

**Workaround For > 128 Data LIFs**

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# Introduction

## Management Summary

This document details the process used to work around the issue caused by 128 Data LIFs being on the first node during an upgrade from 8.2.3P5. The LIFs are required to be there as we require all Management LIFs on the first node and our data LIFs are also Management LIFs. This process is only to be used on Clusters where there will be more than 128 Data LIFs and is not required for any other upgrades.

## Change History

|  |  |  |  |
| --- | --- | --- | --- |
| **Ver** | **Date** | **Author** | **Key Changes** |
| 0.1 | March 2018 | Ian Daniel | Initial Version |
| 0.2 | March 2018 | Ian Daniel | Updated following review |
| 0.3 | March 2018 | Ian Daniel | Updated following review |
| 0.4 | March 2018 | Ian Daniel | Updated following review feedback |
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## Distribution List

|  |  |
| --- | --- |
| **Name** | **Role** |
| Storage Engineering | Reviewer |
| Storage Delivery | Reviewer |
| Storage Architecture | Reviewer |

## Glossary

|  |  |
| --- | --- |
| **Term** | **Definition** |
| cDOT | clustered Data ONTAP |
| Vserver | A logical storage virtual server, also known as a Storage Virtual Machine (SVM), which contains LIFs, Volumes, and configuration information such as access control details. |
| LIF | Logical Interface – a cDOT logical network interface with an IP address, assigned to a single Vserver. |
| CIFS | Short for Common Internet File System, a protocol that defines a standard for remote file access using millions of computers at a time. With CIFS, users with different platforms and computers can share files without having to install new software. |
| SMB | Short for Server Message Block, a message format used by DOS and Windows to share files, directories and devices. |
| NFS | A distributed file system protocol originally developed by Sun Microsystems in 1984, allowing a user on a client computer to access files over a computer network much like local storage is accessed. |

# Workaround Details

## Description

To work around the issue, we have to use a flag during upgrade to bypass the checks completely. This is the only way around the problem, but it does mean that checks are therefore not done. In order to ensure things are properly checked the following process should be used.

## Tasks

### Follow the instructions in the upgrade document until step 3.2.23.

### Obtain the LIF Sufficiency checker script.

**Example**

orf-graph-01:~ # git clone https://git.sami.int.thomsonreuters.com/ian.daniels/LIF-Checker.git  
Cloning into 'LIF-Checker'...  
Username for 'https://git.sami.int.thomsonreuters.com': ian.daniels  
Password for 'https://ian.daniels@git.sami.int.thomsonreuters.com':  
remote: Counting objects: 6, done.  
remote: Compressing objects: 100% (4/4), done.  
remote: Total 6 (delta 1), reused 0 (delta 0)  
Unpacking objects: 100% (6/6), done.

The checker script is called lif**-**checker.

### Obtain The Export Checker Script

**Example**

orf-graph-01:~ # git clone https://git.sami.int.thomsonreuters.com/ian.daniels/exports-checker.git

Cloning into 'exports-checker'...

Username for 'https://git.sami.int.thomsonreuters.com': ian.daniels

Password for 'https://ian.daniels@git.sami.int.thomsonreuters.com':

remote: Counting objects: 3, done.

remote: Compressing objects: 100% (2/2), done.

remote: Total 3 (delta 0), reused 0 (delta 0)

Unpacking objects: 100% (3/3), done.

The checker script is called exports**-**checker.

### Enter Systemshell (You may need to set the diag user password and enable the account)

orf-lab2552::> set diag -confirmations off

orf-lab2552::\*> systemshell -node orf-lab2552-01

(system node systemshell)

Data ONTAP/amd64 (orf-lab2552-01) (pts/2)

login: diag

Password:

Last login: Wed Mar 21 11:42:58 from localhost

Warning: The system shell provides access to low-level

diagnostic tools that can cause irreparable damage to

the system if not used properly. Use this environment

only when directed to do so by support personnel.

orf-lab2552-01%

### Get The Scripts (Systemshell)

orf-lab2552-01% scp root@10.220.179.83:/root/lif-checker .

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* This computer system is the property of Thomson Reuters and may be \*

\* accessed only by authorized users. Unauthorized use of this system is \*

\* strictly prohibited and may be subject to criminal prosecution. Your \*

\* use of Thomson Reuters systems and networks is permitted only in \*

\* accordance with Thomson Reuters policies, including the Code of \*

\* Business Conduct and Ethics. Where permitted by applicable law, we \*

\* reserve the right to monitor your use of these systems and networks and \*

\* review any communications made through them. By accessing the Thomson \*

\* Reuters system, you consent to such monitoring and to the retrieval of \*

\* information required for law enforcement or for the purpose of \*

\* protecting Thomson Reuters intellectual property and the \*

\* confidentiality of our corporate, client, and personnel data. \*

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root@10.220.179.83's password:

lif-checker 100% 92KB 91.8KB/s 00:00

orf-lab2552-01%

orf-lab2552-01% chmod 755 lif-checker

orf-lab2552-01% scp root@10.220.179.83:/root/exports-checker .

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* This computer system is the property of Thomson Reuters and may be \*

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\* confidentiality of our corporate, client, and personnel data. \*

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root@10.220.179.83's password:

exports-checker 100% 9246 9.0KB/s 00:00

orf-lab2552-01%

orf-lab2552-01% chmod 755 exports-checker

### Run The Script Against All Vservers

This step will verify that a Vserver can use at least one of its data LIFs to communicate with the configured external servers. It must be run from the system-shell ONLY on the first node in the cluster you intend to upgrade, you do not need to run it on any other node. By this point all LIFs should on the first node if following the upgrade document:

For each data Vserver, run the following command:

This needs to be run for each data vserver.

sudo vcontext -v 4294967295 <path>/lif-checker <path>/lif-checker -ALL -upgrade -report -optim -check

Only use the -check parameter for upgrading to 8.3.1 or 8.3.2 images.

If the script fails for a vserver it will explain the problem and supply a high level description of the configuration changes that need to be made.

**Example**

orf-lab2552-01% sudo vcontext -v 4294967295 ./lif-checker ./lif-checker -ALL -upgrade -report -optim -check

Checking ALL Vservers for sufficiency LIFs.

Running in upgrade mode.

Running in report mode.

Enabling Script Optimizations.

Checker may take up to 60 minutes to complete.

Checking Vserver(s) (TestSVM2 ar-wfatest-0005 silab-iscsi-01 silab-mssql-01 silab-oracle-e01 sioracle-e0006 svm070njz) for sufficiency LIFs.

...............................................

After upgrade, DNS Server 163.231.26.2 WILL BE UNREACHABLE from Vserver ar-wfatest-0005.

.

After upgrade, DNS Server 163.231.26.3 WILL BE UNREACHABLE from Vserver ar-wfatest-0005.

.............................................................................................................................................................................................................................................\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* \*\*\* FAILURES FOUND. \*\*\*

\* You must correct these failures to avoid service disruptions.

\*

\* One way to avoid failures in most environments is to create a

\* Vserver management LIF, one for each Vserver, that has connectivity to all

\* external servers (infrastructure servers such as DNS/NIS/LDAP).

\* Add a route for this LIF, if necessary, to provide connectivity to servers.

\* This LIF's home-node should be the first node that will upgrade to 8.3.0

\* or higher.

\* The LIF should have a failover group that includes ONLY the home node

\* and its HA partner. It should have auto-revert enabled.

\* (Failover-group, failover-policy, and auto-revert may be set to other

\* values as desired AFTER the cluster upgrade is complete.)

\* Command to add LIFs:

\* network interface create -vserver <Vserver\_name> -lif <lif\_name>

\* -role data -data-protocol none

\* -home-node <node\_in\_first\_ha\_pair> -home-port <port\_name>

\* -address <IP\_addr> -netmask-length <bits> -auto-revert true

\* Command to add routes:

\* network routing-groups route create -vserver <Vserver\_name>

\* Commands to manage failover groups:

\* network interface failover-groups

\* network interface modify -vserver <Vserver\_name> -lif <lif\_name>

\* -failover-group <group\_name>

\* Command to modify a LIF's failover policy:

\* network interface modify -vserver <Vserver\_name> -lif <lif\_name>

\* -failover-policy <policy>

\* Commands to modify a LIF's home node:

\* network interface modify -vserver <Vserver\_name> -lif <lif\_name>

\* -home-node <node\_name> -home-port <port\_name>;

\* network interface revert -vserver <Vserver\_name> -lif <lif\_name>

\* Command to modify a LIF's auto-revert settings:

\* network interface modify -vserver <Vserver\_name> -lif <lif\_name> -auto-revert true

\*

\* Other corrective actions may include:

\* - Remove any decommissioned external servers from the Vserver configuration.

\* Commands to show/modify/delete server configurations

\* are in directories:

\* vserver services dns

\* vserver services nis-domain

\* vserver services kerberos-realm

\* vserver services ldap

\* vserver cifs domain

\* vserver fpolicy policy external-engine

\* vserver iscsi isns

\* - Restore any LIFs that are administratively down.

\* Command to determine if any LIFs are down:

\* network interface show -role data -status-admin down

\* Command to restore down LIFs:

\* network interface modify -vserver <Vserver\_name> -lif <lif\_name>

\* -status-admin up

\* - Restore any LIFs that are operationally down.

\* Command to determine if any LIFs are down:

\* network interface show -role data -status-oper down

\* Operationally down LIFs are generally caused by infrastructure issues.

\*

\* For more information, see the "Clustered Data ONTAP 8.3 Upgrade and

\* Revert/Downgrade Guide".

Note:Running this script multiple times may be required if multiple issues are found. Keep running the script and making changes until the script passes

### Run The exports-checker Script

The script checks DNS in export rules and whether or not they will still be resolved. You should check they will be resolved correctly for any that are flagged by the script.

**Example**

orf-lab2552-01% sudo vcontext -v 4294967295 ./exports-checker ./exports-checker

exports-checker script begin

NFS export policy in Vserver "silab-oracle-e01" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "silab-oracle-e02" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "silab-mysql-e01" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "silab-mysql-e02" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "silab-esxi-01" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "silab-oracle-e03" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "silab-oracle-e04" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "ar-wfatest-0005" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "TestSVM" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "TestSVM2" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

NFS export policy in Vserver "sioracle-e0006" has rules containing hostnames or aliases that might be resolved using the DNS configured against the admin Vserver. Ensure these hosts are configured in the external DNS of the data Vserver or locally against the data Vserver.

Warnings seen during the execution. Refer to the KB article https://kb.netapp.com/support/index?page=content&id=1015497 before upgrading to this image.

exports-checker script end: Elapsed time 1 secs

### Update Bypassing Checks

**Only do this once you are sure you have checked everything.**

You will need to run the “image update” command with the “-ignore-compatibility” parameter at the “**diag**” privilege level on the first node you update.

### Continue With the Upgrade Document