REDHAT LINUX CERTIFIED PROFESSIONAL

Step by Step guide for redhat Linux Professional

This document will guide you to know about Redhat enterprise Linux and its features. It will guide you to install and configure the Server.

Written by Ankam Ravi Kumar

4/29/2016

ABOUT AUTHOR

My Name is Ankam Ravi Kumar having more than 6years of solid industry experience in infrastructure management / customer support / operations and training domain.

DEEP FUNCTIONAL AND MANAGEMENT KNOWLEDGE ACROSS THE FOLLOWING IT DOMAINS

- *Operating System Management Such has Linux Different Flavors, AIX, Solaris and Windows*
- *Enterprise Server Management*
- *Installing and configuring Blade Servers*
- *Core Storage Management (Overland Storage, EMC, IBM and NetApp)*
- *Database Management (MS SQL, POSTGRESQL and MySQL)*
- *Process Management (ITIL)*
- *Virtualization management (VSphere, VMWARE, KVM, Hyper-V and XEN)*
- *Backup and Recovery Management (Net Vault, Commvault and Symantec Backup Exec)*
- *Application Server Management and Storage Cluster Management*
- *Data Center Management and Hosting Solutions*
- *Server Management*
- *Programming Languages such as PHP and HTML*
- *Scripting Languages Shell, Perl and Python*
- *Asset Management and procurement. Designed, Planned and implemented the Data Center, Server Monitoring and SAN Environments.*

I am Specialized in managing and building the Teams for IT services delivery and Service Support, Training and Operations in both smaller and larger companies. Rich experience and strong exposure in IT Infrastructure & Data Center Management.

Implementation of Monitoring solutions for small. medium and enterprise companies, Using Tools Nagios, NagiosXI, Cacti, Solarwinds and OP Manager.

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KEEP IN TOUCH FOR FURTHER QUESTIONS AND CLARIFICATIONS.

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UNIX is the first Operating system in the world, developed by Kem Thompson and Dennis Ritchie in 1969 at Bell Lab by AT&T Company

IBM : AIX

SGI : IRIX

Sun : Solaris

Free software foundation organization, they start a project by name GNU. The main aim of this project is to develop such an operating system that can run on any platform.

In 1991, a student Linuz Torvalds developed a kernel named Linux's kernel plus GNU application called Linux operating system.

Linux is an open source technology.

Different companies that provide Linux in Market are Redhat, SuSe, Scientific, Centos, and Knoppix etc.

Features:

➢ Linux is the fastest Operating system in the world. It runs 2 to 3 times fast than windows OS.
➢ Linux is the much secured OS because there is no any problem of virus.
➢ Linux file format is text format and windows file format is binary format.
➢ Linux is very reliable OS because kernel of Linux is very stable as compare to windows kernel not crashed easily.
➢ Kernel of Linux is very small in size it can be stored in floppy.
➢ Linux uses the x-Window system which is advanced network windowing system. Using this system we can display output of any workstation monitor attached in the network.

Advantages:

➢ Virus Proof
➢ Crash Proof
➢ Economical
➢ Multiuser, Multi-Tasking and Multi processing capacity

Login Modes:

Two modes: 1.Text mode (CLI)   2.Graphical Mode (GUI)

Login to Text mode we have use (Ctrl+Alt+F1…..F6, F8….F12) (Ctrl+Alt+F7) for Graphical Mode

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Windows	Linux
➢ It is a proprietary software everything need to buy	➢ It is an open source software everything is free
➢ Less Secure	➢ More Secure
➢ More costly	➢ Less Cost compare to windows
➢ Chance to get a carpal tunnel syndrome	➢ There is no chance to get carpal tunnel syndrome
➢ Developed by Microsoft corporation	➢ Developed by Linus Torvalds
➢ Options need to select	➢ You can develop anything as per your requirement
➢ Kernel is not editable	➢ Kernel is editable

ARK IT	3. Linux Architecture	Document No.	:	RHEL Professional Guide
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		Web site	:	http://ark-library.blogspot.in
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Linux Architecture:
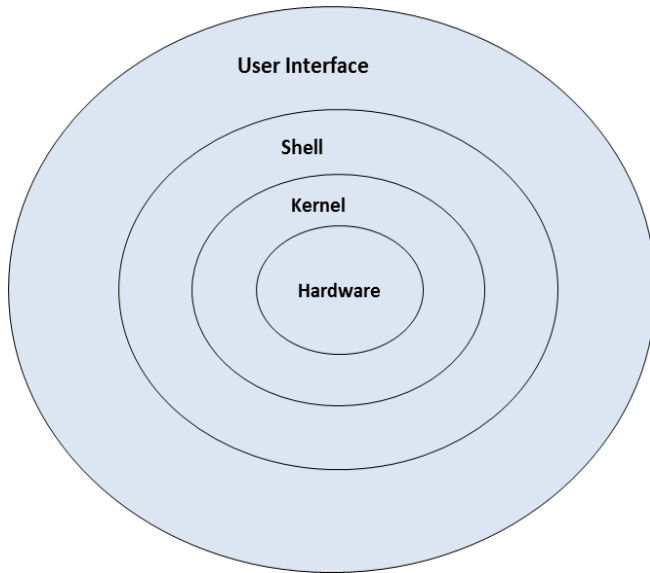
Kernel: It is a program. Kernel is a Core component of operating system, interacts directly with hardware and provides low level services to upper layer components.

Shell: An interface to kernel, hiding complexity of kernel's functions from users. Takes commands from user and executes kernel's functions.

User Interface: In information technology, the user interface (UI) is everything designed into an information device with which a human being may interact. Two types CLI (Command line interface) and GUI (Graphical User Interface).

System Library - System libraries are special functions or programs using which application programs or system utilities accesses Kernel's features. These libraries implements most of the functionalities of the operating system and do not requires kernel module's code access rights.

System Utility - System Utility programs are responsible to do specialized, individual level tasks.

ARK IT	4. Basic & Common Commands	Document No.	:	RHEL Professional Guide
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Before you turn over to the next chapter where you are going to meet a plethora of commands, remember a few things that apply to all UNIX commands.

➢ All UNIX commands must always be entered in small case letters
➢ Between the command name and the options that may be available with the command there must always be a space or a tab, for example, ls –l. Here is the command whereas –l is the option and the two have been separated by space. The option is usually preceded by a minus (-) sign. The option available with a command are often known as swithes.
➢ Two or more options available with command can usually be combined, for example, the command ls –l –a is same as ls –la.
➢ If you make a typing mistake, press backspace to erase characters Don't try back using arrow keys and then attempt deleting using the del key.
➢ To cancel the entire command before you press Enter, press ctrl+c Or del key.

Basic Commands:

$ date   #To see the date of the system.

$ date +%d-%Y-%H-%M #To see particular date format you always use date options

```
[ravi@ARK-IT-Solutions ~]$ date
Tue Jan  6 11:17:39 IST 2015
```

$ cal   #To see the current month calendar.

$ cal 11 2014   #To display the calendar, Month November (11) and year 2014

```
[ravi@ARK-IT-Solutions ~]$ cal
     January 2015
Su Mo Tu We Th Fr Sa
             1  2  3
 4  5  6  7  8  9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31
```
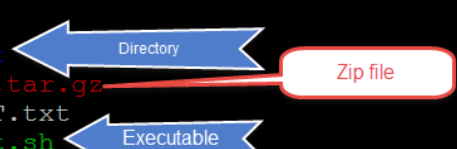
$ clear   #To clear the screen

$ ls –l   #List files, directories with their properties

$ ls   #To list files and directories

$ ls –a   #To list all hidden files and directories

$ ls –d   #To list only directories

```
[ravi@ARK-IT-Solutions ~]$ ls -l
total 12
drwxr-xr-x 2 ravi ravik 4096 Jan  6 11:27 ARK-It          Directory
-rw-r--r-- 1 ravi ravik  126 Jan  6 11:28 arkit.tar.gz     Zip file
-rw-r--r-- 1 ravi ravik    0 Jan  6 11:27 ARK-IT.txt
-rw-r--r-- 1 ravi ravik   17 Jan  6 11:29 script.sh        Executable
```

$ pwd   #Print working directory

```
[ravi@ARK-IT-Solutions ~]$ pwd
/home/ravi
```

$ who am I #To see from which user you have logged in

```
[ravi@ARK-IT-Solutions ~]$ who am i
root      pts/2         2015-01-06 09:58 (192.168.234.1)
```

$ who   #To see all who is logged in yet this point of time from which IP

$ w   #More details about user related info

```
[ravi@ARK-IT-Solutions ~]$ who
ravi      pts/1         2015-01-06 11:43 (192.168.234.1)
root      pts/2         2015-01-06 09:58 (192.168.234.1)
```

$ uptime   #To see the server uptime, boot time, users and load.

```
[ravi@ARK-IT-Solutions ~]$ uptime
 11:45:34 up  1:58,  2 users,  load average: 0.06, 0.01, 0.00
```

$ uname –a #Verify Operating system version, kernel version and architecture

```
[ravi@ARK-IT-Solutions ~]$ uname -a
Linux ARK-IT-Solutions 2.6.18-8.el5 #1 SMP Fri Jan 26 14:15:21 EST 2007 i686 i686 i386 GNU/Linux
```

$ touch <File Name>   #Create an empty file / Multiple empty files yet a time

Options:

$ touch –am   #it will change a file time to current time

$ touch –r file1 –B 30 file2   #it will create two files with 30 seconds time difference

$ cat /dev/null > file   #To empty the data file

$ cat > <File Name>   #Create an single file with text

```
[ravi@ARK-IT-Solutions ARK-It]$ touch ravi kumar
[ravi@ARK-IT-Solutions ARK-It]$ ls
kumar   ravi
```

$ rm –rf <File / Directory Name> #Delete files and directories forcefully

$rmdir <directory>   #Delete directories only

```
[ravi@ARK-IT-Solutions ARK-It]$ ls
kumar   ravi
[ravi@ARK-IT-Solutions ARK-It]$
[ravi@ARK-IT-Solutions ARK-It]$
[ravi@ARK-IT-Solutions ARK-It]$ rm -rf ravi kumar
[ravi@ARK-IT-Solutions ARK-It]$ ls
```

$ mkdir <Directory Name> #Create an empty directory / directories

$ mkdir –p <directory/directory/directory> #to create parent directories

```
[ravi@ARK-IT-Solutions ARK-It]$ mkdir test
[ravi@ARK-IT-Solutions ARK-It]$ ls
test
```

$ cd <Path of the directory>   #Change directory

```
[ravi@ARK-IT-Solutions ~]$ pwd
/home/ravi
[ravi@ARK-IT-Solutions ~]$ cd ARK-It/test
[ravi@ARK-IT-Solutions test]$ pwd
/home/ravi/ARK-It/test
```

$ cat <File Name>   #View content of file

```
[ravi@ARK-IT-Solutions ARK-It]$ cat testfile
this book intention is to help others
```

$ time   #Calculate response time of the activity / command

```
[ravi@ARK-IT-Solutions test]$ time touch ravi

real    0m0.002s
user    0m0.000s
sys     0m0.002s
```

$ hwclock $to see detailed date and time with time zone

```
[root@ARK-IT-Solutions ~]# hwclock
Wed 07 Jan 2015 01:26:56 AM PST  -0.041534 seconds
```

$ cp <Source path> <Destination path> #Copy the files from one path to another path

$cp –Rv <source> <destination>   #copy directories from source to destination

Options:

-R, -r,   #copy directories recursively

-v   #verbose to see progress of copy job

-p   #preserve

-f   #forcefully

-I   #interactive: Ask before overwriting file

```
[ravi@ARK-IT-Solutions ~]$ cp -v ARK-IT.txt testingcopy/
`ARK-IT.txt' -> `testingcopy/ARK-IT.txt'
```

Copying directory must use –R to copy directories

```
[ravi@ARK-IT-Solutions ~]$ cp -v ARK-It/ testingcopy/
cp: omitting directory `ARK-It/'
[ravi@ARK-IT-Solutions ~]$ cp -Rv ARK-It/ testingcopy/
`ARK-It/' -> `testingcopy/ARK-It'
`ARK-It/test' -> `testingcopy/ARK-It/test'
`ARK-It/test/ravi' -> `testingcopy/ARK-It/test/ravi'
`ARK-It/testfile' -> `testingcopy/ARK-It/testfile'
```

$ mv <source> <destination>   #Move files/directories

$ mv <old name> <new name> #Rename the file and directory

```
[ravi@ARK-IT-Solutions ~]$ ls
ARK-It   arkit.tar.gz   ARK-IT.txt   kumar   ravi   script.sh   testingcopy
[ravi@ARK-IT-Solutions ~]$ mv ARK-It ARKIT  Renamed
[ravi@ARK-IT-Solutions ~]$ ls
ARKIT   arkit.tar.gz   ARK-IT.txt   kumar   ravi   script.sh   testingcopy
[ravi@ARK-IT-Solutions ~]$ mv ARKIT/ testingcopy/   Moved the Directory
[ravi@ARK-IT-Solutions ~]$ ls
arkit.tar.gz   ARK-IT.txt   kumar   ravi   script.sh   testingcopy
[ravi@ARK-IT-Solutions ~]$ ls testingcopy/
ARK-It   ARKIT   ARK-IT.txt
```

$ last   #Check who logged in and when logged in duration

```
[ravi@ARK-IT-Solutions ~]$ last
ravi     pts/1        192.168.234.1     Tue Jan  6 11:43    still logged in
root     pts/2        192.168.234.1     Tue Jan  6 09:58 - 11:49  (01:51)
root     pts/1        192.168.234.1     Tue Jan  6 09:56 - 09:58  (00:02)
reboot   system boot  2.6.18-8.el5      Tue Jan  6 09:47           (07:01)
```

$ arch   #to know architecture

```
[ravi@ARK-IT-Solutions ~]$ arch
i686
```

$ reboot / init 6   #Restart server

$poweroff / init 0   #To shut down the server

$ dmesg   #Check boot process logs

```
[ravi@ARK-IT-Solutions ~]$ dmesg
Linux version 2.6.18-8.el5 (brewbuilder@ls20-bc2-14.build.redhat.com)
SMP Fri Jan 26 14:15:21 EST 2007
BIOS-provided physical RAM map:
 BIOS-e820: 0000000000000000 - 000000000009f000 (usable)
 BIOS-e820: 000000000009f000 - 00000000000a0000 (reserved)
 BIOS-e820: 00000000000ca000 - 00000000000cc000 (reserved)
 BIOS-e820: 00000000000dc000 - 0000000000100000 (reserved)
 BIOS-e820: 0000000000100000 - 000000007fee0000 (usable)
 BIOS-e820: 000000007fee0000 - 000000007feff000 (ACPI data)
 BIOS-e820: 000000007feff000 - 000000007ff00000 (ACPI NVS)
 BIOS-e820: 000000007ff00000 - 0000000080000000 (usable)
 BIOS-e820: 00000000e0000000 - 00000000f0000000 (reserved)
 BIOS-e820: 00000000fec00000 - 00000000fec10000 (reserved)
 BIOS-e820: 00000000fee00000 - 00000000fee01000 (reserved)
 BIOS-e820: 00000000fffe0000 - 0000000100000000 (reserved)
1152MB HIGHMEM available.
896MB LOWMEM available.
```

$ nsloookup <Server Address> #check dns resolution

$ dig <server address> #check dns resolution to debug

$ tree <directory>   #it will show the tree of parent directory

$ stat <file name>   #detailed information about file

```
[root@ARK-IT-Solutions ~]# stat config.php
  File: `config.php'
  Size: 126            Blocks: 8          IO Block: 4096   regular file
Device: 802h/2050d     Inode: 1498498     Links: 1
Access: (0644/-rw-r--r--)  Uid: (    0/    root)   Gid: (    0/    root)
Access: 2014-11-09 08:50:51.000000000 -0800
Modify: 2014-11-09 08:03:48.000000000 -0800
Change: 2014-11-09 08:50:40.000000000 -0800
```

$ wc   #word count, character count and line count

Options:

-l   #Check line count

-c   #Character Count

-w   #Word Count

```
[root@localhost admin]# cat test.txt
ankam ravi kumar
this book is about Redhat enterprise linux step by step practice
[root@localhost admin]# wc test.txt
 2 14 82 test.txt
[root@localhost admin]# wc -l test.txt
2 test.txt
[root@localhost admin]# wc -w test.txt
14 test.txt
[root@localhost admin]# wc -c test.txt
82 test.txt
```

<u>Help relate commands:</u>

$ whatis <Command Name> #It will display single line description about command

```
[root@ARK-IT-Solutions ~]# whatis cal
cal                      (1)  - displays a calendar
cal                      (1p)  - print a calendar
```

$ whereis <Command Name> #It will provide you path of the command

```
[root@ARK-IT-Solutions ~]# whereis cal
cal: /usr/bin/Cal /usr/share/man/man1/cal.1.gz /usr/share/man/man1p/cal.1p.gz
```

$ man <command>   #manual page of the command

$ info <command>   #information about the command

$ <command> --help   #it will gives a command options and there usage

$ apropos <keyword>   #to know about the command use

```
[root@ARK-IT-Solutions ~]# apropos ypwhich
ypwhich                  (1)  - return name of NIS server or map master
```

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ARK IT	**5. OS Installation**	Author	:	Ankam Ravi Kumar
		Web site	:	http://ark-library.blogspot.in/
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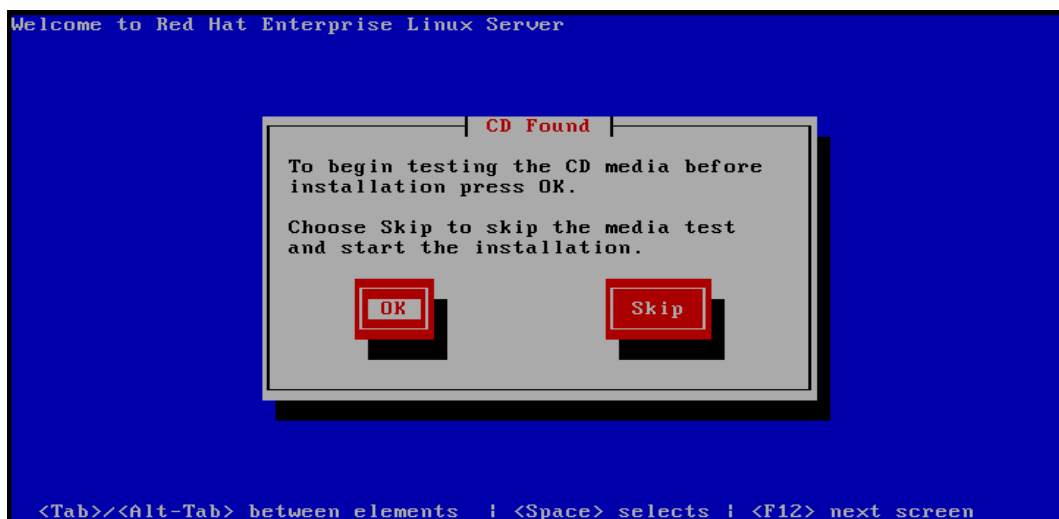## Installation methods of Linux operating system as follows

Boot from CD/DVD
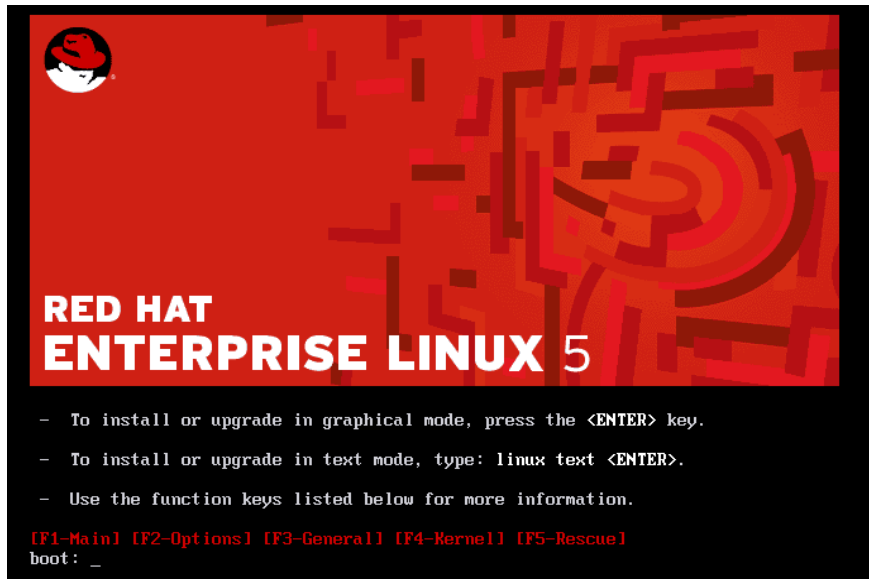
After booting from RHEL bootable CD/DVD, We will get above screen

- ➢ If you want to install OS using GUI then hit ENTER key
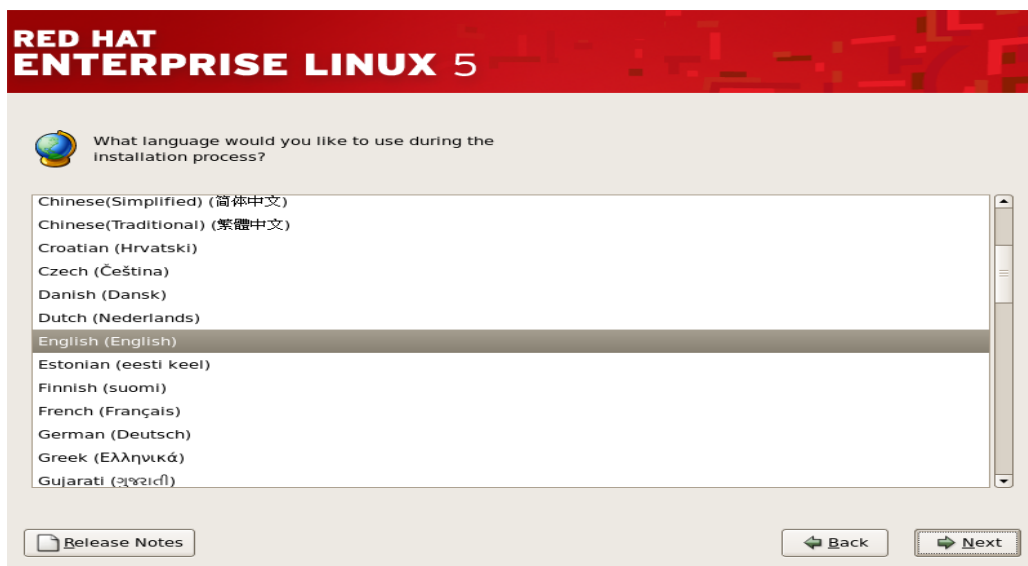- ➢ If you want to install OS using TEXT mode (CLI) then type linux test hit ENTER key

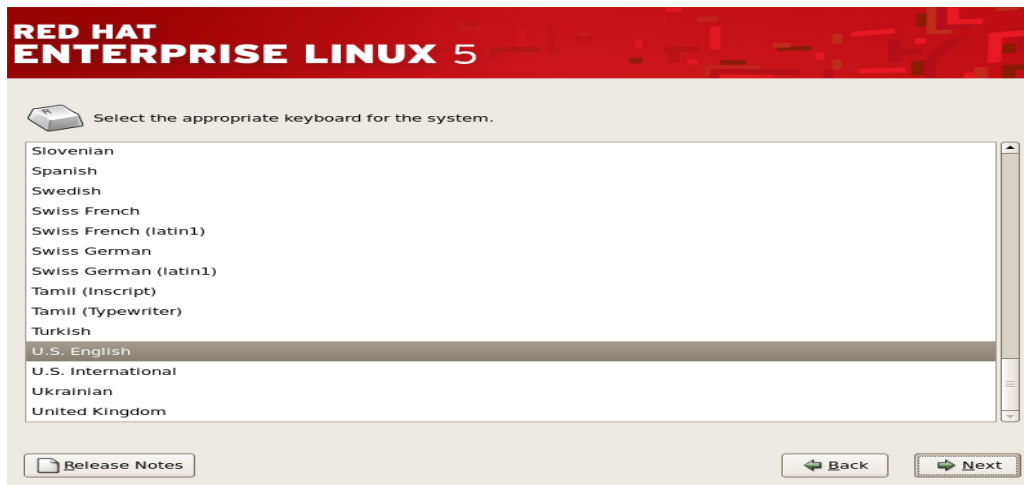Currently we are installing Operating system using GUI mode.

If you want to verify you installation media (OS CD/DVD) press **OK** (It will take long time to verify). Press **SKIP** to jump next screen.
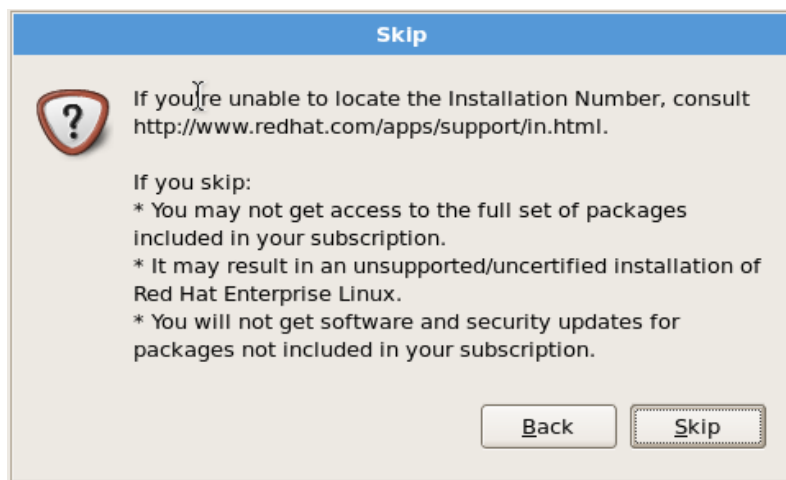

Click **NEXT**

Select the Language then click **NEXT**

Select Keyboard Language then click **NEXT**

If you have License key enter or else select SKIP click on **OK**

It will give you a WARNNING since you don't have a key click on **SKIP**

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