Abstract

This document will help you to clear space on your node operating system partitions when you receive a system alert that a partition is full.

Note: This guide deals with capacity issues on / (the root partition), /var, or /var/crash only. For capacity alerts related to /ifs, see EMC Isilon Customer Troubleshooting Guide: Troubleshoot a Full Pool or Cluster.

May 10, 2016
Contents and overview

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

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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 cable 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 16744](#) 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.

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**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 EMC 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:

   ```
   cd /ifs/data/Isilon_Support
   ```

3. Run the following command to capture all input and output from the session:

   ```
   screen -L
   ```

   This will create a file named `screenlog.0` that will be appended to during your session.

4. Perform troubleshooting.
Start troubleshooting

Introduction
Start troubleshooting here. If you need help to understand the flowchart conventions that are used in this guide, see Appendix B: How to use this flowchart.

Note
Note that the /dev partition always displays as 100% full. Some nodes have only 512 MB for the root partition; this partition is not modifiable. Refer to the Isilon Supportability and Compatibility Guide for your node types and contact your Sales team if you need more space.

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

Which partition does the alert report as full?

The / partition
The / is the root partition of the OneFS operating system.

Go to Page 5

The /var partition
The /var is the partition that holds all of the system logs, system information, configuration information, and journal information.

Go to Page 6

The /var/crash partition
The /var/crash is the partition that holds information about core processes that have unexpectedly stopped.

Go to Page 8
Partition full: the / partition

You could have arrived here from:

- Page 4 - Start troubleshooting

Navigate to the /root directory within the / partition, by running the following command:

```
cd /root
```

Review the total size of the /root directory by running the following command:

```
du -h
```

Identify the list of files and file sizes within the /root directory by running the following command:

```
ls -lh
```

See Appendix C for example output.

Does the output display any files that are larger than 1 MB?

Yes

See Appendix C, for a list of default directories that should be in the /root directory. If this directory contains any other files, verify that no one else in your organization intentionally uploaded those files.

Delete any unnecessary files by running the following command, where <filepath> is the absolute path to the file:

```
rm <filepath>
```

Note the page number that you are currently on.

Upload log files and contact Isilon Technical Support, as instructed in Appendix A.

End troubleshooting

Note

The goal of this page is to remove any unnecessary files that are stored in the /root directory.

Examples of default directories that reside in the /root directory:

- .login
- .profile
- .pythonrc
- .ssh
- .zcompdump
- .zsh_history
- .zshrc

You could have arrived here from:

- Page 4 - Start troubleshooting

5 - EMC Isilon Customer Troubleshooting Guide: Troubleshoot Capacity Alerts on Node Operating System Partitions

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/si-docfeedback.
Partition full: the /var partition

You could have arrived here from:

- Page 4 - Start troubleshooting

Navigate to the /var partition by running the following command:

```bash
cd /var
```

Find files that are larger than 1 MB by running the following command:

```bash
find -x /var -type f -size +1M -print0 | xargs -0 ls -lh
```

If there are `nmdb.log` files that are 1 MB or larger, these are NetBIOS Name Service (NBNS) files. You can remove these files to liberate space by running the following command, where `<filepath>` is the absolute path to the file:

```bash
rm <filepath>
```

To avoid filling the /var partition, you can disable NBNS. See the note box on this page for more information about disabling NBNS.

If you are unable to disable NBNS, contact Isilon Technical Support.

Note

To disable NBNS, open an SSH connection to any node in the cluster and log in using the root account.

Run the following command to disable NBNS:

```bash
isi services nbns disable
```
Partition full: the /var partition (2)

Look for files that are larger than 20 MB by running the following command:

```
find -x /var -type f -size +20M -print0 | xargs -0 ls -1h
```

Are files larger than 20 MB present?

- Yes → Go to Page 10
- No → Has enough space been freed in the partition so that you are no longer getting alerts?
  - Yes → End troubleshooting
  - No → Note the page number that you are currently on. Upload log files and contact Isilon Technical Support, as instructed in Appendix A.
Partition full: the /var/crash partition

Are you troubleshooting an active issue, in parallel to the partition capacity alerts, where core files have been generated?

Yes

Navigate to the /var/crash partition by running the following command:

cd /var/crash

Check how much space files within the /var/crash partition are consuming by running the following command:

ls -lh

Find the files that are using the most space. See Appendix C for example output.

No

Copy and paste the following command to upload logs.

Note: When you copy and paste the command into the command line interface, the command appears on multiple lines (exactly as it appears here), but when you press Enter, the command runs as it should.

isi_gather_info --local --nologs -s "isi_hw_status -i" -f "/var/crash"

Are you troubleshooting an active issue, in parallel to the partition capacity alerts, where core files have been generated?

Yes

No

Go to Page 9
Partition full: the /var/crash partition (2)

You could have arrived here from:
* Page 8 - Partition full: the /var/crash partition

Determine the size of the /var/crash partition by running the following command:

```
df -h /var/crash
```

See the example output at the bottom of this page.

The /var/crash partition will never be empty because it contains system directories. You can remove as many old log files or old core files as necessary to liberate space.

Do not delete the following OneFS system directories:
- SupportIQ
- connectemc
- cto

Delete unnecessary files by running the following command, where `<filepath>` is the absolute path to the file:

```
rm <filepath>
```

Without removing the system directories, delete files until the `df -h /var/crash` output capacity has diminished to an acceptable percentage.

End troubleshooting

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**Example df -h /var/crash output**

```
cluster-1# df -h /var/crash
Filesystem       Size  Used   Avail   Capacity Mounted on
/dev/mirror/var-crash  1.9G  1.0G  748M    47%        /var/crash
```
Partition full: the /var/crash partition (3)

You could have arrived here from:
- Page 7 - Partition full: the /var partition (2)

Note
Log rotation archives outdated log files to free up space on the partition. Rotating log files limits the total size of the stored logs, but allows for recent and current events to be logged.

Rotate log files by running the following command, where <file path> is the absolute path to the file that is larger than 20 MB:

```bash
newsyslog -R -a /var/log/<file path>
```

Has enough space been freed in the partition so that you are no longer getting alerts?

Yes → End troubleshooting

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 EMC 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 EMC Isilon Technical Support

1. When troubleshooting is complete, 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 paste 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 16759 on the 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 # - Page title

Yes -> Decision diamond -> Process step

No -> Decision diamond -> Process step with command: command xyz

Optional process step

End point

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.
Appendix C: Example `ls -lh` output

You could have arrived here from:
- Page 5 - Partition full: the / partition
- Page 8 - Partition full: the /var/crash partition

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**Example `ls -lh` output**

Examples of default directories that reside in the /root directory. The bold text shows how much space each file is using.

```
cluster-1# ls -lh
  total 68
-rw-r--r-- 1 root  wheel  229B Dec 19 2014 .login
-rw-r--r-- 1 root  wheel  333B Dec 19 2014 .profile
-rw-r--r-- 1 root  wheel  781B Oct 20 16:07 .pythonrc
-rw-r-xr-x 2 root  wheel  512B Dec 18 14:35 .ssh
-rw-r--r-- 1 root  wheel  38K  Dec 11 15:17 .zcompdump
-rw------- 1 root  wheel   12K Jan 18 17:46 .zsh_history
-r-xr-xr-x 1 root  wheel   1.8K Nov 20 13:44 .zshrc
```