

IBM Storage Driver for OpenStack  
Version 1.5.0.1

*Release Notes*



**First Edition (October 2015)**

This edition applies to version 1.5.0.1 of the IBM Storage Driver for OpenStack software package. Newer 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 newly released version.

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## Overview

The IBM® Storage Driver for OpenStack is a software component that integrates with the OpenStack cloud environment and enables utilization of storage resources provided by supported IBM storage systems.

After the driver is installed on the OpenStack Cinder (OpenStack Block Storage) nodes, storage volumes can be allocated by the Cinder nodes to the Nova-compute nodes. Virtual machines on the Nova-compute nodes can then utilize these storage resources.

You can download the IBM Storage Driver for OpenStack software package at any time from the IBM Fix Central website ([www.ibm.com/support/fixcentral](http://www.ibm.com/support/fixcentral)).

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## Compatibility and requirements

This section specifies the compatibility and requirements of version 1.5.0.1 of the IBM Storage Driver for OpenStack.

### Supported storage systems

Version 1.5.0.1 of the IBM Storage Driver for OpenStack supports the IBM storage systems, as detailed in the following table.

Storage system	Microcode version	Connectivity
IBM DS8870	7.0 to 7.5	Fibre Channel (FC)

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#### Attention:

- Version 1.5.0.1 supports DS8870 storage systems only. For XIV® systems and Spectrum Accelerate deployments, use version 1.5.0.
- XIV or Spectrum Accelerate systems cannot be used together with DS8870 systems by the same IBM Storage Driver installation. Accordingly, determine in advance which system type best suits your OpenStack cloud environment, and use the IBM Storage Driver only with XIV technology systems (XIV and Spectrum Accelerate) or only with DS8870 systems.

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### Supported OpenStack releases

Version 1.5.0.1 of the IBM Storage Driver for OpenStack supports the following OpenStack release:

- OpenStack Kilo release ([www.openstack.org/software/kilo](http://www.openstack.org/software/kilo))

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**Note:**

- The OpenStack Folsom, Grizzly, Havana, Icehouse, and Juno releases are not supported by version 1.5.0.1. Accordingly:
    - If you are using OpenStack Juno nodes, use version 1.4.1.1 of the IBM Storage Driver for OpenStack.
    - If you are using OpenStack Icehouse nodes, use version 1.3.1.1 of the IBM Storage Driver for OpenStack.
    - If you are using OpenStack Havana nodes, use versions 1.3.1.1 of the IBM Storage Driver for OpenStack.
    - If you are using OpenStack Grizzly nodes, use version 1.2.0 of the IBM Storage Driver for OpenStack.
    - If you are using OpenStack Folsom nodes, use version 1.1.1 of the IBM Storage Driver for OpenStack.
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## Required software on the OpenStack nodes

The IBM Storage Driver requires the following software on the OpenStack Cinder and Nova-compute nodes.

Software	Required on
<ul style="list-style-type: none"><li>• Ubuntu Server version 14.04, x64 edition</li><li>• Red Hat Enterprise Linux (RHEL) 7.0 or 7.1, x64 edition</li><li>• KVM for IBM z Systems</li></ul>	All OpenStack Cinder nodes
One of the supported OpenStack releases (see “Supported OpenStack releases” on page 1)	<ul style="list-style-type: none"><li>• All OpenStack Cinder nodes</li><li>• All Nova-compute nodes</li></ul>
IBM XIV Host Attachment Kit for Linux	All OpenStack Cinder and Nova-compute nodes that connect to an XIV storage system and use RHEL 7.0 or 7.1 (see above)
<ul style="list-style-type: none"><li>• Java™ Runtime Environment 6 or later</li><li>• Py4J (Python-to-Java access library) version 0.8.2 or 0.8.2.1</li></ul>	All OpenStack Cinder nodes that connect to a DS8870 storage system
Linux patch package	All OpenStack Cinder nodes

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**Important:**

- The IBM Storage Driver for OpenStack should be installed on the Cinder nodes. For more information, refer to the installation guide.
  - Each Cinder node must reside on a controller node in order to enable the IBM Storage Driver functionality.
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## Change log

This section summarizes the changes made in different version releases of the IBM Storage Driver for OpenStack.

## Version 1.5.0.1 (October 2015)

Version 1.5.0.1 introduces support for KVM for IBM z Systems™ by DS8870 storage systems.

## Version 1.5.0 (June 2015)

Version 1.5.0 introduced support for OpenStack Kilo release. It also adds support for IBM XIV Storage System with microcode version 11.6.x, and for IBM Spectrum Accelerate™ version 11.5.1.c.

Additional changes in version 1.5.0:

Ticket ID	Description
NOVA-254951	<b>Enhancement:</b> XIV storage systems can be accessed using multiple management IP addresses. The list of available management IPs is retrieved automatically, when running the configuration script.
NOVA-261059	<b>Enhancement:</b> DS8000® storage systems support snapshots with consistency groups for data protection.

## Version 1.4.1.1 (March 2015)

Version 1.4.1.1 added support for IBM Spectrum™ Accelerate storage system deployments, enabling them to work with the OpenStack Juno release. In addition, version 1.4.1.1 resolved the following issues.

Ticket ID	Description
NOVA-260944	<b>Fixed:</b> The configuration script (configure.sh) might fail when an XIV or Spectrum Accelerate backend of version 11.5.x is added with a directory-based user account that uses LDAP authentication.
NOVA-260959	<b>Fixed:</b> Driver failure occurs, when volume replication for DS8870 storage systems is disabled.
NOVA-260967	<b>Fixed:</b> LUN mapping range is limited to 100–299. The new mapping range is 1–511.

## Version 1.4.1 (December 2014)

Version 1.4.1 allowed DS8000 storage systems to work with the OpenStack Juno release and added a comprehensive support for DS8000 synchronous (Metro Mirror) volume replication. In addition, version 1.4.1 resolved the following issue.

Ticket ID	Description
NOVA-260593	<b>Fixed:</b> Volumes that are larger than 2 Terabytes cannot be created from the OpenStack environment side on DS8000 systems.

## Version 1.4.0 (November 2014)

Version 1.4.0 added support for the OpenStack Juno release and also added a broad range of enhancements, as listed below.

Ticket ID	Description
NOVA-248261	<b>Enhancement:</b> Two scripts are available to install and configure the IBM Storage Driver for OpenStack. You can run the new script, <code>configure.sh</code> , after the installation script to add backends and configure the driver. The new script also allows you to remove a single backend, remove all backends, list backends, or change the password of a backend.
NOVA-260636	<b>Enhancement:</b> Added support for modifying volume type. This may result in volume migration if the current backend can not support the requested type.
NOVA-260677	<b>Enhancement:</b> Added support for OpenStack <code>manage_existing</code> and <code>unmanage</code> driver functions to enable managing already-existing volumes into OpenStack.
NOVA-260726	<b>Enhancement:</b> Added support for storage assisted volume migration between backends within the same storage, for improved performance.
NOVA-260742	<b>Enhancement:</b> Added multi-tenancy support for XIV microcode version 11.5 or later. Multi-tenancy support allows both <code>storage-admin</code> and <code>domain-admin</code> (if available) to interact with the IBM Storage Driver.
NOVA-260759	<b>Enhancement:</b> Use events instead of metadata for improved performance and improved visibility.
NOVA-260815	<b>Enhancement:</b> Improved security by means of validating storage certificates to avoid MITM attacks.

### Version 1.3.1.1 (August 2014)

Version 1.3.1.1 added support for Red Hat Enterprise Linux (RHEL) 7.0.

For more information, see “Required software on the OpenStack nodes” on page 2.

### Version 1.3.1 (April 2014)

Version 1.3.1 added support for the OpenStack Icehouse release, along with support for Red Hat Enterprise Linux (RHEL) 6.5 and for additional DS8000 storage system versions.

Additional changes in version 1.3.1:

Ticket ID	Description
NOVA-260672	<b>Enhancement:</b> Option for increased security with CHAP authentication over iSCSI for XIV systems. When this feature is enabled, CHAP names and secrets are generated automatically per host and are used for establishing the iSCSI connectivity.

### Version 1.3.0 (November 2013)

Version 1.3.0 added support for IBM System Storage® DS8000 in addition to the already supported IBM XIV Storage System. It also provides support for the



OpenStack Havana release, which introduces the OpenStack online volume migration feature along with new volume copy and cloning features.

Additional changes in version 1.3.0:

Ticket ID	Description
NOVA-260508	<b>Enhancement:</b> Added support for Red Hat Enterprise Linux (RHEL) 6.4.
NOVA-260596	<b>Enhancement:</b> A newly added script, <code>create_volume_types.sh</code> , can be run after the installation to automatically define volume types that can be chosen when creating new volumes.

## Version 1.2.0 (June 2013)

Version 1.2.0 provided support for the OpenStack Grizzly release, allowing the creation of multiple volume back-ends during the driver installation.

Additional changes in version 1.2.0:

Ticket ID	Description
NOVA-260511	<b>Enhancement:</b> An option for unattended installation by using a predefined configuration file has been added. For more information, refer to the installation guide.
NOVA-254930	<b>Fixed:</b> The IBM Storage Driver does not renew the connection to the XIV storage system after a session disconnection.

## Version 1.1.1 (January 2013)

Version 1.1.1 included the following enhancements and fix.

Ticket ID	Description
NOVA-235459	<b>Enhancement:</b> Support for XIV volume snapshot functions.
NOVA-253698	<b>Enhancement:</b> Unattended installation option, allowing no user interaction during the installation.
NOVA-251454	<b>Fixed:</b> Storage pools that contain capital letters are not recognized by the IBM Storage Driver.

## Version 1.1.0 (November 2012)

Version 1.1.0 of the IBM Storage Driver for OpenStack was the first product version that introduced support for the IBM XIV Storage System in the OpenStack cloud environment.

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## Known issues

This section details the known issues in version 1.5.0.1, along with possible solutions or workarounds (if available).

Ticket ID	Description
NOVA-247919	<p>Volumes that were manually renamed on an XIV storage system (using the XIV GUI or XCLI) could be used remotely from the OpenStack environment side, even if these volumes were originally created from the OpenStack environment side.</p> <p><b>Workaround:</b> To avoid this problem, do not rename XIV volumes that are used by OpenStack nodes.</p>
NOVA-260879	<p>Connection to all XIV storage systems fails if one of the certificate files is invalid.</p> <p><b>Workaround:</b> Remove any invalid certification authority files from the relevant paths. Refer to the user guide for more information.</p>
NOVA-260880	<p>For Cinder copy operations, such as Cinder migration, the connectivity type (iSCSI or Fibre Channel) that is used for connecting the Cinder node to the storage array is also used for the Cinder copy operation. However, when the connectivity type is not supported by the Cinder node, the operation fails.</p> <p><b>Workaround:</b> Avoid deploying multi-connection types.</p>
NOVA-261049	<p>When a DS8000 Hardware Management Console (HMC), managing two DS8870 controllers configured for a Cinder volume replication, is reset, the Cinder volume service does not reconnect automatically .</p> <p><b>Workaround:</b> To resolve this issue, restart the <i>cinder-volume</i> service on the Cinder node, which in turn reconnects the Cinder node to the DS8000.</p>
NOVA-261072	<p>Duplicate DS8000 backends can be created if the lower case 'p' and the upper case 'P' prefix are used with the same storage pool ID. The backend on a storage pool, added with a lower case 'p', will not be functional.</p> <p><b>Workaround:</b> To avoid the backend duplication, use the upper case 'P', when providing a storage pool ID.</p>
NOVA-261073	<p>A user name that does not belong to the <i>admin</i> group is accepted during a DS8000 backend creation. However, the backend with a non-admin user may not function properly due to the insufficient access level.</p> <p><b>Workaround:</b> To avoid this situation, add users with the <i>admin</i> access level.</p>

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## Related information and publications

You can find additional information and publications related to the IBM Storage Driver for OpenStack on the following information sources.

- IBM DS8870 on IBM Knowledge Center
- IBM Spectrum Accelerate on IBM Knowledge Center
- IBM XIV Storage System on IBM Knowledge Center
- OpenStack Block Storage (Cinder) reference page ([wiki.openstack.org/cinder](http://wiki.openstack.org/cinder))

- OpenStack Storage reference page ([www.openstack.org/software/openstack-storage](http://www.openstack.org/software/openstack-storage))
- OpenStack Documentation ([docs.openstack.org](http://docs.openstack.org))

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- IBM Support Portal website ([www.ibm.com/storage/support](http://www.ibm.com/storage/support))
- IBM Directory of Worldwide Contacts website ([www.ibm.com/planetwide](http://www.ibm.com/planetwide))
- IBM developerWorks Answers website ([www.developer.ibm.com/answers](http://www.developer.ibm.com/answers))
- IBM service requests and PMRs ([www.ibm.biz/BdEkWE](http://www.ibm.biz/BdEkWE))



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