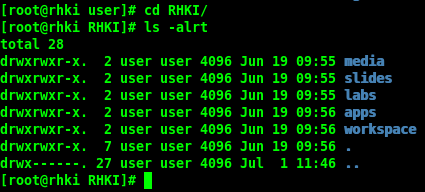


**Development Setup and Exploitation**

***Objective: Setup your workstation for Linux Kernel Development and get familiar with Eclipse.***



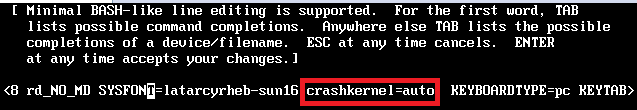
1. Login into your workstation using the credentials: **gcsfl**:**password** (the sudo account has the same password).
2. Open a terminal and navigate to the LKI directory in your home folder.
3. This directory contains the files, media, and laboratory exercises you will be using for this course.
4. Change to the media directory.
5. The binaries for this distribution of CentOS are stored in these folders.
6. Install the following RPM packages to get your system ready for kernel development:

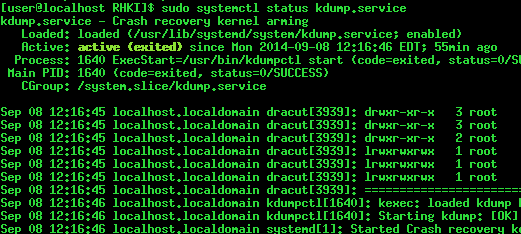
* **sudo yum groupinstall "Development Tools"**
* **sudo yum install kernel-devel kernel-headers**

1. Install KDump (Kernel crash dump) and trace utilities.

* **yum install kexec-tools system-config-kdump crash crash-gcore-command crash-trace-command**

1. Reboot to get Kdump running. Verify installation in Grub boot menu by editing boot command line. Post boot-up you can also verify everything is working properly by checking the status of the kdump service.

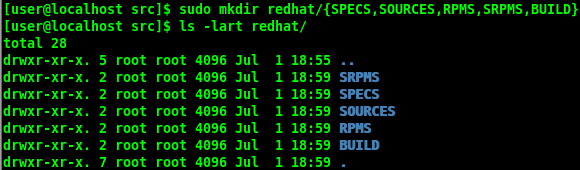




1. Prepare the Kernel source build directory.

Note: For this course the path is /home/student/rpmbuild.

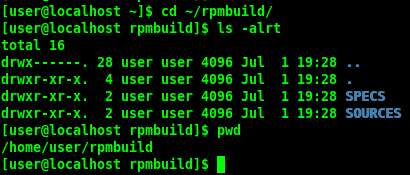
* cd /student/src
* sudo mkdir redhat
* sudo mkdir redhat/{SPECS,SOURCES,RPMS,SRPMS,BUILD}



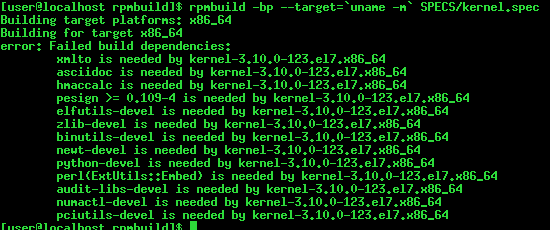
1. To build the CentOS kernel we will need the source code from the “Source” DVD ISO. Mount the ISO and install the kernel source RPM. (You can safely ignore the warnings).

The source kernel source tree will be expanded in ”/home/student/rpmbuild”.

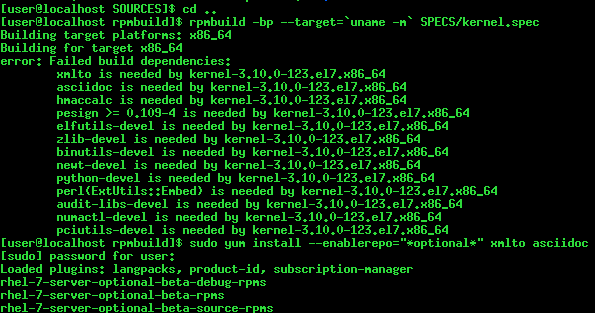
* cd ~/rpmbuild

****

As of CentOS 7 we also need to add the following RPMs required to build the Kernel:



Note: Some packages might be in the optional repos.

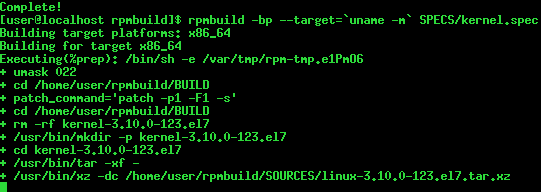


Before we can configure it (in the next lab) we need to prepare the source.

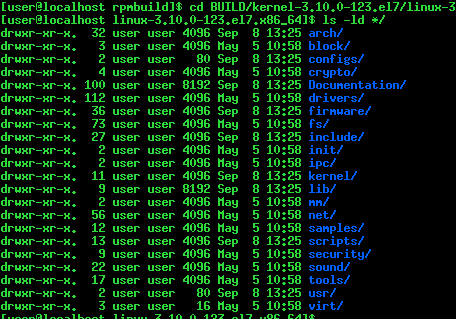
* rpmbuild -bp --target=`uname -m` SPECS/kernel.spec

“-bp” means build the patched kernel source files. They will be placed under “/BUILD” directory.

Note: If you are planning on building a custom kernel you must configure the kernel.spec file. We will show you how to do this in Lab 2.



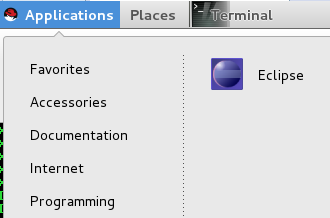
Navigate to “/home/student/rpmbuild/BUILD/kernel-3.10.0-123.el7/linux-3.10.0-123.el7.x86\_64/” and list the directories to view the kernel directory source tree.



11. Finally, we will be using Eclipse as the IDE for this course. To install it:

* sudo yum install eclipse-cdt

12. It is located under Applications, Programming:



13. We will configure Eclipse in Lab 3 (Building our First module) for Kernel compilation.

14. Proceed to Lab 2 to configure and compile the CentOS Kernel.