

IBM block storage CSI driver
Version 1.0.0

Release Notes



Second Edition (February 2020)

This edition applies to version 1.0.0 of the IBM® block storage CSI driver software package. Newer document editions may be issued for the same product version in order to add missing information, update information, or amend typographical errors. The edition is reset to 'First Edition' for every new product version.

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Overview

IBM block storage CSI driver is leveraged by Kubernetes persistent volumes (PVs) to dynamically provision for block storage used with stateful containers.

IBM block storage CSI driver is based on an open-source IBM project ([CSI driver](#)), included as a part of IBM storage orchestration for containers. IBM storage orchestration for containers enables enterprises to implement a modern container-driven hybrid multicloud environment that can reduce IT costs and enhance business agility, while continuing to derive value from existing systems.

By leveraging CSI (Container Storage Interface) drivers for IBM storage systems, Kubernetes persistent volumes (PVs) can be dynamically provisioned for block or file storage to be used with stateful containers, such as database applications (IBM Db2, MongoDB, PostgreSQL, etc) running in Red Hat OpenShift Container Platform and/or Kubernetes clusters. Storage provisioning can be fully automatized with additional support of cluster orchestration systems to automatically deploy, scale, and manage containerized applications.

IBM storage orchestration for containers includes the following driver types for storage provisioning:

- The IBM block storage CSI driver, for block storage (documented here).
- The IBM Spectrum Scale CSI driver, for file storage. For more information on Spectrum Scale and the Spectrum Scale CSI driver see the [IBM Spectrum Scale knowledge center website](https://ibm.com/support/knowledgecenter/STXKQY) (ibm.com/support/knowledgecenter/STXKQY).

For details about volume provisioning with Kubernetes, refer to [Persistent volumes on Kubernetes](https://kubernetes.io/docs/concepts/storage/volumes) (kubernetes.io/docs/concepts/storage/volumes).

Note: For the user convenience, this guide might refer to IBM block storage CSI driver as CSI driver.

Kubernetes Cluster

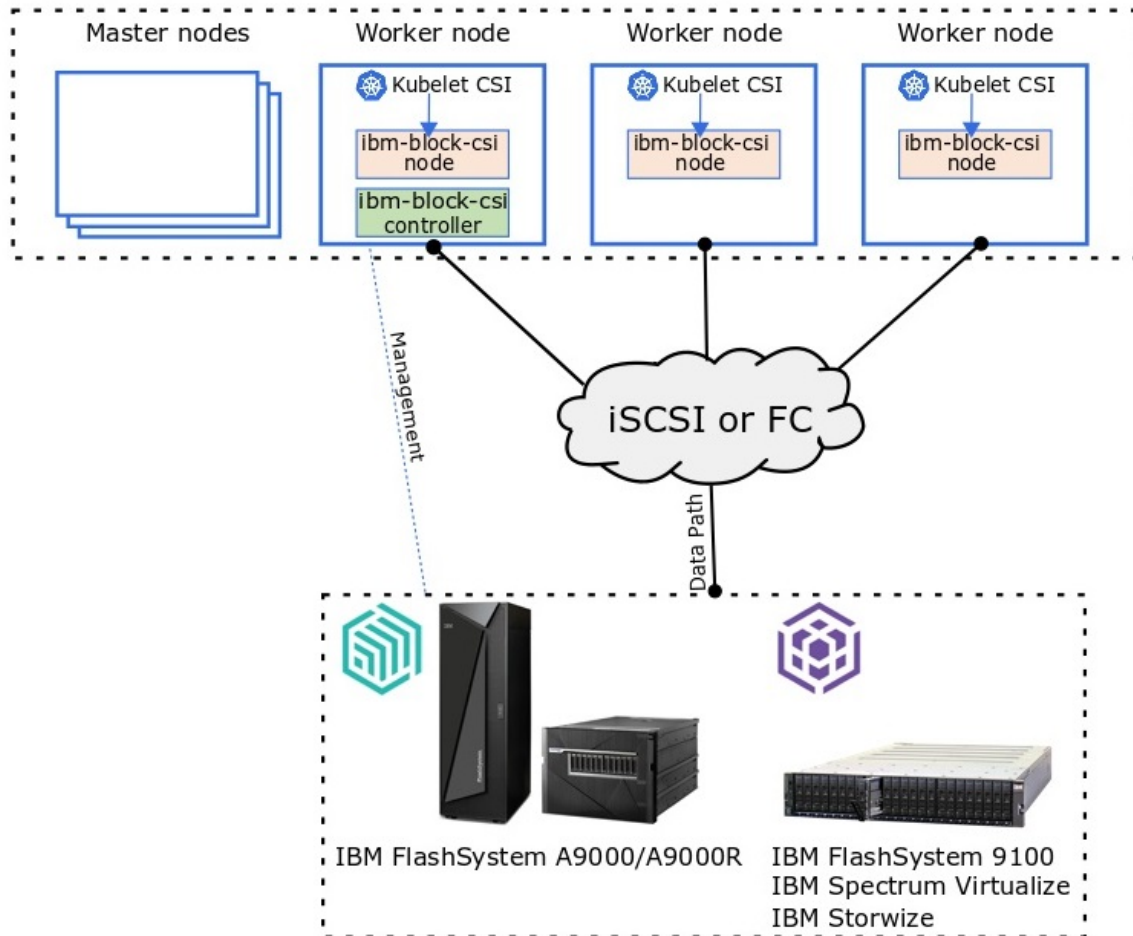


Figure 1. Integration of IBM block storage systems and CSI driver in a Kubernetes environment

Release scope and highlights

IBM block storage CSI driver is a brand new IBM driver that has been released for general availability.

Software version: 1.0.0

General availability date: 14 November 2019

Supported features in this release

The following functional CSI (Container Storage Interface) component features are included in this release of the IBM block storage CSI driver:

CSI Identity

CSI **Identity** main use is for identifying the CSI driver service, makes sure that the driver is running properly and returns basic information.

This includes the following supported CSI APIs:

- **GetPluginInfo**
- **GetPluginCapabilities**
- **Probe**

CSI Controller

The CSI **Controller** controls and manages the volumes.

This includes the following supported CSI APIs:

- **CreateVolume / DeleteVolume**
- **ControllerPublishVolume / ControllerUnpublishVolume**
- **GetCapacity**
- **ControllerGetCapabilities**

CSI Node

The CSI **Node** controls a volume's action in the Kubernetes node.

This includes the following supported CSI APIs:

- **NodeStageVolume / NodeUnstageVolume**
- **NodePublishVolume / NodeUnpublishVolume**
- **NodeGetCapabilities**
- **NodeGetInfo**

RWO (read/write once) access mode

The IBM block storage CSI driver supports RWO access mode, allowing a volume to be mounted as read-write by a single node.

Both xfs and Ext4 file system types

Compatibility and requirements

This section specifies the compatibility and requirements of version 1.0.0 of IBM block storage CSI driver.

Supported storage systems

IBM block storage CSI driver version 1.0.0 supports different IBM storage systems as listed in the following table.

Table 1. Supported storage systems	
Storage system	Microcode version
IBM FlashSystem 9100	8.x
IBM FlashSystem A9000	12.x
IBM FlashSystem A9000R	12.x
IBM FlashSystem V9000	7.x, 8.x
IBM SAN Volume Controller (SVC)	7.x, 8.x
IBM Spectrum Virtualize as software only	7.x, 8.x
IBM Storwize® V5000	7.x, 8.x
IBM Storwize V7000	7.x, 8.x

Note:

- Newer microcode versions may also be compatible. When a newer microcode version becomes available, contact IBM Support to inquire whether the new microcode version is compatible with the current version of the CSI driver.
 - IBM FlashSystem® V9000, IBM FlashSystem 9100, IBM Storwize Family and IBM SAN Volume Controller storage systems run the IBM Spectrum Virtualize software. In addition, IBM Spectrum Virtualize package is available as a deployable solution that can be run on any compatible hardware.
-

Supported operating systems

The following table lists operating systems required for deployment of the IBM block storage CSI driver.

Table 2. Operating systems	
Operating system	Architecture
Red Hat Enterprise Linux (RHEL) 7.x	x86

Supported orchestration platforms

The following table details orchestration platforms suitable for deployment of the IBM block storage CSI driver.

<i>Table 3. Orchestration platforms</i>		
Orchestration platform	Version	Architecture
Kubernetes	1.14	x86
Red Hat OpenShift	4.2	x86

Limitations

As opposed to known issues, limitations are functionality restrictions that are part of the predefined system design and capabilities in a particular version.

IBM block storage CSI driver must be installed on a kube-system project

When working with Red Hat OpenShift Container Platform, the CSI (Container Storage Interface) operator and driver must be installed in the **kube-system** project.

Known issues

This section details the known issues in version 1.0.0 of IBM block storage CSI driver, along with possible solutions or workarounds (if available).

The following severity levels apply to known issues:

- **HIPER** – High Impact Pervasive. A critical issue that IBM has either fixed or plans to fix promptly. Requires immediate customer attention or code upgrade.
- **High Impact** – Potentially irrecoverable error that might impact data or access to data in rare cases or specific situations/configurations.
- **Moderate** – Limited functionality issue and/or performance issue with a noticeable effect.
- **Service** – Non-disruptive recoverable error that can be resolved through a workaround.
- **Low** – Low-impact usability-related issue.

Important:

- **The issues listed below apply to version 1.0.0.** As long as a newer version has not yet been released, a newer release notes edition for version 1.0.0 might be issued to provide a more updated list of known issues and workarounds.
 - When a newer version is released for general availability, the release notes of version 1.0.0 will no longer be updated. Accordingly, check the release notes of the newer version to learn whether any newly discovered issues affect version 1.0.0 or whether the newer version resolves any of the issues listed below.
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Table 4. Known issues

Ticket ID	Severity	Description
CSI-702	Service	Modifying the controller or node affinity settings may not take effect. Workaround: If needed, delete the controller StatefulSet and/or the DaemonSet node after modifying the affinity settings in the IBMBlockCSI custom resource.
CSI-645	Low	In some cases, during high-scale operations, such as pod creation with many PersistentVolumeClaims (PVCs), the "ibm-block-csi-controller-0" controller pod restarts. Workaround: No workaround is necessary as the pod restarts automatically.

Related information and publications

You can find additional information and publications related to IBM block storage CSI driver on the following information sources.

- [IBM SAN Volume Controller on IBM Knowledge Center \(ibm.com/support/knowledgecenter/STPVGU\)](https://ibm.com/support/knowledgecenter/STPVGU)
- [IBM Spectrum Scale on IBM Knowledge Center \(ibm.com/support/knowledgecenter/STXKQY\)](https://ibm.com/support/knowledgecenter/STXKQY)
- [IBM Storwize V5000 on IBM Knowledge Center \(ibm.com/support/knowledgecenter/STHGJ3\)](https://ibm.com/support/knowledgecenter/STHGJ3)
- [IBM Storwize V7000 on IBM Knowledge Center \(ibm.com/support/knowledgecenter/ST3FR7\)](https://ibm.com/support/knowledgecenter/ST3FR7)
- [IBM Spectrum Virtualize as Software Only on IBM Knowledge Center \(ibm.com/support/knowledgecenter/STVLF4\)](https://ibm.com/support/knowledgecenter/STVLF4)
- [IBM Spectrum Accelerate on IBM Knowledge Center \(ibm.com/support/knowledgecenter/STZSWD\)](https://ibm.com/support/knowledgecenter/STZSWD)
- [IBM FlashSystem 9100 on IBM Knowledge Center \(ibm.com/support/knowledgecenter/STSLR9\)](https://ibm.com/support/knowledgecenter/STSLR9)
- [IBM FlashSystem A9000 on IBM Knowledge Center \(ibm.com/support/knowledgecenter/STJKMM\)](https://ibm.com/support/knowledgecenter/STJKMM)
- [IBM FlashSystem A9000R on IBM Knowledge Center \(ibm.com/support/knowledgecenter/STJKN5\)](https://ibm.com/support/knowledgecenter/STJKN5)
- [Persistent volumes on Kubernetes \(kubernetes.io/docs/concepts/storage/volumes\)](https://kubernetes.io/docs/concepts/storage/volumes)
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Use the Directory of Worldwide Contacts to find the appropriate phone number for initiating voice call support. Select the Software option, when using voice response system.

When asked, provide your Internal Customer Number (ICN) and/or the serial number of the storage system that requires support. Your call will then be routed to the relevant support team, to whom you can provide the specifics of your problem.

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