

## KGDB Quick Start

### 1. Software setup and applying the kgdb patch

1. Downloaded Linux kernel source : [linux-2.6.15.5.tar.bz2](#)
2. Downloaded the Kgdb patch : [linux-2.6.15.5-kgdb-2.4.tar.bz2](#)
3. Unzip the kernel sources
 

```
cd ${BASE_DIR}
tar -jxvf linux-2.6.15.5.tar.bz2
```
4. cd `${BASE_DIR}/linux-2.6.15.5`
5. Unzip the kgdb patch
 

```
tar -jxvf linux-2.6.15.5-kgdb-2.4.tar.bz2
```

Make sure that you are in the `${BASE_DIR}/linux-2.6.15.5` directory and then apply Kgdb patches :

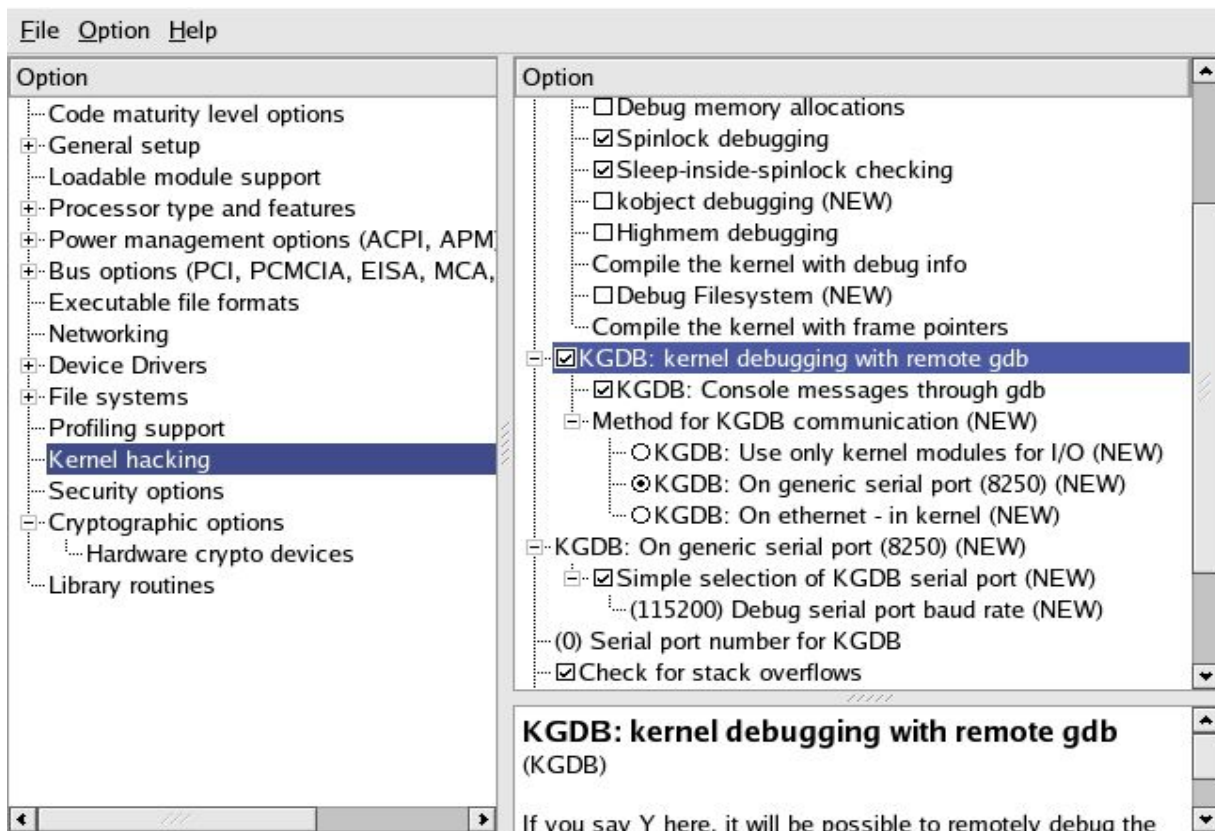
```
patch -p1 < ${BASE_DIR}/linux-2.6.15.5-kgdb-2.4/core-lite.patch
.....
patch -p1 < ${BASE_DIR}/linux-2.6.15.5-kgdb-2.4/i386.patch
```

### 2. Compiling the kernel on the development machine

1. In the `${BASE_DIR}/linux-2.6.15.5/Makefile`, set the `EXTRAVERSION = -kgdb`
2. make xconfig or make oldconfig
 

Select the options appropriate for the target machine Hardware.

Select the options pertaining to kgdb under "Kernel hacking" .



3. make bzImage
4. Transfer the built kernel to the Target machine from the Development machine .  
Copy the Kernel image from `${BASE_DIR}/linux-2.6.15.5/arch/i386/boot/bzImage` to the target machine as `/boot/vmlinuz-2.6.15.5-kgdb`  
Copy the Map file from `${BASE_DIR}/linux-2.6.15.5/System.map` to the target machine as `/boot/System.map-2.6.15.5-kgdb`  
Also create links,  

```
ln -s /boot/vmlinuz-2.6.15.5-kgdb /boot/vmlinuz
ln -s /boot/System.map-2.6.15.5-kgdb /boot/System.map
```
5. Edit the `/boot/grub/grub.conf` file in the target machine to have the kgdb enabled kernel entry.  

```
title Linux-2.6.15.5-kgdb
root (hd0,0)
kernel /boot/vmlinuz-2.6.15.5-kgdb ro root=/dev/hda1 kgdbwait
```

### 3. Starting the debug session

1. After booting the target machine will wait for the host development machine to connect, by displaying the message :-  
*Waiting for connection from remote gdb...*
2. `cd ${BASE_DIR}/linux-2.6.15.5`
3. For setting a debug session with baud rate of 115200 on `/dev/ttyS0` , run as "root" user:-  

```
<root#> gdb ./vmlinux
GNU gdb Red Hat Linux (6.0post-0.20040223.17rh)
Copyright 2004 Free Software Foundation, Inc.
GDB is free software, covered by the GNU General Public License, and you are
welcome to change it and/or distribute copies of it under certain conditions.
Type "show copying" to see the conditions.
There is absolutely no warranty for GDB. Type "show warranty" for details.
This GDB was configured as "i386-redhat-linux-gnu"...Using host libthread_db library
"/lib/tls/libthread_db.so.1".
(gdb) set remotebaud 115200
(gdb) target remote /dev/ttyS0
Remote debugging using /dev/ttyS0
breakpoint () at kernel/kgdb.c:1212
1212      atomic_set(&kgdb_setting_breakpoint, 0);
warning: shared library handler failed to enable breakpoint
(gdb)
```
4. For further commands refer <http://kgdb.linsyssoft.com/tocdebug.htm>

### 4. Using kgdb ethernet interface

1. Add following line in the grub entry :  

```
kgdboe=@10.0.0.6/,@10.0.0.3/ (that's kgdboe=@LOCAL-IP/,@REMOTE-IP/)
```

  
# Sample `grub.conf` which will by default boot the kgdb enabled kernel  

```
title Linux-2.6.15.5-kgdb(eth)
root (hd0,0)
kernel /boot/vmlinuz-2.6.15.5-kgdb ro root=/dev/hda1 kgdboe=@10.0.0.6/,@10.0.0.3/
console=ttyS0,115200
```
2. Then for starting the debug session give following command on gdb.  

```
(gdb) ./vmlinux
(gdb) target remote udp:HOSTNAME:6443
```
3. For further commands refer <http://kgdb.linsyssoft.com/tocdebug.htm>

## 5. Useful links and Miscellaneous information

### 1. Useful Links :

<http://kgdb.linsyssoft.com/>

<http://kgdb.linsyssoft.com/downloads/>

### 2. Bug Report :

[kgdb-bugreport@lists.sourceforge.net](mailto:kgdb-bugreport@lists.sourceforge.net)