

IBM Storage Driver for OpenStack
Version 1.1.1

Installation Guide



Note

Before using this document and the product it supports, read the information in “Notices” on page 9.

Edition notice

Publication number: SC27-4233-01. This publication applies to version 1.1.1 of the IBM Storage Driver for OpenStack and to all subsequent releases and modifications until otherwise indicated in a newer publication.

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Contents

Figures	v
About this guide	vii
Who should use this guide	vii
Conventions used in this guide	vii
Related documentation	vii
Getting information, help, and service	vii
Ordering publications	viii
Sending your comments	viii
Chapter 1. Introduction	1
Concept diagram	1
Compatibility and requirements	2
Chapter 2. Installation.	3
Running the installation wizard on the Cinder node	3
Uninstalling the IBM Storage Driver	4
Chapter 3. Troubleshooting	7
Checking the OpenStack node log files	7
Displaying on-screen help	7
Notices	9
Trademarks	11
Index	13

Figures

1. IBM XIV Storage System integrated with an OpenStack cloud 2

About this guide

This guide describes how to install the IBM® Storage Driver for OpenStack.

Who should use this guide

This guide is intended for system administrators who are familiar with the OpenStack cloud environment and the IBM XIV® Storage System.

Conventions used in this guide

These notices are used in this guide to highlight key information.

Note: These notices provide important tips, guidance, or advice.

Important: These notices provide information or advice that might help you avoid inconvenient or difficult situations.

Attention: These notices indicate possible damage to programs, devices, or data. An attention notice appears before the instruction or situation in which damage can occur.

Related documentation

For additional information related to the IBM Storage Driver for OpenStack, refer to the following information sources.

- IBM Storage Host Software Solutions Information Center (publib.boulder.ibm.com/infocenter/strhosts/ic)
- IBM XIV Storage System Information Center (publib.boulder.ibm.com/infocenter/ibmxiv/r2)
- OpenStack Block Storage (Cinder) reference page (wiki.openstack.org/Cinder)
- OpenStack Storage reference page (www.openstack.org/software/openstack-storage)
- OpenStack Documentation (docs.openstack.org)

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Sending your comments

Your feedback is important in helping to provide the most accurate and highest quality information.

Procedure

To submit any comments about this guide or any other IBM Storage Host Software documentation:

- Go to the feedback form (publib.boulder.ibm.com/infocenter/ibmxiv/r2/topic/com.ibm.xiv.doc/icfeedback.htm) in the IBM XIV Storage System information center. You can use this form to enter and submit comments.
- Send your comments by email to starpubs@us.ibm.com. Be sure to include the following information:
 - Exact publication title and version
 - Publication form number (for example: GC00-1111-22)
 - Page, table, or illustration numbers that you are commenting on
 - A detailed description of any information that should be changed

Chapter 1. Introduction

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 the IBM XIV Storage System.

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

Concept diagram

The following figure illustrates how the IBM XIV Storage System provides storage resources to the OpenStack cloud environment when the IBM Storage Driver for OpenStack is installed on the Cinder nodes.

The OpenStack cloud is connected to the XIV storage system over an iSCSI connection. Remote cloud users can issue requests for storage resources from the OpenStack cloud, and these requests are transparently handled by the IBM storage driver, which communicates with the XIV storage system and controls the storage volumes on it.

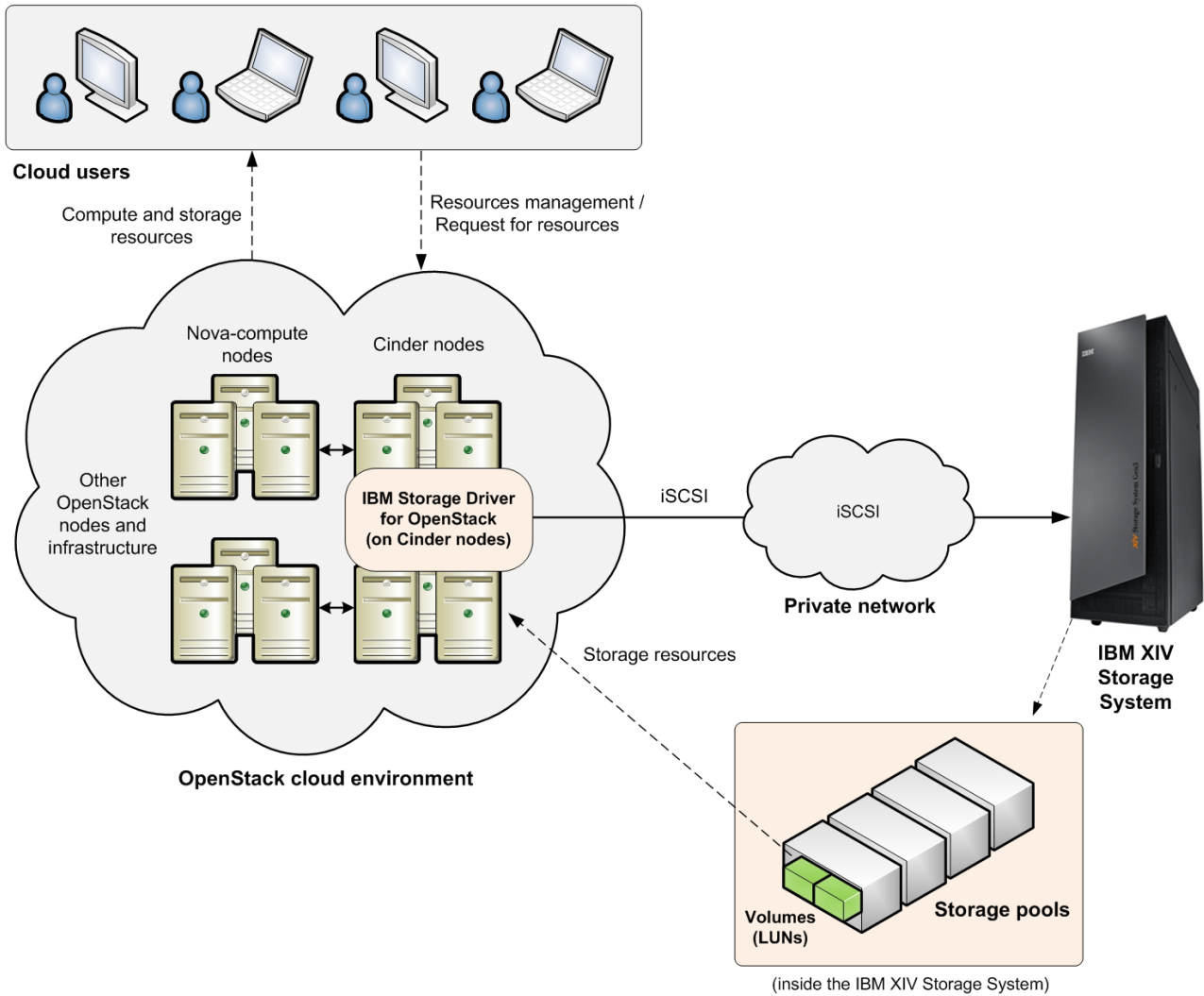


Figure 1. IBM XIV Storage System integrated with an OpenStack cloud

Compatibility and requirements

For the complete and up-to-date information about the compatibility and requirements of the IBM Storage Driver for OpenStack, refer to the latest release notes.

You can find the latest release notes on the IBM Storage Host Software Solutions Information Center (publib.boulder.ibm.com/infocenter/strhosts/ic) or on the IBM Fix Central (www.ibm.com/support/fixcentral).

Note: Refer to the relevant OpenStack documentation for information about how to deploy the compatible release of the OpenStack platform on your cloud nodes.

Chapter 2. Installation

The IBM Storage Driver for OpenStack should be installed on each OpenStack Cinder node.

Running the installation wizard on the Cinder node

Run the installation wizard on each individual Cinder node as explained in the following procedure.

Before you begin

Prior to installing the IBM Storage Driver, a predefined storage pool must be ready for your use on the IBM XIV Storage System. Refer to the IBM XIV management GUI or XCLI documentation for information about how to define a storage pool, or contact your storage administrator.

Important: You must have root user privileges on the Cinder node in order to run the installation.

About this task

You can run the installation script in two ways:

- Regular mode – in this mode you are prompted to provide IP and credential information in separate steps during the installation.
- Unattended mode – in this mode you can type the IP and credential information along with the installation command, allowing you to avoid additional prompts during the installation.

Procedure

To run the installation in **regular mode**:

1. Extract the driver installation package on the Cinder node ([build] represents a build number):

```
# gunzip -c IBM_Storage_Driver_for_OpenStack_1.1.1-[build].tar.gz | tar xvf -
```

2. From the extracted folder, run the following script:

```
install.sh
```

The following prompt is displayed:

```
Welcome to the IBM Storage Driver for OpenStack (v1.1.1) installation.  
Press [ENTER] to proceed.
```

3. Press Enter. The following message is displayed:

```
Enter the IBM XIV Storage System IP address or hostname:
```

4. Enter the IP address or hostname of the XIV storage system that you want to use. For example:

```
106.9.220.221
```

5. Enter the credentials for accessing the specified XIV storage system:

```
Enter the username and password for accessing the IBM XIV Storage System:
Username: john-1x2
Password: *****
```

Important: You must use storage admin credentials.

6. Enter the name of the XIV storage pool that was predefined for your OpenStack environment:

```
Enter the XIV volume pool name: Nova_Pool_1
```

The following prompt is displayed:

```
Verifying installation...
Installation verified successfully.
Installing IBM Storage Driver for OpenStack Python eggs...
Stopping OpenStack volume service...
Configuring OpenStack with IBM XIV Storage System information...
Starting OpenStack volume service...
Installation of the IBM Storage Driver for OpenStack (v1.1.1) is complete.
Press [ENTER] to exit.
```

7. Press Enter. The IBM Storage Driver for OpenStack is now installed.

Note: If you encounter any error during the installation, see Chapter 3, “Troubleshooting,” on page 7.

Alternatively, to run the installation in **unattended mode**, type the installation command in the following format:

```
install.sh -s -a [IP or hostname] -u [XIV username] -p [XIV password]
-o [storage pool name]
```

For example:

```
# ./install.sh -s -a 106.9.220.221 -u john-1x2 -p ***** -o Nova_Pool_1
Verifying installation...
Installation verified successfully.
Installing IBM Storage Driver for OpenStack Python eggs...
Stopping OpenStack Volume service...
Configuring OpenStack with IBM XIV Storage System information...
Starting OpenStack Volume service...
Installation of the IBM Storage Driver for OpenStack (v1.1.1) is complete.
```

Uninstalling the IBM Storage Driver

You can uninstall the IBM Storage Driver from each individual Cinder node at any time, as described in the following procedure.

Before you begin

Ensure that the IBM XIV storage resources are not currently in use.

Important: You must have root user privileges on the Cinder node in order to uninstall the IBM Storage Driver.

Attention: Removal of the IBM Storage Driver affects the availability of IBM XIV storage volumes that may currently be in use in the OpenStack cloud environment.

About this task

You can uninstall in two ways:

- Regular mode – in this mode you are prompted to confirm the uninstallation.
- Unattended mode – in this mode you are not required to confirm the uninstallation.

Procedure

To uninstall in **regular mode**:

1. Run the following script:

```
uninstall.sh
```

The following prompt is displayed:

```
IBM Storage Driver for OpenStack (v1.1.1) - Uninstallation
Are you sure you want to uninstall the IBM Storage Driver for OpenStack (v1.1.1)?
[default: No]
```

2. Enter **y** to confirm the removal of the IBM Storage Driver. The following prompt is displayed:

```
Stopping OpenStack volume service...
Press [ENTER] to proceed.
```

3. Press Enter. The following prompt is displayed:

```
Removing XIV information from OpenStack...
Removing IBM Storage Driver for OpenStack Python eggs...
Starting OpenStack volume service...
The IBM Storage Driver for OpenStack (v1.1.1) has been removed successfully.
Press [ENTER] to exit.
```

4. Press Enter. The IBM Storage Driver is now uninstalled.

Note: If you encounter any error during the uninstallation, see Chapter 3, “Troubleshooting,” on page 7.

Alternatively, to uninstall the IBM Storage Driver in **unattended mode**, type the **uninstall** command with the **-s** argument:

```
uninstall.sh -s
```

For example:

```
#!/uninstall.sh -s
Stopping OpenStack Volume service...
Removing XIV information from OpenStack...
Removing IBM Storage Driver for OpenStack Python eggs...
Starting OpenStack Volume service...
The IBM Storage Driver for OpenStack (v1.1.1) has been removed successfully.
```

Chapter 3. Troubleshooting

Refer to this information to troubleshoot technical problems that you might encounter when using the IBM Storage Driver for OpenStack.

- “Checking the OpenStack node log files”
- “Displaying on-screen help”

Note: For up-to-date information about known issues and possible workarounds, refer to the latest release notes.

Checking the OpenStack node log files

The Nova-compute and Cinder log files record operation information that might be useful for troubleshooting.

About this task

You can check the log files on a periodic basis to ensure that the IBM Storage Driver is functioning properly. If you encounter issues with the driver functionality, you can send the contents of the files to IBM Support if needed.

Procedure

- To check the log file on a Cinder node:
 - Go to the `/var/log/cinder` folder and then open the log file named **cinder-volume.log**. The IBM Storage Driver writes to this log file using the [IBM XIV STORAGE] prefix for each event that it records in the file.
- To check the log file on a Nova-compute node:
 - Go to the `/var/log/nova` folder and then open the log file named **nova-compute.log** (might be `compute.log` in some cases).

Displaying on-screen help

When needed, you can display on-screen help information that summarizes usage syntax and other options that are available for the installation and uninstallation commands.

About this task

You can type the `--help` or `-h` argument after each of following commands:

- **install.sh** (regular installation; see “Running the installation wizard on the Cinder node” on page 3)
- **install.sh -s** (unattended installation; see “Running the installation wizard on the Cinder node” on page 3)
- **uninstall.sh** (uninstallation; see “Uninstalling the IBM Storage Driver” on page 4)

Example

```
# ./install.sh -h
usage: install.sh [-h] [-s] [-v] [-b]
```

IBM Storage Driver for OpenStack Installer

optional arguments:

```
-h, --help      Display help and usage information.
-s, --silent    Work in silent mode. Use with -h or --help for more
                information.
-v, --version   Display the current IBM Storage Driver version.
-b, --build     Display the current IBM Storage Driver build.
```

```
# ./install.sh -s -h
usage: install.sh [-h] [-s] -a XIV_IP_OR_HOSTNAME -u XIV_USER -p XIV_PASSWORD
                -o XIV_VOLUME_POOL
```

IBM Storage Driver for OpenStack Installer

optional arguments:

```
-h, --help      Display help and usage information.
-s, --silent    Work in silent mode. Use with -h or --help for more
                information.
-a XIV_IP_OR_HOSTNAME, --xiv_address XIV_IP_OR_HOSTNAME
                The IBM XIV storage system IP address or hostname.
-u XIV_USER, --xiv_user XIV_USER
                Username for accessing the specified IBM XIV storage
                system.
-p XIV_PASSWORD, --xiv_password XIV_PASSWORD
                Password for accessing the specified IBM XIV storage
                system.
-o XIV_VOLUME_POOL, --xiv_vol_pool XIV_VOLUME_POOL
                The XIV volume pool name.
```

```
# ./uninstall.sh -h
usage: uninstall.sh [-h] [-s] [-v] [-b]
```

IBM Storage Driver for OpenStack Uninstaller

optional arguments:

```
-h, --help      Display help and usage information.
-s, --silent    Work in silent mode. Use with -h or --help for more
                information.
-v, --version   Display the current IBM Storage Driver version.
-b, --build     Display the current IBM Storage Driver build.
```

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Index

C

Cinder log file 7
Cinder node 1, 3, 4
CLI help 7
cloud diagram 1
compatibility 2
compute resources 1
concept diagram 1

H

help argument 7

I

install driver 3
iSCSI connection 1

L

log files 7

N

Nova-compute log file 7

O

on-screen help 7
OpenStack Block Storage 1
overview 1

R

release notes 2
requirements 2

S

storage resources 1

T

troubleshooting 7

U

unattended installation 3
unattended uninstall 4
uninstall driver 4



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