IBM FlashCache Storage Accelerator 2.2.0

Administrator Guide for Linux

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Quick start

Below are a links to common tasks that can get you started configuring or managing IBM FlashCache Storage Accelerator for Linux. By default the tasks are described using the graphical user interface (GUI). However, in some cases, a CLI link in parenthesis has been provided that takes you to a procedure that allows you to accomplish the same task using the command line interface (CLI).

- Configuring caching with the IBM Flash Management Console (CLI)
- Logging in to the IBM Flash Management Console
- Licensing IBM FlashCache Storage Accelerator
- Managing caching
- Stopping caching
- Changing caching selection
- Viewing Live performance graphs
- Updating firmware on an IBM High IOPS device
- Formatting an IBM High IOPS Adapter
- Collecting logs for support

Overview

IBM FlashCache Storage Accelerator provides write-through caching software for Windows hosts that can take advantage of an IBM High IOPS Adapter, Enterprise Value Flash Adapter, or SSD installed on the host IBM FlashCache Storage Accelerator consists of three main components:

- IBM FlashCache Storage Accelerator caching software
- IBM Flash Management Console
- IBM FlashCache Storage Accelerator command line interface (CLI)

After installing IBM FlashCache Storage Accelerator for Linux on your physical Linux machine, you can configure caching using either the IBM Flash Management Console interface or the CLI.

Considerations

- IBM FlashCache Storage Accelerator software does not cache data on network file systems (such as CIFS, NFS).
- IBM FlashCache Storage Accelerator software only caches data up to the size limit of the caching device.
- IBM FlashCache Storage Accelerator for Linux can not cache boot volumes, swap volumes, `/dev/ibc` devices, or the cache device itself

Cache invalidation

The following operations will result in invalidating the cache on the machine. Once invalidated, the cache will take some time to warm.

- Stopping and then restarting caching.
- Changing parameters such as cache page size and cache maximum read/write IO size on the host.

Example setup using IBM Flash Management Console

An example of how you might configure caching with IBM Flash Management Console is provided below. This example assumes you have already installed the product according to the instructions in the IBM FlashCache Storage Accelerator Installation and Upgrade Guide.

1. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

   where

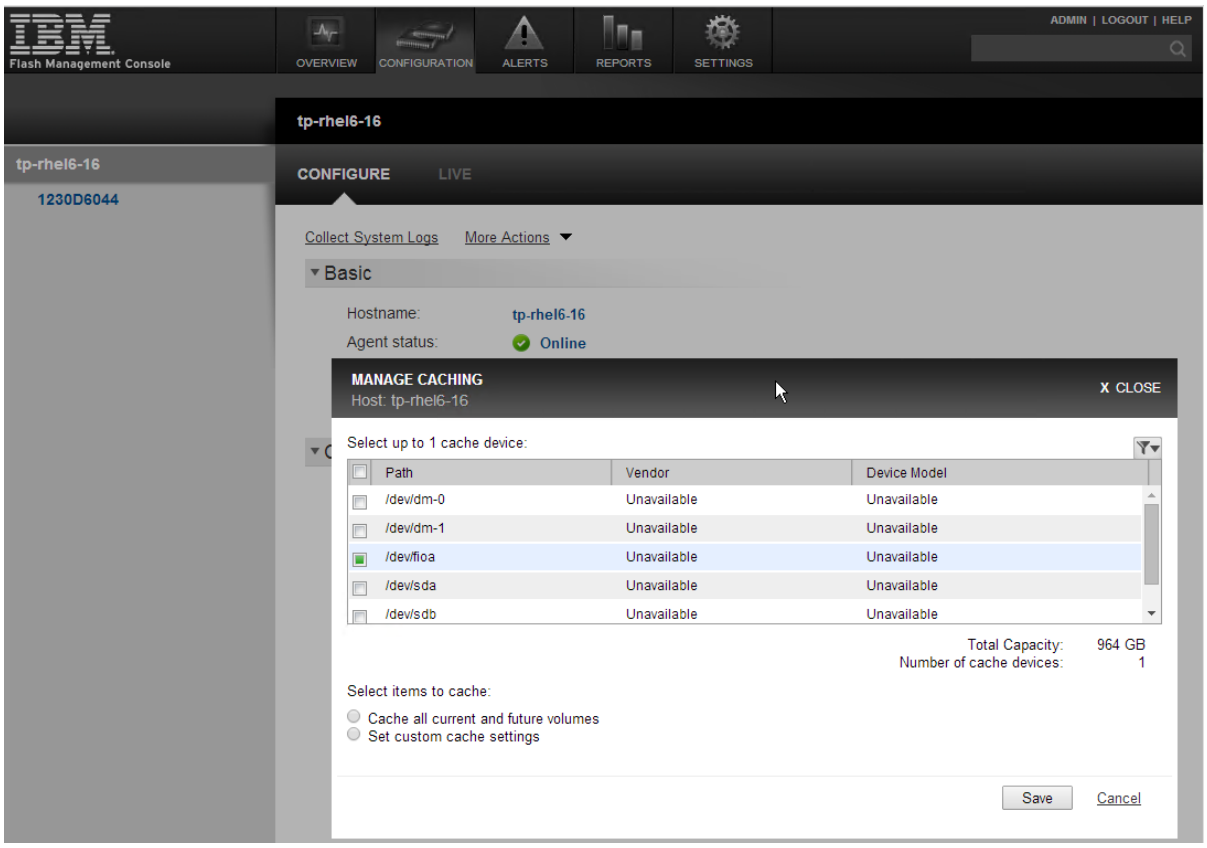
   hostname is the host name of the machine where you want to configure IBM FlashCache Storage Accelerator for Linux.

2. Login in to the IBM Flash Management Console as user *admin*. (The password for *admin* was configured during install.).
3. Click the **Configuration** tab.
4. On the left side of the screen click **Hosts**..
5. In the Hostname column click your host..

   The host Configure window displays.

6. On the host Configure tab, click **Manage Caching.**

   You should see the devices available to be used for caching.



7. Click the device you want to use for caching.

Attention!

If you are using a new IBM High IOPS Adapter or Enterprise Value Flash Adapter with factory formatting, IBM FlashCache Storage Accelerator may re-format the device for optimal caching settings when it is selected as a cache device. It is strongly recommended that you let IBM FlashCache Storage Accelerator re-format your IBM High IOPS Adapter or Enterprise Value Flash Adapter.

If you are using an IBM High IOPS Adapter or Enterprise Value Flash Adapter that has been formatted with 512-byte sectors to something other than factory size, IBM FlashCache Storage Accelerator will not change the format. (Any device used for caching that does not use 512-byte sectors will be re-formatted as 512-byte sectors is a requirement for IBM FlashCache Storage Accelerator cache devices.) If you format the device to something other than factory size, it is strongly recommended that the device not be formatted to its maximum size to allow reserve space to improve the longevity and durability of the device.

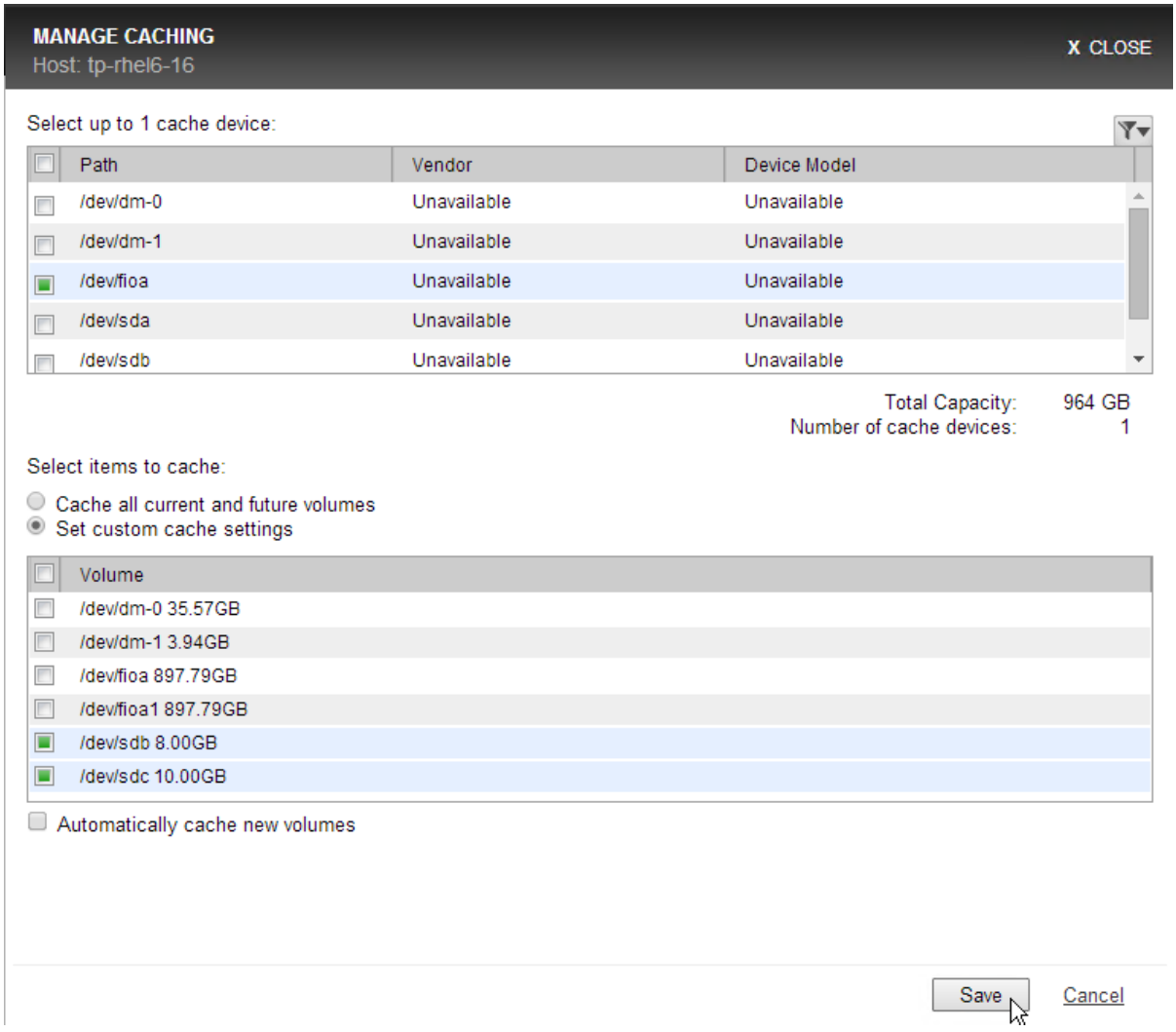
If you are using an SSD that is not an IBM High IOPS Adapter or Enterprise Value Flash Adapter, follow the manufacturer's instructions for properly formatting the device. IBM

FlashCache Storage Accelerator will not use the SSD as a cache device if it is not formatted with 512-byte sectors.

8. If you want to cache all the eligible volumes on the system, click **Cache all current and future volumes** and skip to step 11.
9. If you want to cache specific disks, click **Set custom cache settings**.
10. Click on the volumes that you want to cache.

Attention!

Some of the volumes presented in the Caching Selection table may not be eligible for caching.



11. Click **Save**.

    A confirmation screen displays telling you that if data exists on the caching device it will be permanently lost.

12. Click **Confirm.**

The disks are configured for caching, and caching begins.

Attention!

If no primary devices are eligible to be cached, then, after clicking **Save** in the Manage Caching dialog, caching may show as both Enabled and Started, yet caching is not taking place. (This can happen, for example, if you select "Cache all current and future volumes" on a machine that only has a boot volume.) The hosts table will also show Enabled and Started, but it will also display an alert that no primaries were selected. Make sure that there are devices eligible to be cached, and try again. To see what volumes might be eligible for caching use the `iottool listvolumes` command.

Example Setup using CLI

As an example of how you might configure caching with IBM FlashCache Storage Accelerator is provided below.This example assumes you have already installed the product according to the instructions in the IBM FlashCache Storage Accelerator Installation and Upgrade Guide.

Attention!

In command-line utility examples, text highlighted in blue indicate changes that you should take note of and be looking for in the ouptut.

1. From a terminal window, as a user who has rights to administer and configure IBM FlashCache Storage Accelerator, type **iottool status**

   The status command displays information about the current caching configuration of your machine.

```
[root@tp-rhel6-16 ~]# iottool status

iotblk filter status:
Caching Status: Not Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Size in use: 0 (0 chunks)
No devices currently selected for caching.
healthstatus: 0x4b
Health Status Message: Caching disabled, No primary device added for
caching, No caching device assigned, No caching capacity available.
```

2. List the devices available for caching by typing **iottool listallvolumes**.

```
[root@tp-rhel6-16 ~]# iottool listallvolumes
/dev/sdb /dev/sdc
```

3. Set the caching device.

   In this example, /dev/fioa will be used as the caching device and /dev/sdb will be the disk that is cached. Set the caching device to the IBM High IOPS device by typing the following command

   iottool setcachedevice /dev/fioa

```
[root@tp-rhel6-16 ~]# iottool setcachedevice /dev/fioa
[root@tp-rhel6-16 ~]# iottool status
```

```
iotblk filter status:
Caching Status: Not Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
No devices currently selected for caching.
healthstatus: 0x3
Health Status Message: Caching disabled, No primary device added for
caching.
```

4. Set the primary disk, or disk to be cached, by typing **iottool addblk /dev/sdb**

> **Attention!**
> On Linux you cannot cache the root filesystem.

```
[root@tp-rhel6-16 ~]# iottool addblk /dev/sdb
[root@tp-rhel6-16 ~]# iottool status

iotblk filter status:
Caching Status: Not Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x1
Health Status Message: Caching disabled.
```

5. Start caching by typing **iottool startcache**

```
[root@tp-rhel6-16 ~]# iottool startcache
[root@tp-rhel6-16 ~]# iottool status

iotblk filter status:
Caching Status: Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
```

```
healthstatus: 0x0
Health Status Message: Caching working.
```

Caching is now running on your Linux machine.

Using IBM Flash Management Console

All of the functionality and commands of IBM FlashCache Storage Accelerator can be accessed using the command line interface. Alternately, you can use the GUI interface from within the IBM Flash Management Console to manage and maintain your IBM FlashCache Storage Accelerator caching.

> **Attention!**
> Some CLI commands will not have equivalent GUI access.

For detailed instructions on how to install IBM Flash Management Console, see the *IBM Flash Management Console Installation Guide*.

IBM Flash Management Console is where you can easily manage IBM High IOPS Storage Devices and Enterprise Value Flash Adapters across multiple servers throughout a data center. For details and instructions for using all the IBM Flash Management Console controls and functionality, see the *IBM Flash Management Console User Guide*.

Logging in to the IBM Flash Management Console

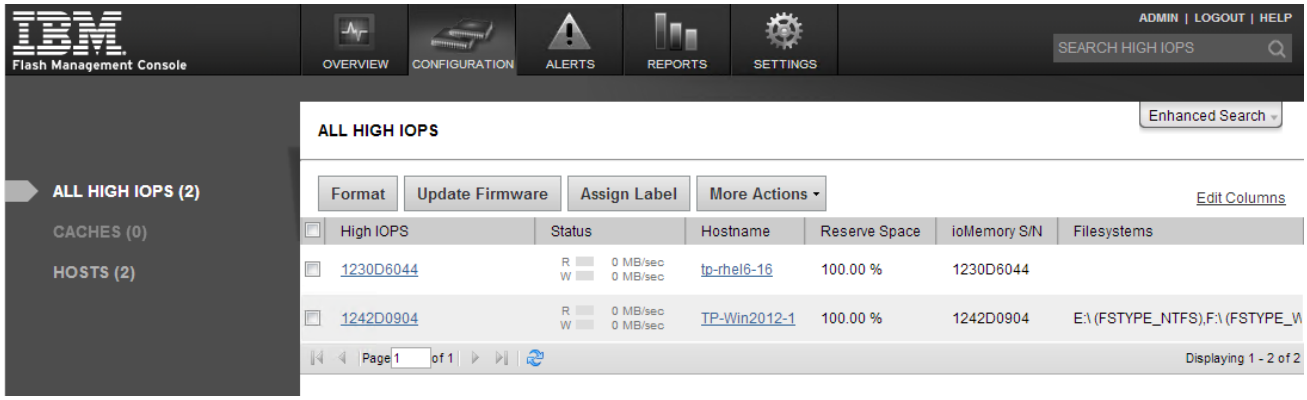
To access the IBM Flash Management Console interface:

1. Log in to the machine where IBM FlashCache Storage Accelerator is running.
2. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

   where

   hostname is the name or IP address of the server where the IBM Flash Management Console is installed.

3. Log in in the IBM Flash Management Console as user *admin*. (The password for *admin* was configured during installation.)
4. Click the **Configuration** tab.



Licensing IBM FlashCache Storage Accelerator

IBM FlashCache Storage Accelerator has three types of licenses:

- Built in Evaluation License
- Extended Evaluation License (short term, timed)
- Production License (timed or permanent)

> **Attention!**
>
> License files from IBM FlashCache Storage Accelerator 2.1.3 are not valid with IBM FlashCache Storage Accelerator 2.2.0. IBM Flash Management Console and the `iottool installlicense` command will reject earlier versions of IBM FlashCache Storage Accelerator license files.

Initially, you can use the built-in evaluation license which is valid for 120 days from the date of install. A warning alert will be generated two weeks, and then again one week, before licensing becomes out of compliance. After licensing is out of compliance, an error alert will be generated. After the evaluation period you will need to assign a license to your host using either the CLI or the IBM Flash Management Console user interface.

Multiple license files can be uploaded to IBM Flash Management Console which will manage the distribution of the licenses to any hosts whose agents are authenticated to IBM Flash Management Console. When a cache device is selected,IBM Flash Management Console moves a license to that host. If an undeployed license is not available in IBM Flash Management Console, the IBM Flash Management Console will query all known agents to see if any licensed hosts have unconfigured caching (i.e. no cache device is set). If it finds a licensed, but unconfigured, host, it will move the license from that host to the host that is requesting a license. If IBM Flash Management Console does not have any licenses and there are no unconfigured licensed hosts, then the licensing request will fail.

Because direct licenses are host-based, a single direct license file will only have one license count, and may be applied to only one host.

For details on using the CLI to license IBM FlashCache Storage Accelerator see the CLI command installlicense.

Licensing with IBM Flash Management Console

IBM FlashCache Storage Accelerator uses node-based licensing. That is, a single license is assigned to each host either through a CLI command or through the IBM Flash Management Console interface comes with an evaluation license that is valid for 90 days from the date the product is installed.

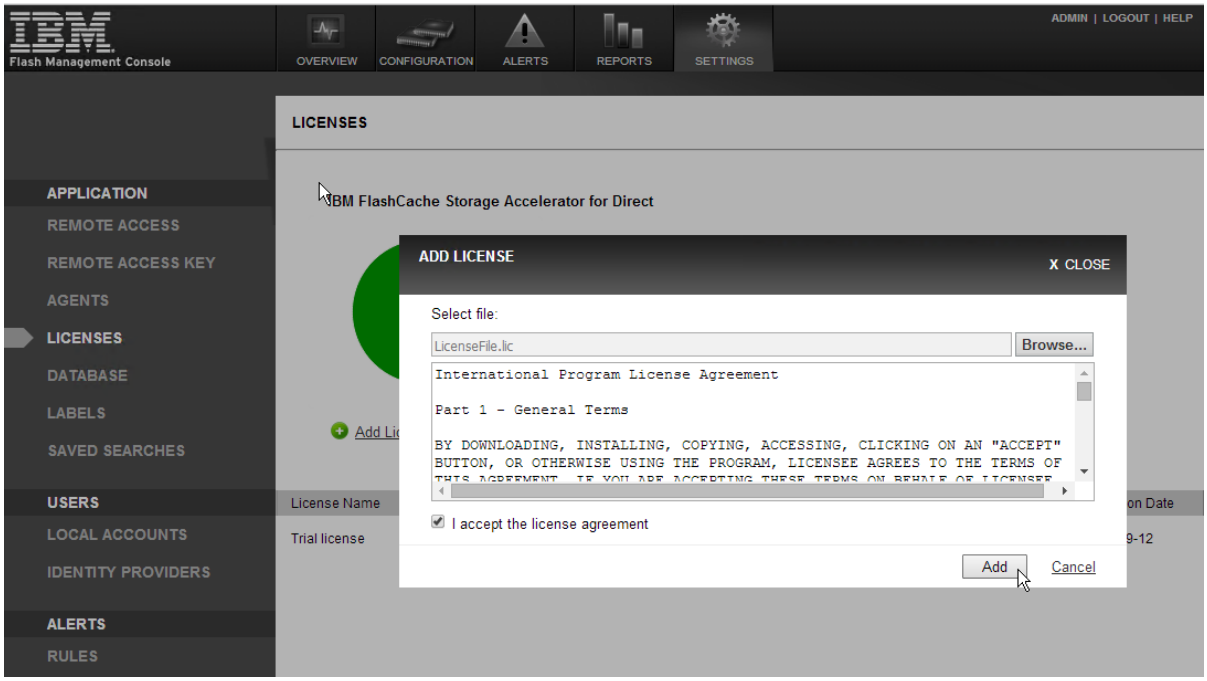
To license IBM FlashCache Storage Accelerator software:

1. Log in to IBM Flash Management Console.
2. Click the **Settings** tab.
3. On the left side of the screen click **Licenses**.
4. Click **Add License**

   Browse to the location of the license file and select it

5. Read the license agreement and then click the check box to accept it.
6. Click **Add**.

The license is added.



Licensing with the CLI

You can use the `iottool installlicense` command to deploy a license on your host.

About License Expiration

The following alerts are generated with regard to expiring licenses:

- A warning two weeks before licensing goes out of compliance
- A different warning one week before licensing goes out of compliance
- An “out of compliance” warning when licensing goes out of compliance

License-specific warnings are also displayed in the IBM Flash Management Console license grid next to license that are about to expire.

After your license expires, if IBM Flash Management Console has (or can find) an available license, it will move it to the host. However, until a new license is applied, IBM FlashCache Storage Accelerator will generate alerts telling you that your host is out of compliance. Out of compliance hosts continue to cache as long as a caching device remains configured and caching remains enabled.

Removing the last cache device or disabling caching on a host that is out of compliance will result in a licensing error when attempting to reconfigure or re-enable caching. The host will need to be re-licensed before caching can be re-configured.

Managing caching

To manage caching:

1. Log in to the machine where IBM FlashCache Storage Accelerator is running.
2. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

   where

   hostname—is the host name of the machine where you want to configure IBM FlashCache Storage Accelerator for Linux.

3. Log in to IBM Flash Management Console as user *admin*. (The password for *admin* was configured during install.)
4. Click the **Configuration** tab.
5. On the left side of the screen click **Hosts.**
6. In the Hostname column, click the name of your host.
7. On the host Configure tab, click **Manage Caching**.

The Manage Caching dialog displays, and using this screen you can set a caching device.

To set a cache device:

1. From the Manage Caching dialog, click the device you want to use for caching.
2. Click either **Cache all current and future volumes** or **Set custom cache settings**.
3. If you select custom cache settings, click the objects you want to cache. (For more details see Custom cache settings).
4. Click **Save**.
5. Click **Confirm**.

The caching device is set. After a caching device is selected, you can monitor the status of the device and edit its configuration from the Caches link on the left side of the Configuration tab screen.

Custom cache settings

After a caching device is set, you can click **Set custom cache settings**. Clicking **Set custom cache settings** on the Manage Caching dialog displays the **Caching Selection** drop-down. The default selection is **Cache all current and future volumes**, meaning all eligible volumes on the machine are cached. However, choosing Custom gives you the option of selecting specific volumes to cache.

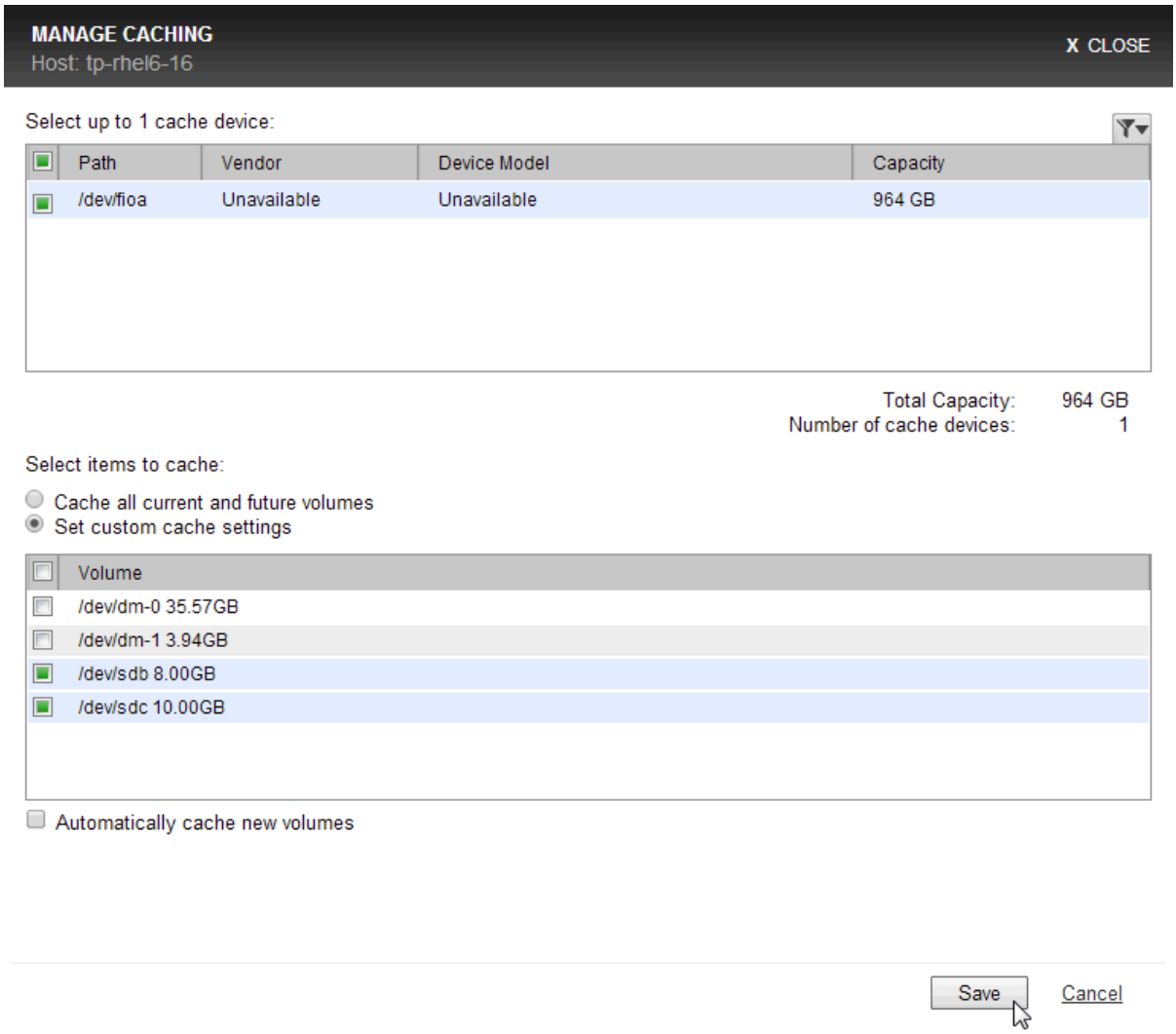
If you want to cache new volumes that may be created on the machine, click **Automatically cache new volumes**.

Attention!

IBM FlashCache Storage Accelerator for Linux will display volumes that are not eligible for caching. Care should be taken to not select ineligible volumes. One way to avoid this is to initially set the Caching Selection to **Cache all current and future volumes** and then re-launch the Manage Caching dialog and set the Caching Selection to **Custom**. The volumes that the system determined were eligible for caching are checked, and you can uncheck them as desired.

Attention!

Caching is only enabled on volumes that currently exist. If you add volumes later, caching will need to be enabled manually on those volumes.



Attention!

If no primary devices are eligible to be cached, then, after clicking **Save** in the Manage Caching dialog, caching may show as both Enabled and Started, yet caching is not taking place. (This can happen, for example, if you select "Cache all current and future volumes" on a host that only has a boot volume.) The hosts table will also show Enabled and Started, but it will also display an alert that no primaries were selected. Make sure that there are devices eligible to be cached, and try again. To see what volumes may be eligible for caching use the `iottool listvolumes` command.

Stopping, or disabling, caching

In the IBM FlashCache Storage Accelerator context, disabling caching is synonymous with stopping caching. That is, when you disable caching you temporarily stop caching on a primary but you do not remove the cache or delete your configuration.

To stop or temporarily disable caching:

1. Log in to the machine where IBM FlashCache Storage Accelerator is running.
2. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

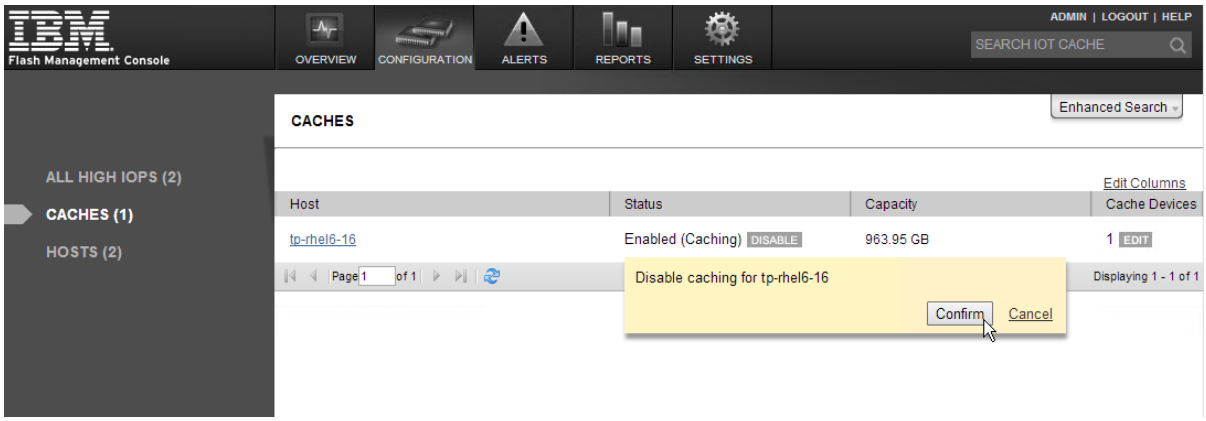
   where

   hostname—is the host name of the machine where you want to configure IBM FlashCache Storage Accelerator for Linux.

3. Log in to IBM Flash Management Console as user *admin*. (The password for *admin* was configured during install.)
4. Click the **Configuration** tab.
5. On the left side of the screen click **Caches.**
6. In the Caches window, click **Disable** in the Status column.
7. Click **Confirm**.

Caching is stopped or disabled.

To restart caching, perform the same steps, but in step 6 click **Enable**.



Changing caching selection

To change the volumes, disks, or files that are being cached:

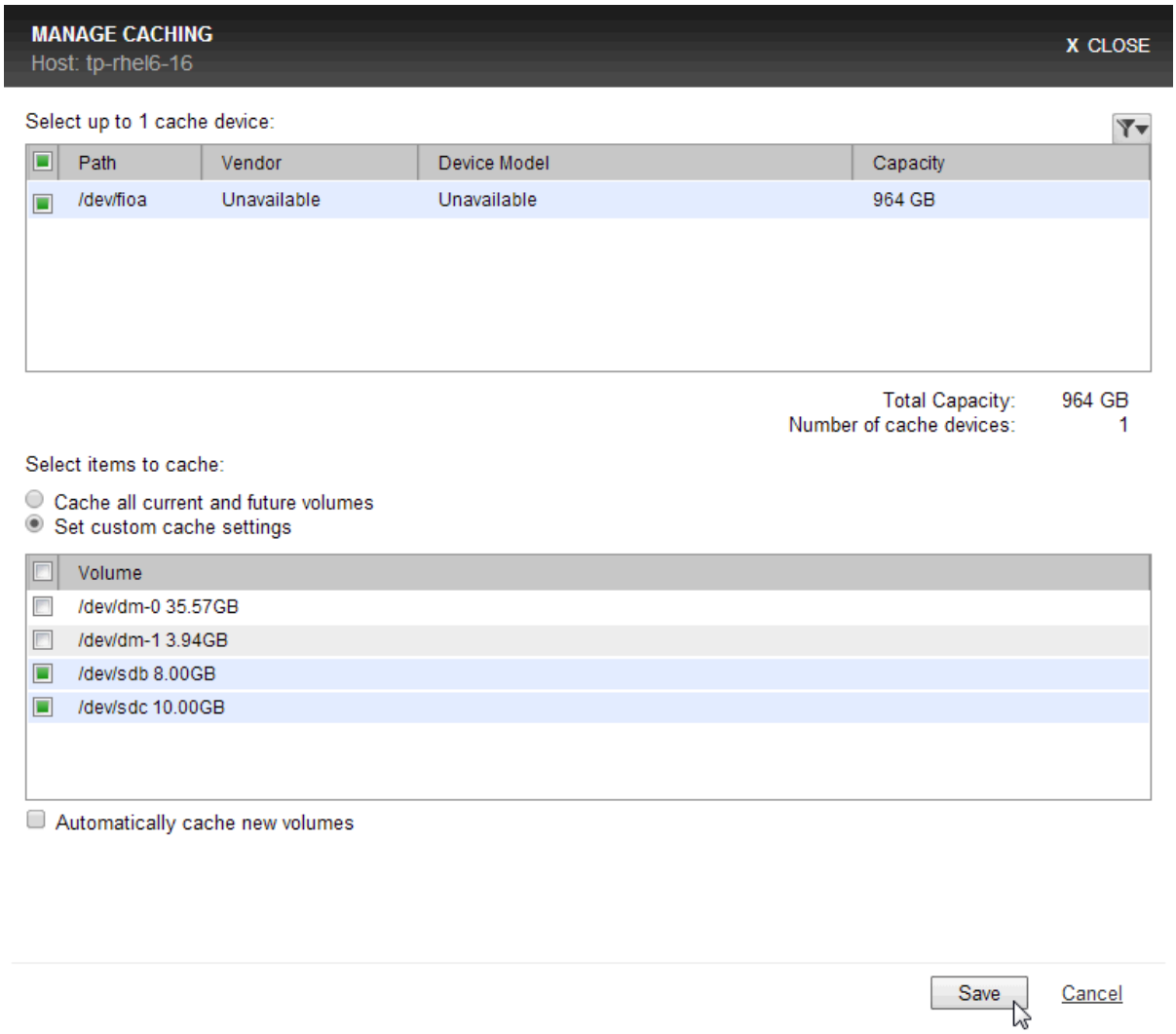
1. Log in to the machine where IBM FlashCache Storage Accelerator is running.
2. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

   where

   hostname—is the host name of the machine where you want to configure IBM FlashCache Storage Accelerator for Linux.

3. Log in to IBM Flash Management Console as user *admin*. (The password for *admin* was configured during install.)
4. Click the **Configuration** tab.
5. On the left side of the screen click **Caches.**
6. In the Cache Devices column click **Edit**.
7. From the Manage Caching dialog, click **Set custom cache settings**.
8. Click the objects you want cached.

After you have finished making you caching selections, click **Save** and **Confirm**.


MANAGE CACHING
Host: tp-rhel6-16
X CLOSE
Select up to 1 cache device:
Path
Vendor
Device Model
Capacity
/dev/fioa
Unavailable
Unavailable
964 GB
Total Capacity: 964 GB
Number of cache devices: 1
Select items to cache:
Cache all current and future volumes
Set custom cache settings
Volume
/dev/dm-0 35.57GB
/dev/dm-1 3.94GB
/dev/sdb 8.00GB
/dev/sdc 10.00GB
Automatically cache new volumes
Save
Cancel

Viewing Live performance graphs

Live Performance graphs display information about the IBM High IOPS Adapter in your host or about the cache running on your host.

> **Attention!**
>
> To view Live Performance graphs you will need to have Flash installed for your browser.

To view Live Performance graphs:

1. Log in to the machine where IBM FlashCache Storage Accelerator is running.
2. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

   where

   hostname—is the host name of the machine where you want to configure IBM FlashCache Storage Accelerator for Linux.

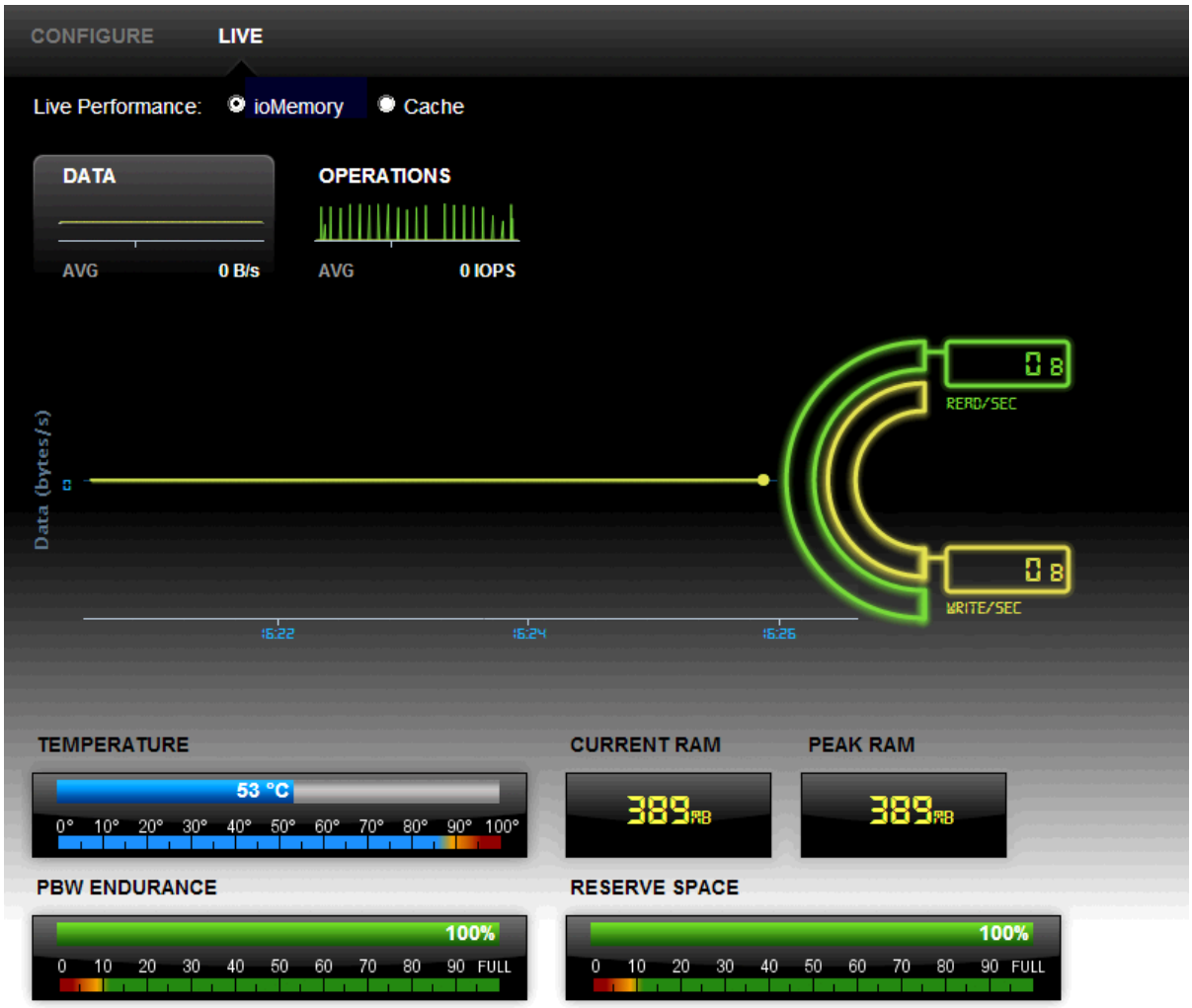
3. Log in to IBM Flash Management Console as user *admin*. (The password for *admin* was configured during install.)
4. Click the **Configuration** tab.
5. On the left side of the screen click **Hosts.**
6. In the Hostname column, click the name of your host.
7. Click the **Live** tab.
8. From the Live tab click either **IBM High IOPS** or **Cache**.

The Live performance graphs display.

IBM High IOPS graphs

The following table describes the information displayed in the various graphs on the IBM High IOPS Live Peformance screen.

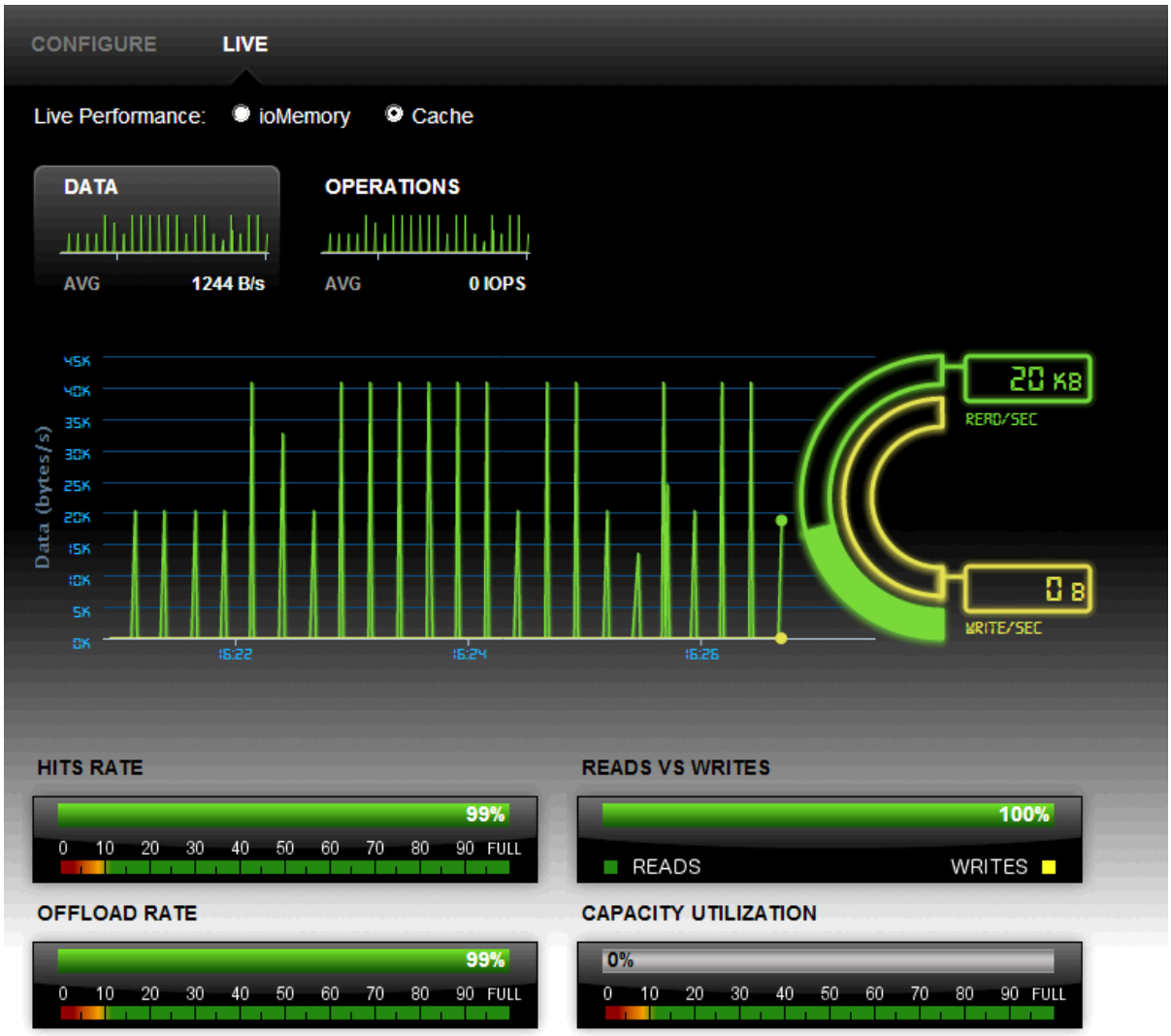
Item	Description
Data	A histogram of average megabytes per second being read or written to the Cache devices.
Operations	A histogram of average operations per second (shown in KIOPS) being performed on the Cache devices.
Combined Read/Write	Overlapping histograms of actual reads and writes to the Cache devices. The histogram is updated every second.
Temperature	The temperature of the FPGA on the IBM High IOPS device. Operating temperatures of devices vary, but throttling on older devices may occur after 78° C.
Current RAM	The current RAM being consumed on the host by IBM ioMemory VSL software.
Peak RAM	The peak amount of RAM that has been consumed since power on by IBM ioMemory VSL software.
PBW Performance	This value reflects the amount of wear experienced by the IBM High IOPS device. Values of 100% represent no wear on the device, or, that the device has 100% of its endurance left.
Reserve Space	As the IBM High IOPS device retires bad memory locations it moves the data at those bad locations to reserved space. This value reflects the amount of reserve space still available.


CONFIGURE
LIVE
Live Performance:
ioMemory
Cache
DATA
AVG
0 B/s
OPERATIONS
AVG
0 IOPS
Data (bytes/s)
0 B
READ/SEC
0 B
WRITE/SEC
15:22
15:24
15:26
TEMPERATURE
53 °C
0° 10° 20° 30° 40° 50° 60° 70° 80° 90° 100°
CURRENT RAM
389 MB
PEAK RAM
389 MB
PBW ENDURANCE
100%
0 10 20 30 40 50 60 70 80 90 FULL
RESERVE SPACE
100%
0 10 20 30 40 50 60 70 80 90 FULL

Cache graphs

The following table describes the information displayed in the various graphs on the Cache Live Peformance screen.

Item	Description
Data	A histogram of average megabytes per second being read or written to the Cache device.
Operations	A histogram of average operations per second (shown in KIOPS) being performed on the Cache device.
Combined Read/Write	Overlapping histograms of actual reads and writes to the Cache device. The histogram is updated every second.
Hits Rate	A bar chart showing a percentage of file IO that hits the Cache device.
Reads versus Writes	A bar chart showing the percentage of reads to writes on the Cache device. The two percentages equal 100%.
Offload Rate	A bar chart showing the offload rate. Offload rate can be calculated as: hits / (number of reads + number of writes)



Formatting an IBM High IOPS or Enterprise Value Flash device

If you are using an IBM High IOPS Adapter or Enterprise Value Flash Adapter with unchanged factory formatting, you do not need to re-format it. If necessary, IBM FlashCache Storage Accelerator will format the device for optimal caching settings when it is selected as a cache device. It is strongly recommended that you let IBM FlashCache Storage Accelerator re-format your IBM High IOPS Adapter.

If you are using an IBM High IOPS Adapter that has been formatted with 512-byte sectors to something other than original factory size, IBM FlashCache Storage Accelerator will not change the format. To use the device for caching it will need to have been formatted with 512-byte sectors, and it is strongly recommended that the device not be formatted to its maximum size to allow reserve space to improve the longevity and durability of the device. (Any device used for caching that does not use 512-byte sectors will be re-formatted with 512-byte sectors as this is required for IBM FlashCache Storage Accelerator cache devices.)

If you are using an SSD that is not an IBM High IOPS Adapter or Enterprise Value Flash Adapter or other approved IBM System X Flash device follow the manufacturer's instructions for properly formatting the device. IBM FlashCache Storage Accelerator will not use the SSD as a cache device if it is not formatted with 512-byte sectors.

To format an IBM High IOPS Adapter from the IBM Flash Management Console:

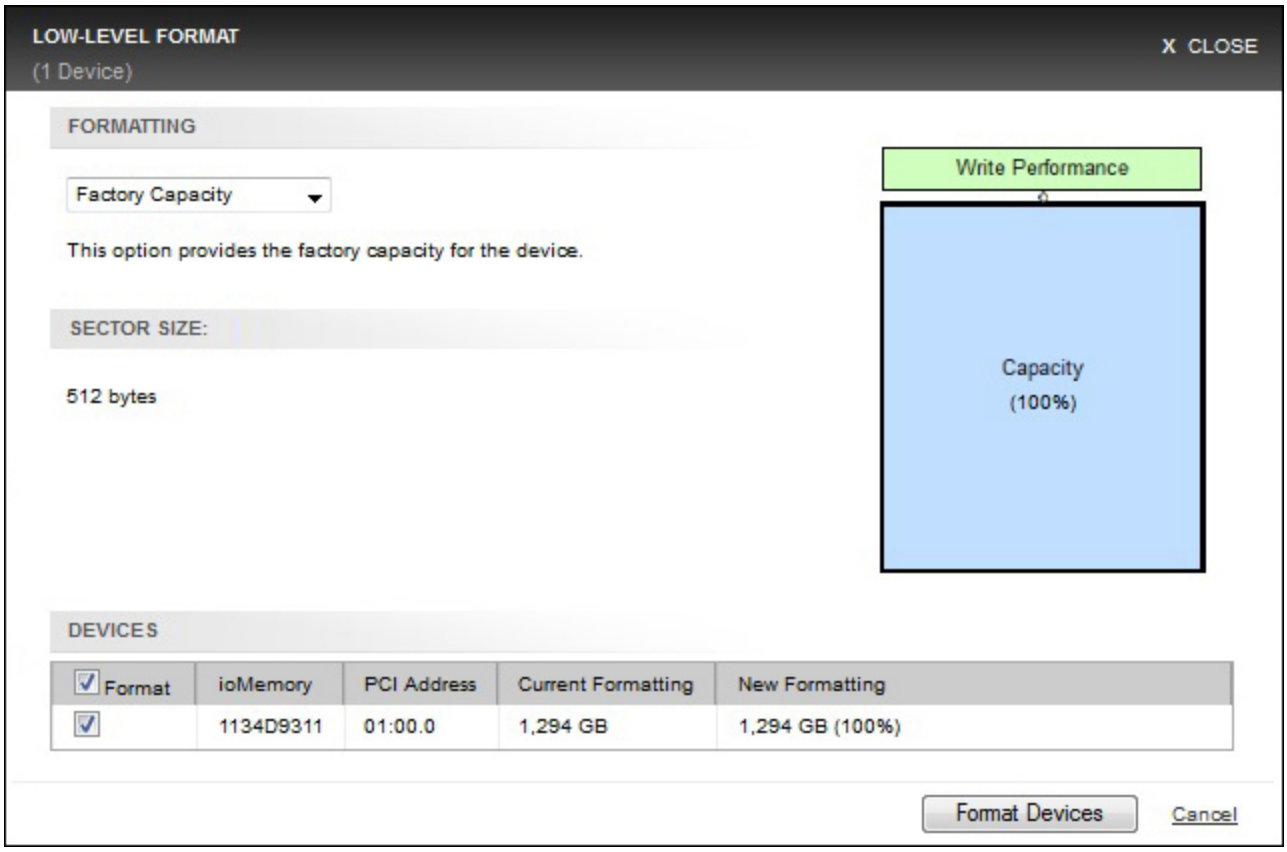
1. Log in to the machine where IBM FlashCache Storage Accelerator is running.
2. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

   where
   hostname—is the host name of the machine where you want to configure IBM FlashCache Storage Accelerator for Linux.

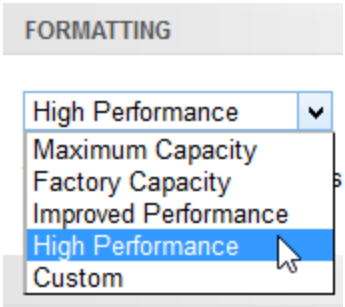
3. Log in to IBM Flash Management Console as user *admin*. (The password for *admin* was configured during install.)
4. Click the **Configuration** tab.
5. On the left side of the screen click **IBM High IOPS**.
6. Click the check box next to the IBM High IOPS alias for your IBM High IOPS Adapter.
7. Click **Format**.

Attention!

Formatting a device will destroy any data still remaining on it. Please be sure to back up your data before proceeding.



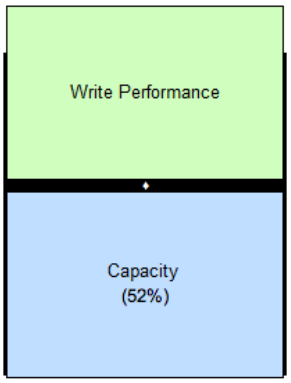
Here you can set the ratio of **Write Performance to Capacity.** You can increase Write Performance by decreasing the IBM High IOPS's capacity--the reverse is also true. You can select from a drop-down list of preset ratios (**Maximum Capacity, Factory Capacity, Improved Performance, High Performance).**



Attention!

For IBM FlashCache Storage Accelerator select "High Performance."

You can customize the Write ratio with the **Custom** selection (from the drop-down menu) or by dragging the line between **Write Performance and Capacity** in the graphic. You can also change the sector size by dragging the sizing bar in the **Write Performance** box.



The selected IBM High IOPS or Enterprise Value Flash Adapter device appears below the Write Performance/Capacity graphic. Check the corresponding checkbox to perform the desired action on the selected device or devices.

NOTE-

If an IBM High IOPS is unable to format (that is, it is busy or the formatting is not valid for that particular device), you will not be able to select it for formatting.

When you are ready to format the selected IBM High IOPS device, click the **Format Devices** button.

To exit the Low-Level Format dialog without formatting any devices, click, the **Cancel** link.

Updating firmware on an IBM High IOPS or Enterprise Value Flash device

To update firmware on an IBM High IOPS Adapter or Enterprise Value Flash Adapter from the IBM Flash Management Console:

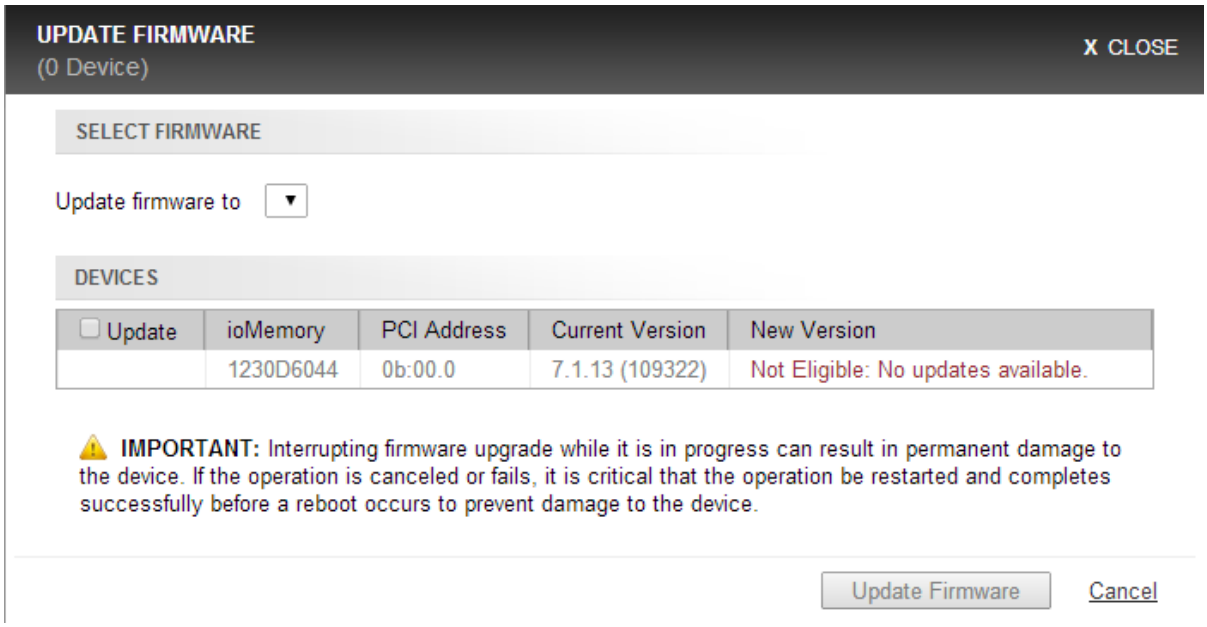
1. Log in to the machine where IBM FlashCache Storage Accelerator is running.
2. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

   where

   hostname—is the host name of the machine where you want to configure IBM FlashCache Storage Accelerator for Linux.

3. Log in to IBM Flash Management Console as user *admin*. (The password for *admin* was configured during install.)
4. Click the **Configuration** tab.
5. On the left side of the screen click **IBM High IOPS**.
6. In the IBM High IOPS column, click the IBM High IOPS alias for your IBM High IOPS Adapter.
7. In the Firmware section, click **Update Firmware**.

From here you can select from the drop-down menu the version of the firmware you would like to install.



The selected IBM High IOPS device appears below the Update firmware drop-down menu. Check the corresponding checkbox to perform the desired action on the selected device or devices.

NOTE-

If an IBM High IOPS Adapter is unable to update (that is, it is busy or updates are not available for

that particular device), the message "Not Eligible" displays in the New Version column of the Devices table.

When you are ready to upgrade the selected IBM High IOPS's firmware, click the **Update Firmware** button. Or, to exit the **Update Firmware** dialog without updating any devices, click the **Cancel** link.

When the firmware update process begins, the **Config History** bar appears at the bottom of the screen.

Updating IBM High IOPS involves two procedures: updating IBM ioMemory VSL software on the host machine, and updating the firmware on the IBM High IOPS device.

Attention!

Before updating firmware, you must place the new firmware packages in the /scratch folder.

NOTE-

In most cases, if you upgrade the IBM High IOPS firmware, you must also upgrade the IBM High IOPS driver. Many support issues arise from mismatched firmware and drivers.

Upgrading the firmware may take some time. Monitor the progress using IBM FlashCache Storage Accelerator.

Attention!

Back up the data on your IBM High IOPS device prior to performing the upgrade.

Attention!

It is extremely important that the power not be turned off during a firmware upgrade, as this could cause device failure. If a UPS is not already in place, consider adding one to the system prior to performing a firmware upgrade.

Attention!

Interrupting an update while it is in progress can result in permanent damage to the device. Never kill the process. (For this same reason, the Agent process ignores all termination requests.) If the operation fails, it is critical that you restart this operation and complete it successfully before restarting the computer to prevent damage to the device.

Collecting logs for support

You can collect system logs for support in one of two ways:

- Using IBM Flash Management Console
- Using the command line interface (CLI)

Collecting logs for support using IBM Flash Management Console

To collect log bundles for support::

3. Log in to the machine where IBM FlashCache Storage Accelerator is running.
4. Open a browser and type the following on the address line: https://<hostname>:9051/index.html

   where

   hostname—is the host name of the machine where you want to configure IBM FlashCache Storage Acceleratorfor Linux.

5. Log in to IBM Flash Management Console as user *admin*. (The password for *admin* was configured during install.)
6. Click the **Configuration** tab.
7. On the left side of the screen click **Hosts.**
8. In the Hostname column, click the name of your host.
9. On the host Configure tab, click **Collect System Logs**.

IBM Flash Management Console collects the logs and saves a `.tar.bz2` file of the logs to your browser's download directory.

Collecting logs for support using the CLI

The command for assembling an IBM FlashCache Storage Accelerator log bundle is entered on the command line of the Linux machine where IBM FlashCache Storage Accelerator is installed.

To collect log bundles for support:

1. As user root, enter the following on the command line:

   `iottool supportsave`

By default the logs are assembled in a time-stamped **`supportsave-<timestamp>*.tar.gz`** file in **`/var/iot`**.

Example output for the command is listed below.

```
[root@tp-rhel6-5 ~]# iottool supportsave
supportsave output: /var/iot/supportsave-20131017.142007-L4GGL1.tar.gz
```

```
OS: Linux-2.6.32-279.el6.x86_64
Collecting iot file(s)...   done
Collecting iottool dsstats...   done
Collecting iottool status...   done
Collecting iottool version...   done
Collecting iottool fltstats...   done
Collecting rpm -qa...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc/self file(s)...   done
Collecting sys file(s)...   done
Collecting sys file(s)...   done
Collecting sys file(s)...   done
Collecting sys file(s)...   done
Collecting sys file(s)...   done
Collecting system file(s)...   done
Collecting system file(s)...   done
Collecting uname -a...   done
Collecting hostname ...   done
Collecting lspci ...   done
Collecting lspci -vvvvv...   done
Collecting find /lib/modules...   done
Collecting lsmod ...   done
Collecting dmesg ...   done
Collecting logs file(s)...   done
Collecting logs file(s)...   done
Collecting logs file(s)...   done
Collecting fdisk -l...   done
Collecting pvs ...   done
Collecting  ...   done
Collecting lvs ...   done
Collecting storage file(s)...   done
Collecting vmstat 1 5...Collecting iostat 1 5...   done
   done
Collecting top -b -n 1...   done
Collecting ps aux...   done

Building tar file...  done

[root@tp-rhel6-5 ~]# cd /var/iot

[root@tp-rhel6-5 iot]# ls
supportsave-20131017.142007-L4GGL1.tar.gz
```

iottool command reference

Options for the iottool command are provided below.

> **Attention!**
> In command line utility examples, text highlighted in blue indicates settings or changes that you should take note of.

addblk

This command adds the specified disk to the list of disks being cached. When a block device is added for caching, a new cache pseudo device is created. IBM FlashCache Storage Accelerator unmounts the device you specified and replaces the mount with the psuedo device. If the device is busy, the command will fail.

iottool addblk [block_device_path]

block_device_path — is the device path of the disk you want to add as a primary. Multiple disks (separated by spaces) can be added with the same command.

> **Attention!**
> On Linux you cannot add the root filesystem as a primary disk to be cached.

> **Attention!**
> If there is more than one volume on a disk, and you add that volume to cache, you will not be able to cache the disk. For example, if you have added **/dev/sdc1** to cache, you can't then add **/dev/sdc** to cache. You either need to add the other volumes on the disk separately, or remove all volumes from caching and then add the raw disk.

adddisk and **addvol** are aliases for **addblk**.

In the example below, the device **/dev/sdb** is added to the list of devices being cached.

```
[root@tp-rhel6-16 ~]# iottool listallvolumes
/dev/sdb /dev/sdc
[root@tp-rhel6-16 ~]# iottool addblk /dev/sdb
[root@tp-rhel6-16 ~]# iottool status

iotblk filter status:
Caching Status: Not Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
```

```
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x1
Health Status Message: Caching disabled.
```

See also See delblk on page 31.

adddisk

This command is an alias for addblk.

addvol

This command is an alias for addblk.

delblk

This command removes the specified disk from the list of disks being cached. IBM FlashCache Storage Accelerator unmounts the pseudo device and remounts the original device. If the device is busy, the command will fail.

iottool delblk [block_device_path]

> **block_device_path** — is the device path of the disk you want to delete as a primary. Multiple disks (separated by spaces) can be added with the same command.

deldisk and **deldvol** are aliases for **delblk**.

```
[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x0
Health Status Message: Caching working.

[root@tp-rhel6-16 ~]# iottool delblk /dev/sdb

[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Started
Logging Status: NOT Logging
VLUN: Not Present
```

```
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
No devices currently selected for caching.
healthstatus: 0x2
Health Status Message: No primary device added for caching.
```

See also See addblk on page 30.

deldisk

This command is an alias for dellblk.

delvol

This command is an alias for delblk .

diffstats

This command shows the difference between the stats data by the specified interval in seconds. The command continues to run until it is stopped.

iottool diffstats time_in_secs

time_in_secs — an interval in seconds that specifies how often to display stats.

Differences in the following stats are reported:

- hits — the number of read IOs serviced from cache
- misses — the number of read IOs serviced from primary
- hit Ratio — the percentage of read IOs serviced from cache
- miss Ratio — the percentage of read IOs serviced from primary
- Number of Reads — the number of reads from the cache
- Cache Page Reads — the number of read IOs issued to the cache
- Number of Writes — the number of writes to the cache
- Cache Page Writes — the number of write IOs issued to the cache

```
[root@TP-RHEL6-4 ~]# iottool diffstats 5
hits: 0
misses: 0
hit Ratio: 0.00
miss Ratio: 0.00
Number of Reads: 0
Cache Page Reads: 0
Number of Writes: 3
Cache Page Writes: 3

hits: 0
misses: 0
hit Ratio: 0.00
miss Ratio: 0.00
```

```
Number of Reads: 0
Cache Page Reads: 0
Number of Writes: 33794
Cache Page Writes: 33794

hits: 0
misses: 0
hit Ratio: 0.00
miss Ratio: 0.00
Number of Reads: 0
Cache Page Reads: 0
Number of Writes: 7
Cache Page Writes: 7

hits: 1
misses: 0
hit Ratio: 100.00
miss Ratio: 0.00
Number of Reads: 1
Cache Page Reads: 1
Number of Writes: 29631
Cache Page Writes: 29631
```

See also See resetstats on page 38, See stats on page 42.

disableautocache

This command disables auto cache on your machine, which will automatically disable caching on any new volumes created on the machine.The caching configuration of volumes currently running on the machine will not be affected by this command.

```
root@tp-rhel6-16 ~]# iottool getautocachestatus
Auto Cache Status: autocache enabled.

[root@tp-rhel6-16 ~]# iottool disableautocache

[root@tp-rhel6-16 ~]# iottool getautocachestatus
Auto Cache Status: autocache disabled.
```

disablereadupdate

This command allows you to disable read updates to your machine's read cache without invalidating the existing read cache.

For example, you might need to disable read updates on your machine before performing a backup to prevent infrequently accessed files from filling up your read cache.

```
[root@tp-rhel6-16 ~]# iottool getcachingpolicy
Caching Policy: read updated enabled.
```

```
[root@tp-rhel6-16 ~]# iottool disablereadupdate

[root@tp-rhel6-16 ~]# iottool getcachingpolicy
Caching Policy: read updated disabled.
```

enableautocache

This command enables autocache on your machine, which will automatically enable caching on any new volumes created on the machine.The caching configuration of volumes currently running on the machine will not be affected by this command.

```
[root@tp-rhel6-16 ~]# iottool getautocachestatus
Auto Cache Status: autocache disabled.

[root@tp-rhel6-16 ~]# iottool enableautocache

[root@tp-rhel6-16 ~]# iottool getautocachestatus
Auto Cache Status: autocache enabled.
```

enablereadupdate

This command allows you to disable read updates to your machine's read cache without invalidating the existing read cache.

```
[root@tp-rhel6-16 ~]# iottool getcachingpolicy
Caching Policy: read updated disabled.

[root@tp-rhel6-16 ~]# iottool enablereadupdate

[root@tp-rhel6-16 ~]# iottool getcachingpolicy
Caching Policy: read updated enabled.
```

getautocachestatus

This command displays the status of auto cache on your machine.

```
[root@tp-rhel6-16 ~]# iottool enableautocache

[root@tp-rhel6-16 ~]# iottool getautocachestatus
Auto Cache Status: autocache enabled.
```

getcachepagesize

This displays the current cache page size.

iottool getcachepagesize

The default cachepagesize is 16384 bytes. For more information on **cachepagesize** see setcachepagesize.

```
root@TP-RHEL6-4 ~]# iottool getcachepagesize
getcachepagesize: 16384
```

getcachesize

This displays the current cache size.

iottool getcachesize

The default cachesize is the size of the caching device For more information on **cachesize** see setcachesize.

```
[root@TP-RHEL6-4 ~]# iottool getcachesize
getcachesize: 1204738326528
```

See also See setcachesize on page 40.

getcachingpolicy

This command displays the read update caching policy that is set for your machine's read cache.

```
[root@tp-rhel6-16 ~]# iottool getcachingpolicy
Caching Policy: read updated enabled.
```

getlicenseinfo

This command displays IBM FlashCache Storage Accelerator licensing information for your machine..

```
[root@tp-rhel6-16 agent_keys]# iottool getlicenseinfo
license_sn::BUILT-IN_TRIAL_LICENSE
license_product::IBM-FlashCache-Direct
license_description::IBM-FlashCache-Direct Eval
license_type::BUILT-IN_TRIAL_LICENSE
license_expires::2014-Sep-12
```

getmaxcachereadiosize

This displays the current max cache read IO size.

iottool getmaxcachereadiosize

For more information on maxcachereadiosize see setmaxcachereadiosize.

```
[root@TP-RHEL6-4 ~]# iottool getmaxcachereadiosize
getmaxcachereadiosize: 1048576
```

See also See setmaxcachereadiosize on page 40.

getmaxcachewriteiosize

This displays the current max cache write io size.

iottool getmaxcachewriteiosize

For more information on maxcachewriteiosize see setmaxcachewriteiosize.

```
[root@TP-RHEL6-4 ~]# iottool getmaxcachewriteiosize
getmaxcachewriteiosize: 1048576
```

See also See setmaxcachewriteiosize on page 40.

getpseudodev

This command returns the caching pseudo-device name.

iottool getpseudodev [block_device_path]

When you add a disk for caching using the iottool addblk command a device is created which represents the cached disk. This pseudo-device is what you should use to mount or manipulate your file system.

```
[root@TP-RHEL6-4 ~]# iottool getpseudodev /dev/sdb
/dev/ibca
```

See also addblk.

installlicense

This command applies a license to the machine it is executed on. A license installed with this command will overwrite any existing license on the host. If the host's agent is connected to IBM Flash Management Console, IBM Flash Management Consolewill be notified that the host is now licensed.

Although an existing license will be overwritten by this command, the license file that was used to configure the IBM FlashCache Storage Accelerator driver will still be in place in its original location unless it has been manually deleted.

The command takes the name of the license file (with any necessary path information) as a required option:

iottool installlicense <licenseFile>

> **licenseFile** — is the name of the license file. Path or file names that contain spaces need to be included in quotation marks.

```
[root@tp-rhel6-16 agent_keys]# iottool getlicenseinfo
license_sn::BUILT-IN_TRIAL_LICENSE
license_product::IBM-FlashCache-Direct
license_description::IBM-FlashCache-Direct Eval
license_type::BUILT-IN_TRIAL_LICENSE
license_expires::2014-Sep-12
```

listallvolumes

This command will list all the volume mount points in the system, except for removable, CDROM and RAMDISK types.

iottool listallvolumes

```
[root@tp-rhel6-16 ~]# iottool listallvolumes
/dev/sdb /dev/sdc
```

See also See addblk on page 30, See delblk on page 31, See listprimaryvolumes on page 37.

listprimaryvolumes

This command shows the list of primary volumes being monitored currently by the driver.

iottool listprimaryvolumes

```
[root@TP-RHEL6-4 ~]# iottool listprimaryvolumes
/dev/sdb ; /dev/ibca
```

See also See addblk on page 30, See delblk on page 31, See listallvolumes on page 37.

resetcachedevice

This commands resets the MBR written by setcachedevice command. It can only be used if the cache is stopped. This command releases an IBM FlashCache Storage Accelerator license.

iottool resetcachedevice

This command will leave a partition on the caching device. To remove this partition, reformat the caching device.

```
[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
No devices currently selected for caching.
```

```
healthstatus: 0x2
Health Status Message: No primary device added for caching.

[root@tp-rhel6-16 ~]# iottool stopcache

[root@tp-rhel6-16 ~]# iottool resetcachedevice

[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Not Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Size in use: 0 (0 chunks)
No devices currently selected for caching.
healthstatus: 0x4b
Health Status Message: Caching disabled, No primary device added for
caching, No caching device assigned, No caching capacity available.
```

See also See setcachedevice on page 39.

resetstats

This resets the stats.

iottool resetstats

```
[root@tp-rhel6-16 ~]# iottool stats
hits: 41744
hit Ratio: 99.48
misses: 220
miss Ratio: 0.52
Number of Reads: 41964
Cache Page Reads: 41964
Number of Writes: 0
Cache Page Writes: 0

[root@tp-rhel6-16 ~]# iottool resetstats

[root@tp-rhel6-16 ~]# iottool stats
hits: 0
hit Ratio: 0.00
misses: 0
miss Ratio: 0.00
Number of Reads: 0
Cache Page Reads: 0
Number of Writes: 0
Cache Page Writes: 0
```

See also See stats on page 42, See diffstats on page 32.

setcachedevice

This command formats the specified device to be used as caching. Setting the caching device consumes an IBM FlashCache Storage Accelerator license.

IBM FlashCache Storage Accelerator only supports the use of one caching device. If you have two SSDs in your machine, they can be combined into one volume (e.g. RAID 0) and then that volume can be specified as the cache device.

iottool setcachedevice [block_device_path]

> **block_device_path**—is the path to the device to be used for caching. In order to be used as a caching device the disk cannot have any partitions or file systems on it.

```
[root@tp-rhel6-16 ~]# iottool setcachedevice /dev/fioa
If you continue, you will lose all the data on this device. Continue
[Y/n]?y

[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Not Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
No devices currently selected for caching.
healthstatus: 0x3
Health Status Message: Caching disabled, No primary device added for
caching.
```

See also See resetcachedevice on page 37.

setcachepagesize

This command sets the page size used by the caching device. Each page in the cache uses a small amount of system memory. Consequently, by increasing the page size you can reduce the system memory usage and potentially increase performance on large reads and writes. However, as page size gets larger you lose some granularity, where small reads or writes now require a larger page to be processed.

iottool setcachepagesize <cachepagesize>

> **cachepagesize** — is the new page size specified in bytes. This value must be a minimum of 4096 bytes, and it must be an integral multiple of 4096. The maximum page size is 1 MB (or 256 X 4096).

```
[root@TP-RHEL6-4 ~]# iottool getcachepagesize
getcachepagesize: 16384
[root@TP-RHEL6-4 ~]# iottool setcachepagesize 1048576
[root@TP-RHEL6-4 ~]# iottool getcachepagesize
getcachepagesize: 1048576
```

See also getcachepagesize.

setcachesize

This command sets the cache size. By default this is the maximum size of your caching device. However, there is a small amount of system memory that is used by each page in the cache, and, in memory constrained environments, you may want to limit the size of the cache to limit the system memory impact. You could also increase the cache page size to reduce the system memory impact but this might adversely affect cache performance.

iottool setcachesize <cachepagesize>

> **cachepagesize** — sets cache size for disk caching. This value needs to be between 256 MB (268435456 bytes) and 2TB (1204738326528 bytes), in integral multiples of 256 MB. (The maximum size would be 8192 X 256 MB.)

```
[root@TP-RHEL6-4 ~]# iottool getcachesize
getcachesize: 120473832652
[root@TP-RHEL6-4 ~]# iottool setcachesize 1073741824000
[root@TP-RHEL6-4 ~]# iottool getcachesize
getcachesize: 1073741824000
```

See also getcachesize.

setmaxcachereadiosize

This command sets the maximum cache read size. After setting this value, any read requests whose size exceeds this value will be ignored by the cache, and the request will be passed directly to the primary.

iottool setmaxcachereadiosize] <readiosize>

> **readiosize**— is the maximum read size that the cache will service. The minimum value is 4096 bytes and the maximum value is 1 MB, in integral multiples of 4096. The default size is 1048576.

```
[root@TP-RHEL6-4 ~]# iottool getmaxcachereadiosize
getmaxcachereadiosize: 1048576

[root@TP-RHEL6-4 ~]# iottool setmaxcachereadiosize 524288

[root@TP-RHEL6-4 ~]# iottool getmaxcachereadiosize
getmaxcachereadiosize: 524288
```

See also getmaxcachereadiosize.

setmaxcachewriteiosize

This command sets the maximum cache write size. After setting this value, any write request whose size exceeds this value will not be written to the cache (but will be written to the primary).

iottool setmaxcachewriteiosize <writeiosize>

writeiosize— is the maximum write size that will be written to the cache. The minimum value is 4096 bytes and the maximum value is 1 MB, in integral multiples of 4096. The default size is 1048576.

```
[root@TP-RHEL6-4 ~]# iottool getmaxcachewriteiosize
getmaxcachewriteiosize: 1048576

[root@TP-RHEL6-4 ~]# iottool setmaxcachewriteiosize 524288

[root@TP-RHEL6-4 ~]# iottool getmaxcachewriteiosize
getmaxcachewriteiosize: 524288
```

See also getmaxcachewriteiosize.

setprimarysize

If a block device that you are caching is resized, use this command to inform IBM FlashCache Storage Accelerator of the new block device size.

iottool setprimarysize [block_device_path] [size_in_bytes]

block_device_name — is the device name of the block device that has changed size.

size_in_bytes — is the new size of the block device in bytes.

When growing the size of a block device that you are caching, use the following sequence:

1. Grow the underlying size of the block device.
2. Run the **iottool setprimarysize** command.
3. Extend the file system to occupy the new space on the block device.

When shrinking the size of a block device that you are caching, use the following sequence:

1. Shrink the filesystem on the block device.
2. Run the iottool setprimarysize command.
3. Shrink the underlying block device size.

```
[root@TP-RHEL6-4 ~]# iottool setprimarysize /dev/sdc 21474836480
[root@TP-RHEL6-4 ~]#
```

startcache

This command starts the cache.

iottool startcache

```
[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Not Started
Logging Status: NOT Logging
```

```
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x1
Health Status Message: Caching disabled.

[root@tp-rhel6-16 ~]# iottool startcache

[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x0
Health Status Message: Caching working.
```

See also See stopcache on page 44.

stats

This prints basic CFS stats such as hit, miss rate, read/writes, etc. An optional interval in seconds can be specified to show stats priodically.

iottool stats

The following stats are reported:

- hits — the number of read IOs serviced from cache
- hit Ratio — the percentage of read IOs serviced from cache
- misses — the number of read IOs serviced from primary
- miss Ratio — the percentage of read IOs serviced from primary
- Number of Reads — the number of reads from the cache
- Cache Page Reads — the number of read IOs issued to the cache
- Number of Writes — the number of writes to the cache
- Cache Page Writes — the number of write IOs issued to the cache

```
[root@TP-RHEL6-4 New Volume]# iottool -x stats
<output>
<version>2</version>
<hits>76948</hits>
<hitRatio>99.89</hitRatio>
<misses>86</misses>
<missRatio>0.11</missRatio>
```

```
<NumReads>12226</NumReads>
<CachePageReads>77034</CachePageReads>
<NumWrites>596739</NumWrites>
<CachePageWrites>596739</CachePageWrites>
</output>

[root@TP-RHEL6-4 New Volume]# iottool stats
hits: 76948
hit Ratio: 99.89
misses: 86
miss Ratio: 0.11
Number of Reads: 12226
Cache Page Reads: 77034
Number of Writes: 596739
Cache Page Writes: 596739

root@TP-RHEL6-4 New Volume]# watch iottool stats

Every 2.0s: iottool stats
  Fri Apr  5 15:14:36 2013

hits: 76948
hit Ratio: 99.89
misses: 86
miss Ratio: 0.11
Number of Reads: 12226
Cache Page Reads: 77034
Number of Writes: 596739
Cache Page Writes: 596739
```

See also See diffstats on page 32, See resetstats on page 38.

status

This displays the current status of caching and IO logging for all layers or the specified layer.

iottool status

The last value reported, **Health Status**, is reporting a bit mapped value. Multiple bits can be set, and the value reported is the sum of all bits.

0x200	0x100	0x80	0x40	0x20	0x10	0x8	0x4	0x2	0x1
Resize in Progress	Internal Error	Caching Device in Profiler Mode	Caching Device Not Assigned	Caching Device Failed	Caching Device Detached	No Cache Capacity	No VM Shares	No Primaries	Disabled

For example, after installing IBM FlashCache Storage Accelerator, status before configuring will often be 0x4B. This means that the caching device has not yet been assigned (0x40), and that there is currently no

cache capacity (0x8), no primaries have been assigned (0x2), and the caching device is currently disabled (0x1). 0x40 + 0x8 + 0x2 + 0x1 = 0x4B.

If no bits are set (all zeros) the status is OK.

```
[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x0
Health Status Message: Caching working.

[root@tp-rhel6-16 ~]# watch iottool status

Every 2.0s: iottool status
                                          Tue Apr 15 13:26:53 2014


iotblk filter status:
Caching Status: Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x0
Health Status Message: Caching working.
```

stopcache

This command stops caching.

iottool stopcache

```
[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
```

```
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x0
Health Status Message: Caching working.

[root@tp-rhel6-16 ~]# iottool stopcache

[root@tp-rhel6-16 ~]# iottool status
iotblk filter status:
Caching Status: Not Started
Logging Status: NOT Logging
VLUN: Not Present
Mode: Caching
Cache Device Name: /dev/fioa
Cache Size in use: 963951722496 (3591 chunks)
Cached Device List:
/dev/sdb ; /dev/ibca
healthstatus: 0x1
Health Status Message: Caching disabled.
```

See also See startcache on page 41.

supportsave

This command captures the system and application event logs and other stats in time-stamped **supportsave-<timestamp>*.tar.gz** file in **/var/iot**.

iottool supportsave

```
[root@TP-RHEL6-4 /]# iottool supportsave
supportsave output: /var/iot/supportsave-20130405.154211-BcDTR6.tar.gz
OS: Linux-2.6.32-279.el6.x86_64
Collecting iot file(s)...   done
Collecting iottool dsstats...   done
Collecting iottool status...   done
Collecting iottool version...   done
Collecting iottool fltstats...   done
Collecting rpm -qa...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc file(s)...   done
Collecting proc/self file(s)...   done
Collecting sys file(s)...   done
Collecting sys file(s)...   done
Collecting sys file(s)...   done
```

```
Collecting sys file(s)...   done
Collecting sys file(s)...   done
Collecting system file(s)...   done
Collecting system file(s)...   done
Collecting uname -a...   done
Collecting hostname ...   done
Collecting lspci ...   done
Collecting lspci -vvvvv...   done
Collecting find /lib/modules...   done
Collecting lsmod ...   done
Collecting dmesg ...   done
Collecting logs file(s)...   done
Collecting logs file(s)...   done
Collecting logs file(s)...   done
Collecting fdisk -l...   done
Collecting pvs ...   done
Collecting  ...   done
Collecting lvs ...   done
Collecting storage file(s)...   done
Collecting vmstat 1 5...Collecting iostat 1 5...   done
done
Collecting top -b -n 1...   done
Collecting ps aux...   done

Building tar file...  done
```

uninstalllicense

This command uninstalls any IBM FlashCache Storage Accelerator license that is install on your machine.

> **Attention!**
>
> If you run this command you will lose any remaining time on the built-in evaluation license.

If the cache device on the host is removed, the host remains licensed until the this command is run or until IBM Flash Management Console removes the license to give it to a different host.

The built-in evaluation license cannot be uninstalled directly. But you can uninstall any license that was deployed as a file.

```
[root@tp-rhel6-16 agent_keys]# iottool uninstalllicense
```

version

This command displays version information for the IBM FlashCache Storage Accelerator software for Linux that is running on your machine.

iottool version

```
[root@tp-rhel6-16 agent_keys]# iottool version
copyright: 'Copyright (c) 2012-2014 Fusion-io, Inc.  All Rights Reserved.'
productName: 'nacelle'
buildType: 'prod'
buildDate: '05/09/2014'
buildTime: 1399649667
release: '2.2.0.54'
releaseType: 'R'
author: 'devp (317c18e5)'
srchost: 'bldmast'
srcdir: '/home/devp/jenkins/workspace/nacelle-ibm-goodwood-
compile/nacelle'
svnid: '54'
isBmw: no
isOfficial: no
isPromoted: no
```

Download location

Support related documentation is available at:

http://www.ibm.com/supportportal

Part Number: D0005432-006_1
Printed in the USA