Compiling a Module on Debian with Linux Kernel 2.6.29 and Higher

Symptom

Debian, Suse, and other distrbutions with recent 2.6.29 and higher kernels,
package their kernel headers in a new architecture-specific manner,
which breaks compatibility with earlier established methods of building modules for kernels.

Prior to CDP 4, attempting to build kernel modules on these linux distributions can prove unsuccessful.

This is the excerpted output from one attempt. In our example here, we use r1soft-cki, but this applies for r1soft-setup in CDP as well.

```
root@box~# /usr/bin/r1soft-cki
Checking for binary module
..
No binary module found
Gathering kernel information
Gathering kernel information complete.
Creating kernel headers package
Checking '/usr/src/linux-headers-2.6.30-1-common' for kernel headers
Found headers in '/usr/src/linux-headers-2.6.30-1-common'
Compressing...
uploading kernel package 100% 3863KB 3.8MB/s 00:01
Starting module build...
.....gathering required information...
sending request for kernel module...
kernel module installer failed. (0):
chroot chroot make
make[1]: Entering directory `/'
~~~~~~
make: Entering an unknown directory
make: *** /usr/src/linux-headers-2.6.30-1-common: No such file or directory. Stop.
make: Leaving an unknown directory
make[4]: *** [all] Error 2
~~~~~~
```

Cause

This issue is known to affect Debian, Suse, and other distros using separate architecture-specific module directories in their header packages.
Thanks to Chris at Interspire.com for working closely with us to discover a resolution.

The Debian developers have removed their common/architecture specific symlinks for the kernel headers in 2.6.29 and higher,

and in the process, have broken a whole heap of kernel module building, including the R1Soft CDPAgent module
(refer to here: http://bugs.debian.org/cgi-bin/bugrepaort.cgi?bug=521515)

Basically, there are now two kernel module directories, both of which contain necessary files:

drwxr-xr-x 4 root root 4096 2010-01-20 05:43 linux-headers-2.6.32-trunk-amd64
drwxr-xr-x 4 root root 4096 2010-01-20 05:47 linux-headers-2.6.32-trunk-common

Resolution

Copying the contents of these two directories into a temporary directory, with the proper makefile chosen,
will allow the r1soft-cki process to compile a module successfully.

```
cd /usr/src/
rsync -avz linux-headers-2.6.32-3-amd64/ /usr/src/r1build/
rsync -avz linux-headers-2.6.32-3-common/ /usr/src/r1build/
```

Now, point the r1soft-cki utility to use your temporary directory, with the following flags added to the command.

CDP2

```
# /usr/bin/r1soft-cki --get-module --kernel-dir /usr/src/r1build
```

CDP3

```
# /usr/bin/r1soft-setup --get-module --kernel-dir /usr/src/r1build
```

After a successful build, you can delete the temporary directory, start the agent, and enjoy Continuous Data Protection!

```
rm -r /usr/src/r1build
buagentctl start
```

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