EMC ISILON CUSTOMER TROUBLESHOOTING GUIDE

TROUBLESHOOT YOUR SMARTCONNECT CONFIGURATION

OneFS 7.1.0 – 8.1.0

Abstract

This guide will help you to troubleshoot the following scenarios:

- You are unable to connect to the SmartConnect name.
- The SmartConnect name resolves to an incorrect IP address.

September 8, 2017

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

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

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/isi-docfeedback.

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 304071 on the EMC Online Support site.

Before you begin troubleshooting, confirm that you can connect either through 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, 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
   ```

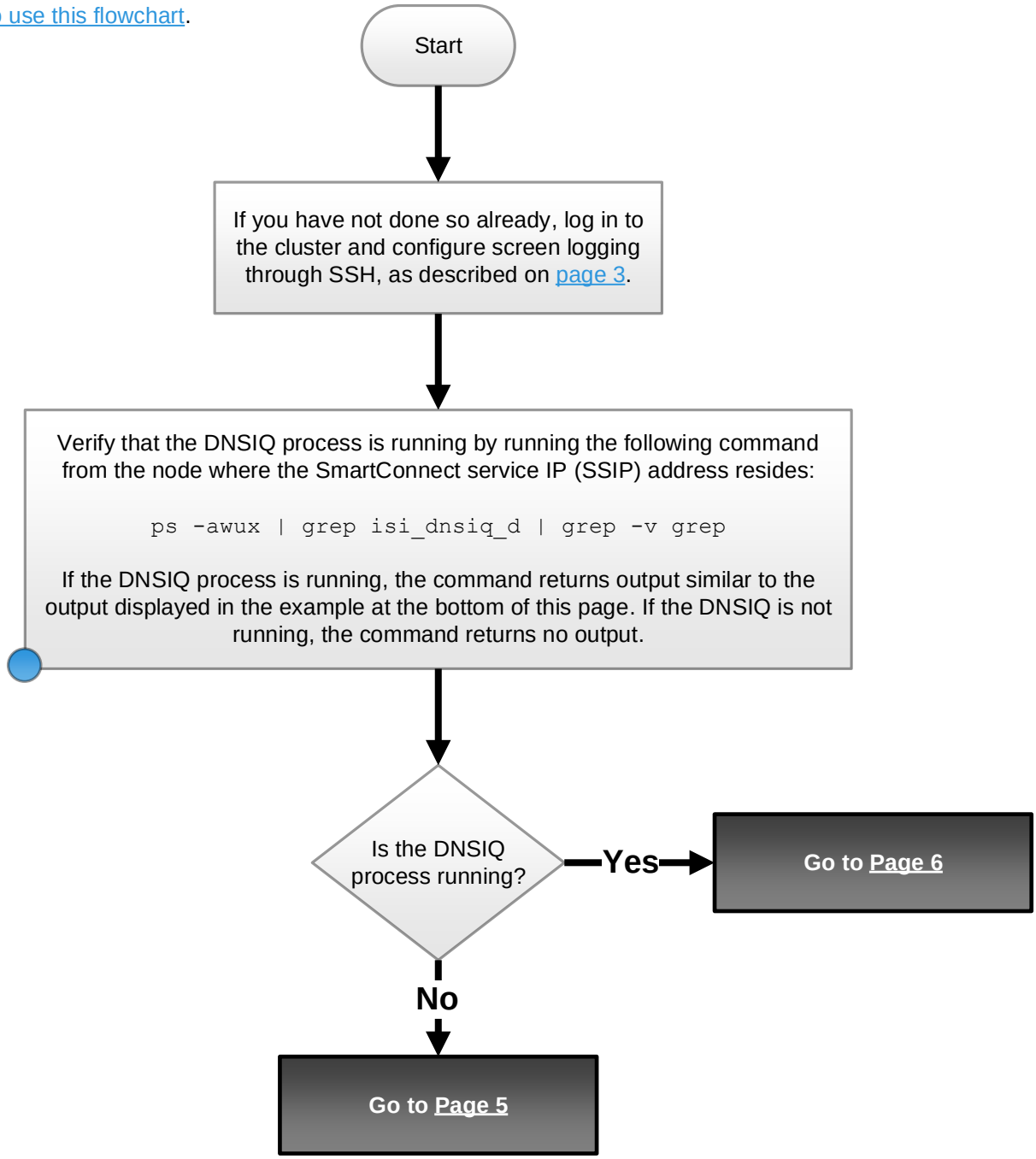
   This will create a file named screenlog.0 that will be appended to during your session.

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.



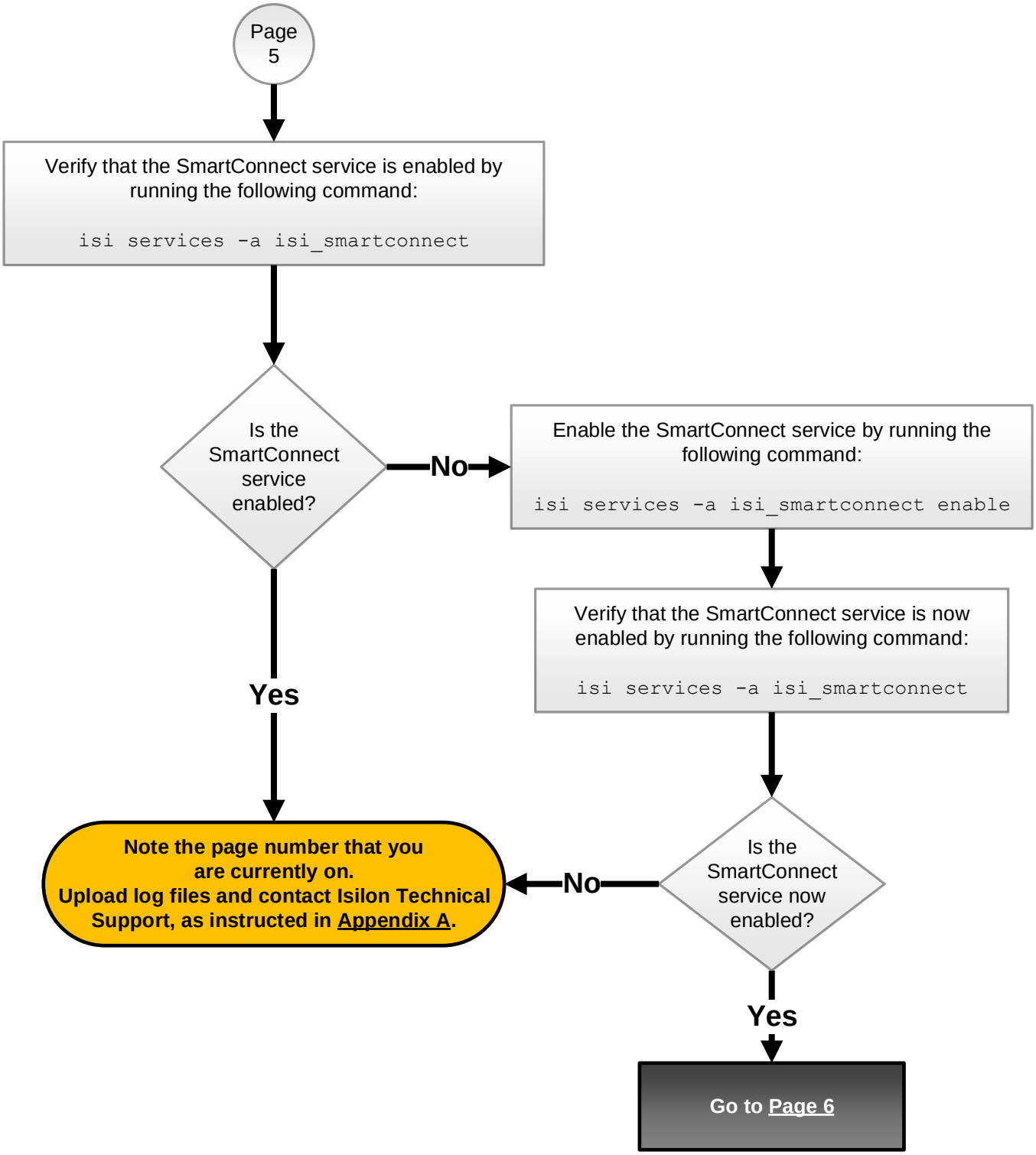
Example `ps -awux | grep isi_dnsiq_d | grep -v grep` output

```
root    3384   0.0   0.5 54692   5044   ??  Ss    8:47AM   0:00.31 /usr/sbin/isi_dnsiq_d
```

SmartConnect configuration

You could have arrived here from:

- Page 4 - Start troubleshooting



SmartConnect configuration (2)

You could have arrived here from:

- Page 4 - Start troubleshooting
- Page 5 - SmartConnect configuration

Page 6

Identify the SSIP address for the specific subnet you are using by running the following command:

OneFS 8.0 and later

```
isi network subnets list
```

OneFS 7.2 and earlier

```
isi networks list subnets
```

See the examples at the bottom of this page for example output.

Copy the output to a text file for reference later in the troubleshooting process.

Find your SmartConnect Zone name by running the following command:

OneFS 8.0 and later

```
isi network pools list -v
```

OneFS 7.2 and earlier

```
isi networks list pools -v
```

See Appendix C for example output.

Go to Page 7

OneFS 8.0 and later

Example `isi network subnet list` output

```
ID                Subnet         Gateway|Priority  Pools  SC Service
-------------------------------------------------------------------------
groupnet0.subnet0 192.168.228.0/24 192.168.228.2|1 pool1  192.168.228.3
```

OneFS 7.2 and earlier

Example `isi networks list subnet` output

```
Name                        Subnet       Gateway:Prio      SC Service Pools
--------------- ----------------- ----------------- --------------- -----
subnet0           192.168.228.0/24    192.168.228.2:1   192.168.228.3     1
```

SmartConnect configuration (3)

You could have arrived here from:

- Page 6 - SmartConnect configuration (2)

Page 7

From the client, attempt to resolve the cluster name to an IP address by running the following command, where `<sczone>` is the SmartConnect zone name:

```
nslookup <sczone>
```

See Appendix D for example output and explanation of what to look for.

From the client, attempt to resolve the cluster name to an IP address by running the following command, where `<SC_FQDN>` is the fully qualified domain name (FQDN) for the SmartConnect zone:

```
nslookup <SC_FQDN>
```

See Appendix D for example output and explanation of what to look for.

Do the commands return an IP address as shown in the examples in Appendix D?

No → Go to Page 12

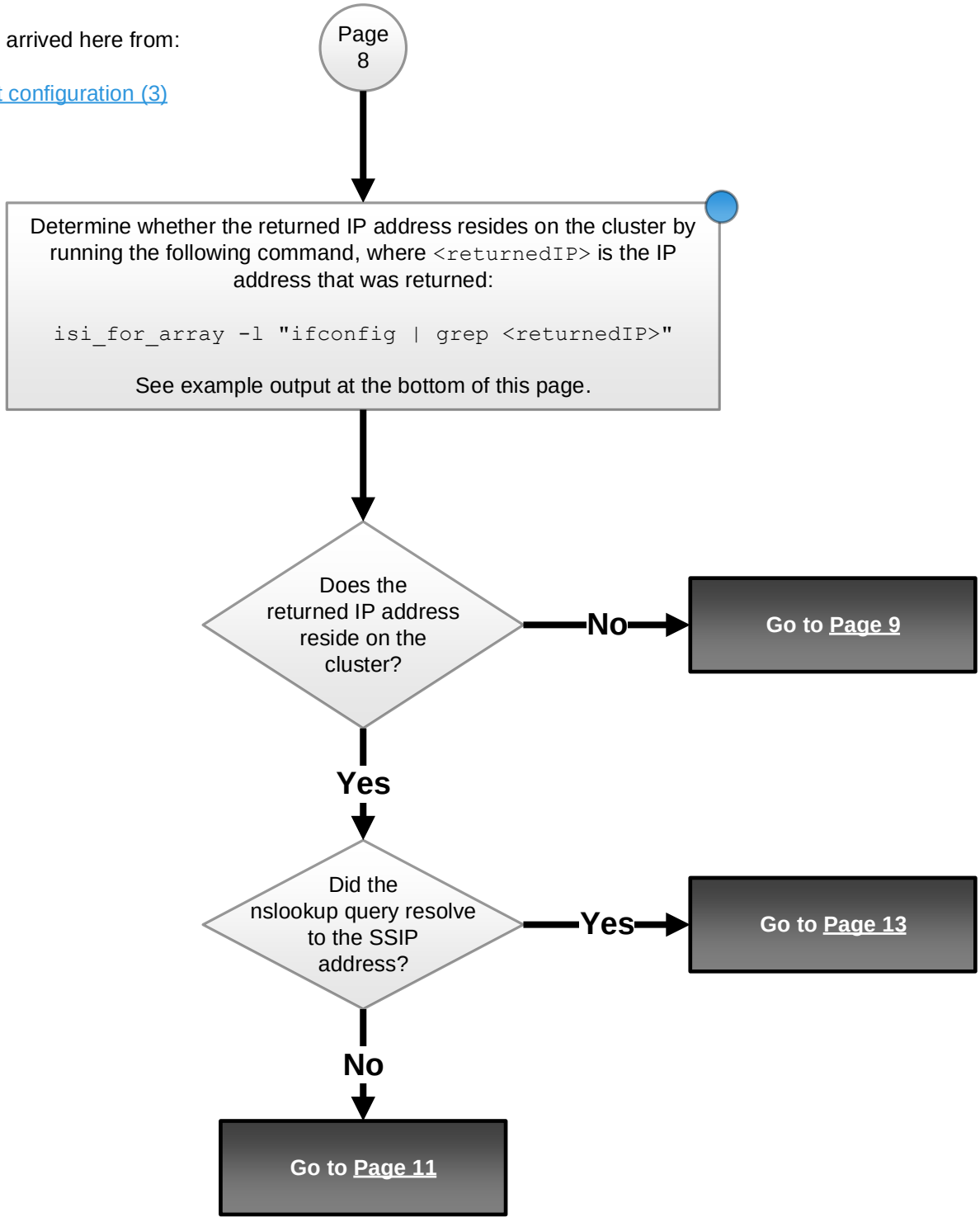
Yes → Go to Page 8

Note
These two commands should return similar output, but both should return an IP address that resides on the cluster.

SmartConnect configuration (4)

You could have arrived here from:

- Page 7 - SmartConnect configuration (3)



Example `isi_for_array -l "ifconfig | grep <returnedIP>"` output

```
Cluster-1# isi_for_array -l "ifconfig | grep 192.168.228.10"
Cluster-1:    inet 192.168.228.10 netmask 0xffffff00 broadcast 192.168.228.255 zone 1
```

SmartConnect configuration (5)

You could have arrived here from:

- Page 8 - SmartConnect configuration (4)

Page 9

Locate which node the SSIP address resides on by running the following command, where `<ssip>` is the SmartConnect Service IP address:

```
isi_for_array -l "ifconfig | grep <ssip>"
```

See the example output at the bottom of this page.

From the node where the SSIP address resides, attempt to resolve the cluster name by running the following command, where `<SC_FQDN>` is the fully qualified domain name of the SmartConnect zone, and `<ssip>` is the SmartConnect Service IP address:

```
nslookup <SC_FQDN> <ssip>
```

Did the nslookup query resolve to an IP address?

No → Go to Page 13

Yes

Go to Page 10

Note
The SmartConnect service will respond only if the query comes in on the SSIP address for the SmartConnect zone. An SSIP address for another zone will not respond for a SmartConnect name that does not belong to it.

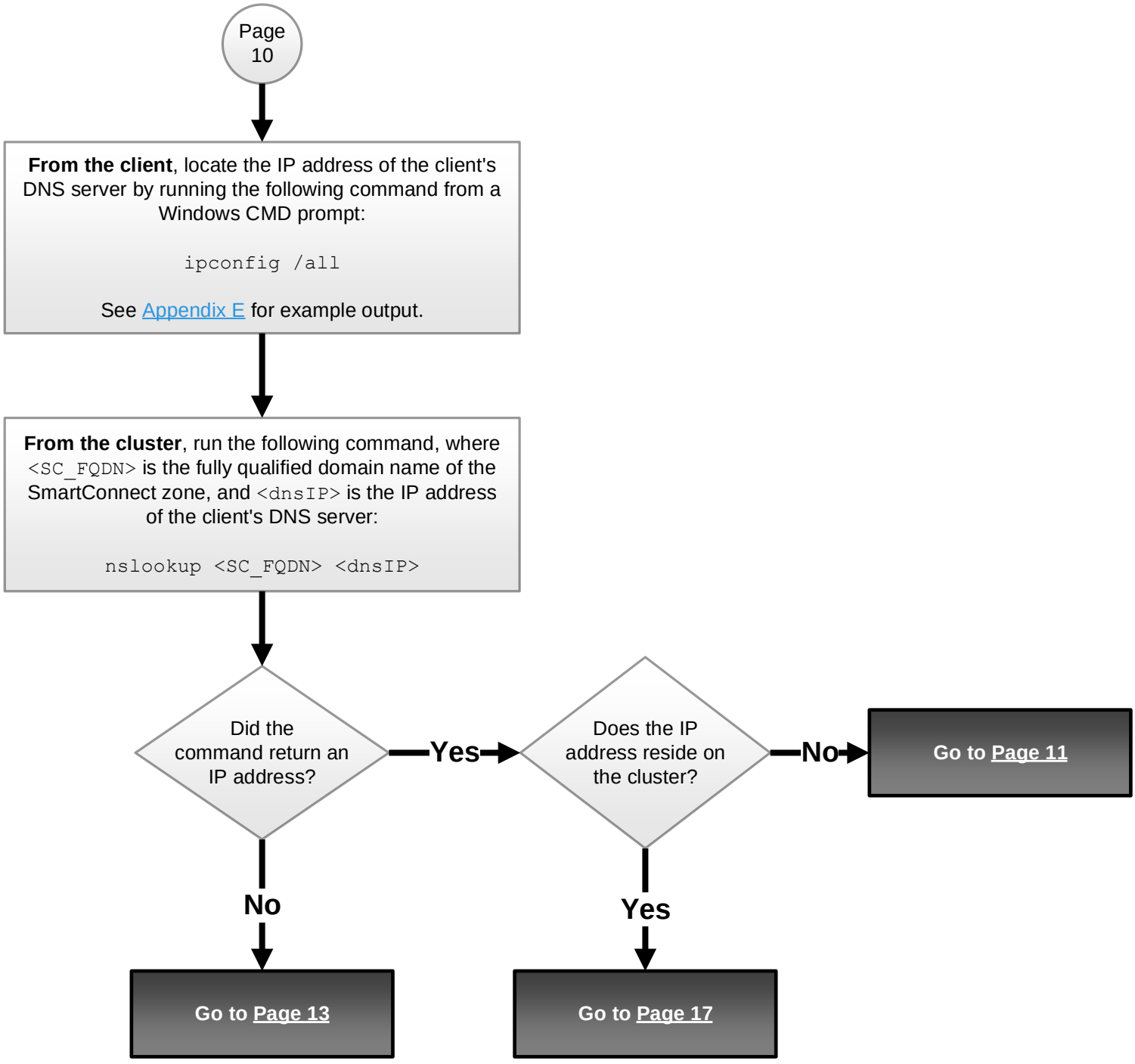
Example `isi_for_array -l "ifconfig | grep <ssip>"` output

```
isi_for_array -s "ifconfig | grep 192.168.228.3"
cluster-1: inet 192.168.228.3 netmask 0xffffe000 broadcast 192.168.228.255 zone 1
```

SmartConnect configuration (6)

You could have arrived here from:

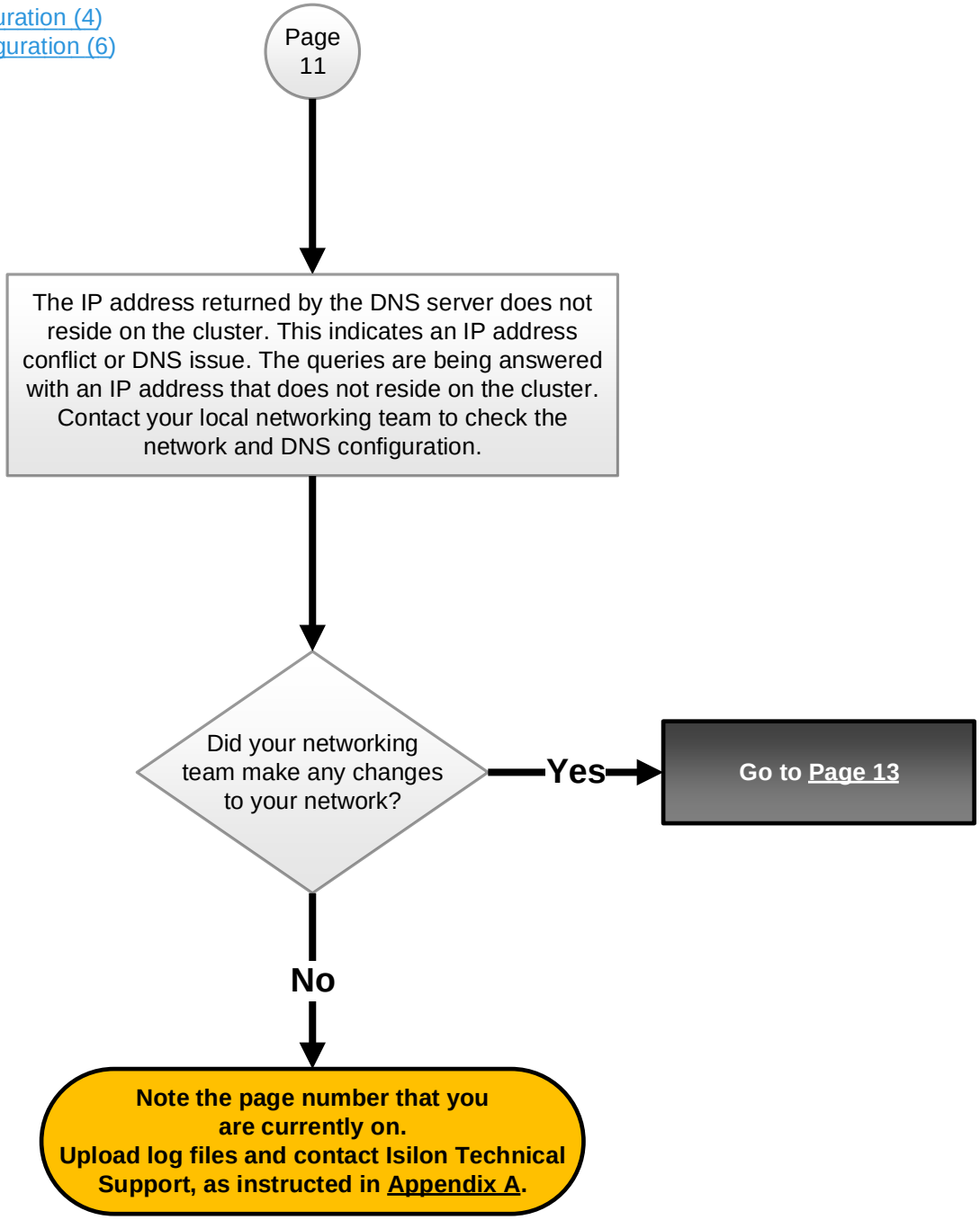
- Page 9 - SmartConnect configuration (5)



SmartConnect configuration (7)

You could have arrived here from:

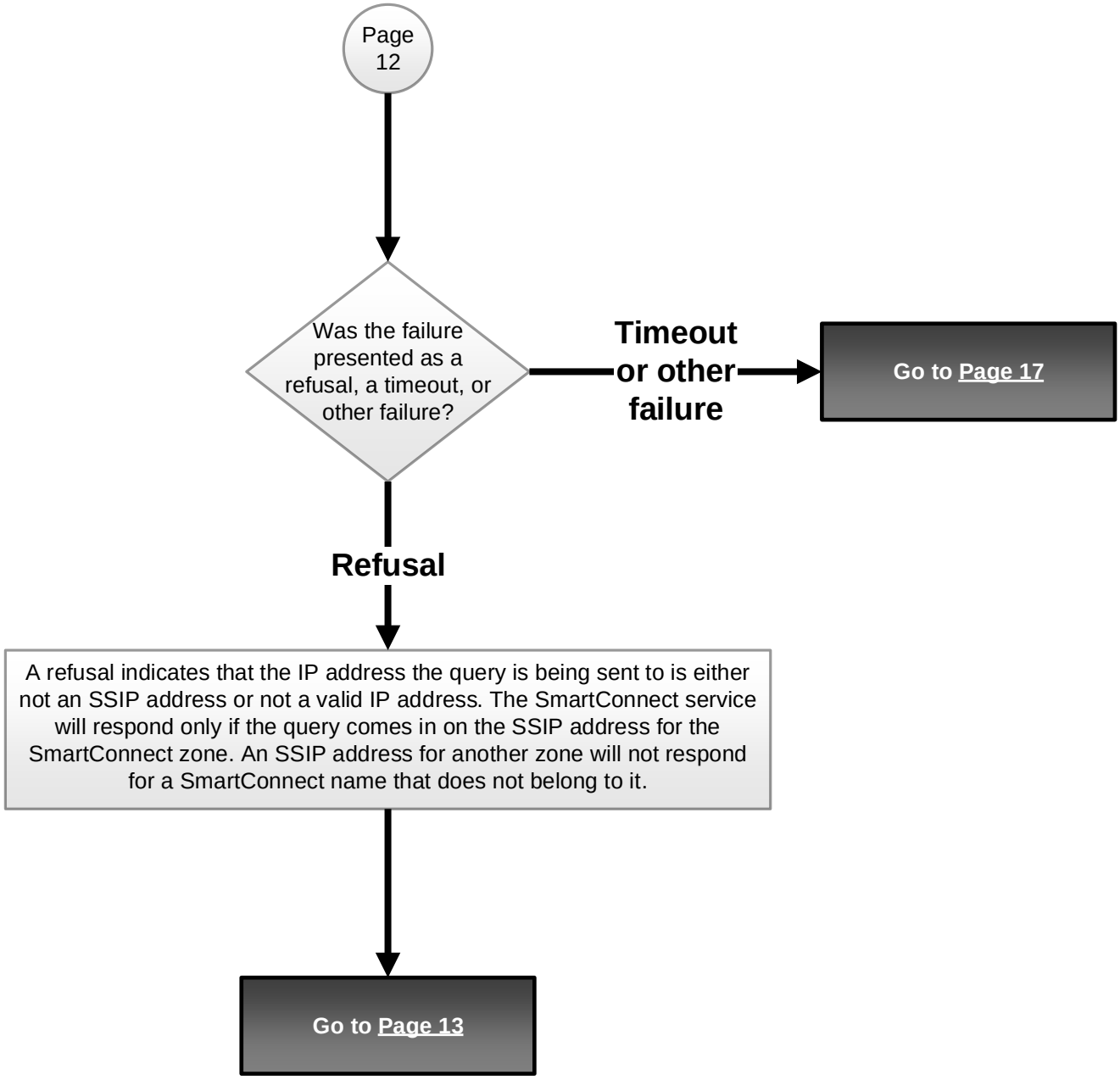
- Page 8 - SmartConnect configuration (4)
- Page 10 - SmartConnect configuration (6)



SmartConnect configuration (8)

You could have arrived here from:

- Page 7 - SmartConnect configuration (3)



SmartConnect setup

You could have arrived here from:

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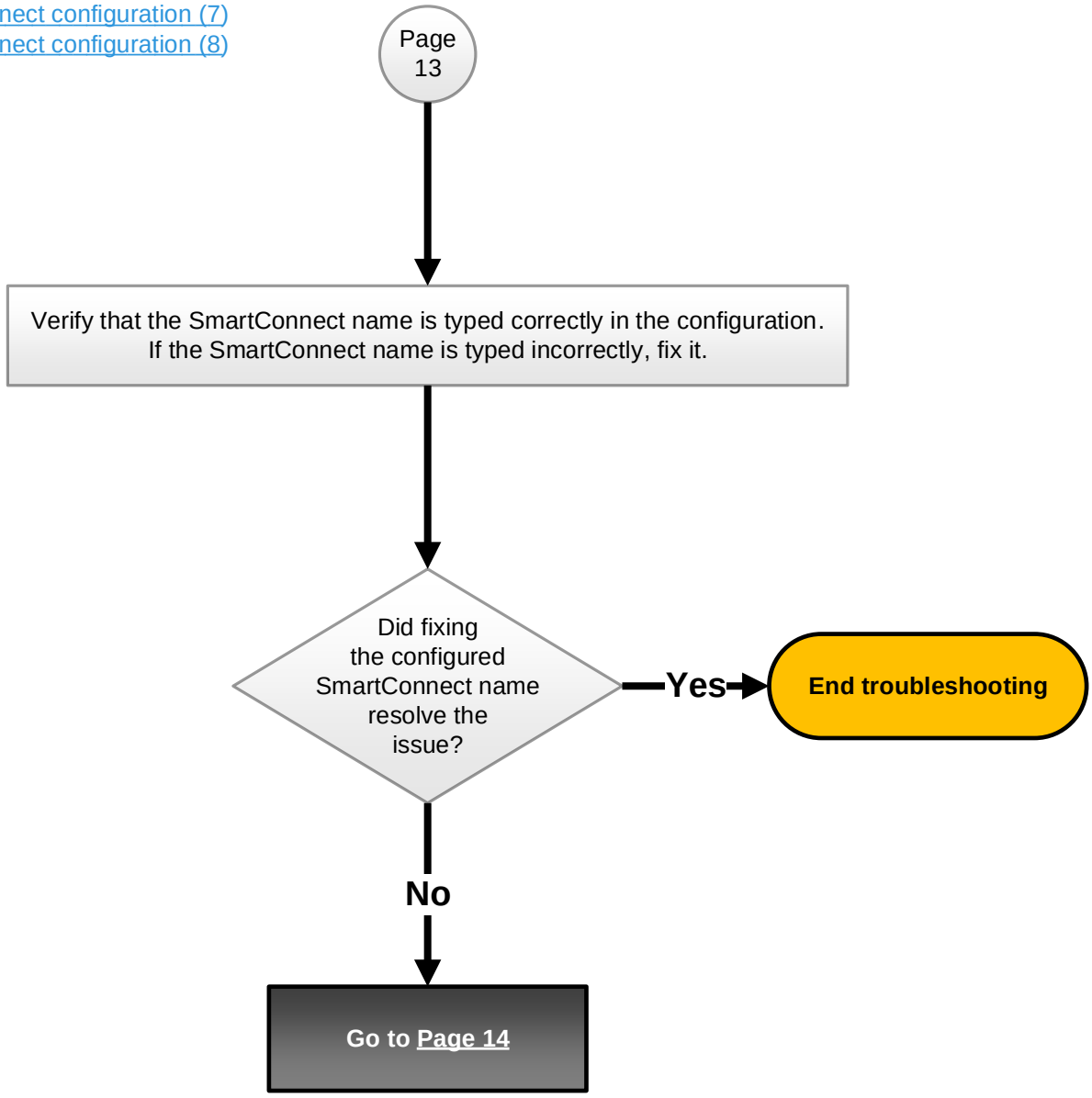
- Page 9 - SmartConnect configuration (5)
- Page 10 - SmartConnect configuration (6)
- Page 11 - SmartConnect configuration (7)
- Page 12 - SmartConnect configuration (8)



SmartConnect setup (2)

You could have arrived here from:

- Page 13 - SmartConnect setup

Page 14

Look up the configuration of the delegation record (or NS record) by running the following command from the cluster, where `<fqdn>` is the fully qualified domain name, and `<dnsIP>` is the IP address of the DNS server:

```
nslookup -norecurse -type=ns <fqdn> <dnsIP>
```

See the example output at the bottom of this page.

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Example `nslookup -norecurse -type=ns <fqdn> <dnsIP>` output

Notes:

- A delegation record (or NS record) should exist, and it should match the zone name.
- An A record (shown in the output as `internet address`) should show as the SmartConnect Service IP address

```
cluster-1# nslookup -norecurse -type=ns example.isilon.local 192.168.38.101
Server:         192.168.38.101
Address:        192.168.38.101#53

Non-authoritative answer:
example.isilon.local    nameserver = examplesip.isilon.local.

Authoritative answers can be found from:
examplesip.isilon.local         internet address = 192.168.38.60
```

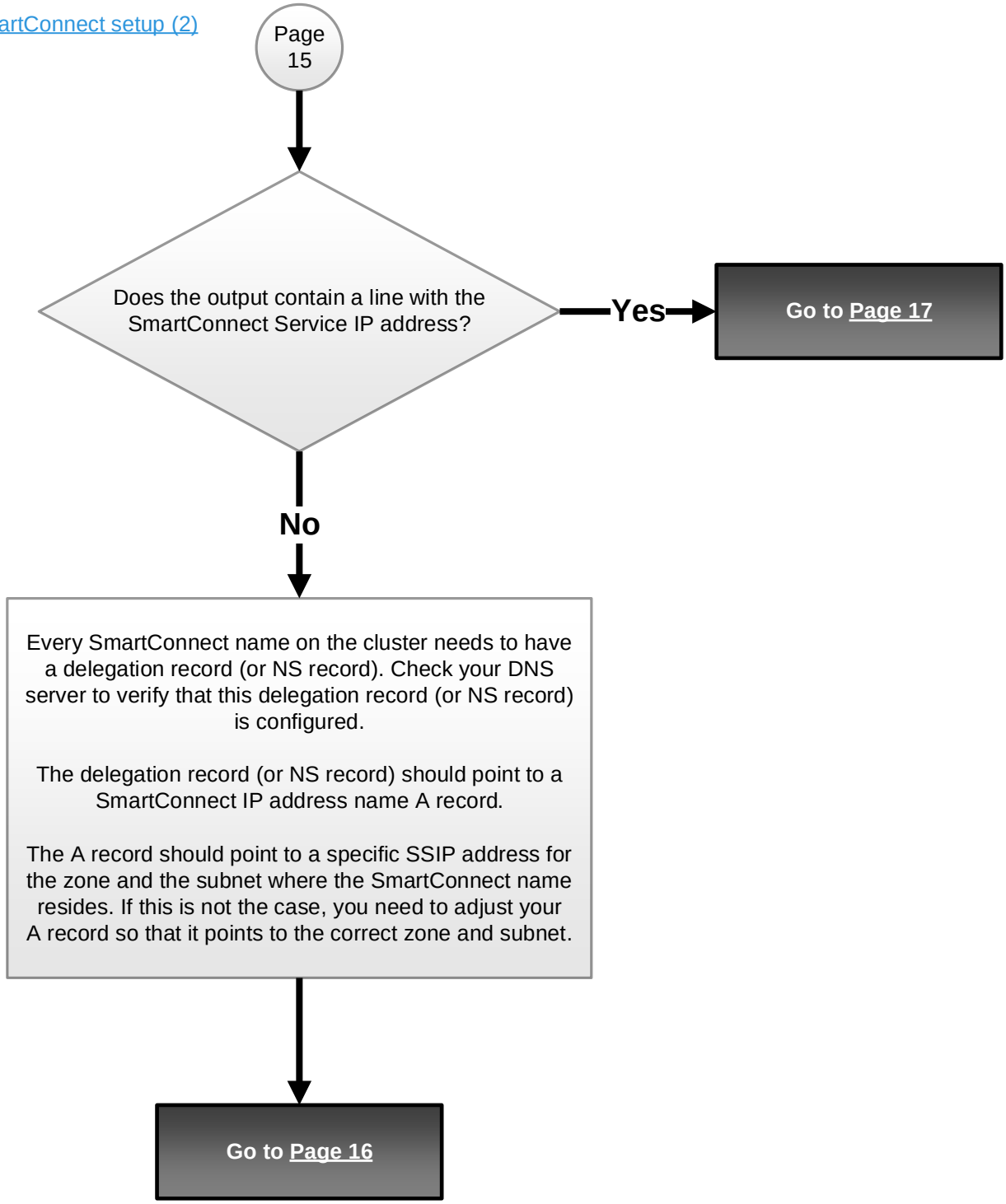
Delegation record

A record

SmartConnect setup (3)

You could have arrived here from:

- Page 14 - SmartConnect setup (2)



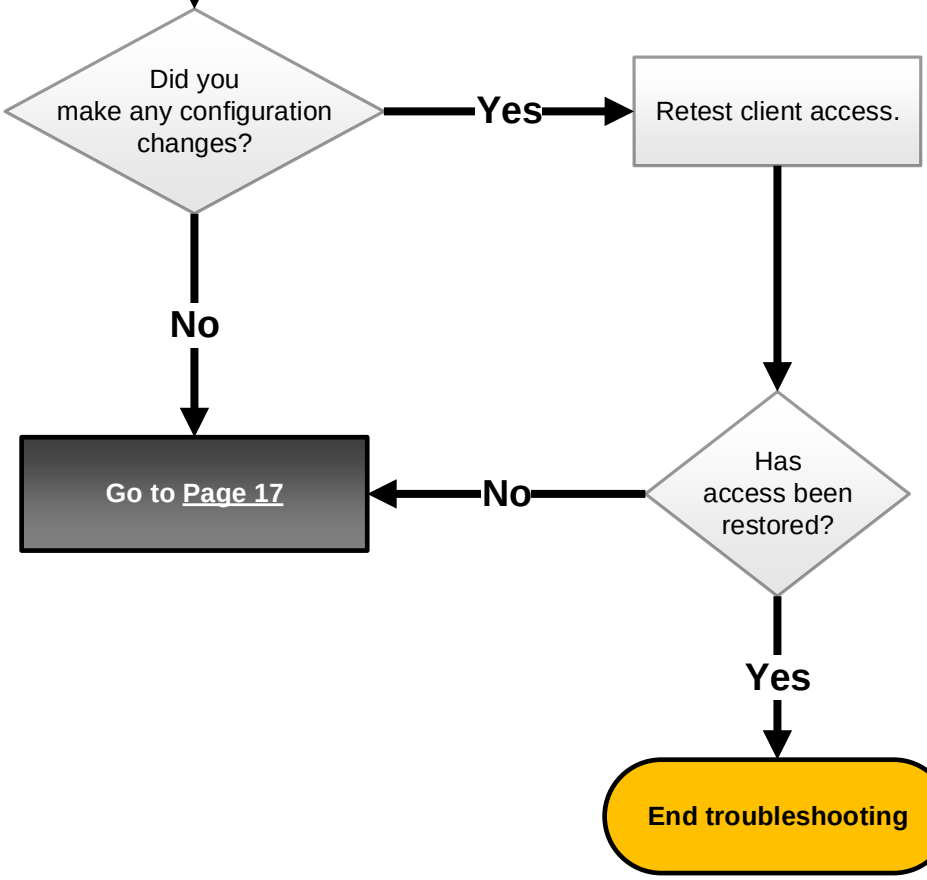
SmartConnect setup (4)

You could have arrived here from:

- Page 15 - SmartConnect setup (3)

Depending on which DNS you are using, see one of the following articles about configuring SmartConnect:

- Windows DNS: *OneFS: How to configure Windows DNS for a SmartConnect zone*, 442679
- Infoblox DNS: *How to configure Infoblox DNS to use with SmartConnect*, 304465



Packet capture

You could have arrived here from:

- Page 10 - SmartConnect configuration (6)
- Page 12 - SmartConnect configuration (8)
- Page 15 - SmartConnect setup (3)
- Page 16 - SmartConnect setup (4)

Page 17

Perform a packet capture (PCAP) on the cluster to ensure that requests from the client are reaching the cluster.

Open an SSH connection on any node in the cluster and log in by using the root account.

Run the following command, where `<node>` is the logical node number (LNN) of the node that the SSIP address resides on, and `<ssip>` is the SmartConnect Service IP address:

```
isi_netlogger -a -i all -n <node> -s 384 -- host <ssip>
```

Reproduce the issue while the PCAP is running on the cluster.

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Note

If no spaces exist between the arguments, be aware that isi_netlogger will parse flags improperly. The result is that the isi_netlogger execution is ineffective and captures nothing. Ensure you leave a space between any argument and the specified value.

Also, isi_netlogger is unable to capture traffic on VLANs. If you need to capture traffic on a VLAN, you will need to specify the parent interface, such as `em0` or `lagg0`, or use the tcpdump utility. If you need guidance on using the tcpdump utility, reference the man page by typing `man tcpdump` from the cluster's command-line interface.

To locate the parent interface, run `ifconfig` and look for the VLAN you are on (see example output at the bottom of this page).

Example `ifconfig` output

```
vlan0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500
        options=3<RXCSUM,TXCSUM>
        ether 00:25:90:c7:06:ee
        inet 192.168.99.3 netmask 0xffffff00 broadcast 192.168.99.255 zone 1
        media: Ethernet autoselect (1000baseTX <full-duplex>)
        status: active
        vlan: 1897 parent interface: em0
```

Packet capture (2)

You could have arrived here from:

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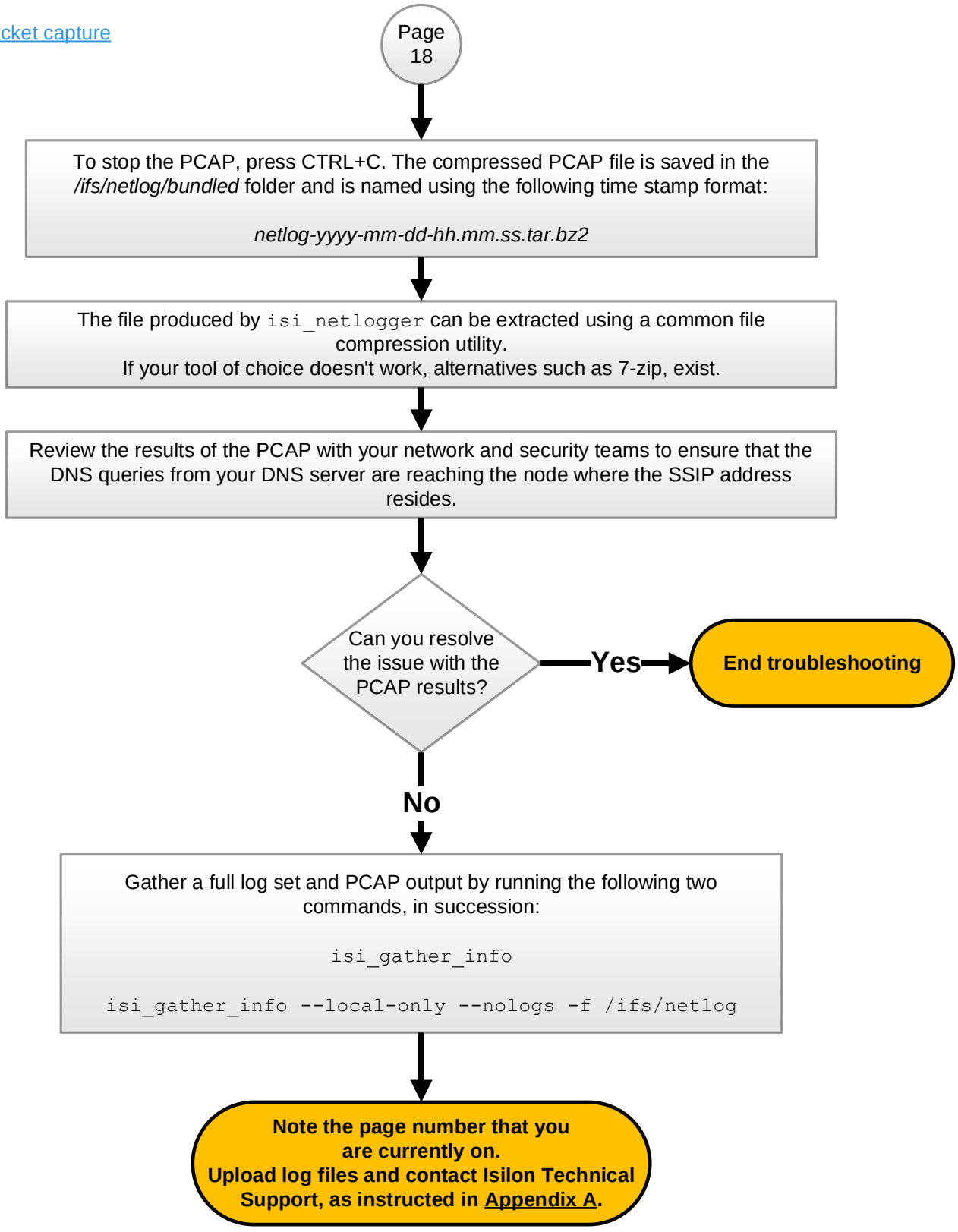


Appendix A: If you need further assistance

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 304567 on the EMC Online Support site for directions on how to upload files over FTP.

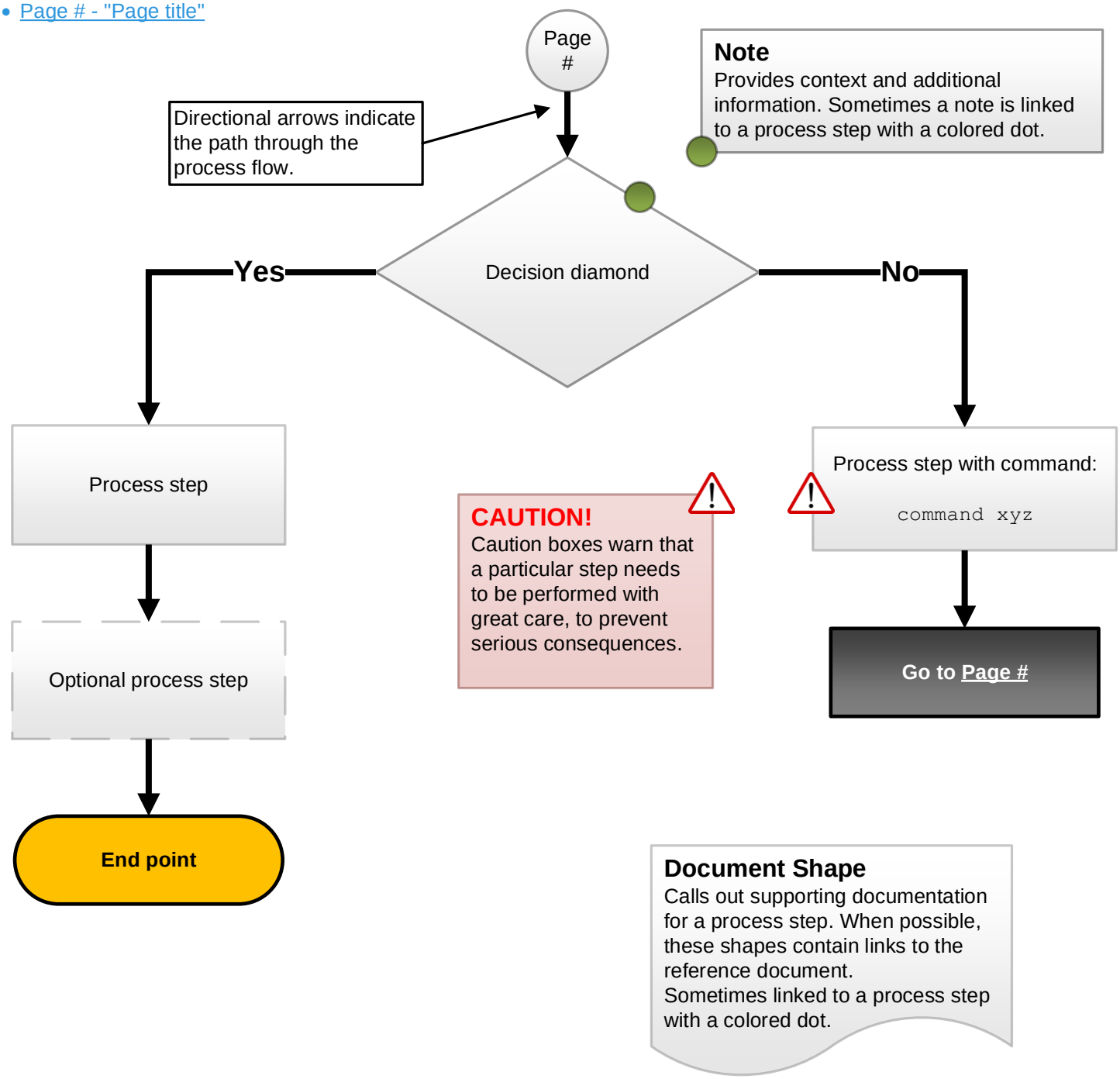
Appendix B: How to use this flowchart

Introduction

Describes what the section helps you to accomplish.

BACK You could have arrived here from:

- Page # - "Page title"



Appendix C: Example output

Example `isi networks list pools -v` output

You could have arrived here from:

- Page 6 - SmartConnect configuration (2)

Example `isi network pools list -v` output

```
                      ID: groupnet0.subnet0.pool0
               Groupnet: groupnet0
                 Subnet: subnet0
                   Name: pool0
                  Rules: rule0
            Access Zone: System
     Allocation Method: static
      Aggregation Mode: lacp
    SC Suspended Nodes: -
           Description: Initial ext-1 pool
                Ifaces: 1:ext-1, 2:ext-1, 3:ext-1
             IP Ranges: 10.25.102.171-10.25.102.173
      Rebalance Policy: auto
SC Auto Unsuspend Delay: 0
     SC Connect Policy: round_robin
               SC Zone:
   SC DNS Zone Aliases: -
    SC Failover Policy: round_robin
            SC Subnet: -
               SC TTL: 0
         Static Routes: -
```

Example `isi networks list pools -v` output

```
subnet0:pool0 - Default ext-1 pool
         In Subnet: subnet0
        Allocation: Static
            Ranges: 1
                    10.25.102.212-10.25.102.214
   Pool Membership: 3
                    1:ext-1 (up)
                    2:ext-1 (up)
                    3:ext-1 (up)
  Aggregation Mode: Link Aggregation Control Protocol (
       Access Zone: System (1)
      SmartConnect:
                    Suspended Nodes  : None
                    Auto Unsuspend ... 0
                    Zone             : N/A
                    Time to Live     : 0
                    Service Subnet   : N/A
```

Appendix D: Example output

Example `nslookup` output

You could have arrived here from:

- Page 7 - SmartConnect configuration (3)

Example `nslookup <sczone>` output
The expectation is for the command to return rotating IP addresses, or, at the very least, to show node IP addresses that are not the SSIP address.

A successful result will show the IP address. In this example, the returned IP address is 192.168.228.14, shown in bold in the following code example. If no IP address is listed, the command failed. If you receive other failures (for example a timeout or an error message), contact Isilon Technical Support.

```
Cluster-1# nslookup test1
Server:         192.168.228.99
Address:        192.168.228.99#53

Name:   test1.isilon.local
Address: 192.168.228.14
```

Example `nslookup <SC_FQDN>` output

```
Cluster-1# nslookup test1.isilon.local
Server:         192.168.228.99
Address:        192.168.228.99#53

Name:   test1.isilon.local
Address: 192.168.228.14
```

Appendix E: Example output

Example `ipconfig /all` output

You could have arrived here from:

- Page 10 - SmartConnect configuration (6)

Example `ipconfig /all` output

Run this command from a Windows CMD prompt to determine the IP address of your local DNS servers. The IP address is shown in bold in the following example output.

```
C:\Users\Administrator.DC>ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : dc
   Primary Dns Suffix  . . . . . . . : example.local
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : example.local

Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Network Connection
   Physical Address. . . . . . . . . : 00-0C-29-96-0A-C0
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   IPv4 Address. . . . . . . . . . . : 192.168.228.99(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.228.2
   DNS Servers . . . . . . . . . . . : 192.168.228.250
   NetBIOS over Tcpip. . . . . . . . : Enabled
```

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