Flash Management Console 3.15.0

Installation Guide

Table of Contents

Introduction

Flash Management Console allows you to manage High IOPS and io3 Flash Adapters using a convenient web interface. There are three main components that you must install to use Flash Management Console:

- Fusion ioMemory VSL software
- Management Console (ibm-flash-management-console-msrv)
- Agent

For detailed system requirements refer to *Flash Management Console 3.15.0 Release Notes*.

Fusion ioMemory VSL software

The Fusion ioMemory VSL software is the driver that runs the High IOPS and io3 Flash Adapters. The driver, along with all of its support packages and utilities, must be installed for Flash Management Console to work. For more information on installing and using the driver, see the High IOPS and io3 Flash Adapters User Guide for your operating system.

Agent

The Agent communicates with the Fusion ioMemory VSL software and the Management Server. The Agent should be installed on a host machine after the Fusion ioMemory VSL software is already installed.

> **NOTE-**
>
> Because Flash Management Console allows management of multiple hosts, you will install the Agent on every host machine that you wish to control using Flash Management Console.

Management Server

The Management Server manages High IOPS and io3 Flash Adapters on the host (or hosts) by communicating with the Agent on each host.

The Management Server offers a web-based user interface for managing your High IOPS and io3 Flash Adapters. For information regarding using this web interface, see the Flash Management Console 3.15.0 User Guide.

Install the Management Server on a server that you will use to manage all of your host High IOPS and io3 Flash Adapters.

NOTE-

For optimum High IOPS and io3 Flash Adapters performance, we recommend running Flash Management Console on a machine that does not host High IOPS and io3 Flash Adapters.

Download Files

To install the Management Server and Agent applications, download and install the following files:

Linux

- fio-common-mgmt*.rpm (if not already installed)
- ibm-flash-management-console-msrv*.rpm (Management Console)
- fio-agent*.rpm

> **Attention!**
>
> After installation, you can use ibm-flash-management-console-msrv -v at a command line to output a unique number that differentiates between software builds.

Windows

- IBM_Flash_Management_Console_3.15.0.••_x64.exe (Server and Agent)

Mac

- fio-agent.pkg (Agent only)

Installation and configuration procedures are described on the following pages.

Management Server Firewall Settings

If you need to adjust your firewall settings to allow Agents to communicate via SSL to the Management Server, use the following:

- Port: 9051 TCP (TLS/SSL)
- Direction: Outbound (Agent), Inbound (Server)
- Domain: [Management Server Domain/IP]

NOTE-

Port 9051 TCP is the port that has been assigned to Lenovo by the Internet Assigned Numbers Authority (IANA). You can choose to modify the port in the Management Server settings (in the web user interface), but you may need to re-export the Agent access key if you do not use auto-discovery.

Management Server - Windows Installation and Configuration

Attention!

To prevent loss of data during the Windows installation, be sure to do the following BEFORE uninstalling Flash Management Console 1.x and BEFORE installing Flash Management Console 3.x:

Before uninstalling Flash Management Console 1.x:

Backup the data folder found in `C:\Program Files\Flash Management Console\Utils\resources`.

Before installing Flash Management Console 3.x:

Backup the data folder found in `C:\Windows\System32\config\systemprofile\AppData\Roaming\fio`
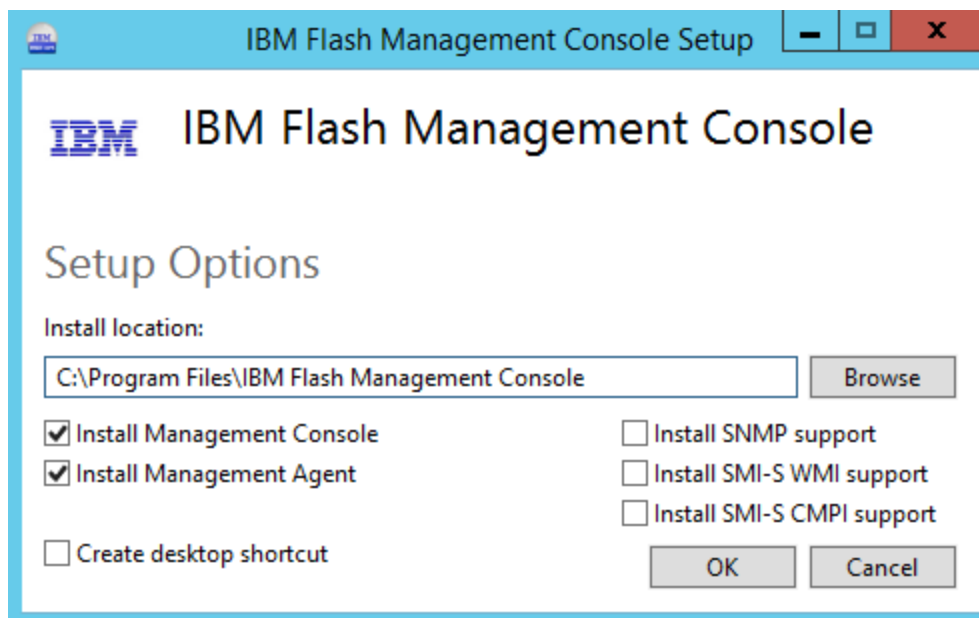
Return the data folder back to its current location in `C:\ProgramData\fio`

Installation

Run IBM_Flash_Management_Console_3.15.0.••_x64.exe and follow the installation wizard's on-screen instructions.

Options

On the Flash Management Console Setup dialog, agree to the license agreement. Click **Options** to customize your install. The Setup Options window appears.

Select the Flash Management Console components you would like to install. The default option is to install both Management Console and the Management Agent.

Select any support optinos you want to install , depending on your system configuration:

- SNMP support
- SMI-S WMI support
- SMI-S CMPI support

Click **OK** to continue the installation. Before Flash Management Console Application for the first time, you may need to configure browser and Firewall settings.

Attention!

If you are upgrading to a new version, Flash Management Console maintains most of your data, but does not restore your saved searches or custom alerts. As a part of the upgrade process, Flash Management Console puts the contents of those two files on disk in two different text files. If you want to keep your alerts and search rules created in a previous version, you will have to re-enter them in the new GUI after the installation is complete and upon first run.

These are the names of the two backed-up files:

- alert_rules.txt
- saved_searches.txt

and this is the directory where you will find them: `%ProgramData%\fio`

You may use the data in the two text files to recreate your saved alert rules and saved searches in the Flash Management Console 3.x server.

If you are updating to 3.x, then you will need to associate the same Labels to the High IOPS and io3 Flash Adapters that were used in 1.x.

First Time Setup

To configure the Flash Management Console management server:

1. Open your browser on the machine where the management server was installed and go to `http://localhost:9051/`
2. The **Admin Password** window appears. In this window, set the admin password. Click **Next**.
3. The Remote Access window appears. Enter the **Agent Push Frequency**. The default is 15 seconds. Increasing this number will make updates less frequent (and history/report information less detailed). Decreasing this number makes updates more frequent, but could affect performance if you are using many clients (more than 20 or 30, for example).

4. Optionally, check the **Enable Remote Access** box. This allows remote access to the Management Server from Agent processes not located on the same machine as the Management Server. **Click Save Changes**.

The features below appear when the **Enable Remote Access** box is checked.

- **Advertise Using Zeroconf** (optional). Causes the Management Server to advertise its service using the Zeroconf service discovery protocol. This allows remote Agent services to automatically discover and communicate with the Management Server.

Attention!

The Zeroconf protocol requires that Avahi be installed on Linux operating systems and Bonjour be installed on Windows operating systems.

Attention!

Using this option still requires manual configuration of Access Keys.

- **Host Name**. Enter an IP address that will not change in an uncontrolled way (such as a DHCP lease that expires). This address is used by Agent services to communicate to the Management Server. If you are unable to reach the Management Server at the configured IP address, you can reset the IP address by clicking the Settings tab and entering the new IP address in the Host Name field.
- **Port.** By default, the port is set to 9051, which is reserved for Flash Management Console worldwide and should not conflict with any other applications. You may opt to change the port (to 443, for example) depending on your requirements.

- **Pre-configured SSL certificate** (optional). The Flash Management Console Application provides a pre-configured certificate, but will result in "untrusted certificate" messages. It is less secure than using a certificate signed by a trusted CA that is made specifically for your server.

Click **Save Changes.**

NOTE-

The Flash Management Console includes a pre-configured SSL certificate, but it is recommended that you create and use a custom certificate.

Management Server - Linux Installation and Configuration

Installation

Attention!

To prevent an automatic reboot during a silent installation, use the **/norestart** command.

Install fio-common-mgmt (if not already installed)

NOTE-

All commands require administrator privileges. Log in as "root" or use sudo to run the install.

fio-common-mgmt is a support package that is available with the Fusion ioMemory VSL software installation. To see if **fio-common-mgmt** is installed, run:

```
rpm -qa | grep -i fio-common-mgmt
```

To install **fio-common-mgmt**, run the following command:

```
sudo rpm -i fio-common-mgmt*.rpm
```

Attention!

If you are upgrading from ibm-flash-management-console-msrv version 1.x to 3.x , uninstall the old version before proceeding to the following steps.

Install Management Server (ibm-flash-management-console-msrv)

Run the following command:

```
sudo rpm -i  ibm-flash-management-console-msrv*.rpm
```

After installation is complete, start the server with the following command:

```
sudo /etc/init.d/ibm-flash-management-console-msrv start
```

NOTE-

ibm-flash-management-console-msrv is already configured to auto-start on boot.

Attention!

If you are upgrading to a new version, Flash Management Console maintains most of your data, but

does not restore your saved searches or custom alerts. As a part of the upgrade process, Flash Management Console puts the contents of those two files on disk in two different text files. If you want to keep your alerts and search rules created in a previous version, you will have to read them and re-enter them in the new GUI after the installation is complete and upon first run.

These are the names of the two backed-up files:

- alert_rules.txt
- saved_searches.txt

and this is the directory where you will find them: **/var/lib/fio/data/data_legacy.**

You may use the data in the two text files to recreate your saved alert rules and saved searches in the Flash Management Console 3.x server.

Attention!

If you are upgrading from **ibm-flash-management-console-msrv** version 1.x to 3.x, you will need to associate the same Labels to the High IOPS and io3 Flash Adapters that were used in the previous version.

Uninstalling the Management Server

To uninstall the Management Server, run the following command:

```
sudo rpm -e <pkg-name>
```

First Time Setup

Local Browser

1. Open your browser on the machine where the management server was installed and go to **http://localhost:9051/**
2. The **Admin Password** window appears. In this window, set the admin password. Click **Next**.
3. The Remote Access window appears. Enter the **Agent Push Frequency**. The default is 15 seconds. Increasing this number will make updates less frequent (and history/report information less detailed). Decreasing this number makes updates more frequent, but could affect performance if you are using many clients (more than 20 or 30, for example).
4. Optionally, check the **Enable Remote Access** box. This allows remote access to the Management Server from Agent processes not located on the same machine as the Management Server. **Click Save Changes**.

The features below appear when the **Enable Remote Access** box is checked.

- **Advertise Using Zeroconf** (optional). Causes the Management Server to advertise its service using the Zeroconf service discovery protocol. This allows remote Agent services to automatically discover and communicate with the Management Server.

Attention!

The Zeroconf protocol requires that Avahi be installed on Linux operating systems and Bonjour be installed on Windows operating systems.

Attention!

Using this option still requires manual configuration of Access Keys.

- **Host Name**. Enter an IP address that will not change in an uncontrolled way (such as a DHCP lease that expires). This address is used by Agent services to communicate to the Management Server. If you are unable to reach the Management Server at the configured IP address, you can reset the IP address by clicking the Settings tab and entering the new IP address in the Host Name field.
- **Port.** By default, the port is set to 9051, which is reserved for Flash Management Console worldwide and should not conflict with any other applications. You may opt to change the port (to 443, for example) depending on your requirements.

- **Pre-configured SSL certificate** (optional). The Flash Management Console Application provides a pre-configured certificate, but will result in "untrusted certificate" messages. It is less secure than using a certificate signed by a trusted CA that is made specifically for your server.

Click **Save Changes.**

NOTE-

The Flash Management Console Application includes a pre-configured SSL certificate, but it is recommended that you create and use a custom certificate.

No Local Web Browser in Linux

If you run **ibm-flash-management-console-msrv** from a command line without a local browser, you must configure these settings manually.

Attention!

Completion of the following steps will decrease security.

---

1. Set admin password:

```
sudo ibm-flash-management-console-msrv -w
```

2. Enable remote access:

```
sudo ibm-flash-management-console-msrv -R
```

3. Set the port number <num> that the service is listening to:

```
sudo ibm-flash-management-console-msrv -p <num>
```

4. Enable automatic Agent authorization.

```
sudo ibm-flash-management-console-msrv -A
```

5. To view the remote URL path run:

```
sudo ibm-flash-management-console-msrv -u
```

6. Open your web browser and enter the URL https://hostname:9051/index.html)

    You will be prompted to configure the remaining settings, as described above.

Server Firewall Settings

If you need to adjust your firewall settings to allow Agents to communicate via SSL to the Server, use the following:

- Port: 9051 TCP (TLS/SSL)
- Direction: Outbound (Agent), Inbound (Server)
- Domain: Flash Management Console Server Domain/IP

Agent Installation and Configuration

Follow the instructions based on your platform.

Agent Windows Installation and Configuration

Installation

Run **IBM_Flash_Management_Console_3.15.0.••_x64.exe** and follow the on-screen instructions.

Configuration

The Agent is configured to automatically find and connect to an Flash Management Console server (requires Bonjour on Windows).

To connect the Agent to the server manually:

1. Using Flash Management Console, navigate to the **Settings** page and click the **Remote Access Key** link.
2. On the host machine running the agent, click **Download Remote Access Key** and copy the key to the following:

For Windows Server 2008

```
C:\ProgramData\fio\agent_keys
```

> **Attention!**
> To disconnect the Agent from the server manually, delete the Access Key **hostname.key** from the following location: **C:\ProgramData\fio\agent_keys\[hostname].key**

For Windows Server 2003

```
C:\Documents and Settings\All Users\Application Data\fio
```

Once copied, the Agent should connect within 15 seconds.

To disconnect the Agent from the server manually, delete the **Access Key hostname.key** from the following location:

```
C:\Windows\System32\config\systemprofile\AppData\Roaming\fio\agent_keys\
[hostname].key
```

Proxy (Flash Management Console only)

The Agent uses the Windows **http_proxy** and **https_proxy** environment variables for proxy connections. If you want the Agent to use a proxy server, consult your OS documentation on how to modify these environment variables.

Agent Linux Installation and Configuration

3.x Linux agents require two libraries to be installed:

- **libvsl**
- **fio-common-mgmt**

The installed version of **libvsl/libfio** must match the installed version of the Fusion ioMemory VSL software.

Attention!

2.x releases required a library called **libfio**. However, with 3.x, the required code is installed with **libvsl**.

NOTE-

All commands require administrator privileges. Log in as root or use sudo to run the install and start the server.

Install fio-common-mgmt (if not already installed)

NOTE-

All commands require administrator privileges. Log in as **root** or use **sudo** to run the install.

fio-common-mgmt is a support package that is available with the Fusion ioMemory VSL software installation. To see if **fio-common-mgmt** is installed, run:

```
rpm -qa | grep -i fio-common-mgmt
```

To install **fio-common-mgmt**, run the following command:

```
sudo rpm -i fio-common-mgmt*.rpm
```

Attention!

If you are upgrading from **ibm-flash-management-console-msrv** version 1.x to 3.x , uninstall the old version before proceeding to the following steps.

Install fio-agent

Run the following command:

```
sudo rpm -i  fio-agent*.rpm
```

After installation is complete, start the Agent with the following command:

```
sudo /etc/init.d/fio-agent start
```

> **NOTE-**
> The Agent is already configured to auto-start on boot.

Uninstalling fio-agent

To uninstall the Agent, run the following command:

```
sudo rpm -e <pkg-name>
```

Configuration

The Agent is configured to automatically find and connect to a Management Server (Flash Management Console requires Avahi on Linux). This is accomplished by downloading a key from the Flash Management Console server which contains a fully qualified hostname for the Flash Management Console server and a certificate for the remote machine.

To connect the agent to the server manually:

1. Using Flash Management Console, navigate to Settings/Remote Access Key.
2. On the host machine where the Management Server is running, click **Download Remote Access Key** and save the copy to this location on the remote machine:

```
/var/lib/fio/agent_keys/
```

Once copied, the Agent should connect within 15 seconds.

To disconnect the Agent from the server manually, delete the Access Key **[hostname].key** from the following location on the machine where the Agent is running:

```
/var/lib/fio/agent_keys/[hostname].key
```

Proxy (Flash Management Console only)

The Agent uses the Linux **http_proxy and https_proxy** environment variables for proxy connections. If you want the Agent to use a proxy server, consult your OS documentation on how to modify these environment variables.

Agent Run Options

Option	Description
-f, --foreground	Run in foreground rather than service/daemon.
--verbose	Enable verbose (debug) logging.
-d, --debug	Display additional debug information.
--brief (default)	Disable verbose (debug) logging.
-r, --runonce	FMS -"Run Once" mode. Collect device data once and push to Lenovo, then exit.
-o, --outfile	<path> Same as --runonce but dump to specified path instead of automatically sending to Lenovo.
-c, --cfg-path	<path> Path to config file.
-t, --runtime-datafiles-path	<path> Path to runtime data files (if not specified, default location is used.)
-h, --help	Print the help menu then exit.
-v, --version	Print the program name and version then exit.

Agent Mac Installation and Configuration

Attention!

The Agent requires the Fusion ioMemory VSL software to run. Make sure you have installed version 2.2.1 or later of the driver package before installing the Agent.

Attention!

If you are upgrading from **ibm-flash-management-console-msrv** version 1.x to 3.x , uninstall the old version before proceeding to the following steps.

Install fio-agent

1. Double-click the installation package. The installation program will assist you with the installation process.
2. Restart your computer.

Configuration

The Agent is configured to automatically find and connect to a Management Server.

To connect the agent to the server manually:

1. Using Flash Management Console, navigate to Settings/Remote Access Key.
2. On the host machine where the Agent is running, click **Download Remote Access Key** and save the copy to:

```
/var/lib/fio/agent_keys/
```

Once copied, the Agent should connect within 15 seconds.

To disconnect the Agent from the server manually, delete the Access Key **[hostname].key** from the following location on the machine where the Agent is running:

```
/var/lib/fio/agent_keys/[hostname].key
```

Proxy (Flash Management Console only)

The Agent uses the Linux **http_proxy** and **https_proxy** environment variables for proxy connections. If you want the Agent to use a proxy server, consult your OS documentation on how to modify these environment variables.

Agent Config Options

The following settings can be modified in **fio-agent-cfg.xml**, located at:

- Linux and Mac: **/etc/fio/**
- Windows: **C:\ProgramData\fio**

Auto-Discover Management Server <iomanager-discovery-enabled>

Enabling this causes an Agent to locate a management server and to automatically connect with it.

- True=Enable(Default)
- False=Disabled

Disable if you have issues with the following:

- Multiple Management Servers - An Agent does not try to connect with any server beyond the first one it finds. You will have to manually connect an agent to multiple services.
- Security

Attention!

You must delete the XML "comment" tags ("<!-" and "->") in order for this parameter to take effect.