SVGY-C9RNB8
5639-SV9	IBM Spectrum Virtualize Software for FlashSystem 5100 8.5.0	L-SVGY-C9RNB8
5639-FA2	IBM Spectrum Virtualize Software for FlashSystem 9110 Controller 8.5.0	L-SVGY-C9RMY4
5639-FA3	IBM Spectrum Virtualize Software for FlashSystem 9150 and 9200 Controller 8.5.0	L-SVGY-C9RMY4
5639-FA1	IBM Spectrum Virtualize Software for FlashSystem 9x00 Expansion 8.5.0	L-SVGY-C9RMY4
5639-DB8	IBM Spectrum Virtualize Software for FlashSystem 7000 Controller 8.5.0	L-SVGY-C9RN8C
5639-XD8	IBM Spectrum Virtualize Software for FlashSystem 7000 Expansion 8.5.0	L-SVGY-C9RN8C
5639-F7K	IBM Spectrum Virtualize SW for FlashSystem 7000 Controller	L-SVGY-C9RN8C
5639-EC1	IBM Spectrum Virtualize SW for FlashSystem 7000 Expansion	L-SVGY-C9RN8C
5639-EA4	IBM Spectrum Virtualize SW for FlashSystem 9000 Controller	L-SVGY-C9RMY4

Select your language of choice and scroll down to the Charge Metrics section. Follow-on releases, if any, may have updated terms. See the [License Information documents](#) website for more information.

Terms and conditions

The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

This product is available only through Passport Advantage.

Licensing

IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use. Part number products only, offered outside of Passport Advantage, where applicable, are license only and do not include Software Maintenance.

This software license includes Software Subscription and Support (also referred to as Software Maintenance).

Software Maintenance

The IBM Agreement for Acquisition of Software Maintenance (Z125-6011) applies for Subscription and Support (also referred to as Software Maintenance) and does not require client signatures.

Licenses under the IBM International Program License Agreement (IPLA) provide for support with ongoing access to releases and versions of the program. IBM includes one year of Software Subscription and Support (also referred to as Software Maintenance) with the initial license acquisition of each program acquired. The initial period of Software Subscription and Support can be extended by the purchase of a renewal option, if available. Two charges apply: a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as access to updates, releases, and versions of the program as long as support is in effect.

License Information number

The following License Information documents apply to the offerings in this announcement:

Program identifier	Program Name	License Information document number
5639-CB8	IBM Spectrum Virtualize Software for Storwize V7000 Controller Software 8.5.0	L-SVGY-C9RNLM
5639-EB8	IBM Spectrum Virtualize Software for Storwize V7000 External Data Virtualization Software 8.5.0	L-SVGY-C9RNLM
5639-XB8	IBM Spectrum Virtualize Software for Storwize V7000 Expansion Software 8.5.0	L-SVGY-C9RNLM

Program identifier	Program Name	License Information document number
5639-ET8	IBM Spectrum Virtualize Software for FlashSystem 5100 External Data Virtualization Software 8.5.0	L-SVGY-C9RNB8
5639-SV9	IBM Spectrum Virtualize Software for FlashSystem 5100 8.5.0	L-SVGY-C9RNB8
5639-FA2	IBM Spectrum Virtualize Software for FlashSystem 9110 Controller 8.5.0	L-SVGY-C9RMY4
5639-FA3	IBM Spectrum Virtualize Software for FlashSystem 9150 and 9200 Controller 8.5.0	L-SVGY-C9RMY4
5639-FA1	IBM Spectrum Virtualize Software for FlashSystem 9x00 Expansion 8.5.0	L-SVGY-C9RMY4
5639-DB8	IBM Spectrum Virtualize Software for FlashSystem 7000 Controller 8.5.0	L-SVGY-C9RN8C
5639-XD8	IBM Spectrum Virtualize Software for FlashSystem 7000 Expansion 8.5.0	L-SVGY-C9RN8C
5639-F7K	IBM Spectrum Virtualize SW for FlashSystem 7000 Controller	L-SVGY-C9RN8C
5639-EC1	IBM Spectrum Virtualize SW for FlashSystem 7000 Expansion	L-SVGY-C9RN8C
5639-EA4	IBM Spectrum Virtualize SW for FlashSystem 9000 Controller	L-SVGY-C9RMY4

Select your language of choice and scroll down to the Charge Metrics section.

Follow-on releases, if any, may have updated terms. See the [License Information documents](#) website for more information.

Limited warranty applies

Yes

Limited warranty

IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, see the [IBM Support Guide](#).

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

Program support

Subscription and Support includes telephone assistance, as well as access to updates, releases, and versions of the program as long as support is in effect. You will be notified of discontinuance of support with 12 months' notice.

Money-back guarantee

If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that (1) for programs acquired under the IBM International Passport Advantage offering, this term applies only to your first acquisition of the program and (2) for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

Volume orders (IVO)

Yes. Contact your IBM representative.

Passport Advantage applies

Yes, information is available on the [Passport Advantage and Passport Advantage Express](#) website.

Usage restrictions

Yes

This offering is subject to usage restrictions.

SVC standard software (5641-VC8)

This program (5641-VC8) is licensed on a per storage capacity unit (SCU) with cumulative license basis for SVC Base License and SVC Compression; licensed on a per-terabyte (with cumulative tiers) capacity basis for SVC FlashCopy and SVC Remote Mirror; and licensed on a per-storage device for SVC Encryption. Users may only install this program on IBM System Storage SAN Volume Controller 2145 or 2147 storage engines.

IBM SVC standard software and its associated features are licensed to the client (enterprise). Note that a client who has physical sites in multiple countries may consolidate their licenses only within each country. Check with your sales representative and review all necessary conditions prior to licensing.

A client's right to use the IBM FlashCopy for SAN Volume Controller and Metro/Global Mirror for SAN Volume Controller features of this program is also limited to the amount of authorizations obtained from IBM. The authorizations for FlashCopy and for Metro/Global Mirror cannot exceed the total capacity authorization for the amount of managed storage on all clusters. Use of FlashCopy features requires license authorizations for only the FlashCopy sources, not the targets.

Use of Metro/Global Mirror features requires license authorizations for both the Metro/Global Mirror source and target capacities in use.

Clients may use the encryption feature once they purchase feature ACE2 on the hardware, and the encryption PID (5641-B08 or 5725-Y35) software enablement offering. Only one encryption software product is required per SVC node, regardless of the capacity of the system. Every SVC node in an SVC cluster must have encryption enabled for it to function.

This program is only supported for use with host servers, storage sub-systems, and SAN configurations identified by IBM as being supported for attachment to the IBM System Storage SVC. This program is delivered together with code provided under separate license agreements, including, but not limited to, open source license agreements.

See License Information document [L-SVGY-C9RNH3](#) for details. These restrictions are current as of the date of announcement. Follow-on releases, if any, may have updated terms. See the [License Information documents](#) website for any new or revised restrictions.

FlashSystem 7000

The following Program Unique Terms apply. This program is licensed for use with the IBM FlashSystem 7000 system with which the program was delivered, and only to manage the capacity specified in the proof of entitlement document for that license. A separate license is required for each IBM FlashSystem 7000 storage enclosure. The following paragraph titled "Disabling device" applies to the use of the IBM FlashSystem 7000 Software components. The term "Program" in these paragraphs shall mean the IBM FlashSystem 7000 Software components.

For all externally virtualized storage, such as any storage not purchased as part of a 9100 or 9200 system, SVC capacity based licensing applies.

Disabling device: The Program may include a disabling device that will prevent certain features from being used. You will not tamper with such disabling device or otherwise change the Program.

Transferability: The Programs 5639-DB8, 5639-CB8, 5639-XB8, 5639-XD8, 5639-F7K, and 5639-EC1 are not transferable between IBM FlashSystem 7000 systems and are only to be used on the IBM FlashSystem 7000 system for which it was purchased. If the system is transferred to a new owner, the program license transfers with the system. However, Software Maintenance does not transfer, and a new maintenance agreement must be purchased by the new owner. This is also applicable to Software Maintenance acquired through IBM Storage Expert Care.

See License Information document [L-SVGY-C9RN8C](#) for details. These restrictions are current as of the date of announcement. Follow-on releases, if any, may have updated terms. See the [License Information documents](#) website for any new or revised restrictions.

FlashSystem 5100

The following Program Unique Terms apply. This program is licensed for use with the IBM FlashSystem 5100 with which the program was delivered and only to manage the capacity specified in the proof of entitlement document for that license. A separate license is required for each IBM FlashSystem 5100 storage enclosure. The following paragraph titled "Disabling device" applies to the use of the IBM FlashSystem 5100 Software components. The term "Program" in these paragraphs shall mean the IBM FlashSystem 5100 Software components.

Disabling device: The Program may include a disabling device that will prevent certain features from being used. You will not tamper with such disabling device or otherwise change the Program.

Transferability: The Program 5639-SV9 is not transferable between IBM FlashSystem 5100 systems and is only to be used on the IBM FlashSystem 5100 system for which it was purchased. If the system is transferred to a new owner, the program license transfers with the system. However, Software Maintenance does not transfer, and a new maintenance agreement must be purchased by the new owner.

See License Information document [L-SVGY-C9RNB8](#) for details. These restrictions are current as of the date of announcement. Follow-on releases, if any, may have updated terms. See the [License Information documents](#) website for any new or revised restrictions.

FlashSystem 9100 and 9200

The following Program Unique Terms apply. This program is licensed for use with the IBM FlashSystem 9100 and 9200 systems with which the program was delivered, and only to manage the capacity specified in the proof of entitlement document for that license. A separate license is required for each IBM FlashSystem 9100 or 9200 storage enclosure. The following paragraph titled "Disabling device" applies to the use of the IBM FlashSystem 9100 or 9200 Software components. The term "Program" in these paragraphs shall mean the IBM FlashSystem 9100 or 9200 Software components.

For all externally virtualized storage, such as any storage not purchased as part of a 9100 or 9200 system, SVC capacity based licensing applies.

For the utility models 9848-UF7, 9848-UF8, and 9848-UG8, external virtualization is not supported except for data migration onto the 9848-UF7, 9848-UF8, and 9848-UG8 within a 90 day window.

Disabling device: The Program may include a disabling device that will prevent certain features from being used. You will not tamper with such disabling device or otherwise change the Program.

Transferability: The Programs 5639-FA1, 5639-FA2, 5639-FA3, 5639-EA4 and 5639-EB2 are not transferable between IBM FlashSystem 9100 and 9200 systems, and are only to be used on the IBM FlashSystem 9100 or 9200 system for which it was purchased. If the system is transferred to a new owner, the program license transfers with the system. However, Software Maintenance does not transfer, and a new maintenance agreement must be purchased by the new owner. This is also applicable to Software Maintenance acquired through IBM Storage Expert Care.

See License Information document [L-SVGY-C9RMY4](#) for details. These restrictions are current as of the date of announcement. Follow-on releases, if any, may have updated terms. See the [License Information documents](#) website for any new or revised restrictions.

Software Subscription and Support applies

Yes. Software Subscription and Support, also referred to as Software Maintenance, is now included in the Passport Advantage Agreement. Installation and technical support for the products announced in this announcement is provided by the Software Subscription and Support offering of the IBM International Passport Advantage Agreement. This fee service enhances client productivity by providing voice or electronic access into the IBM support organizations.

IBM includes one year of Software Subscription and Support with the initial license acquisition of each program acquired. The initial period of Software Subscription and Support can be extended by the purchase of a renewal option.

While your Software Subscription and Support is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance by telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support centre. (This assistance is not available to your users.) IBM provides Severity 1 assistance 24 hours a day, every day of the year. For additional details, see the [IBM Support Guide](#). Software Subscription and Support does not include assistance for the design and development of applications, your use of programs in other than their specified operating environment, or failures caused by products for which IBM is not responsible under this agreement.

For additional information about the Passport Advantage Agreement, go to the [Passport Advantage and Passport Advantage Express](#) website.

All distributed software licenses include Software Subscription and Support for a period of 12 months from the date of acquisition, providing a streamlined way

to acquire IBM software and assure technical support coverage for all licenses. Extending coverage for a total of three years from date of acquisition, may be elected.

Variable charges apply

No

Educational allowance available

Yes. A 15% education allowance applies to qualified education institution clients.

Academic use allowance

Yes

Statement of good security practices

IT system security involves protecting systems and information through intrusion prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a regulatory compliant, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective.

Important: IBM does not warrant that any systems, products, or services are immune from, or will make your enterprise immune from, the malicious or illegal conduct of any party.

Prices

Prices are subject to change without notice.

GST, QST, and sales taxes, where applicable, are extra.

For additional information and current prices, contact your local IBM representative or IBM Business Partner.

Business Partner information

If you are an IBM Business Partner acquiring products from IBM, you may link to Passport Advantage On-line for resellers where you can obtain Business Partner pricing information. An IBMid and password are required to access the [IBM Passport Advantage](#) or [IBM PartnerWorld^{\(R\)}](#) website.

Passport Advantage

For Passport Advantage information and charges, contact your IBM representative. Additional information is also available on the [Passport Advantage and Passport Advantage Express](#) website.

For all local charges, contact your IBM representative or your authorized IBM Business Partner.

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Note: Shipments will begin after the planned availability date.

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