Product Bulletin 93

Product	All released StorNext® versions
Summary	The fix for BASH CVE-2014-6271 and CVE-2014-7169 (aka Shellshock) may cause compatibility issues with StorNext Perl scripts that could result in an inability to run StorNext features and commands.
Date	November 2014

Problem

The fix for the BASH CVE-2014-6271 and CVE-2014-7169 (aka Shellshock) may cause compatibility issues with StorNext:

- User data is safe from corruption, and can continue to be accessed.
- However, StorNext maintenance operations like snbackup can be impacted, impacting ability to recover from a disaster.

Specifically, the Shellshock fix changes the format of the output of exported environment functions in a way that may be incompatible with StorNext Perl scripts, causing unexpected program termination or scripts to fail to initialize StorNext environment variables.

Quantum recommends the one-time workaround given below. Refer to Workaround on page 3.

For more information, contact the Quantum Technical Assistance Center and reference CR 51345.

Symptoms

This section provides the following information:

6-00960-138 Rev A, November 2014, Product of USA.

Determining Bash Shellshock Exposure

Complete the following task to determine if the applicable system is exposed to the Bash Shellshock.

1 On the StorNext MDC, as the root user, run the following commands to see if the system has the fix for Shellshock, potentially creating exposure to StorNext CR31345:

```
myfunction() { : ; }
export -f myfunction
env | grep BASH_FUNC_myfunction
```

Caution: If there is no output, then the system is still likely exposed to the Bash Shellshock vulnerability.

The output will look like the following if the Shellshock fix has been applied.
`BASH_FUNC_myfunction()=() {  :`

The following process will demonstrate if the system is exposed to CR 31345.

2 After sourcing the product profile, the **`FS_HOME variable`** will be set to **`/usr/adic/TSM`**. Start by exporting this variable with the text **`EXPOSED`** to verify that this variable is overwritten later:

```
export FS_HOME=EXPOSED
echo $FS_HOME
```

EXPOSED

3 Run the following Perl script to determine if the product profile is being sourced correctly in Perl:

```
/usr/adic/perl/bin/perl -e '
use Alib;
SourceShl("/usr/adic/.profile");
print "FS_HOME=$ENV{FS_HOME}\n";'
```

Caution: If the system is exposed to CR 51345 it will display: `FS_HOME=EXPOSED`

If the system is not exposed it will display: `FS_HOME=/usr/adic/TSM`

Running the above Perl script does not impact the environment of the original shell. After running the script, `FS_HOME` will still be set to `EXPOSED`.

4 Source the product profile again to reset the environment variables for the current shell:

```
. /usr/adic/.profile
```

Other Symptoms a User Might Encounter

The following are additional symptoms that a user might encounter if the applicable system is exposed to the Bash Shellshock.

- StorNext installs or upgrades may fail when running **`install.stornext`** and may produce the following message:

  ```
  Undefined subroutine &Alib::BASH_FUNC_module called at
  (eval 29) line 2.
  ```

- **`/usr/adic/util/snycha.pl`** may produce the error:

  ```
  LINKDIR missing from environment!

  syncha.pl aborted.
  ```

- **`/usr/adic/TSM/exec/snbackup`** may produce the error:

  ```
  Error: Run environment is not set up correctly.  Setup run
  environment by sourcing either the/usr/adic/.profile or /
  usr/adic/.cshrc
  ```

Solution

This issue will be addressed in a future StorNext release. Until then, Quantum recommends the one-time workaround below.

Workaround

The workaround requires three easy steps, done with **`root`** privileges on the StorNext MDC node(s). The steps are as follows:

- Create a **`/usr/adic/bash/.profile`** script.
- Restart StorNext services.
- Verify successful deployment.

If the MDC has two nodes, perform these steps once on each node.

Create .profile

A workaround for this exists by creating a **`.profile`** script that removes exported functions.

The **`.profile`** script needs to be installed into a directory in **`/usr/adic/bash`**.

The following commands will generate the necessary **.profile** script to remove the exported functions from the environment:

```
mkdir -p /usr/adic/bash
cat > /usr/adic/bash/.profile <<'EOF'
set +a
eval `env | sed '/^BASH_FUNC_/!d;s/=.*//;
   s/^BASH_FUNC_//;
   s/()$//;
   s/\(.*\)/export -fn \1;/'`
EOF
```

Restart

StorNext services may need to be restarted once the **.profile** script has been created. Complete the following:

```
service stornext_web restart
service cvfs stop
service snhamgr stop
service snhamgr start
service cvfs start
```

Verify

To verify that the workaround has been successfully applied, create an exported function in the environment and display it with the **env** command.

```
myfunction() { : ; }
export -f myfunction
env | grep BASH_FUNC
```

The output should look like the following:

```
BASH_FUNC_myfunction()=() {  :
```

Then source the **/usr/adic/.profile** and verify that the function has been removed from the environment.

```
. /usr/adic/.profile
env | grep BASH_FUNC
```

If the **.profile** has been installed successfully, nothing will be shown.

Note: If the MDC has two nodes, ensure you perform the above steps once on the other node.

Conclusion

By adding the **.profile** script on the MDC node(s) and restarting, the MDC will pick up the workaround every time StorNext restarts, protecting from problems caused by the Shellshock fix.

For more information about this issue, contact the Quantum Technical Assistance Center and reference CR 51345.

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Contacting Quantum

More information about StorNext is available on the Quantum Service and Support website at www.quantum.com/ServiceandSupport. The Quantum Service and Support website contains a collection of information, including answers to frequently asked questions (FAQs). You can also access software, firmware, and drivers through this site.

For further assistance, contact the Quantum Technical Assistance Center:

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