EMC ISILON CUSTOMER TROUBLESHOOTING GUIDE

TROUBLESHOOT A BIT ERROR RATE (BER) ALERT ON YOUR ISILON CLUSTER

Abstract

This guide helps you to determine the cause of bit error rate (BER) alerts on your Isilon cluster.

December 28, 2015

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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.

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.

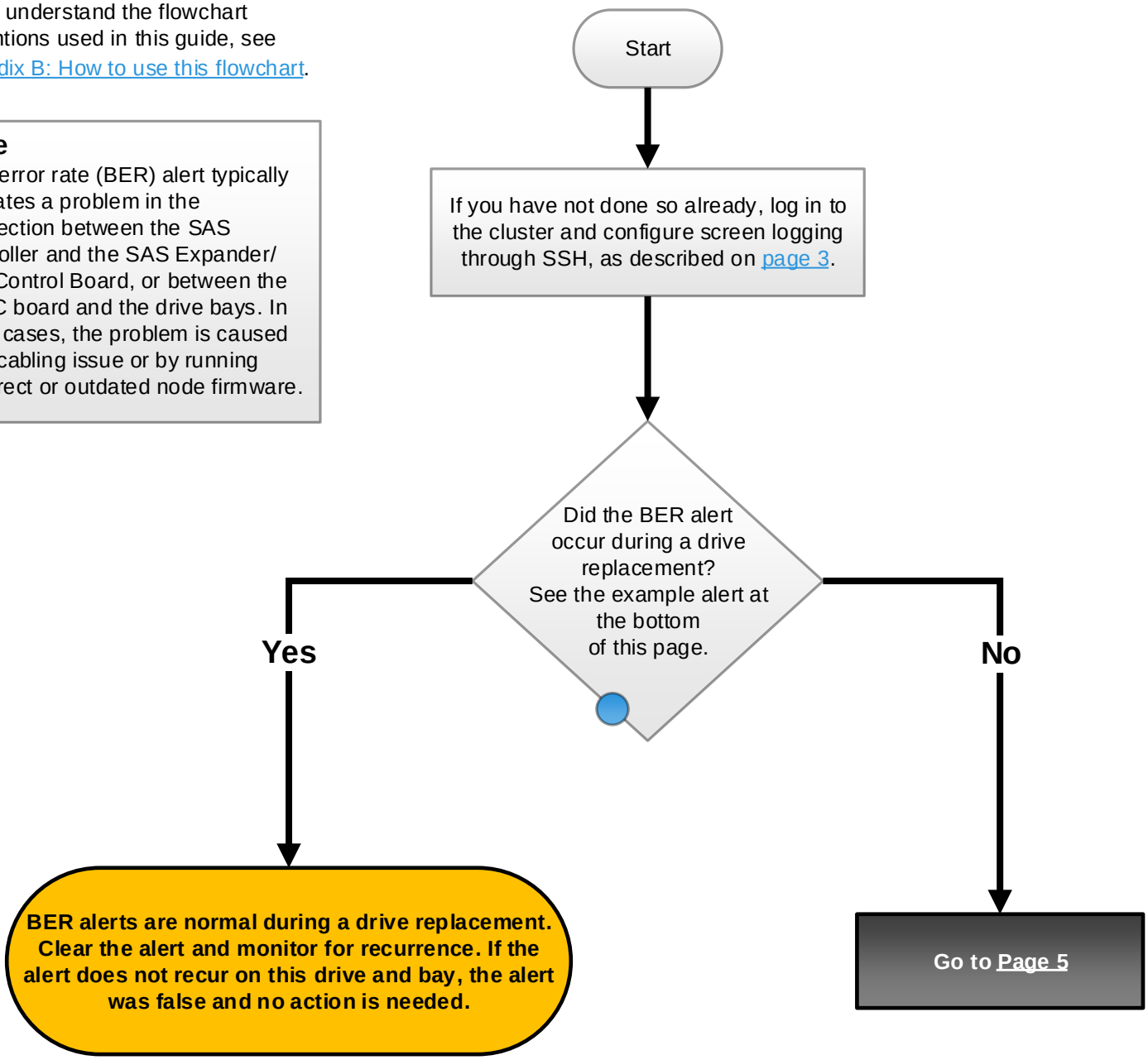
Start troubleshooting

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

A bit error rate (BER) alert typically indicates a problem in the connection between the SAS controller and the SAS Expander/ Fan Control Board, or between the SEFC board and the drive bays. In most cases, the problem is caused by a cabling issue or by running incorrect or outdated node firmware.



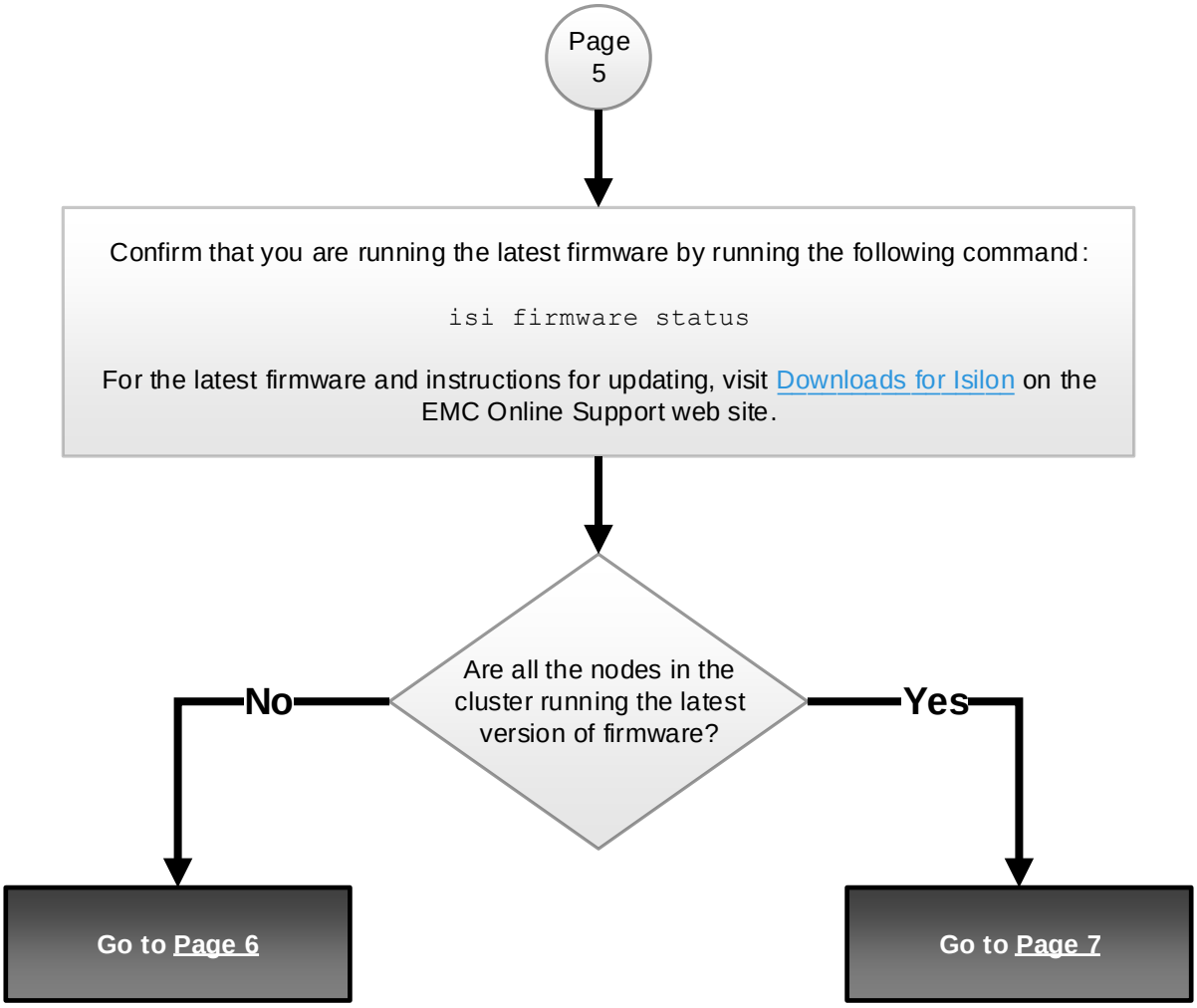
Example BER alert

```
The SAS link connected to chassis 0 PHY 11 has exceeded the maximum Bit Error Rate (BER).
```

Troubleshoot a BER alert

You could have arrived here from:

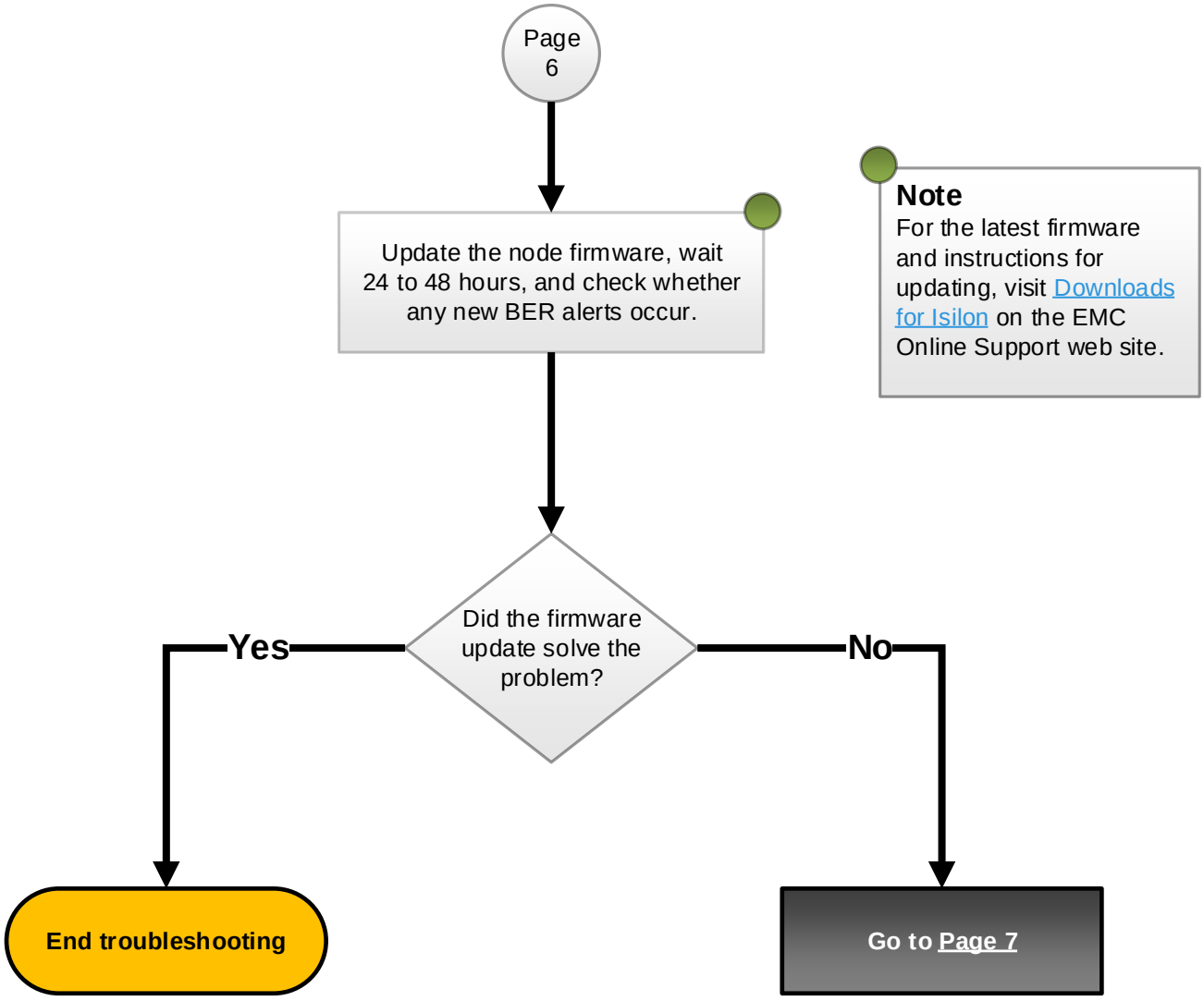
- Page 4 - Start troubleshooting



Troubleshoot a BER alert (2)

You could have arrived here from:

- Page 5 - Troubleshoot a BER alert



Troubleshoot a BER alert (3)

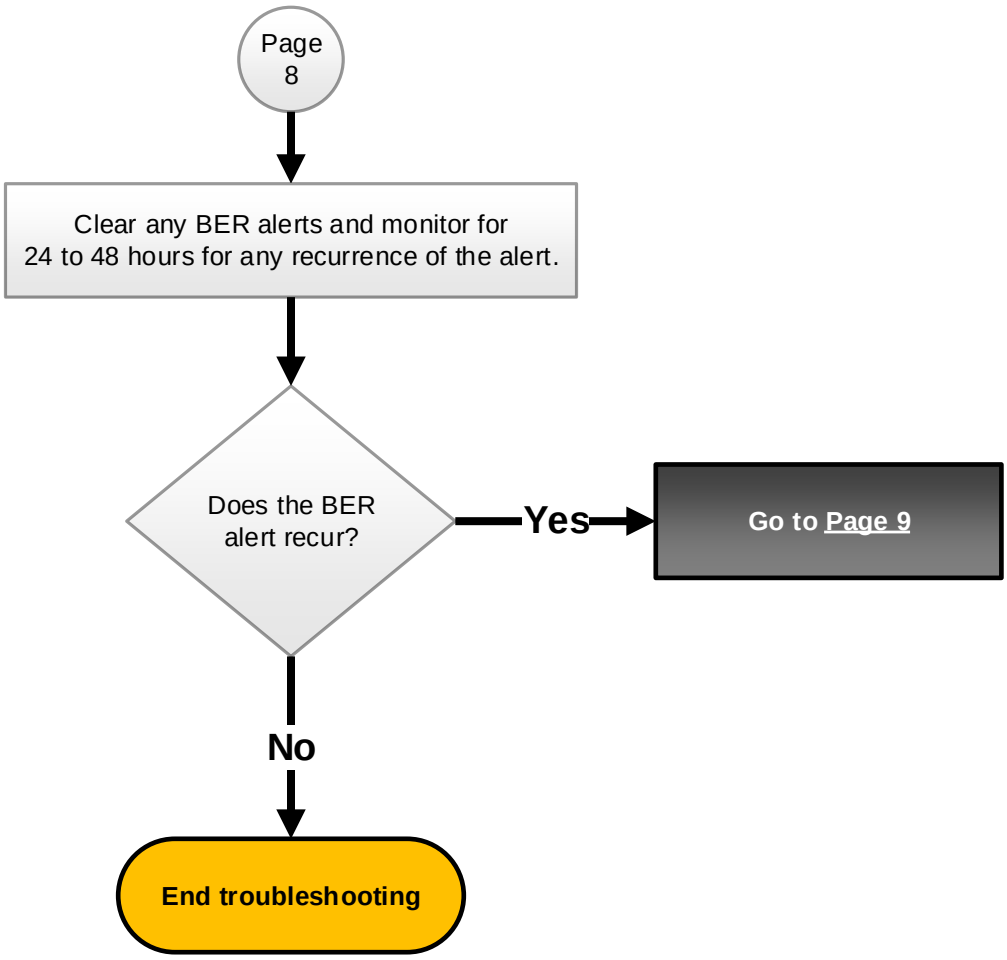
You could have arrived here from:

- Page 5 - Troubleshoot a BER alert
- Page 6 - Troubleshoot a BER alert (2)

Troubleshoot a BER alert (4)

You could have arrived here from:

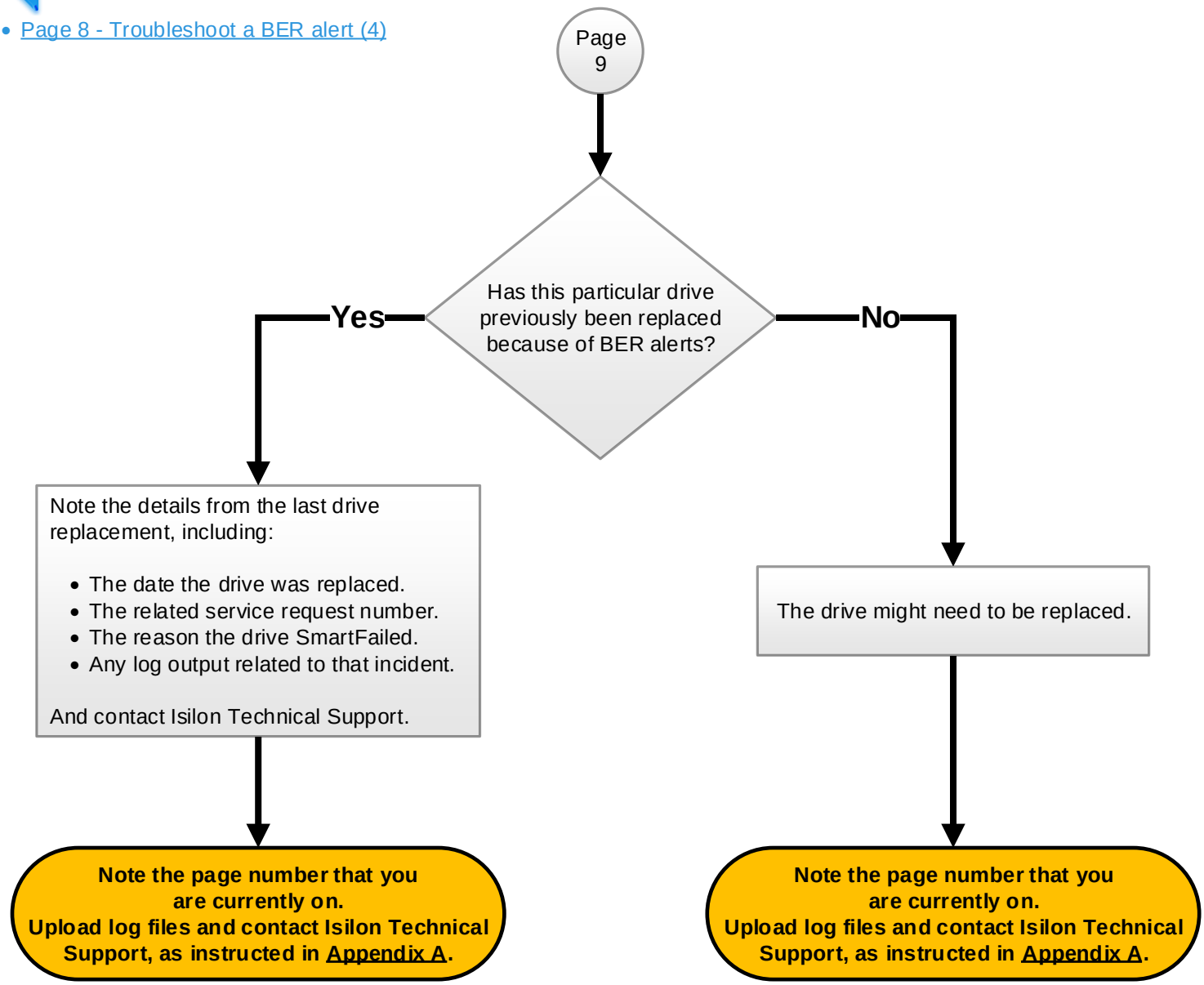
- Page 7 - Troubleshoot a BER alert (3)



Troubleshoot a BER alert (5)

You could have arrived here from:

- Page 8 - Troubleshoot a BER alert (4)



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.

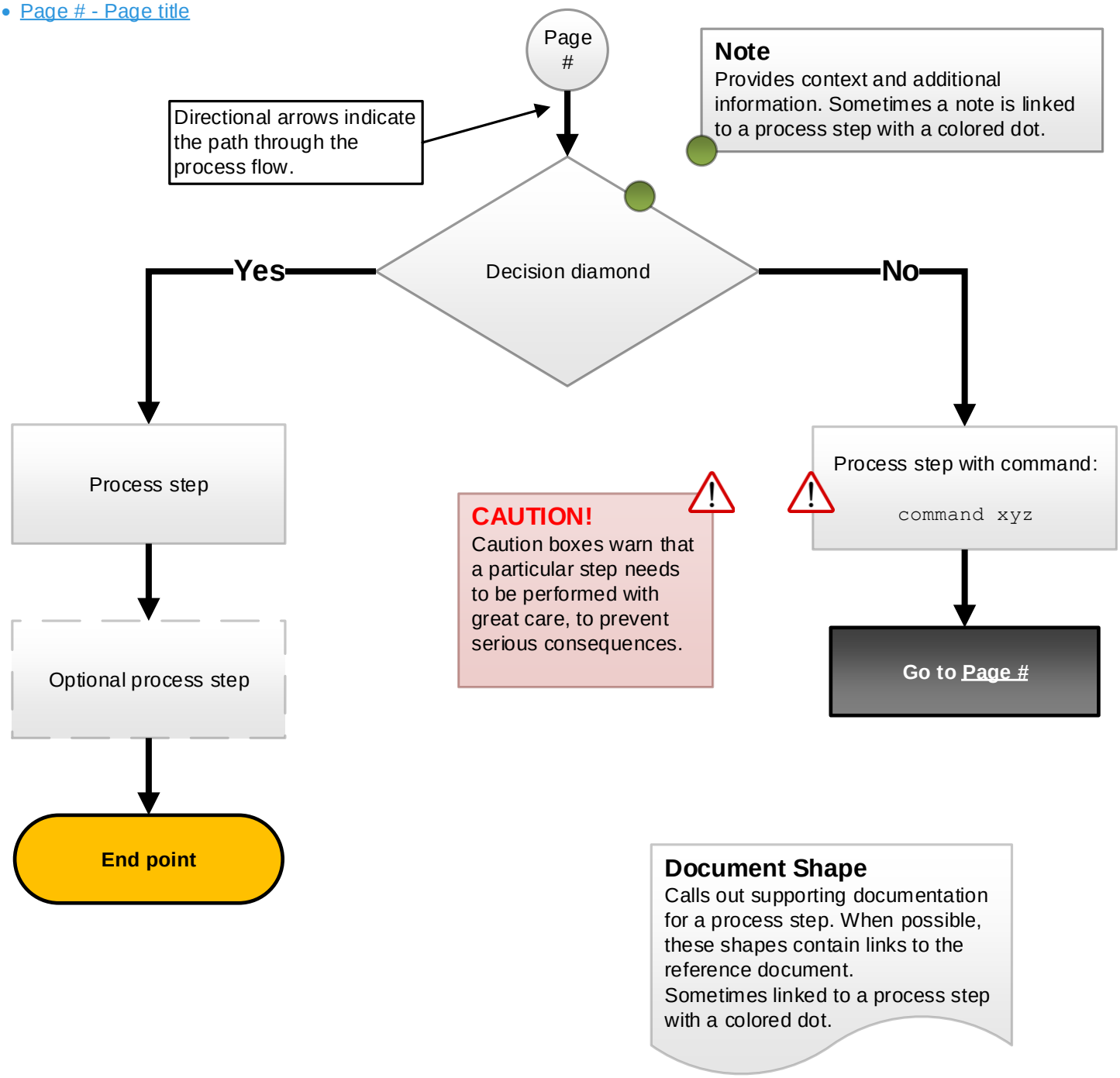
Appendix B: How to use this flowchart

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 7 - Troubleshoot a BER alert (3)

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:Z298KBDM0000C31532VC  /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
```