Exporting kernel headers for use by userspace

The "make headers_install" command exports the kernel's header files in a form suitable for use by userspace programs.

The linux kernel's exported header files describe the API for user space programs attempting to use kernel services. These kernel header files are used by the system's C library (such as glibc or uClibc) to define available system calls, as well as constants and structures to be used with these system calls. The C library's header files include the kernel header files from the "linux" subdirectory. The system's libc headers are usually installed at the default location /usr/include and the kernel headers in subdirectories under that (most notably /usr/include/linux and /usr/include/asm).

Kernel headers are backwards compatible, but not forwards compatible. This means that a program built against a C library using older kernel headers should run on a newer kernel (although it may not have access to new features), but a program built against newer kernel headers may not work on an older kernel.

The "make headers_install" command can be run in the top level directory of the kernel source code (or using a standard out-of-tree build). It takes two optional arguments:

```
make headers_install ARCH=i386 INSTALL_HDR_PATH=/usr/include
```

ARCH indicates which architecture to produce headers for, and defaults to the current architecture. The linux/asm directory of the exported kernel headers is platform-specific, to see a complete list of supported architectures use the command:

```
ls -d include/asm-* | sed 's/.*-//'
```

INSTALL_HDR_PATH indicates where to install the headers. It defaults to "./usr/include".

The command "make headers_install_all" exports headers for all architectures simultaneously. (This is mostly of interest to distribution maintainers, who create an architecture-independent tarball from the resulting include directory.) Remember to provide the appropriate linux/asm directory via "mv" or "ln -s" before building a C library with headers exported this way.

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