EMC ISILON CUSTOMER TROUBLESHOOTING GUIDE

HOW TO ADD A DRIVE TO A NODE

OneFS 7.2 - 8.1.1

Abstract
This guide helps you to troubleshoot problems with replacing a drive in a node.

May 29, 2019
Contents and overview

**Note**
Follow all of these steps, in order, until you reach a resolution.

1. Follow these steps.
   - Before you begin
     - Page 3

2. Perform troubleshooting steps in order.
   - Start troubleshooting
     - Page 4
   - Add the drive
     - Page 5

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   - Appendix A
     - If you need further assistance
   - Appendix B
     - How to use this flowchart
   - Appendix C
     - Example output
   - Appendix D
     - Example output FlexProtect job
Before you begin

**CAUTION!**
If the node, subnet, or pool that you are working on goes down during the course of troubleshooting and you do not have any other way to connect to the cluster, you could experience data unavailability.

Therefore, make sure that you have more than one way to connect to the cluster before you start this troubleshooting process. The best method is to have a serial console connection available. This way, if you are unable to connect through the network, you will still be able to connect to the cluster physically.

For specific requirements and instructions for making a physical connection to the cluster, see [article 304071](https://www.emc.com) on the EMC Online Support site.

Before you begin troubleshooting, confirm that you can connect through either another subnet or pool, or that you have physical access to the cluster.

Configure screen logging through SSH

We recommend that you configure screen logging to log all session input and output during your troubleshooting session. This log file can be shared with Isilon Technical Support, if you require assistance at any point during troubleshooting.

**Note:** The screen session capability does not work in OneFS 7.1.0.6 and 7.1.1.2. If you are running either of these versions, you can configure logging by using your local SSH client's logging feature.

1. Open an SSH connection to the cluster and log in by using the root account.
   **Note:** If the cluster is in compliance mode, use the compadmin account to log in. All compadmin commands must be preceded by the sudo prefix.

2. Change the directory to `/ifs/data/Isilon_Support` by running the following command:
   ```bash
cd /ifs/data/Isilon_Support
   ```

3. Run the following command to capture all input and output from the session:
   ```bash
   screen -L
   ```
   This will create a file named `screenlog.0` that will be appended to during your session.

4. Perform troubleshooting.
**Introduction**

Start troubleshooting here. For an overview of the conventions used in this flowchart, see Appendix B: How to use this flowchart.

**Note**

Self encrypting drives (SEDs) can stay in the PREPARING state for an hour or longer. This behavior is normal when formatting a drive. Do not interrupt the PREPARING state because doing so locks the drive.

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If you have not done so already, log in to the cluster and configure screen logging through SSH, as described on page 3.

To determine the drive health, run the following command for your version of OneFS:

**OneFS 8.0.0 - 8.1.1**

```bash
isi devices list
```

**OneFS 7.2**

```bash
isi devices
```

See Appendix C for example output.

---

Does the output indicate that any of the drive bays are in SMARTFAIL, REPLACE, EMPTY, or NEW status?

- **SMARTFAIL**
  - Go to Page 5

- **REPLACE, EMPTY, or NEW**
  - Go to Page 6
Add the drive

You could have arrived here from:
- Page 4 - Start troubleshooting
- Page 6 - Add the drive (2)

Verify whether the FlexProtect job is running by running the following command:

```
isi job status
```

In the Running and queued jobs section, find the FlexProtect job. See Appendix D for example output.

Is the FlexProtect job running?

- **Yes**
  - Allow the FlexProtect job to finish. After the job is successfully completed, the drive bay status changes to REPLACE.
  - After the FlexProtect job is successfully completed, return to page 4 to continue troubleshooting.

- **No**
  - Note the page number that you are currently on. Upload log files and contact Isilon Technical Support, as instructed in Appendix A.

Return to Page 4

5 - EMC Isilon Customer Troubleshooting Guide: How to Add a Drive to a Node

For links to all Isilon customer troubleshooting guides, visit the Customer Troubleshooting - Isilon Info Hub.

Add the drive (2)

You could have arrived here from:
- Page 4 - Start troubleshooting

Look for drives that are in a down or soft_fail status by running the following command:

```bash
isi_group_info
```

See the example output at the bottom of this page.

Does the output indicate that any devices are in a down or soft_failed status?

- Yes: Return to Page 5
- No: Go to Page 7

**Example output**

```
Cluster-1# isi_group_info
efs.gmp.group: <2,11>: 1:0-33, 2:0-16,18-33, 3:0-14,16-33,36, down: 2:17, soft_failed: 2:17
```
Add the drive (3)

You could have arrived here from:

- Page 6 - Add the drive (2)

Replace the drive by consulting the drive replacement guide for the particular type of node. See this search string for a list of the available drive replacement documents.

To add the new drive, run the following command on the affected node, where <bay#> is the number of the bay and <node#> is the number of the node to which the drive was added:

**OneFS 8.0 - 8.1.1**

```
isidevices drive add <bay#> --node-1nn=<node#>
```

**OneFS 7.2**

```
isidevices-a add -d <bay#>
```

If the drive is successfully added, the output will appear similar to this: **!! The add operation succeeded. A healthy drive was found in bay ##.**

Is the drive successfully added?

- **Yes** Go to Page 8
- **No**

Note the page number that you are currently on. Upload log files and contact Isilon Technical Support, as instructed in Appendix A.

---

7 - EMC Isilon Customer Troubleshooting Guide: How to Add a Drive to a Node

To determine the drive health, run the following command for your version of OneFS:

**OneFS 8.0.0 - 8.1.1**
isi devices list

**OneFS 7.2**
isi devices

In the output, look for the bay number and the status of PREPARING or HEALTHY.

Does the output indicate that the drive status is PREPARING or HEALTHY?

- **No**
  - Go to Page 9

- **Yes**
  - A drive status of PREPARING or HEALTHY indicates that the drive replacement is successful.
  - Return the non-working drive to EMC Isilon Technical Support by using the provide return label that was shipped with the new drive.

**End troubleshooting**

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Note
Self encrypting drives (SEDs) can stay in the PREPARING state for an hour or longer. This behavior is normal when formatting a drive. Do not interrupt the PREPARING state because doing so locks the drive.

---

8 - EMC Isilon Customer Troubleshooting Guide: How to Add a Drive to a Node

For links to all Isilon customer troubleshooting guides, visit the [Customer Troubleshooting - Isilon Info Hub](#).

Add the drive (5)

You could have arrived here from:

- Page 8 - Add the drive (4)

---

Does the output indicate that the drive status is EMPTY or REPLACE?

No

Note the page number that you are currently on. Upload log files and contact Isilon Technical Support, as instructed in Appendix A.

Yes

Determine whether your workflow allows you to power cycle the node now, without affecting production.

Are you able to power cycle the node to finish troubleshooting, without affecting production?

No

Unable to continue troubleshooting. Isilon Technical Support suggests scheduling an outage window to complete the drive installation. When you are able to continue troubleshooting, return to page 10 of this guide.

Yes

Go to Page 10

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9 - EMC Isilon Customer Troubleshooting Guide: How to Add a Drive to a Node

For links to all Isilon customer troubleshooting guides, visit the Customer Troubleshooting - Isilon Info Hub. We appreciate your help in improving this document. Submit your feedback at http://bit.ly/isilon-docfeedback.
Add the drive (6)

You could have arrived here from:

* Page 9 - Add the drive (5)

After the node reboots, try to add the drive again by running the following command on the affected node, where `<node#>` is the number of the node, and `<bay#>` is the number of the bay that the drive was added to:

**OneFS 8.0 - 8.1.1**

```bash
isi devices drive add <bay#> --node-1nn=<node#>
```

**OneFS 7.2**

```bash
isi devices -a add -d <node#>:<bay#>
```

If the drive is successfully added, the output will appear similar to this:

!! The add operation succeeded. A healthy drive was found in bay ##.

Did the drive add operation succeed?

**Yes**

Return to Page 8

**No**

Note the page number that you are currently on. Upload log files and contact Isilon Technical Support, as instructed in Appendix A.
Appendix A: If you need further assistance

Contact Isilon Technical Support
If you need to contact Isilon Technical Support during troubleshooting, reference the page or step that you need help with. This information and the log file will help Isilon Technical Support staff resolve your case more quickly.

Upload node log files and the screen log file to Isilon Technical Support
1. When troubleshooting is complete, in the command-line interface, type exit to end your screen session.
2. Gather and upload the node log set and include the SSH screen log file by using the command appropriate for your method of uploading files. If you are not sure which method to use, use FTP.

**ESRS:**
isi_gather_info --esrs --local-only -f /ifs/data/Isilon_Support/screenlog.0

**FTP:**
isi_gather_info --ftp --local-only -f /ifs/data/Isilon_Support/screenlog.0

**HTTP:**
isi_gather_info --http --local-only -f /ifs/data/Isilon_Support/screenlog.0

**SMTP:**
isi_gather_info --email --local-only -f /ifs/data/Isilon_Support/screenlog.0

**SupportIQ:**
Copy and past the following command.
**Note:** When you copy and paste the command into the command-line interface, it will appear on multiple lines (exactly as it appears on the page), but when you press Enter, the command will run as it should.

isi_gather_info --local-only -f /ifs/data/Isilon_Support/screenlog.0 --noupload
--symlink /var/crash/SupportIQ/upload/ftp

3. If you receive a message that the upload was unsuccessful, refer to article 304567 on the Dell EMC Online Support site for directions on how to upload files over FTP.
Appendix B: How to use this flowchart

Introduction
Describes what the section helps you to accomplish.

You could have arrived here from:
• Page 4 - Start Troubleshooting

Decision diamond

Yes

Process step

Optional process step

End point

No

Process step with command:
command xyz

Go to Page #

Directional arrows indicate the path through the process flow.

Note
Provides context and additional information. Sometimes a note is linked to a process step with a colored dot.

CAUTION!
Caution boxes warn that a particular step needs to be performed with great care, to prevent serious consequences.

Document Shape
Calls out supporting documentation for a process step. When possible, these shapes contain links to the reference document. Sometimes linked to a process step with a colored dot.
### Example output: isi devices list for OneFS 8.x

<table>
<thead>
<tr>
<th>Lnn</th>
<th>Location</th>
<th>Device</th>
<th>Lnum</th>
<th>State</th>
<th>Serial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Bay 1</td>
<td>/dev/da1</td>
<td>12</td>
<td>HEALTHY</td>
<td>AA0000111112AA</td>
</tr>
<tr>
<td>2</td>
<td>Bay 2</td>
<td>/dev/da2</td>
<td>10</td>
<td>HEALTHY</td>
<td>AA0000111113AA</td>
</tr>
<tr>
<td>2</td>
<td>Bay 3</td>
<td>/dev/da3</td>
<td>9</td>
<td>HEALTHY</td>
<td>AA0000111111AA</td>
</tr>
<tr>
<td>2</td>
<td>Bay 4</td>
<td>/dev/da4</td>
<td>8</td>
<td>HEALTHY</td>
<td>AA0000111114AA</td>
</tr>
<tr>
<td>2</td>
<td>Bay 5</td>
<td>/dev/da5</td>
<td>7</td>
<td>HEALTHY</td>
<td>AA0000111115AA</td>
</tr>
<tr>
<td>2</td>
<td>Bay 6</td>
<td>/dev/da6</td>
<td>6</td>
<td>HEALTHY</td>
<td>AA0000111116AA</td>
</tr>
<tr>
<td>2</td>
<td>Bay 7</td>
<td>/dev/da7</td>
<td>13</td>
<td>HEALTHY</td>
<td>AA0000111117AA</td>
</tr>
<tr>
<td>2</td>
<td>Bay 8</td>
<td>/dev/da8</td>
<td>4</td>
<td>HEALTHY</td>
<td>AA0000111118AA</td>
</tr>
<tr>
<td>2</td>
<td>Bay 9</td>
<td>/dev/da9</td>
<td>3</td>
<td>REPLACE</td>
<td>AA0000111119AA</td>
</tr>
</tbody>
</table>

### Example output: isi devices output for OneFS 7.2

```
cluster-1# isi devices
Node 1, [ATTN]
Bay 1 Lnum 0 [HEALTHY] SN: Z123AAA0000111111AA /dev/da1
Bay 2 Lnum 5 [HEALTHY] SN: Z124AAA0000111111AAA /dev/da2
Bay 3 Lnum 4 [HEALTHY] SN: Z125AAA0000111111AA1 /dev/da3
Bay 4 Lnum 3 [HEALTHY] SN: Z126AAA0000111111A11 /dev/da4
Bay 5 Lnum 2 [HEALTHY] SN: Z127AAA0000111111A1A /dev/da5
Bay 6 Lnum 1 [REPLACE] SN: Z128AAA0000111111AA1 /dev/da6
```
Appendix D: Example output FlexProtect job

Example output with FlexProtect job running

Cluster-1x isi job status
The job engine can temporarily only run FlexProtect and FlexProtectLin jobs.
    Coordinator: 1
    Connected: True
Disconnected Nodes: -
Down or Read-Only Nodes: False
    Statistics Ready: True
Cluster is Degraded: False
Run Jobs When Degraded: False

Running and queued jobs:
<table>
<thead>
<tr>
<th>ID</th>
<th>Type</th>
<th>State</th>
<th>Impact</th>
<th>Pri</th>
<th>Phase</th>
<th>Running Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>562</td>
<td>FlexProtect</td>
<td>Running</td>
<td>1</td>
<td>2/6</td>
<td>3s</td>
<td></td>
</tr>
</tbody>
</table>

Total: 1

Recent finished jobs:
<table>
<thead>
<tr>
<th>ID</th>
<th>Type</th>
<th>State</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>552</td>
<td>WormQueue</td>
<td>Succeeded</td>
<td>2015-12-06T02:00:05</td>
</tr>
<tr>
<td>553</td>
<td>ShadowStoreProtect</td>
<td>Succeeded</td>
<td>2015-12-06T04:00:13</td>
</tr>
<tr>
<td>554</td>
<td>ShadowStoreProtect</td>
<td>Succeeded</td>
<td>2015-12-06T20:00:11</td>
</tr>
<tr>
<td>555</td>
<td>WormQueue</td>
<td>Succeeded</td>
<td>2015-12-07T02:00:02</td>
</tr>
</tbody>
</table>

Example output with FlexProtect job completed

Cluster-1x isi job status
The job engine is running.

No running or queued jobs.

Recent finished jobs:
<table>
<thead>
<tr>
<th>ID</th>
<th>Type</th>
<th>State</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>553</td>
<td>ShadowStoreProtect</td>
<td>Succeeded</td>
<td>2015-12-06T04:00:13</td>
</tr>
<tr>
<td>554</td>
<td>ShadowStoreProtect</td>
<td>Succeeded</td>
<td>2015-12-06T20:00:11</td>
</tr>
<tr>
<td>562</td>
<td>FlexProtect</td>
<td>Succeeded</td>
<td>2015-12-09T02:07:15</td>
</tr>
</tbody>
</table>

Total: 10
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