

EMC ISILON CUSTOMER TROUBLESHOOTING GUIDE

HOW TO ADD A DRIVE TO A NODE

Abstract

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

August 2, 2016

Contents and overview

Note

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

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[Appendix E](#) Example `isi job status` output with FlexProtect job completed

[Appendix F](#) Example `isi devices` output showing a `PREPARING` or a `HEALTHY` drive

[Appendix G](#) Example output from the `isi devices -a add -d :<bay#>` command

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.

Configure 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.

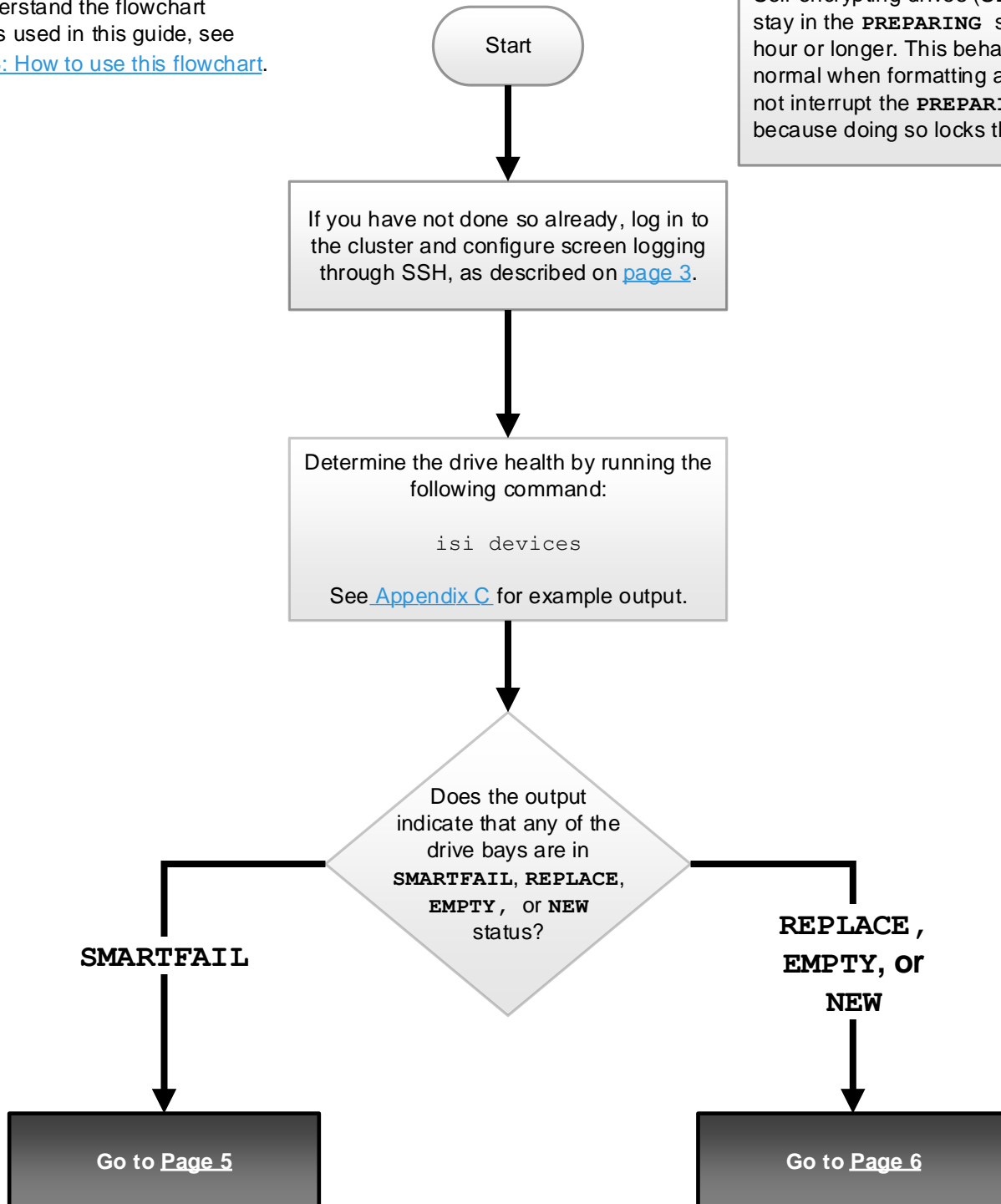
Start troubleshooting

Introduction

Start troubleshooting here. If you need help to understand the flowchart conventions used in this guide, 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.

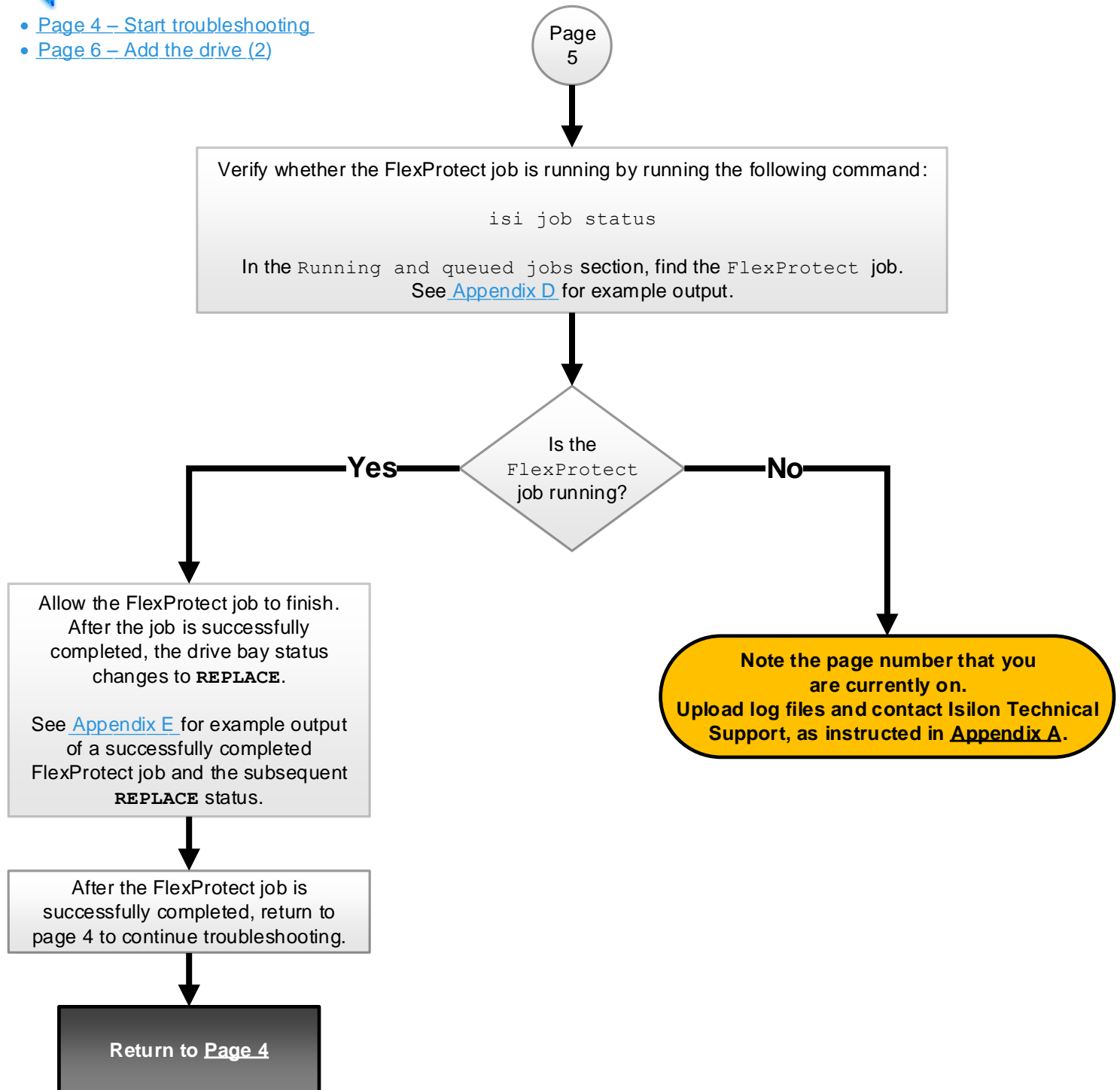


Add the drive



You could have arrived here from:

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- [Page 6 – Add the drive \(2\)](#)

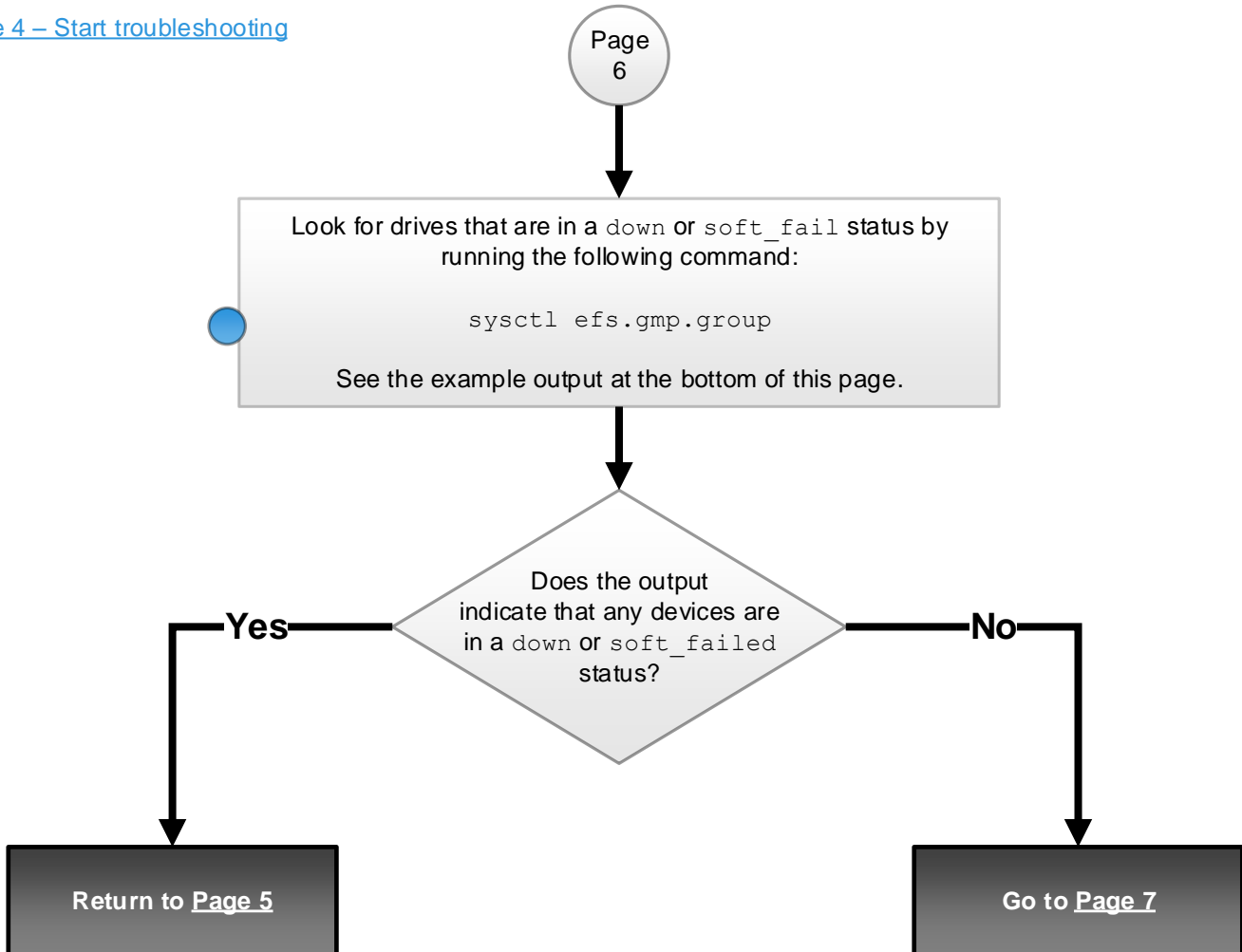


Add the drive (2)



You could have arrived here from:

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Example `sysctl efs.gmp.group` output

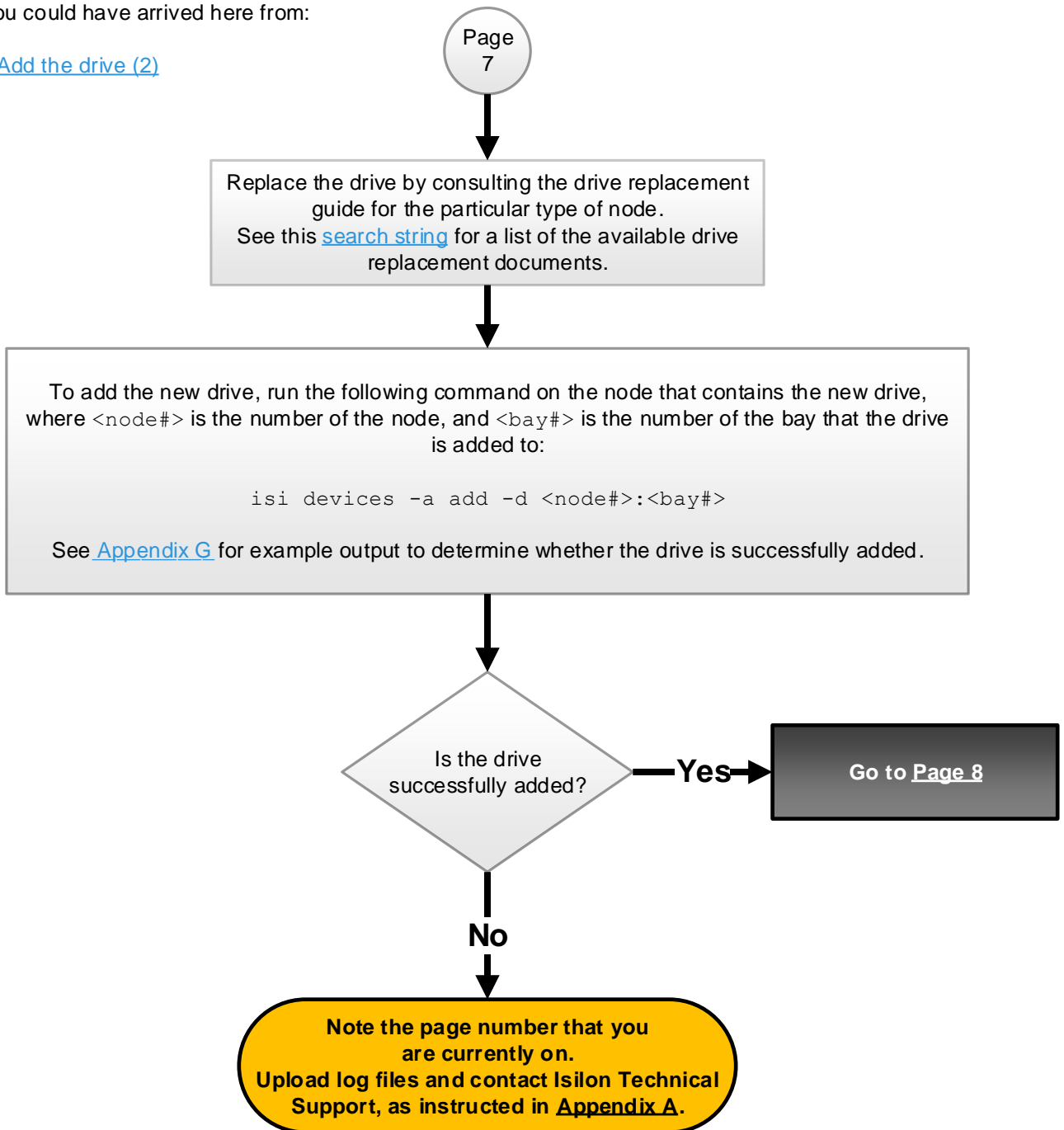
```
Cluster-1# sysctl efs.gmp.group  
efs.gmp.group: <2,110>: { 1:0-33, 2:0-16,18-33, 3:0-14,16-33,36, down: 2:17, soft_failed: 2:17 }
```

Add the drive (3)



You could have arrived here from:

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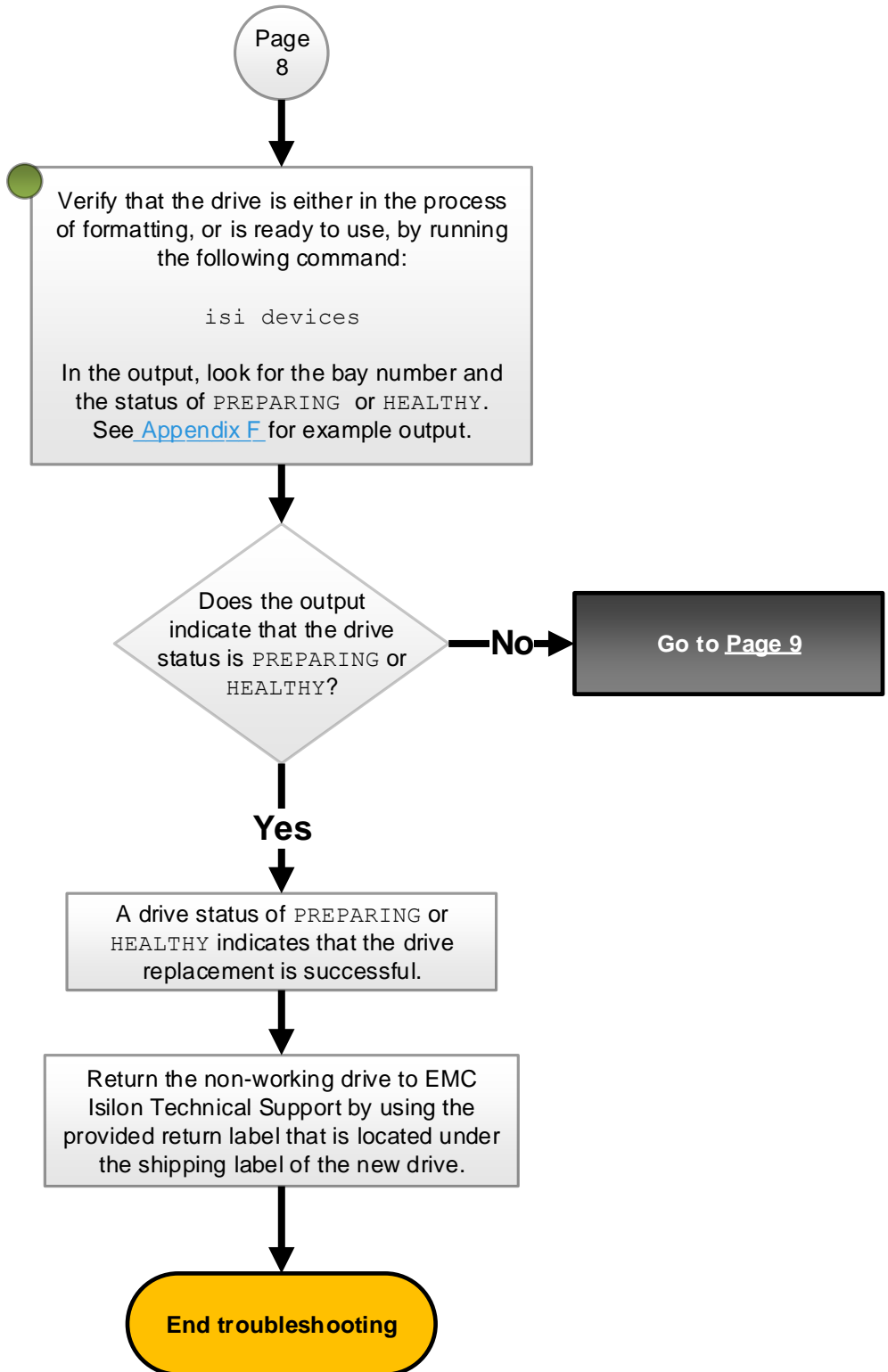
Add the drive (4)



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

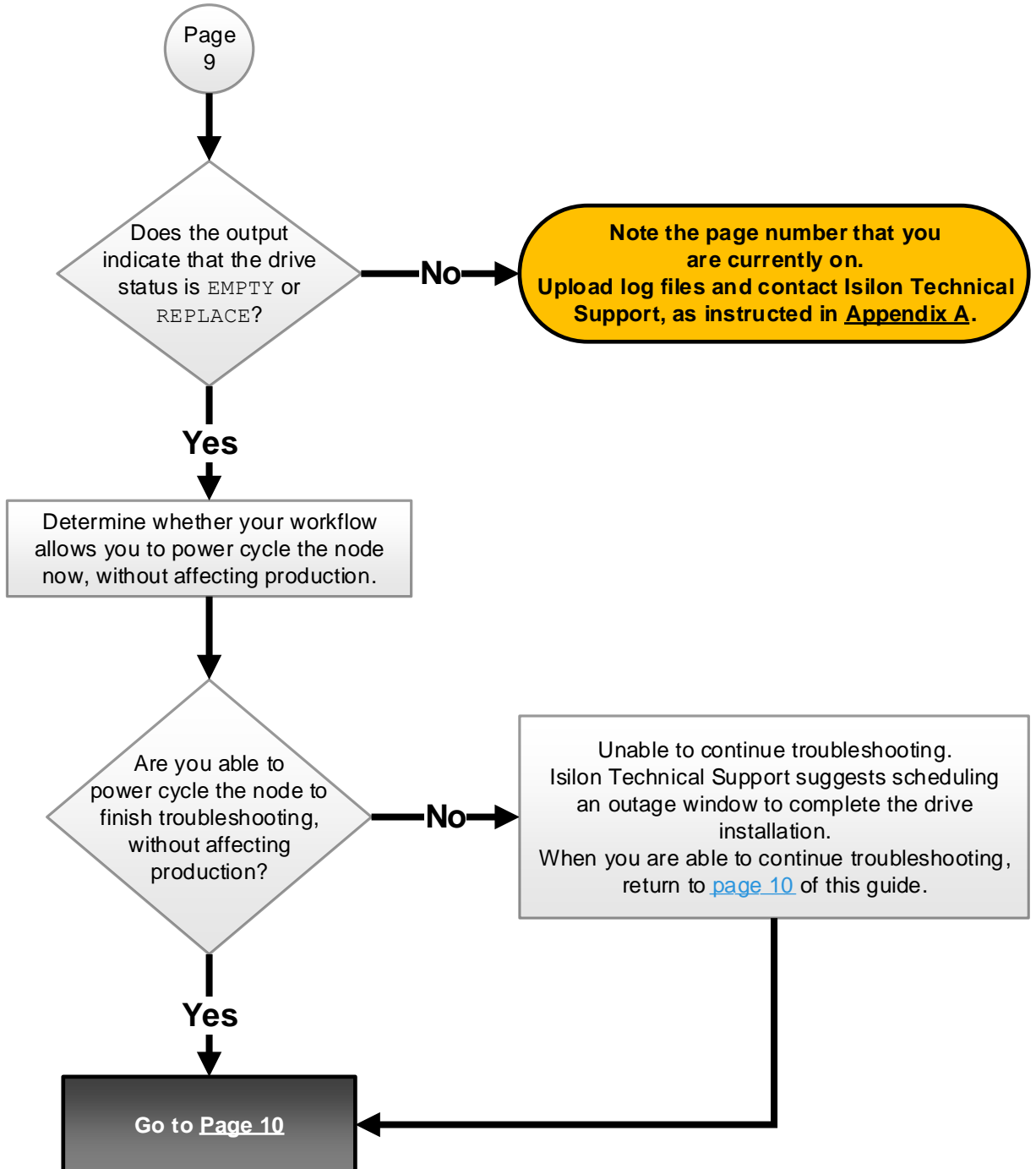


Add the drive (5)



You could have arrived here from:

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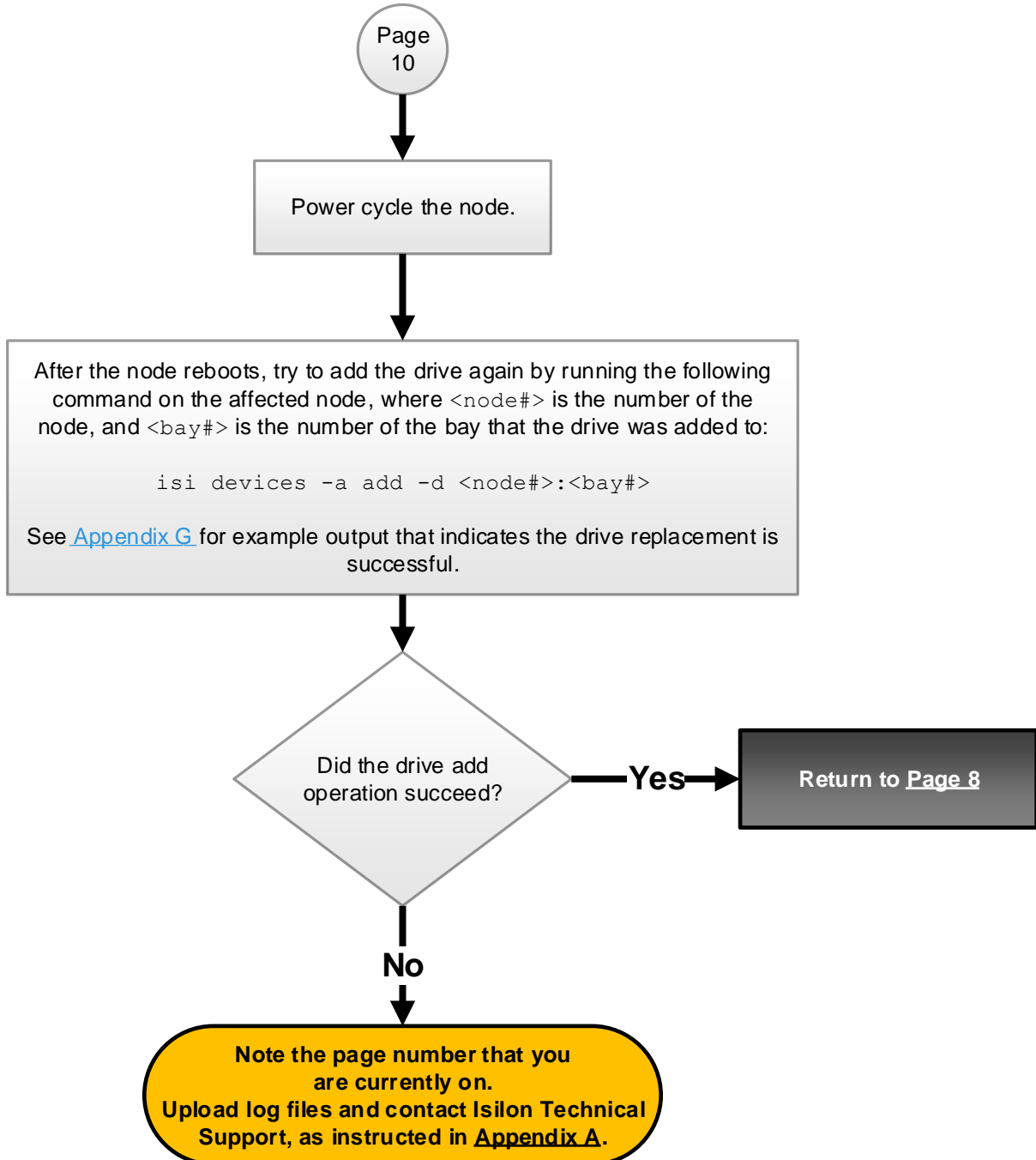


Add the drive (6)



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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

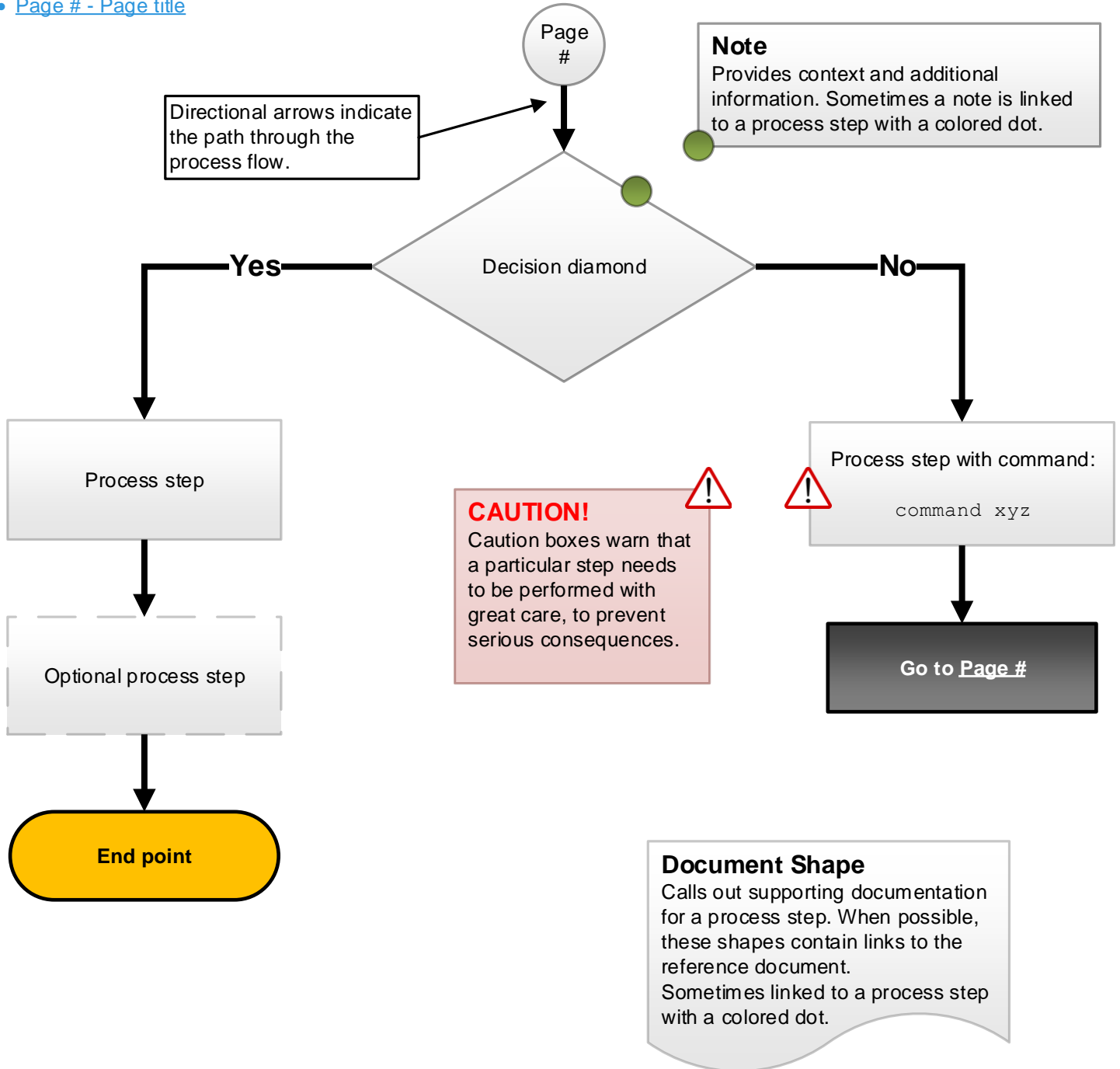
Introduction

Describes what the section helps you to accomplish.



You could have arrived here from:

- [Page # - Page title](#)



Appendix C: Example isi devices output



You could have arrived here from:

- [Page 4 – Start troubleshooting](#)

Example isi devices output

Cluster-1# isi devices

Node 1, [ATTN], [SED Node]

Bay 1	Lnum 34	[HEALTHY]	SN:Z298KBBF0000921364ED	/dev/da1
Bay 2	Lnum 33	[HEALTHY]	SN:Z298H54B00009410BT4C	/dev/da2
Bay 3	Lnum 17	[HEALTHY]	SN:Z298KARS0000C306EMY3	/dev/da18
Bay 4	Lnum 16	[HEALTHY]	SN:Z298JZCA000094042SHE	/dev/da19
Bay 5	Lnum 32	[HEALTHY]	SN:Z298JXYC0000C3060CU0	/dev/da3
Bay 6	Lnum 15	[HEALTHY]	SN:Z298KBJX0000C250BUY4	/dev/da20
Bay 7	Lnum 14	[HEALTHY]	SN:Z298K0PR00009301VEAY	/dev/da21
Bay 8	Lnum 13	[HEALTHY]	SN:Z298JY3J0000C3063VXX	/dev/da22
Bay 9	Lnum 31	[HEALTHY]	SN:Z298JY81000093078AQ8	/dev/da4
Bay 10	Lnum 12	[HEALTHY]	SN:Z298JYL90000C2490VXP	/dev/da23
Bay 11	Lnum 11	[HEALTHY]	SN:Z298KB7Z0000C305AF8J	/dev/da24
Bay 12	Lnum 10	[HEALTHY]	SN:Z298JYB800009252UFP1	/dev/da25
Bay 13	Lnum 30	[HEALTHY]	SN:Z298KB2A0000C2510H0Q	/dev/da5
Bay 14	Lnum 29	[HEALTHY]	SN:Z298JYFY00009301VE79	/dev/da6
Bay 15	Lnum 28	[HEALTHY]	SN:Z298JYB300009304H7KS	/dev/da7
Bay 16	Lnum 9	[HEALTHY]	SN:Z298KAWP0000S114Z726	/dev/da26
Bay 17	Lnum 27	[HEALTHY]	SN:Z298KBCF0000C2510J1K	/dev/da8
Bay 18	Lnum N/A	[EMPTY]	SN:N/A	N/A
Bay 19	Lnum 26	[HEALTHY]	SN:Z298K0AX0000C3159JV0	/dev/da9
Bay 20	Lnum 8	[HEALTHY]	SN:Z298KBFS0000C2516P72	/dev/da27
Bay 21	Lnum 25	[HEALTHY]	SN:Z298K06E00009252U1EU	/dev/da10
Bay 22	Lnum 24	[HEALTHY]	SN:Z298KB3R00009302X2V7	/dev/da11
Bay 23	Lnum 7	[HEALTHY]	SN:Z298JYFR000094042SHP	/dev/da28
Bay 24	Lnum 6	[HEALTHY]	SN:Z298K97700009328BY46	/dev/da29
Bay 25	Lnum 5	[HEALTHY]	SN:Z298KBDM0000C3153ZVC	/dev/da30
Bay 26	Lnum 4	[HEALTHY]	SN:Z298JYE400009313D75E	/dev/da31
Bay 27	Lnum 3	[HEALTHY]	SN:Z298JY4G0000C2516K68	/dev/da32
Bay 28	Lnum 23	[HEALTHY]	SN:Z298KB250000C315CUYS	/dev/da12
Bay 29	Lnum 2	[HEALTHY]	SN:Z298JYGH00009314VE8N	/dev/da33
Bay 30	Lnum 22	[HEALTHY]	SN:Z298KBD50000C24982KW	/dev/da13
Bay 31	Lnum 1	[HEALTHY]	SN:Z298K0RE0000C3060DP0	/dev/da34
Bay 32	Lnum 21	[HEALTHY]	SN:Z298JXZH0000C251CN9W	/dev/da14
Bay 33	Lnum 0	[HEALTHY]	SN:Z298KBL60000C314FPMQ	/dev/da35
Bay 34	Lnum 20	[HEALTHY]	SN:Z298KB1T0000C250GLZG	/dev/da15
Bay 35	Lnum 19	[HEALTHY]	SN:Z298JYDA00009315GEZ1	/dev/da16
Bay 36	Lnum 18	[HEALTHY]	SN:Z298JYRH00009412TWLC	/dev/da17

Appendix D: Example isi job status output with FlexProtect job running



You could have arrived here from:

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Example isi job status output with FlexProtect job running

In this example, the drive in bay 36 was SmartFailed. The output shows that the FlexProtect job is running. See the bold text in the output:

```
Cluster-1# 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: True
Run Jobs When Degraded: False
```

Running and queued jobs:

ID	Type	State	Impact	Pri	Phase	Running Time
562	FlexProtect	Running	Medium	1	2/6	3s

Total: 1

Recent finished jobs:

ID	Type	State	Time
552	WormQueue	Succeeded	2015-12-06T02:00:05
553	ShadowStoreProtect	Succeeded	2015-12-06T04:00:13
554	ShadowStoreProtect	Succeeded	2015-12-06T20:00:11
555	WormQueue	Succeeded	2015-12-07T02:00:02
556	ShadowStoreProtect	Succeeded	2015-12-07T04:00:10
557	ShadowStoreProtect	Succeeded	2015-12-07T20:00:08
558	WormQueue	Succeeded	2015-12-08T02:00:30
559	ShadowStoreProtect	Succeeded	2015-12-08T04:00:07
560	ShadowStoreProtect	Succeeded	2015-12-08T20:00:05
561	WormQueue	Succeeded	2015-12-09T02:00:27

Total: 10

Continued on the [next page](#).

Appendix D: Example isi job status output with FlexProtect job running (2)



You could have arrived here from:

- [Appendix D: Example isi job status with FlexProtect job running](#)

To confirm that the bay status is **SMARTFAIL**, run `isi devices`. See the bold text in the output:

```
Cluster-1# isi devices
Node 1, [ATTN], [SED Node]
  Bay 1      Lnum 34      [HEALTHY]      SN:Z298KBBF0000921364ED      /dev/da1
  Bay 2      Lnum 33      [HEALTHY]      SN:Z298H54B00009410BT4C      /dev/da2
  Bay 3      Lnum 17      [HEALTHY]      SN:Z298KARS0000C306EMY3      /dev/da18
  (truncated)
  Bay 14     Lnum 29      [HEALTHY]      SN:Z298JYFY00009301VE79      /dev/da6
  Bay 15     Lnum 28      [HEALTHY]      SN:Z298JYB300009304H7KS      /dev/da7
  Bay 16     Lnum 9       [HEALTHY]      SN:Z298KAWP0000S114Z726      /dev/da26
  Bay 17     Lnum 27      [HEALTHY]      SN:Z298KBCF0000C2510J1K      /dev/da8
  Bay 18     Lnum N/A     [EMPTY]        SN:N/A              N/A
  Bay 19     Lnum 26      [HEALTHY]      SN:Z298K0AX0000C3159JV0      /dev/da9
  Bay 20     Lnum 8       [HEALTHY]      SN:Z298KBFS0000C2516P72      /dev/da27
  (truncated)
  Bay 35     Lnum 19      [HEALTHY]      SN:Z298JYDA00009315GEZ1      /dev/da16
  Bay 36     Lnum 18      [SMARTFAIL]    SN:Z298JYRH00009412TWLC      /dev/da17
```

Appendix E: Example isi job status output with FlexProtect job completed



You could have arrived here from:

- [Page 5 – Add the drive](#)

Example isi job status output with FlexProtect job completed

To confirm the FlexProtect job is running, run `isi devices`. See the bolded line in the output:

```
Cluster-1# isi job status
The job engine is running.
```

```
No running or queued jobs.
```

```
Recent finished jobs:
```

ID	Type	State	Time
553	ShadowStoreProtect	Succeeded	2015-12-06T04:00:13
554	ShadowStoreProtect	Succeeded	2015-12-06T20:00:11
555	WormQueue	Succeeded	2015-12-07T02:00:02
556	ShadowStoreProtect	Succeeded	2015-12-07T04:00:10
557	ShadowStoreProtect	Succeeded	2015-12-07T20:00:08
558	WormQueue	Succeeded	2015-12-08T02:00:30
559	ShadowStoreProtect	Succeeded	2015-12-08T04:00:07
560	ShadowStoreProtect	Succeeded	2015-12-08T20:00:05
561	WormQueue	Succeeded	2015-12-09T02:00:27
562	FlexProtect	Succeeded	2015-12-09T02:07:15

```
Total: 10
```

To confirm the drive is ready to replace, run `isi devices`. See the bolded line in the output:

```
Cluster-1# isi devices
```

```
Node 1, [ATTN], [SED Node]
```

Bay 1	Lnum 34	[HEALTHY]	SN: Z298KBBF0000921364ED	/dev/da1
Bay 2	Lnum 33	[HEALTHY]	SN: Z298H54B00009410BT4C	/dev/da2
Bay 3	Lnum 17	[HEALTHY]	SN: Z298KARS0000C306EMY3	/dev/da18
<i>(truncated)</i>				
Bay 14	Lnum 29	[HEALTHY]	SN: Z298JYFY00009301VE79	/dev/da6
Bay 15	Lnum 28	[HEALTHY]	SN: Z298JYB300009304H7KS	/dev/da7
Bay 16	Lnum 9	[HEALTHY]	SN: Z298KAWP0000S114Z726	/dev/da26
Bay 17	Lnum 27	[HEALTHY]	SN: Z298KBCF0000C2510J1K	/dev/da8
Bay 18	Lnum N/A	[EMPTY]	SN: N/A	N/A
Bay 19	Lnum 26	[HEALTHY]	SN: Z298K0AX0000C3159JV0	/dev/da9
Bay 20	Lnum 8	[HEALTHY]	SN: Z298KBFS0000C2516P72	/dev/da27
<i>(truncated)</i>				
Bay 35	Lnum 19	[HEALTHY]	SN: Z298JYDA00009315GEZ1	/dev/da16
Bay 36	Lnum 18	[REPLACE]	SN: Z298JYRH00009412TWLC	/dev/da17

Appendix F: Example isi devices output showing a PREPARING or a HEALTHY drive



You could have arrived here from:

- [Page 8 – Add the drive \(4\)](#)

Example isi devices output showing a PREPARING drive

To confirm the drive is formatting, run `isi devices`. See the bold text in the output:

```
Cluster-1# isi devices
Node 1, [ATTN], [SED Node]
  Bay 1      Lnum 34      [HEALTHY]      SN:Z298KBBF0000921364ED /dev/da1
  Bay 2      Lnum 33      [HEALTHY]      SN:Z298H54B00009410BT4C /dev/da2
  Bay 3      Lnum 17      [HEALTHY]      SN:Z298KARS0000C306EMY3 /dev/da18
  (truncated)
  Bay 14     Lnum 29      [HEALTHY]      SN:Z298JYFY00009301VE79 /dev/da6
  Bay 15     Lnum 28      [HEALTHY]      SN:Z298JYB300009304H7KS /dev/da7
  Bay 16     Lnum 9       [HEALTHY]      SN:Z298KAWP0000S114Z726 /dev/da26
  Bay 17     Lnum 27      [HEALTHY]      SN:Z298KBCF0000C2510J1K /dev/da8
  Bay 18     Lnum N/A     [EMPTY]        SN:N/A         N/A
  Bay 19     Lnum 26      [HEALTHY]      SN:Z298K0AX0000C3159JV0 /dev/da9
  Bay 20     Lnum 8       [HEALTHY]      SN:Z298KBFS0000C2516P72 /dev/da27
  (truncated)
  Bay 35     Lnum 19      [HEALTHY]      SN:Z298JYDA00009315GEZ1 /dev/da16
  Bay 36     Lnum 18      [PREPARING]    SN:Z298JYRH00009412TWLC /dev/da17
```

Example isi devices output showing a HEALTHY drive

To confirm the drive is ready to replace, run `isi devices`. See the bold text in the output:

```
Cluster-1# isi devices
Node 1, [ATTN], [SED Node]
  Bay 1      Lnum 34      [HEALTHY]      SN:Z298KBBF0000921364ED /dev/da1
  Bay 2      Lnum 33      [HEALTHY]      SN:Z298H54B00009410BT4C /dev/da2
  Bay 3      Lnum 17      [HEALTHY]      SN:Z298KARS0000C306EMY3 /dev/da18
  (truncated)
  Bay 14     Lnum 29      [HEALTHY]      SN:Z298JYFY00009301VE79 /dev/da6
  Bay 15     Lnum 28      [HEALTHY]      SN:Z298JYB300009304H7KS /dev/da7
  Bay 16     Lnum 9       [HEALTHY]      SN:Z298KAWP0000S114Z726 /dev/da26
  Bay 17     Lnum 27      [HEALTHY]      SN:Z298KBCF0000C2510J1K /dev/da8
  Bay 18     Lnum N/A     [EMPTY]        SN:N/A         N/A
  Bay 19     Lnum 26      [HEALTHY]      SN:Z298K0AX0000C3159JV0 /dev/da9
  Bay 20     Lnum 8       [HEALTHY]      SN:Z298KBFS0000C2516P72 /dev/da27
  (truncated)
  Bay 35     Lnum 19      [HEALTHY]      SN:Z298JYDA00009315GEZ1 /dev/da16
  Bay 36     Lnum 18      [HEALTHY]      SN:Z298JYRH00009412TWLC /dev/da17
```

Appendix G: Example output from the `isi devices -a add -d :<bay#>` command



You could have arrived here from:

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- [Page 10 – Add the drive \(6\)](#)

Example output from the `isi devices -a add -d :<bay#>` command

Example output when reading a reinserted, or stopfailed, drive:

```
Cluster-1# isi devices -a add -d :24
Initiating add on bay 24
. . . . .
!! The add operation succeeded. A healthy drive was found in bay 24.
```

Example output when adding a blank drive:

```
Cluster-1# isi devices -a add -d :36
Initiating add on bay 36
. . . . .
!! The add operation failed. An unrecognized drive was found in bay
!! 36. To format this drive and add it to the file system, run 'isi
!! devices -a format' on this drive and follow the instructions
!! provided.

Cluster-1# isi devices -a format -d :36

!! This drive does not appear to be pre-formatted with OneFS.
!! Formatting this drive will destroy any existing data and add it to
!! OneFS. Do you wish to continue formatting this drive? (yes,
!! [cancel])

>>> yes

'format' drive action initiated. This process could take a few
minutes. To monitor the progress of this action, run 'isi devices'.
When the drive appears green, the 'format' and purposing actions have
completed successfully.
```

Example output when the drive add operation fails, or when there is no drive detected:

```
Cluster-1# isi devices -a add -d :18
Initiating add on bay 18
. . . . .
!! The add operation failed. No drive was found in bay 18. Verify that
!! a functional drive is physically present in the bay and try again.
```

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