

# Oracle R Enterprise Installation and Usage



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## Introduction

This document outlines how to install Oracle R Enterprise (version 1.1) on a 64-bit Linux machine.

This document includes instructions detailing how to:

- Install Oracle Linux 6 Update 2 Operating System on the x86-64 Server
- Install Oracle11g Release 2 (version 11.2.0.3) on the x86-64 Server
- Install R (version 2.13.2) on a Windows XP Client and the Server
- Install Oracle R Enterprise (version 1.1) on the Server
- Use Oracle R Enterprise (version 1.1)

Some of the instructions included in this document come from the various documents included with Oracle R Enterprise, Oracle11g, R, etc. I created this document with the screenshots I captured along the way and indicate where problems occur and how I fixed them. Much of this document makes use of the excellent instructions found in Oracle's *Oracle R Enterprise User's Guide Release 11.2 for Linux and Microsoft Windows* (E26499-04/March 2012). Please use my document as an FYI along with E26499-04 during your installation process.

Please make sure to follow these instructions exactly, even to the point of using the stated software version numbers! Oracle R Enterprise is only certified with R version 2.13.2!

Also, be aware that Oracle R Enterprise will **ONLY** run on a 64-bit server machine running either Oracle Linux or Red Hat Linux. It will **not** run on a 32-bit server machine (although the client software can be run on a 32-bit machine). Since I have only one 64-bit machine available to me, I purchased a new hard drive and installed Oracle Linux 6 Release 2 on it as well as Oracle 11g, R 2.13.2 and Oracle R Enterprise. For that reason, this document also contains instructions and screenshots for the installation of Oracle Linux 6 Release 2. (I opted not to attempt a virtual machine installation due to the paltry amount of RAM available on my machine.)

Also, it is best to attempt these instructions on a machine that is **not** being used for production processing. If you are doing this at home for fun (sad!), then you don't have to worry about it too much. If you are attempting this at work, you probably want to obtain a separate physical machine or virtual machine (VM) to use just in case something goes terribly awry. **YOU HAVE BEEN WARNED!!**

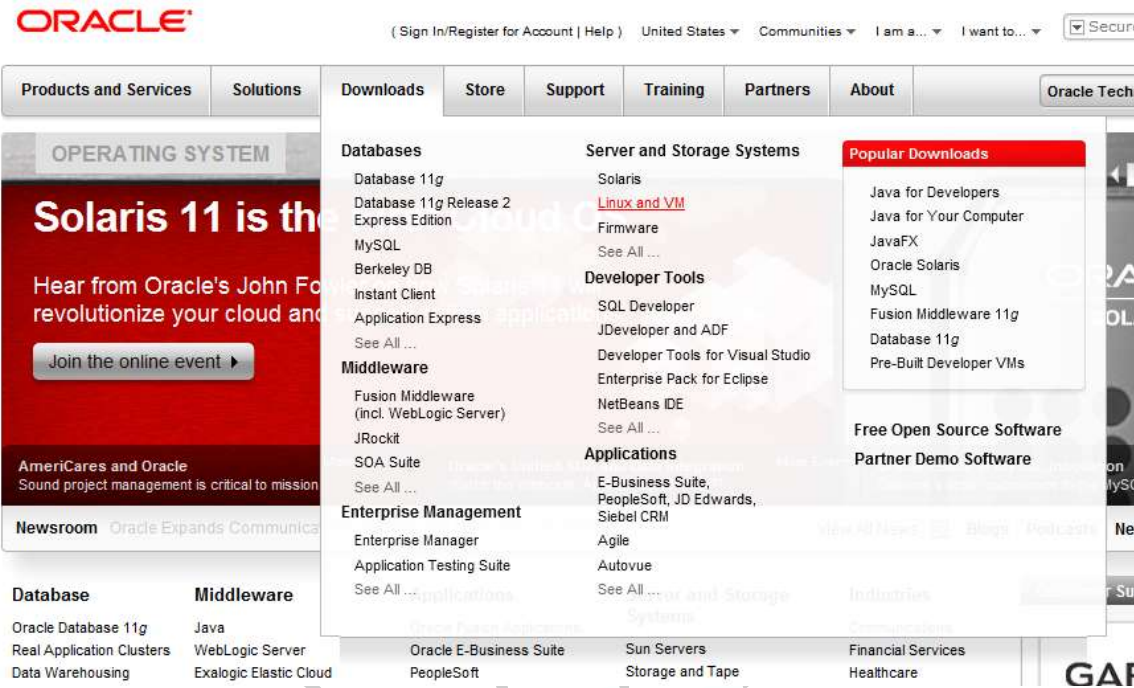
Thanks,  
The Sheepster  
April 18, 2012

## A. Installing Oracle Linux 6 Release 2 on the 64-bit Server

This section outlines how to install Oracle Linux 6 Release 2, a free version of the popular Linux operating system offered by Oracle.

### Pre-Step 1 – Download Oracle Linux 6 Release 2 Operating System

1. Open your browser and navigate to <http://www.oracle.com>.
2. Clicking on the Downloads button brings up the selection list as shown below. Click the on Linux and VM link.



3. You will be asked to sign into the *Oracle Software Delivery Cloud – Oracle Linux and Oracle VM* (as shown below):



### Oracle Software Delivery Cloud - Oracle Linux and Oracle VM

Welcome to the Oracle Software Delivery Cloud. Here you can find downloads for the Oracle Linux Operating System, Oracle VM, and Oracle VM Templates for both Linux and Solaris. If you have questions about Oracle software downloads please refer to the [Frequently Asked Questions](#).

[Sign In / Register](#)

4. Click the Sign In/Register button. If you have credentials, then sign in; otherwise, register with Oracle to access the software.

**Sign In**

Username

[Lost Username?](#)

Password

[Lost Password?](#)

**Sign In**

**Don't have an Oracle account?**  
[Sign Up](#) for a free Oracle Web account

[Need Help?](#)

Powered by Oracle Access Manager 11g

5. Once signed in, you will have to accept both the terms of agreement and the export restrictions by checking the two checkboxes.



## Terms & Restrictions

By accessing the software on this portal, you agree to accept the license terms for each program that you download. The Agreement terms for Oracle Linux, Oracle VM - Server and Oracle VM - Manager are below.

### Agreement Terms

[View printable version](#)


This Agreement includes license terms supporting the products available for download on this portal - Oracle Linux, Oracle VM-Server, Oracle VM-Manager and other Oracle Programs. Please review the terms for the products you will download and/or install today.

Section A: Terms for Oracle Linux  
Section B: Terms for Oracle VM - Server  
Section C: Terms for Oracle VM - Manager  
Section D: Terms for Use of Other Oracle Programs

**YES**, I agree. I acknowledge that I have reviewed and understood the agreement and that  
(i) the terms in Section A - Terms for Oracle Linux govern my use of the Oracle Linux program if I choose to download/install that program;  
(ii) the terms in Section B - Terms for Oracle VM - Server govern my use of the Oracle VM - Server program  
 if I choose to download/install that program and  
(iii) the terms in Section C - Terms for Oracle VM - Manager govern my use of the Oracle VM - Manager program if I choose to download/install that program.  
(iv) the terms in Section D - Terms for use of Other Oracle Programs governs my use of any other Oracle programs if I choose to download/install those programs.

### Export Restrictions

- Click the Continue button located towards the bottom of the page.
- On the Media Pack Search page, select Oracle Linux in the dropdown box to the right of Select a Product Pack. Also, select x86 64 bit from the dropdown box to the right of Platform. Click the Go button to fetch a list of software. As you see below, the latest release of Oracle Linux Release 6 Update 2 Media Pack for x86 64 (64 bit) is automatically highlighted. Click on this link.



### Media Pack Search

Select the Product Pack and Platform and click "Go".

Select a Product Pack

Platform

**Results**

Select	Description	Release	Part Number	Updated	# Parts / Size
<input checked="" type="radio"/>	<a href="#">Oracle Linux Release 6 Update 2 Media Pack for x86_64 (64 bit)</a>	6.2.0.0.0	B65700-01	DEC-21-2011	4 / 8.2G

- On the next page, you will see a four Download buttons, one for each file that you should download. Note that, strictly speaking, only the first file – Oracle Linux Release 6 Update 2 for x86\_64 (64 bit) – is necessary. The remaining three file were not used at all. Click on the Download button for Part Number V29459-01 to download the file to your computer. Download the remaining three files if you are an A+ student. 😊



[Oracle Linux Release 6 Update 2 Media Pack for x86\\_64 \(64 bit\)](#)

**TIP** View the Readme file(s) to help decide which files you need to download.

Print this page with the list of downloadable files. It contains a list of the part numbers and their corresponding description that you may need to reference during the installation process.

Oracle Linux Release 6 Update 2 Media Pack v1 for x86\_64 (64 bit)

Select	Name	Part Number	Size (Bytes)
<input type="button" value="Download"/>	Oracle Linux Release 6 Update 2 for x86_64 (64 Bit)	V29459-01	3.4G
<input type="button" value="Download"/>	Oracle Linux Release 6 Update 2 Boot iso image for x86_64 (64 bit)	V29608-01	195M
<input type="button" value="Download"/>	Oracle Linux Release 6 Update 2 source DVD 1	V29611-01	3.1G
<input type="button" value="Download"/>	Oracle Linux Release 6 Update 2 source DVD 2	V29612-01	1.5G
<b>Total: 4</b>			

## Pre-Step 2 – Burn the ISO Image to DVD

1. Since the file Part Number V29459-01 is an ISO image, you will have to burn it to a DVD using the image-to-disk feature of your disk burning software (such as Nero Burning Software or Toshiba Disc Creator). Below is an example of Toshiba's Disc Creator software:



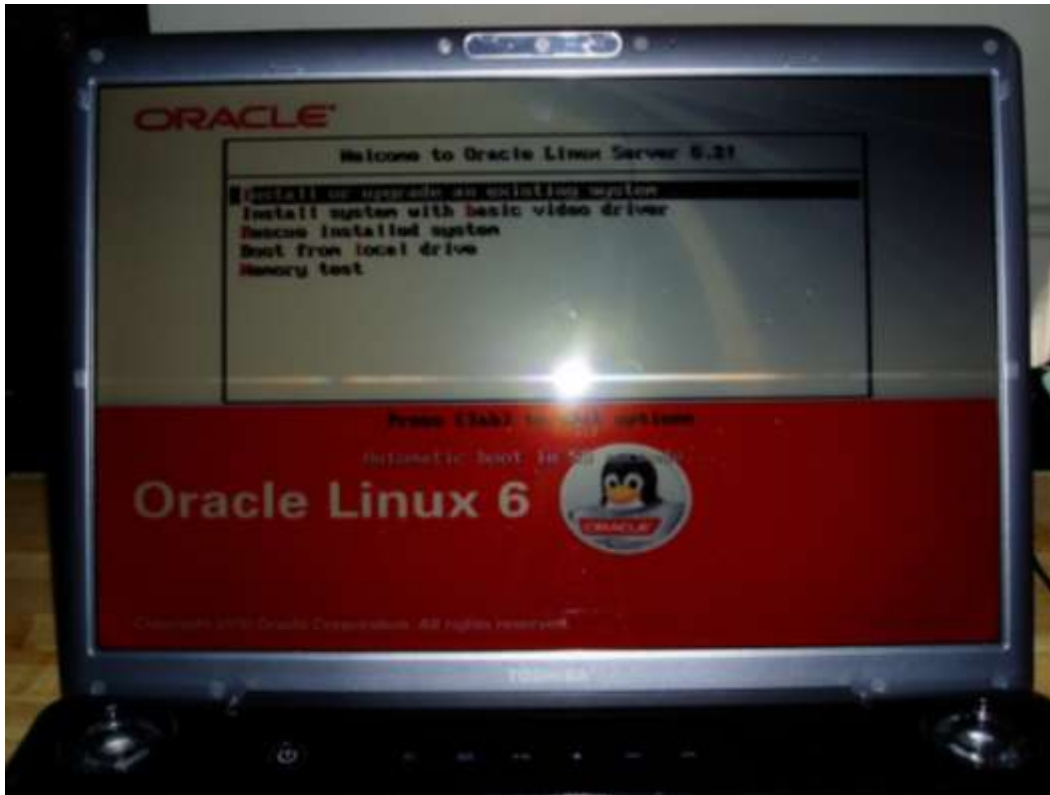
2. Eject the DVD and label it: *Oracle Linux 6 Release 2 for x86-64 (64-bit)*.

## Step 1 – Install Oracle Linux 6 Release 2

We will now outline the steps needed to install Oracle Linux 6 Release 2 on your x86-64 machine. It is this machine that will be the server. Please note that installing this software may wipe out the operating system already on your machine. Either purchase a new hard drive specifically for Oracle Linux 6 Release 2, or accept the possible death of your current operating system and files. I purchased a new hard drive and swapped out my old hard drive. Once I completed all of the steps outlined in this document, I removed the new drive and placed my old drive back in. I then purchased a USB laptop drive enclosure (RocketFish...sweeeet!) and am now able to boot from the USB drive when I need to! (Apologies for the poor quality of the screenshots below, but I had to use my camera to capture my laptop screen.)

1. Place the DVD *Oracle Linux 6 Release 2 for x86-64 (64-bit)* in the DVD drive and re-start your computer.
2. Once the computer boots, you will see the following startup screen. Select `Install` or upgrade an existing system by hitting the `Enter` key.

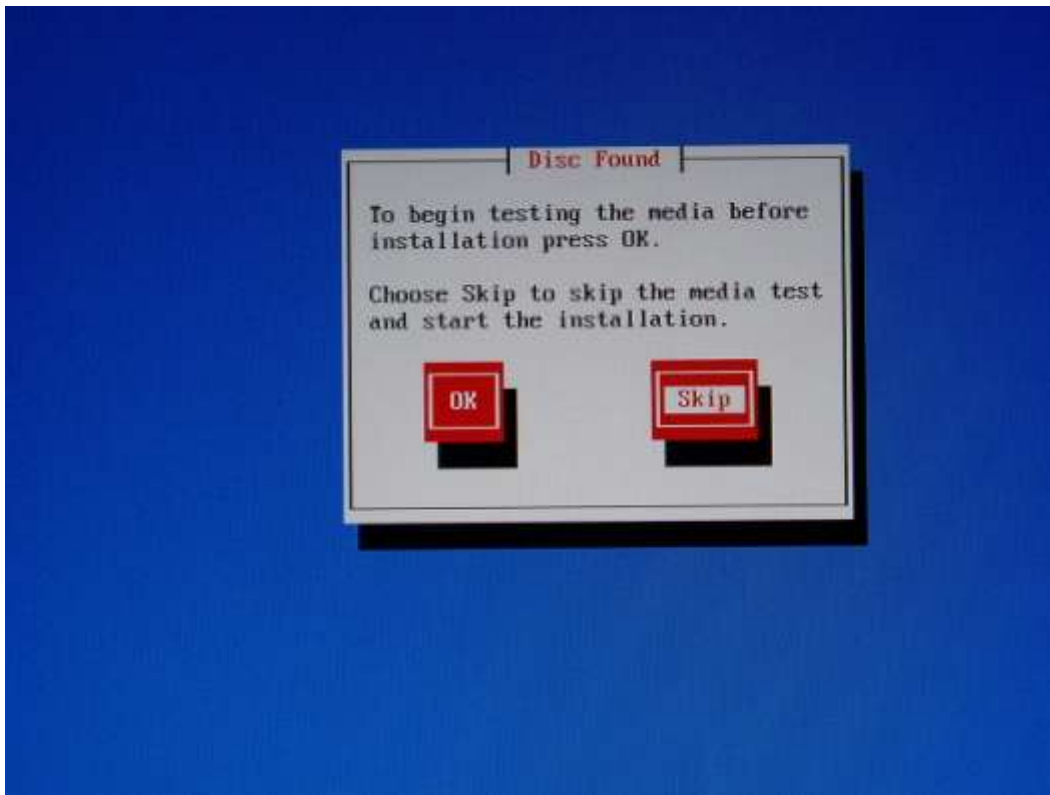




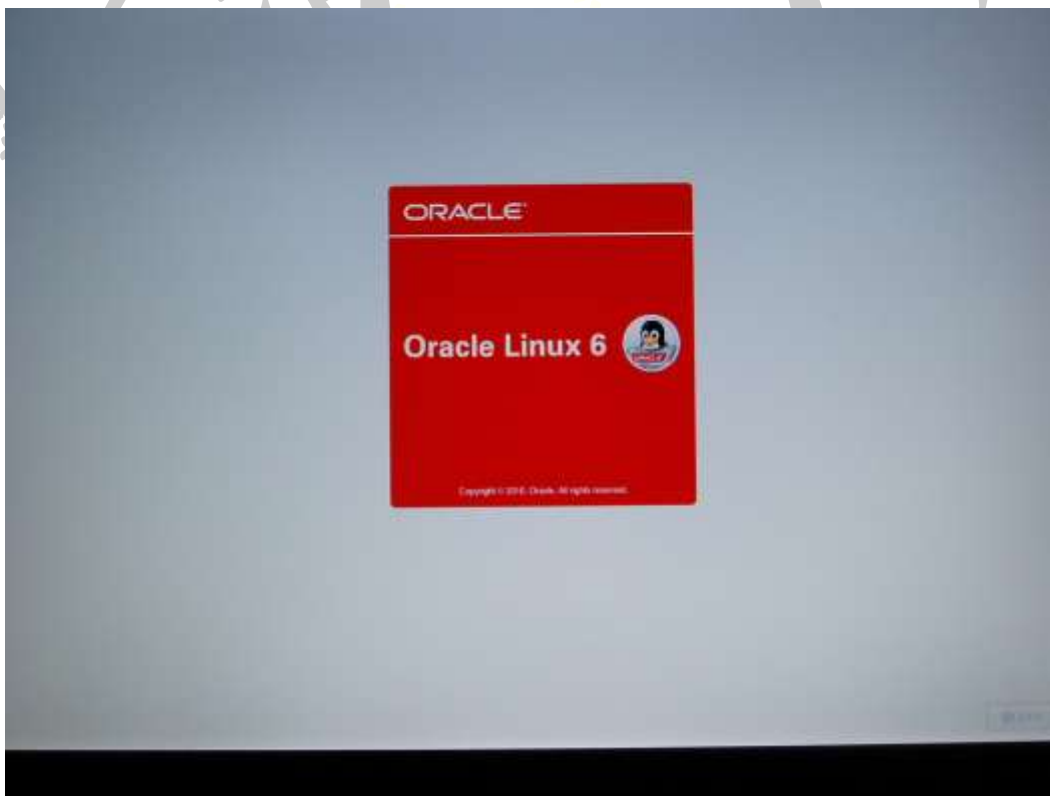
3. A lot of stuff will fly passed on the screen...don't worry about it...it's computer gibberish...



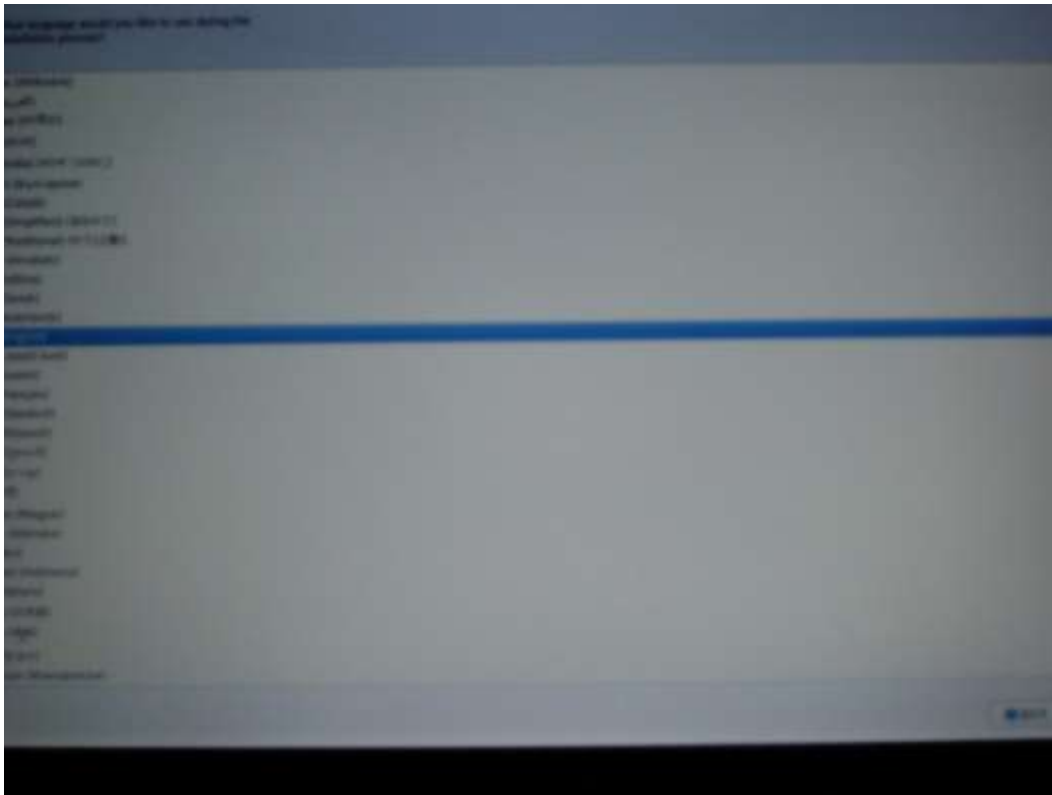
3. Click on skip when asked to do a media test:



4. You will see the following screen...isn't it pretty?



5. The next screen asks you to select your language. I selected English despite the blurry image below. Click Next.



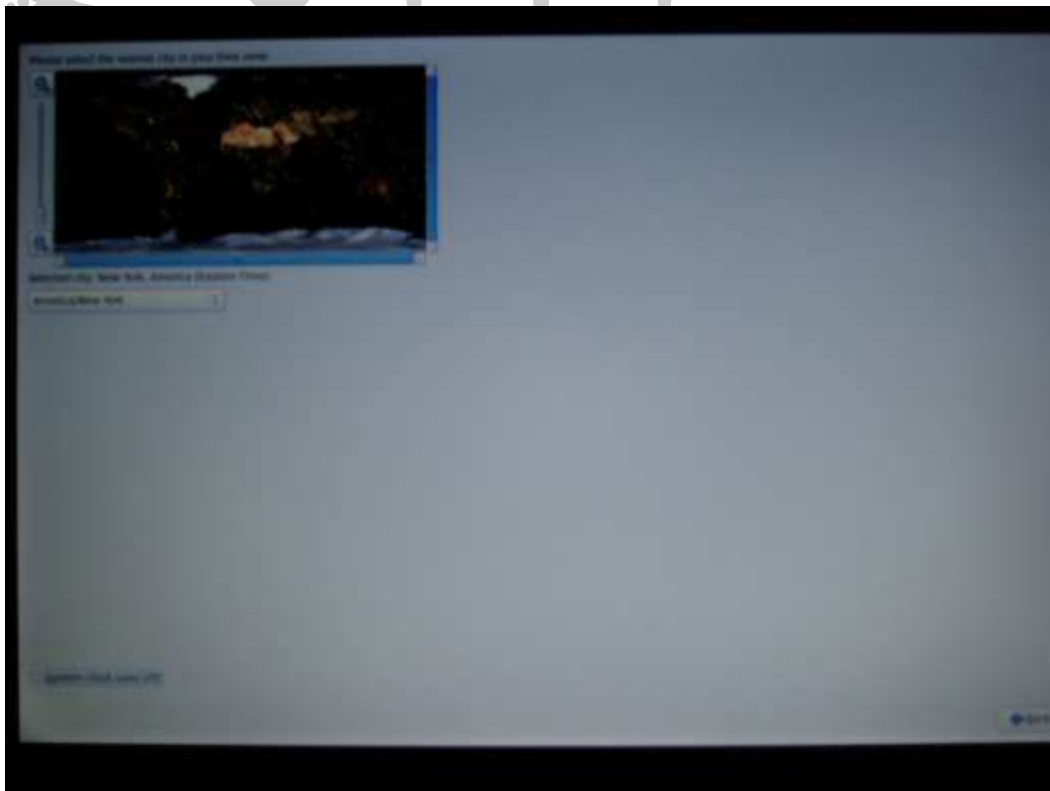
6. The next screen asks you what type of devices your installation will involve. I selected Basic Storage Devices. The other option seems more concerned with storage area networks (SANs). Click Next.



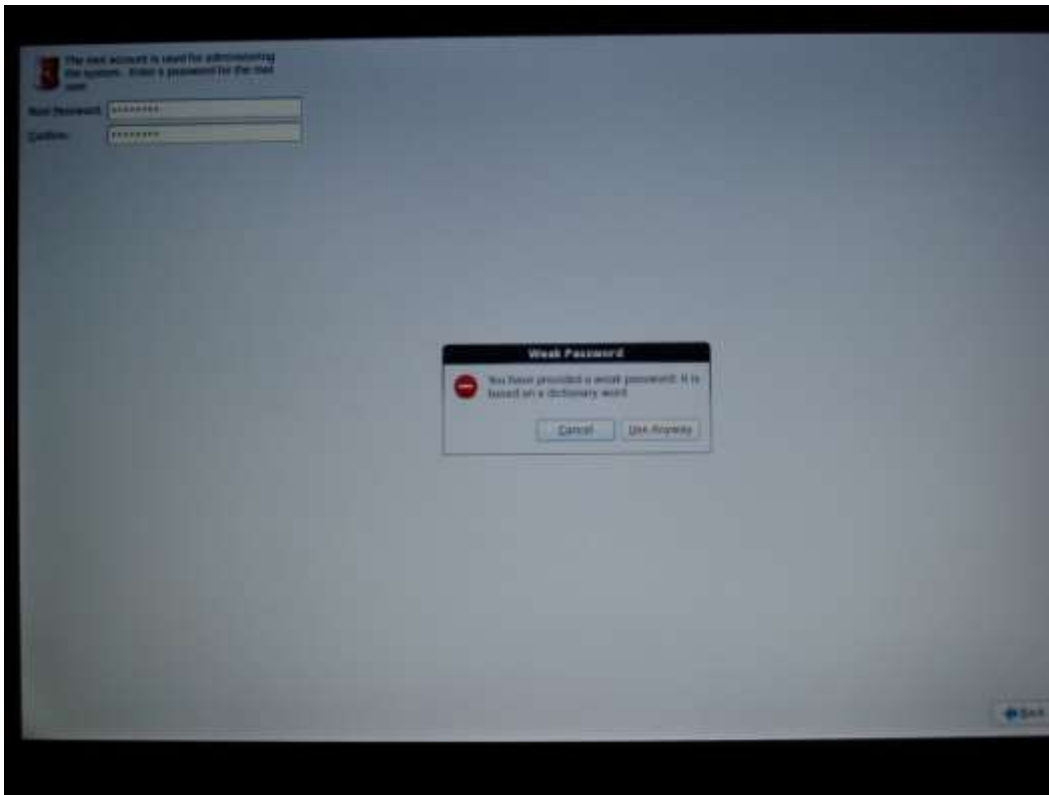
7. Since I installed a new hard drive, I clicked on Yes, discard any data on the Storage Device Warning screen below. Click Next.



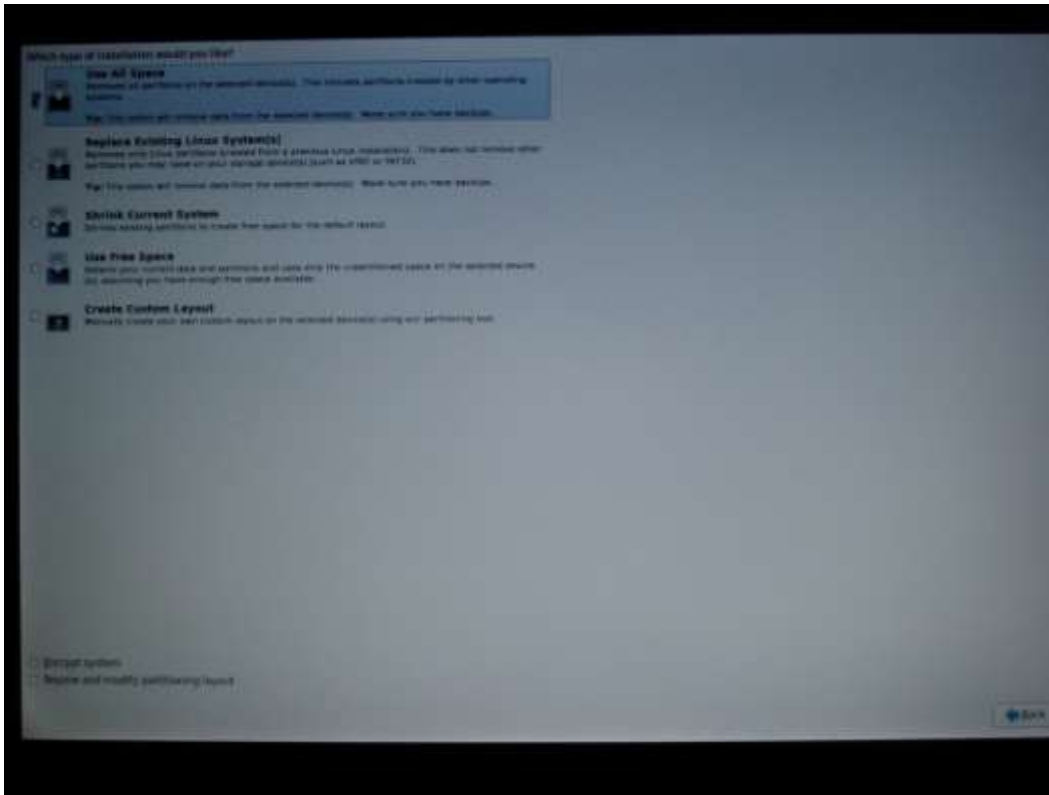
8. Select your time zone. I unchecked the checkbox to the left of System clock uses UTC. Click Next.



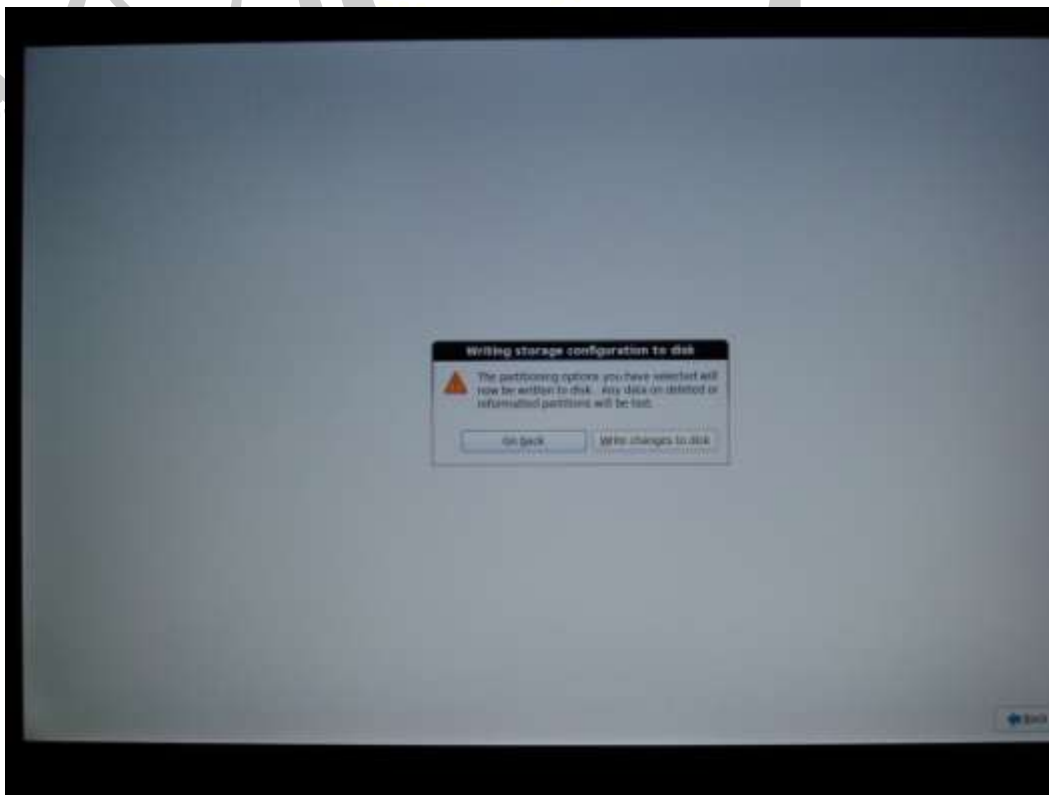
9. Provide a `root` password that is not wussy or you will receive the pop-up complaint shown below. Click Next.



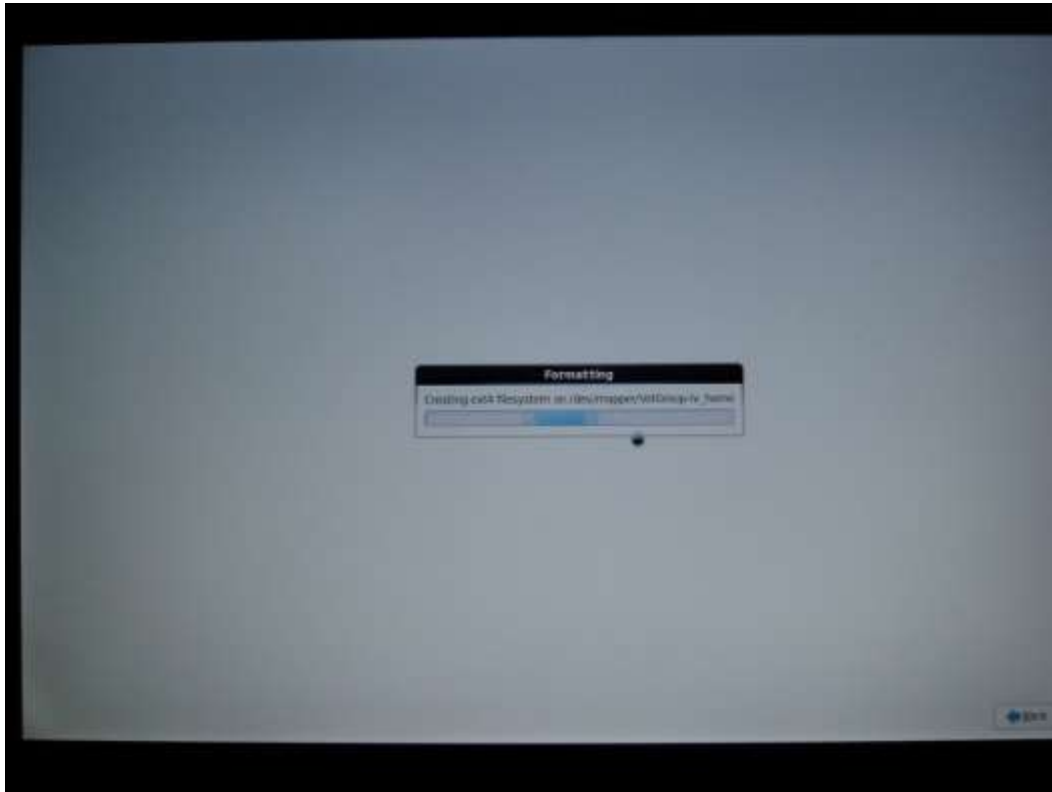
10. Select the appropriate installation type from the choices listed below. They are: Use all space, Replace Existing Linux System(s), Shrink Current System, Use Free Space, or Create Custom Layout. I chose Use all space since it's a new hard drive. The A+ students might want to review the partitioning layout by clicking the checkbox to the left of the text Review and modify partitioning layout. For my 500GB hard drive, the `/` partition was automatically set up with about 53GB, the `/home` partition was set up with about 433GB, the `/boot` partition was set up with about 508MB and the `/dev/shm` partition was set up with about 2GB. I would have preferred more on `/` and less on `/home`, but there was enough room to install the Oracle database as well as Oracle R Enterprise with a lot of room to spare. Click Next.



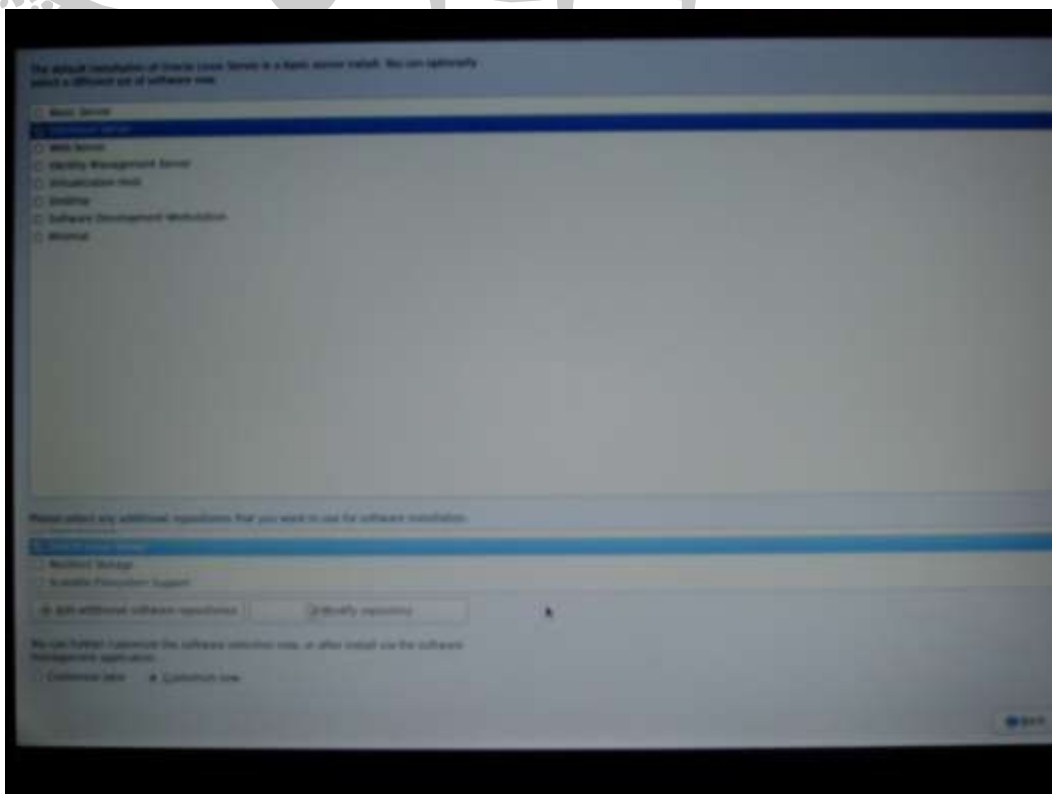
11. Despite the screen above, you will still be warned that you are going to be doing something drastic. Click Write changes to disk.



12. The installation software will format the hard drive to within an inch of its life.



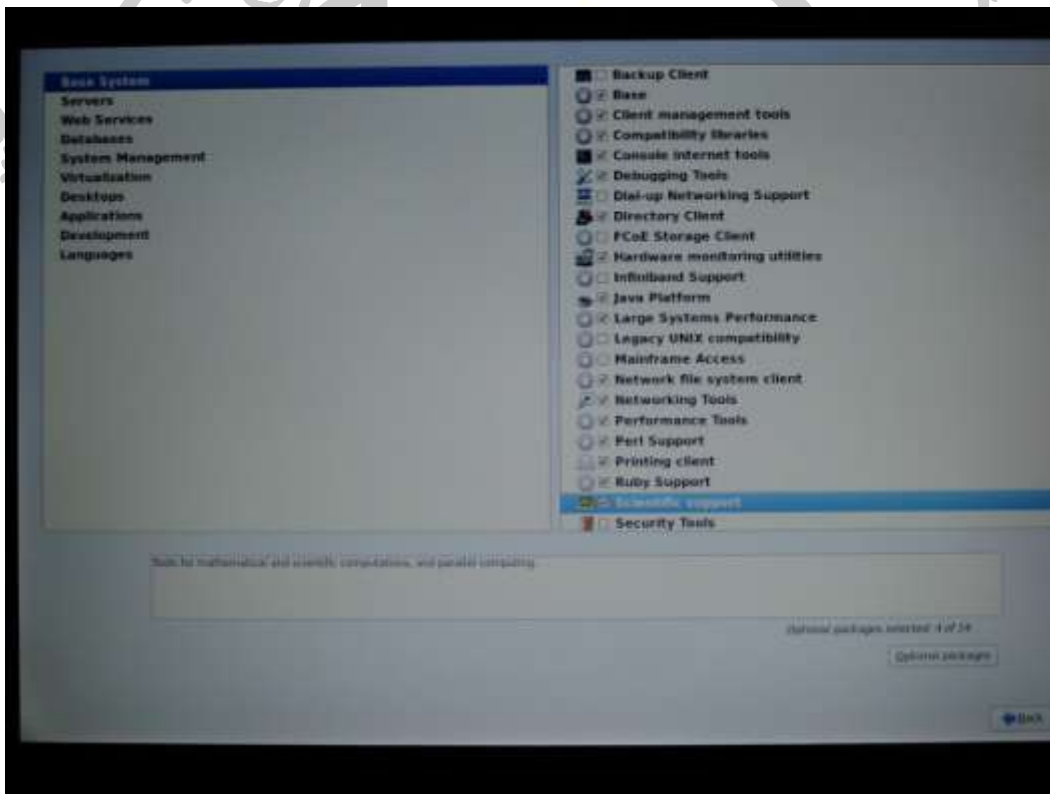
13. The default installation is a Basic server, but since I am installing the Oracle 11gR2 database I chose the Database server option. Also, ensure that Oracle Linux Server is checked as well as Customize now. Click Next.



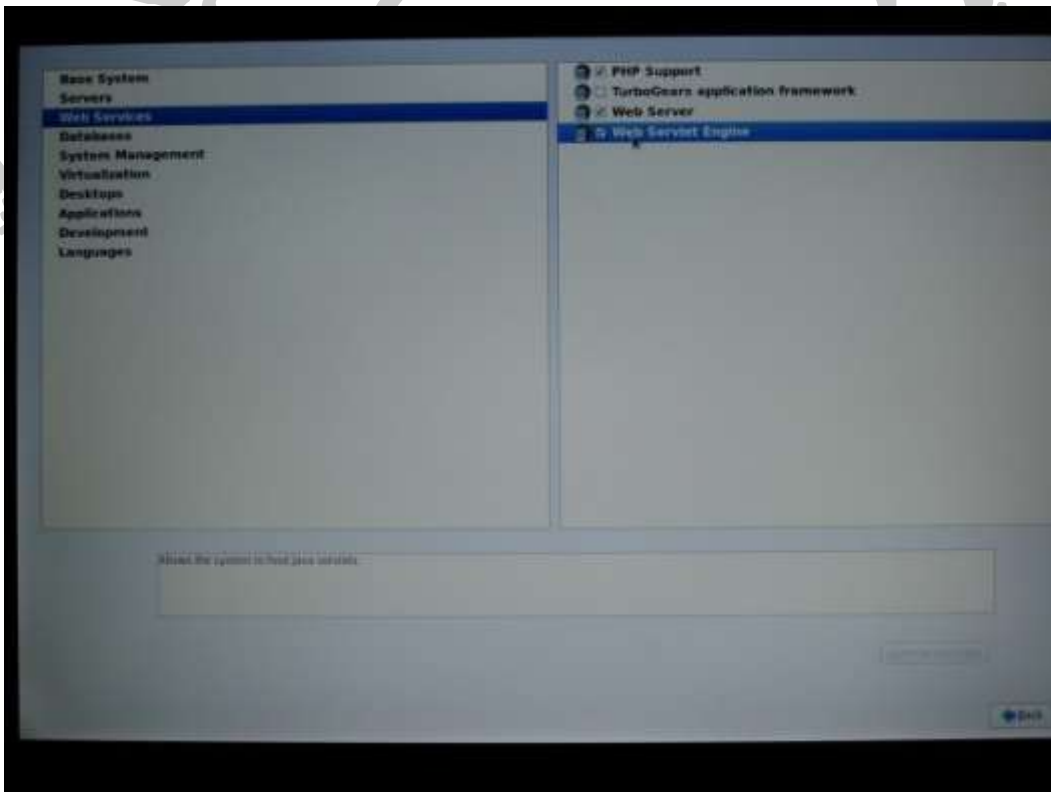
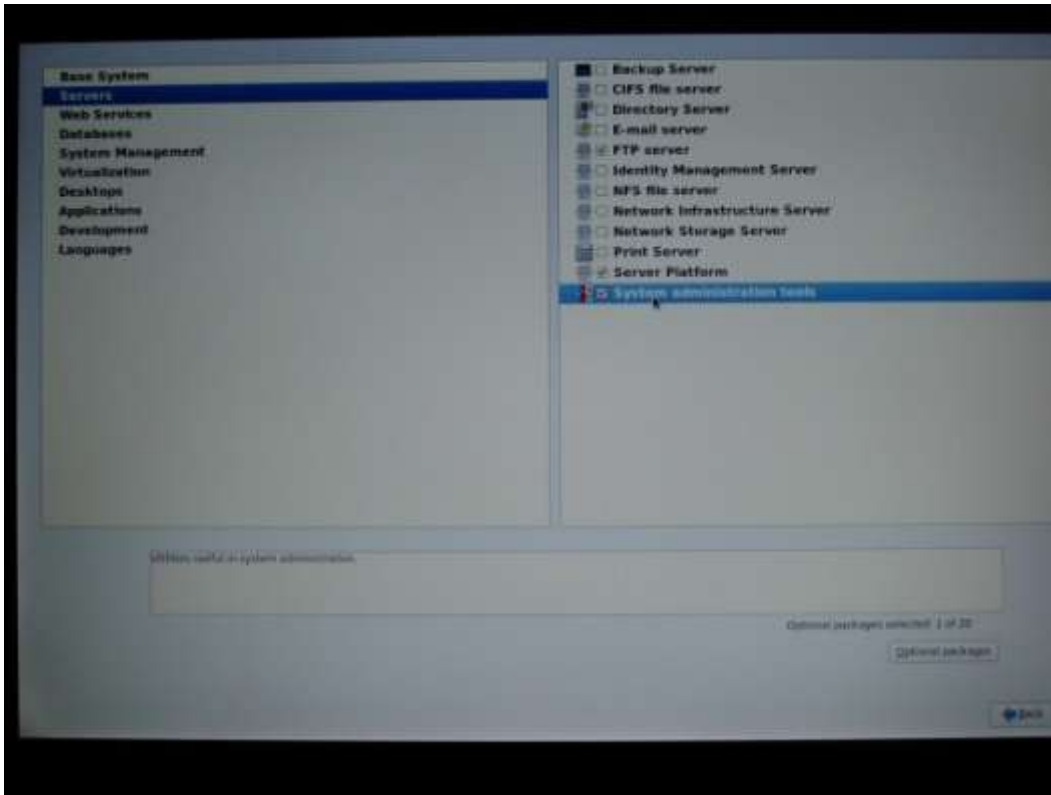
14. The next series of screenshots are part of the `Customize now` option you selected above. This allows you to select additional software to be installed while the operating system is being gauged into the disk drive. Note that some of these screens have an active `Optional packages` button. This button allows you to add additional software over the already additional software you are adding. Here is a list of software I added to my install:

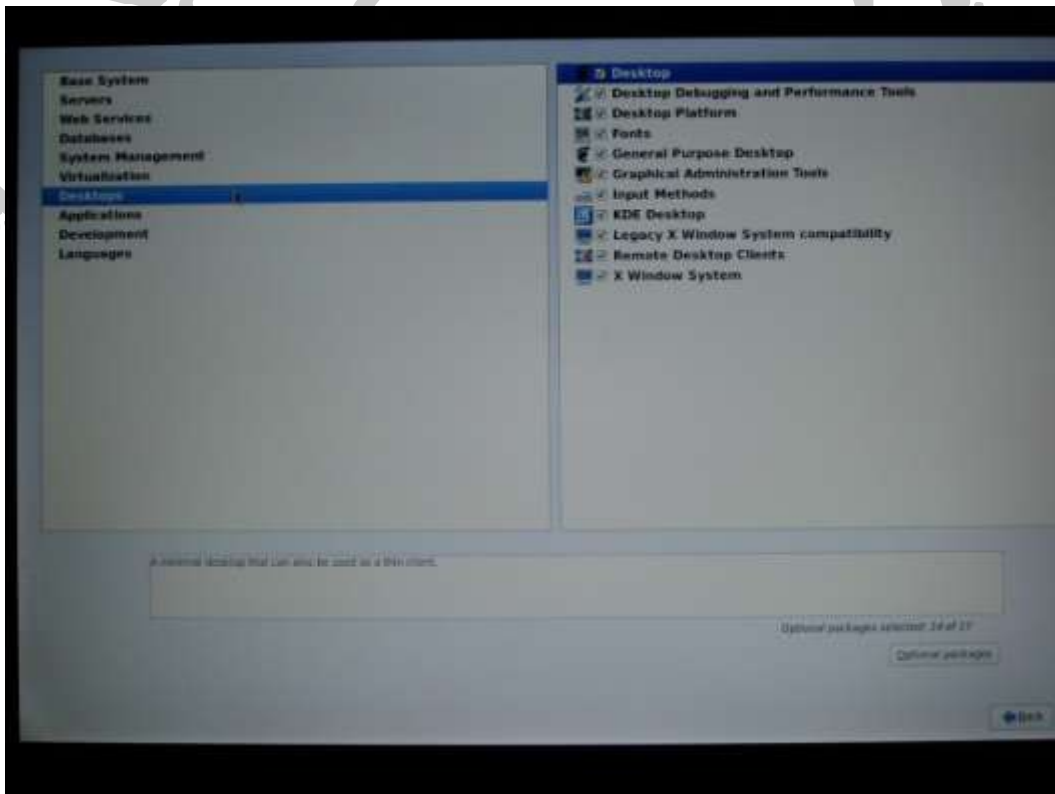
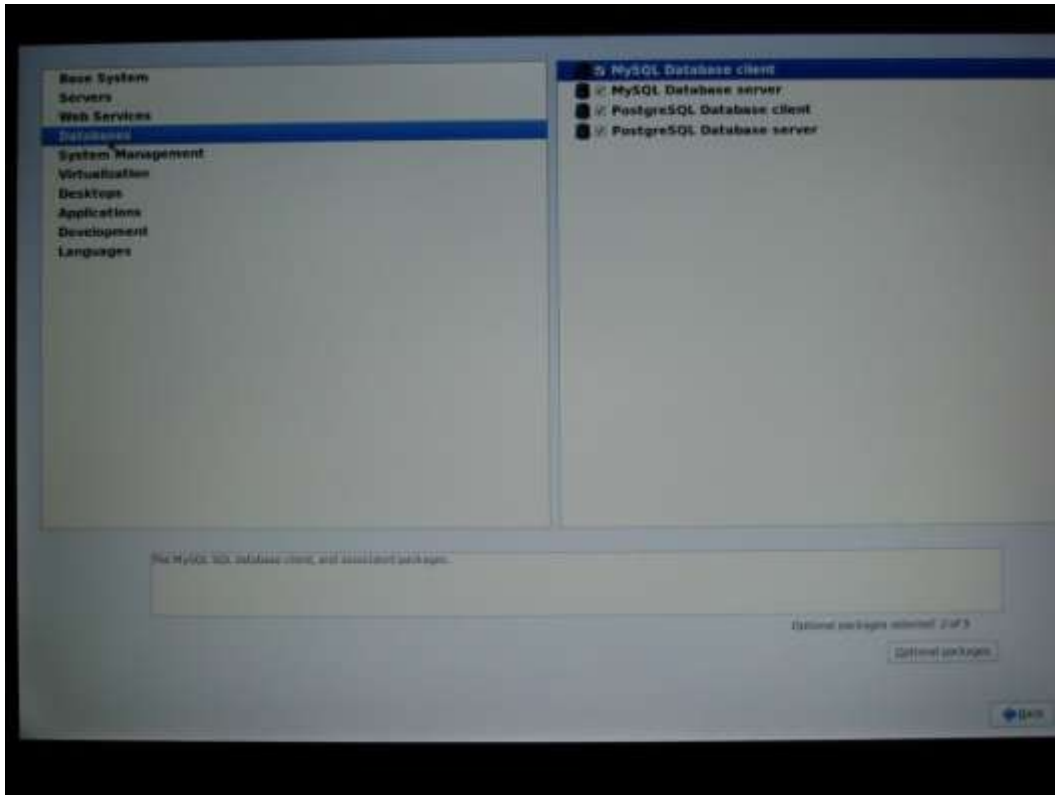
- a. Basic System: Compatibility libraries, Networking tools, Printing client, Ruby support, Scientific support, Security tools.
- b. Servers: FTP server.
- c. Web Services: PHP support, Web Server, Web Servlet Engine.
- d. Databases: (I did not add any additional software.)
- e. System Management: Web-based Enterprise Management.
- f. Virtualization: (I did not add any additional software.)
- g. Desktops: I selected all options.
- h. Applications: I selected all options.
- i. Development: I selected all options. Also, I selected `unixODBC` from the `Optional packages` dialog box.
- j. Languages: Select as necessary *pour votre langue*.

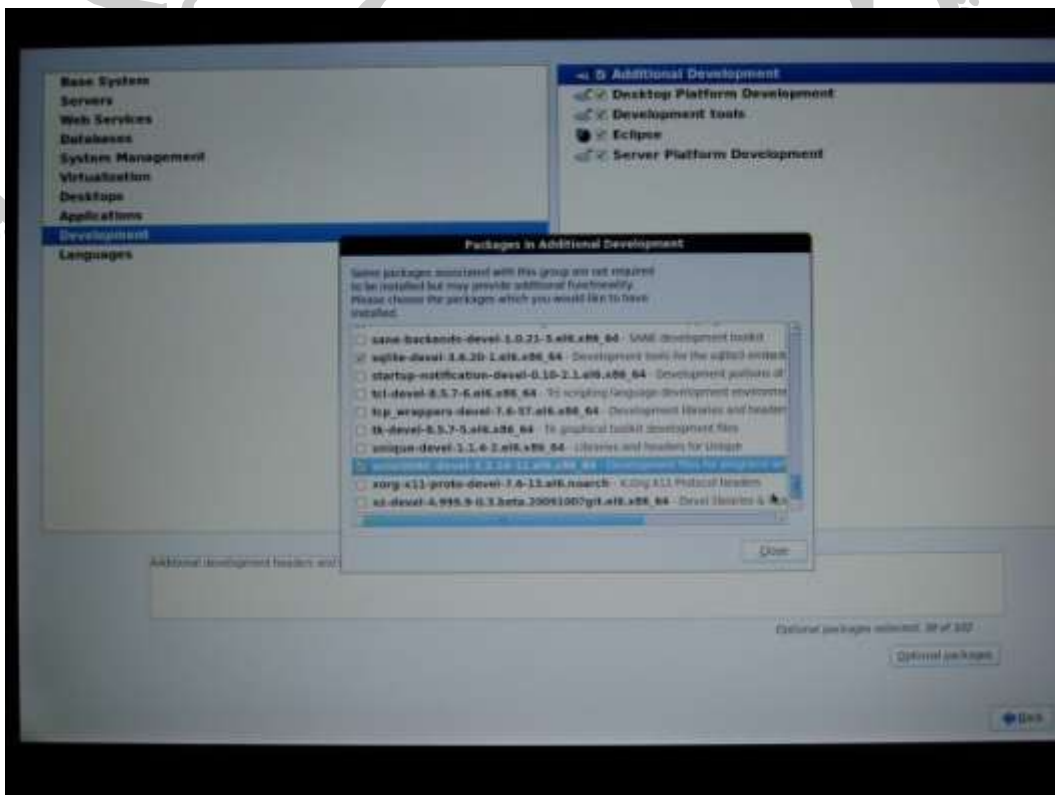
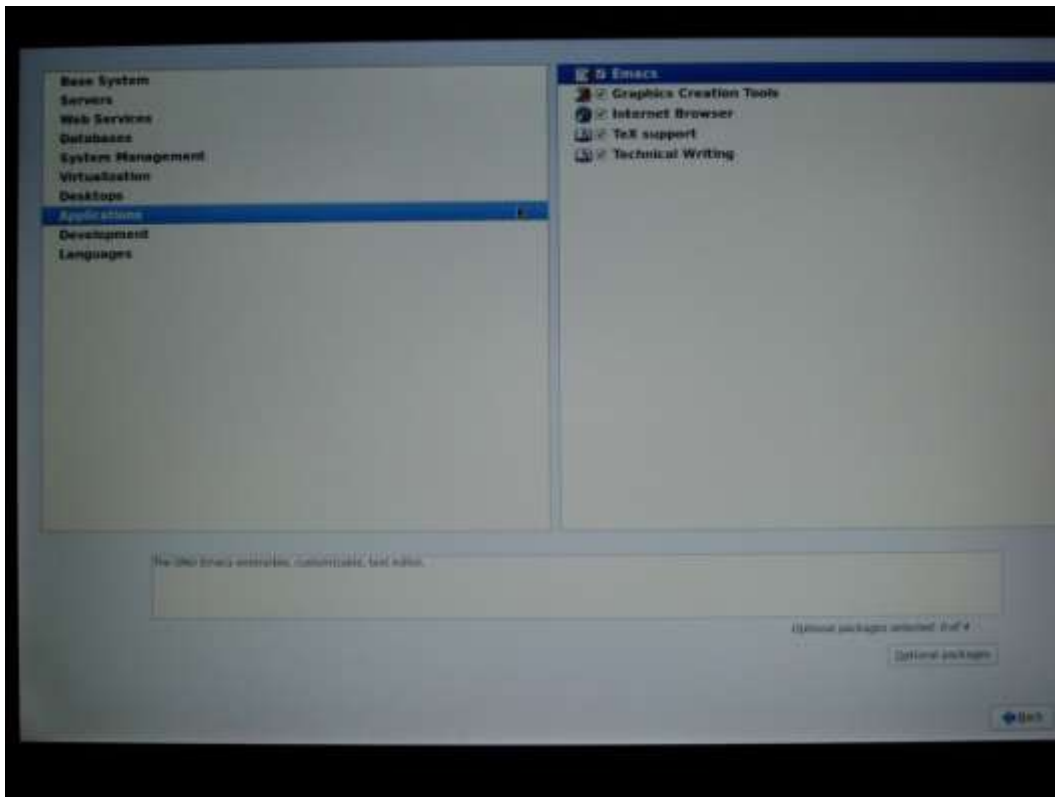
Click Next.

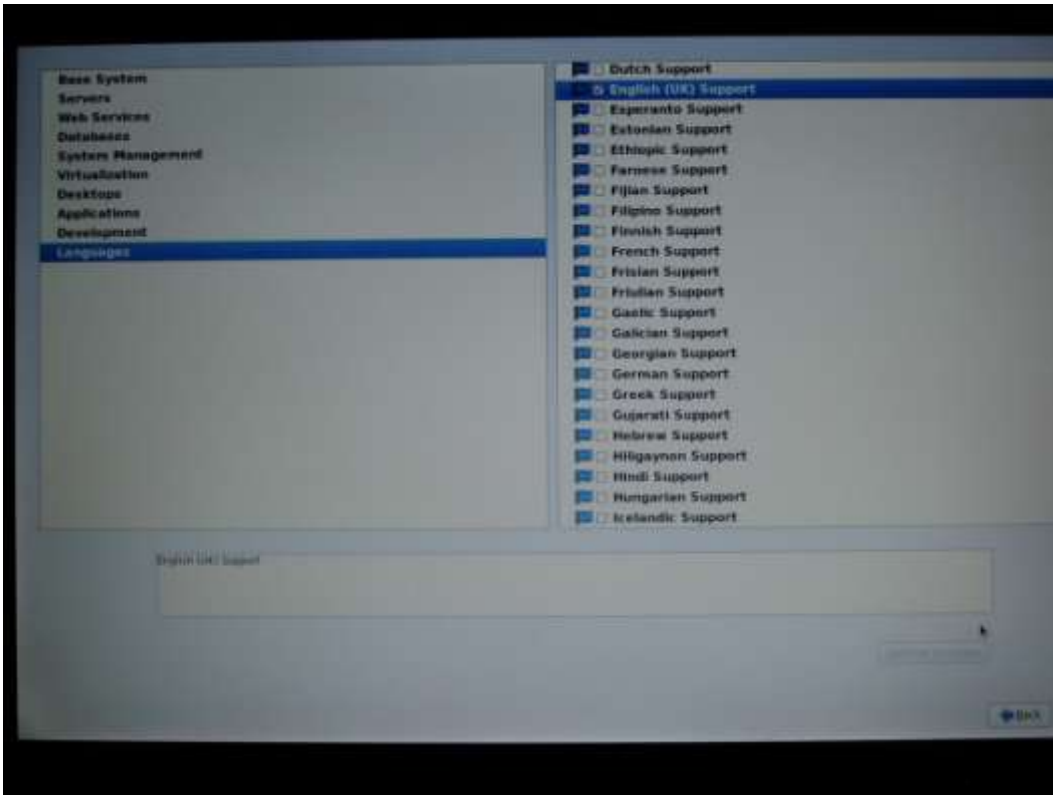




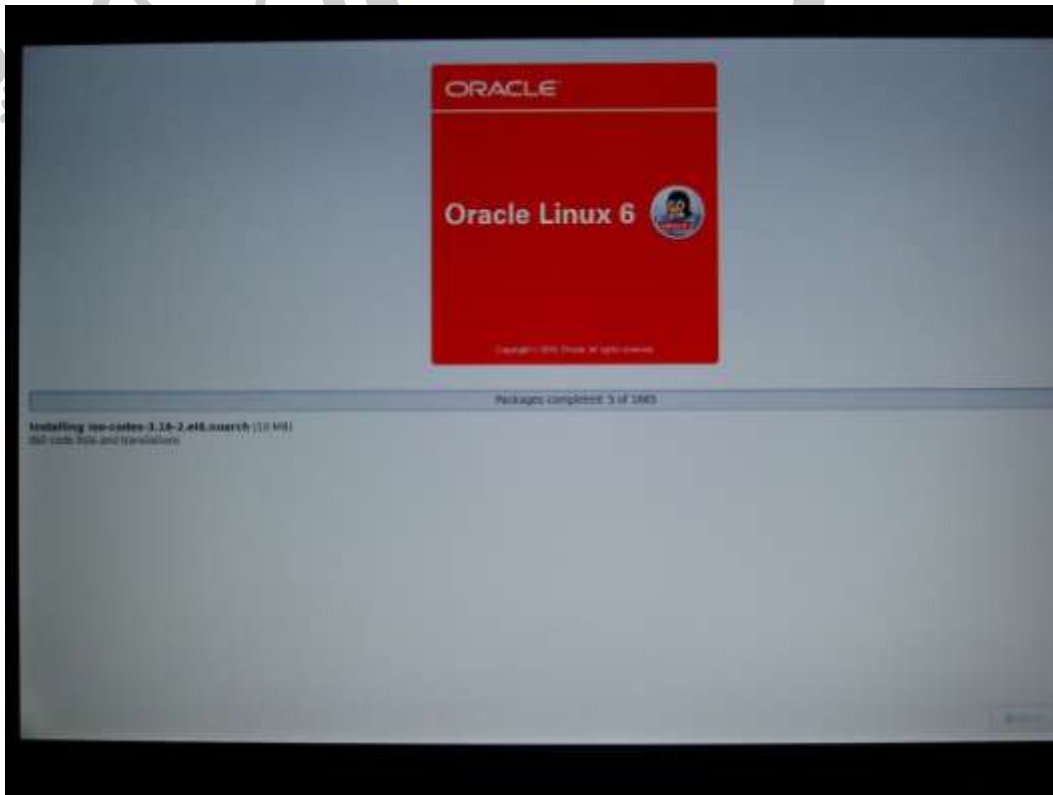








15. At this point, you can click the Next button and Oracle Linux 6 Release 2 will be installed on your computer. This may take a while, so you should go get a snack.



16. Once the installation is completed, you will see the congratulatory screen below. You can reboot your machine.




## Step 2 – Configure the Operating System

1. Once the machine reboots, you will be shown a series of additional setup screens (shown below) before you are taken to the log in screen. These are standard setup screens asking you to agree to an incomprehensible license agreement, set up software updates (which I skipped), create the first non-administrator user and set the current date and time. Take note that `kdump` could not be setup due to insufficient memory...it's not something that I like to talk about because of the embarrassment and itching, so I moved on.

[Welcome](#)  
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[Set Up Software](#)  
[Updates](#)  
[Create User](#)  
[Date and Time](#)  
[Network](#)

## Welcome

There are a few more steps to take before your system is ready to use. The Setup Agent will now guide you through some basic configuration. Please click the "Forward" button in the lower right corner to continue.



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[Updates](#)  
[Create User](#)  
[Date and Time](#)  
[Network](#)

## License Information

ORACLE LINUX LICENSE AGREEMENT

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We are willing to provide a copy of the Enterprise Linux program to you only upon the condition that you accept all of the terms contained in this Agreement. Read the terms carefully and indicate your acceptance by either selecting the "Accept" button at the bottom of this page to confirm your acceptance, if you are downloading the Enterprise Linux program, or continuing to install the Enterprise Linux program, if you have received the agreement during the installation process. If you are not willing to be bound by these terms, select the "Do Not Accept" button to discontinue the installation process and the registration process and exit.

1. Grant of License to the Enterprise Linux program. Subject to the terms of this Agreement, Oracle America, Inc. ("Oracle") grants to the user ("Licensee") a license to the "Enterprise Linux program" under the GNU General Public License version 2. The Enterprise Linux program contains many Enterprise Linux program components developed by Oracle and various third parties. The license for each component is located in the documentation, which may be delivered with the Enterprise Linux program or as downloaded online at <http://docs.oracle.com/licenses/oracle-lic.html> and/or in the component's source code. This agreement does not limit, supersede or modify your rights under the license associated with an individual component.

2. License to additional Enterprise Linux programs. Certain third party technology (including the "Additional Enterprise Linux program") may be included on the same medium or as part of the download of Enterprise Linux program you received, but is not part of the Enterprise Linux program. Each Additional Enterprise Linux program is licensed solely under the terms of

We agree to the License Agreement.  
 No, I do not agree.

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## Set Up Software Updates


**The network connection on your system is not active. Your system cannot be set up for software updates at this time.**

The system will not be able to successfully retrieve software updates, including security updates, from Oracle without connecting to a functional, active network connection.

To keep your system protected, secure, and supported, please register this system or your hardware components.

You may access the OS & Registration tool by clicking **OS & Registration** in the **System > Administration** menu. To view access the software updates tool by clicking **Software Update** in the **System > Administration** menu.

[Why should I register my OS?](#)

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[Create User](#)  
[Date and Time](#)  
[Admin](#)

## Create User

You must create a user to register (non-administrative) use of your system. To create a system user, please provide the information requested below.

Username:

Full Name:

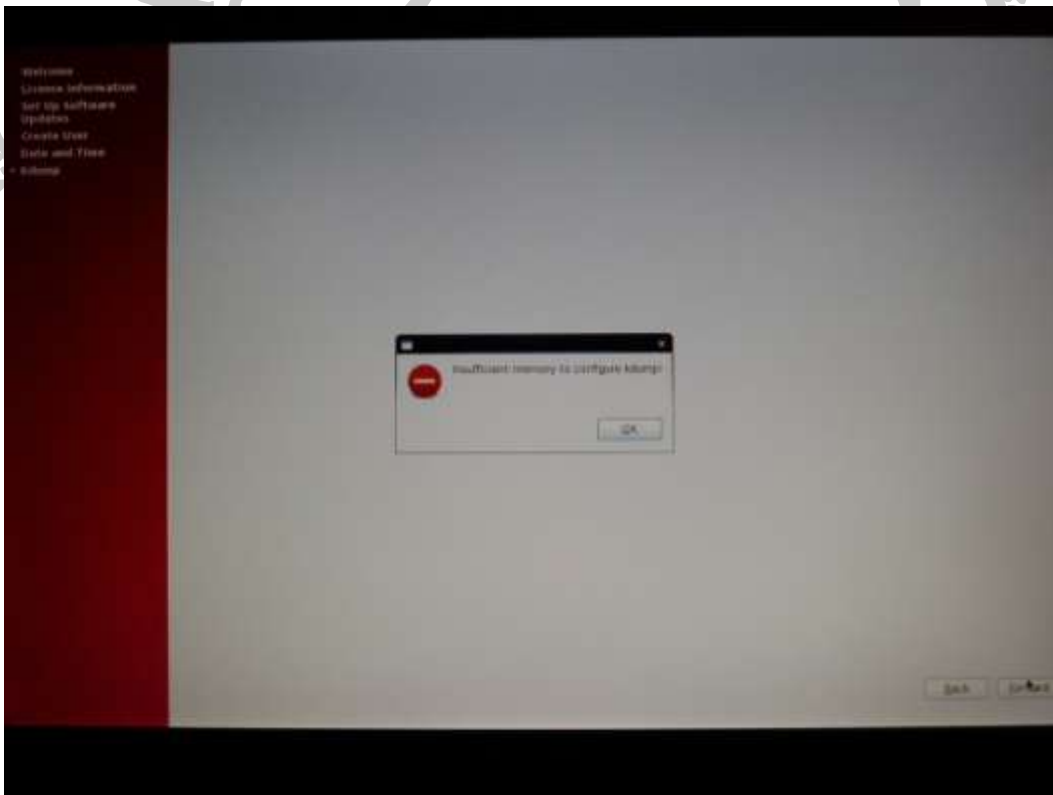
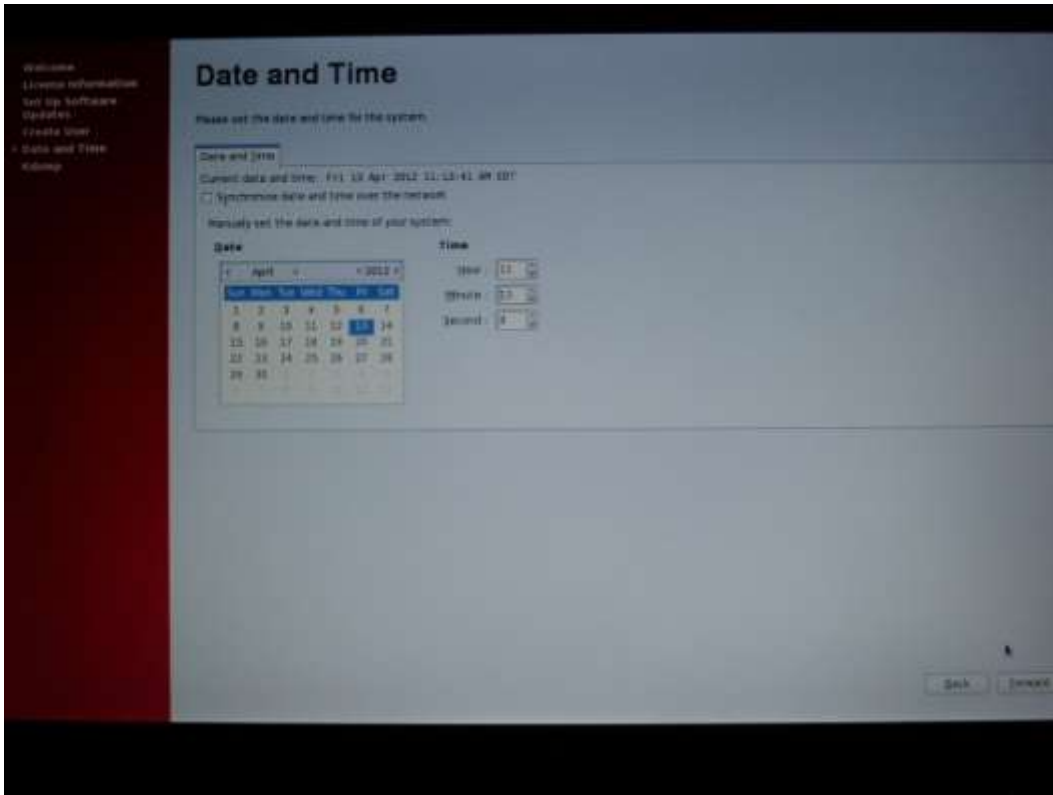
Password:

Confirm Password:

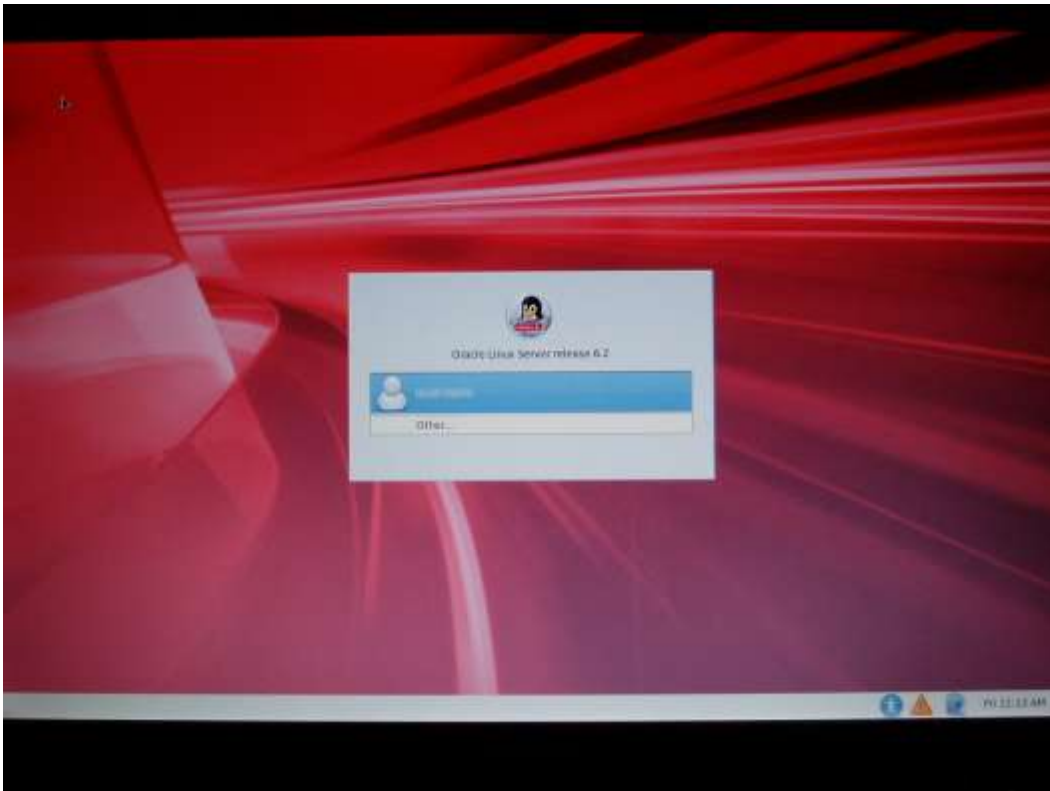
If you need to use network authentication, such as Network or NT, please click the Use Network User button.

If you need more control when creating the user (specifying home directory, shell, etc), please click the Advanced button.

[Back](#) [Forward](#)



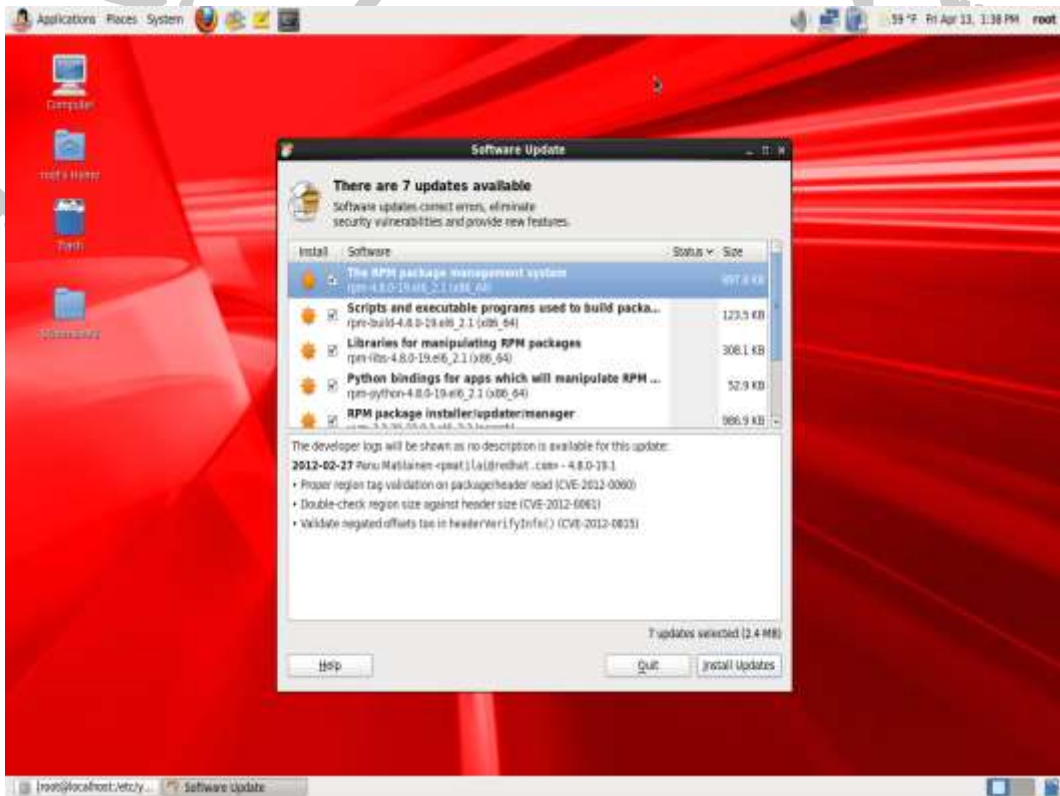
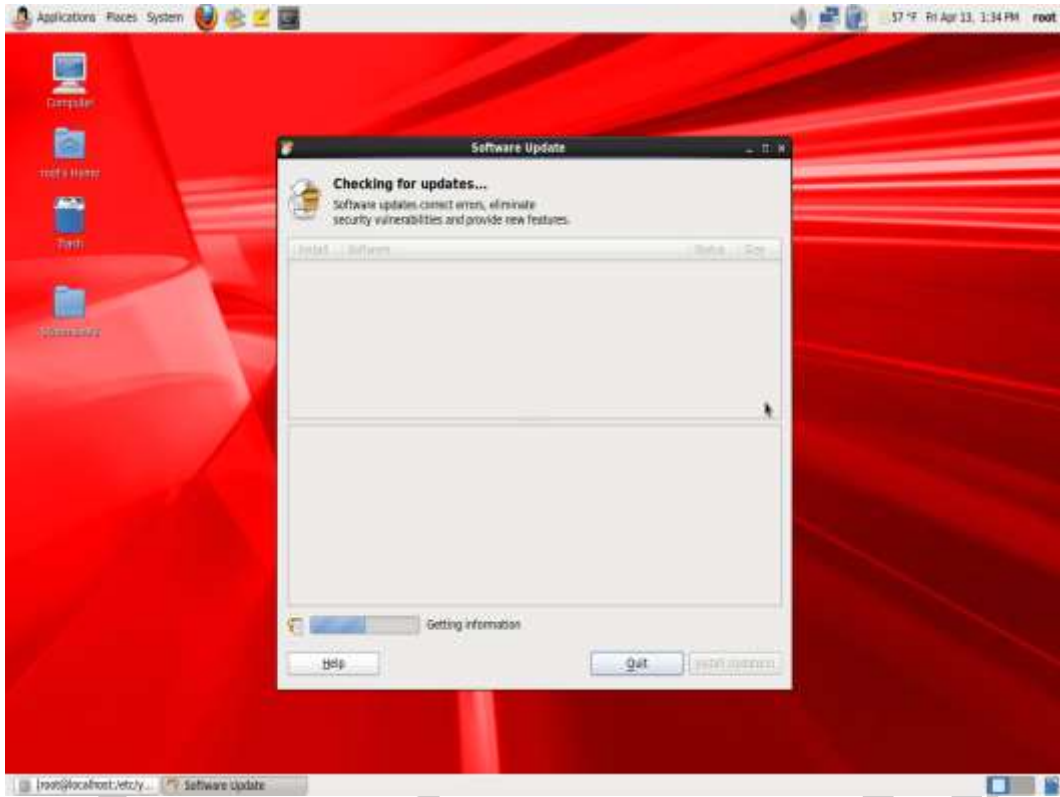


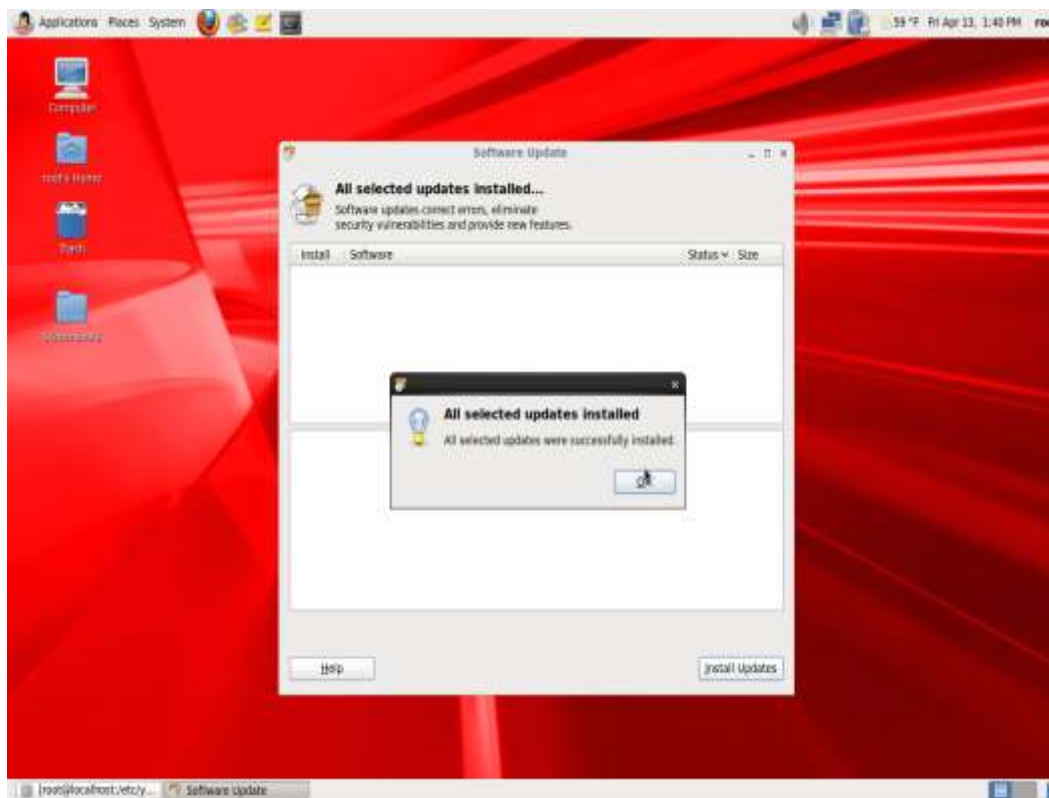


2. At this point, you can log in and use the system normally. Note that network connections via Wifi are NOT supported out-of-the-box. So, if you want to use Wifi, you will have to figure out how to get it to work. In any case, I pulled a network cable out of another computer and stuck in my laptop. In order to allow the operating system to connect to the network (and the Interweb), you must log in as `root`, right-click on the icon of the two laptops (located on the upper right of the panel next to the volume control...see the screenshot below) and select "System eth0". You should see the message `Wired network connection 'System eth0' active`. Test out your internet connection by starting Firefox and browsing to your favorite site.

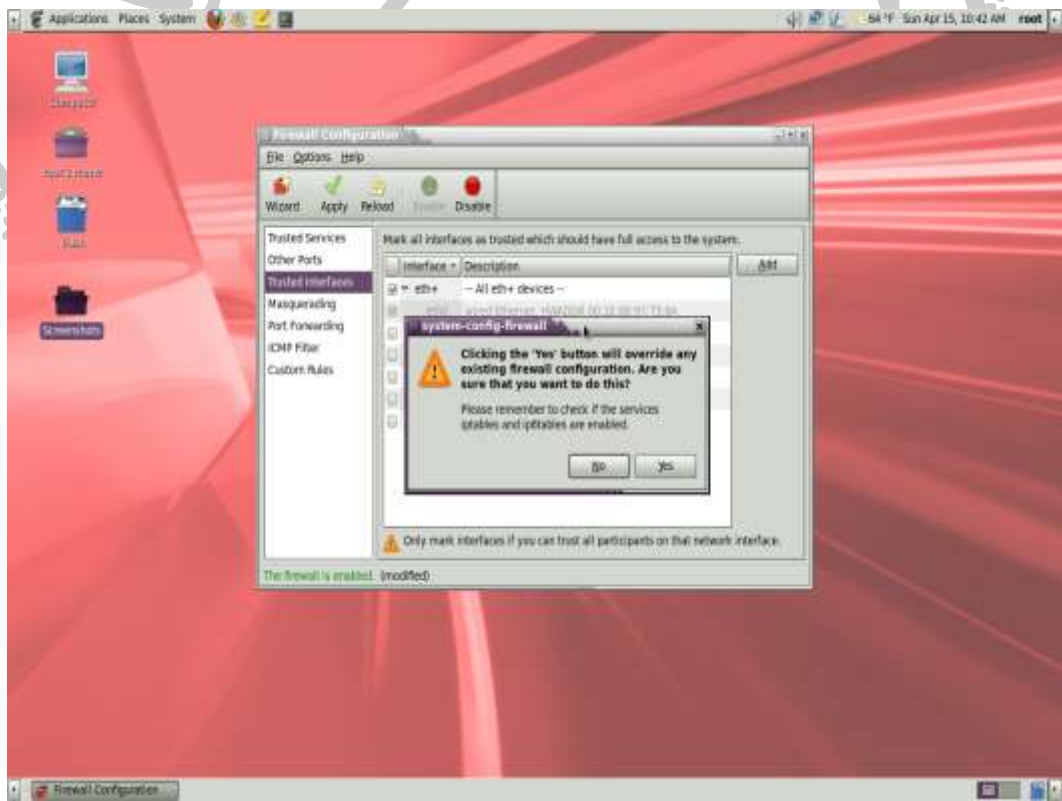
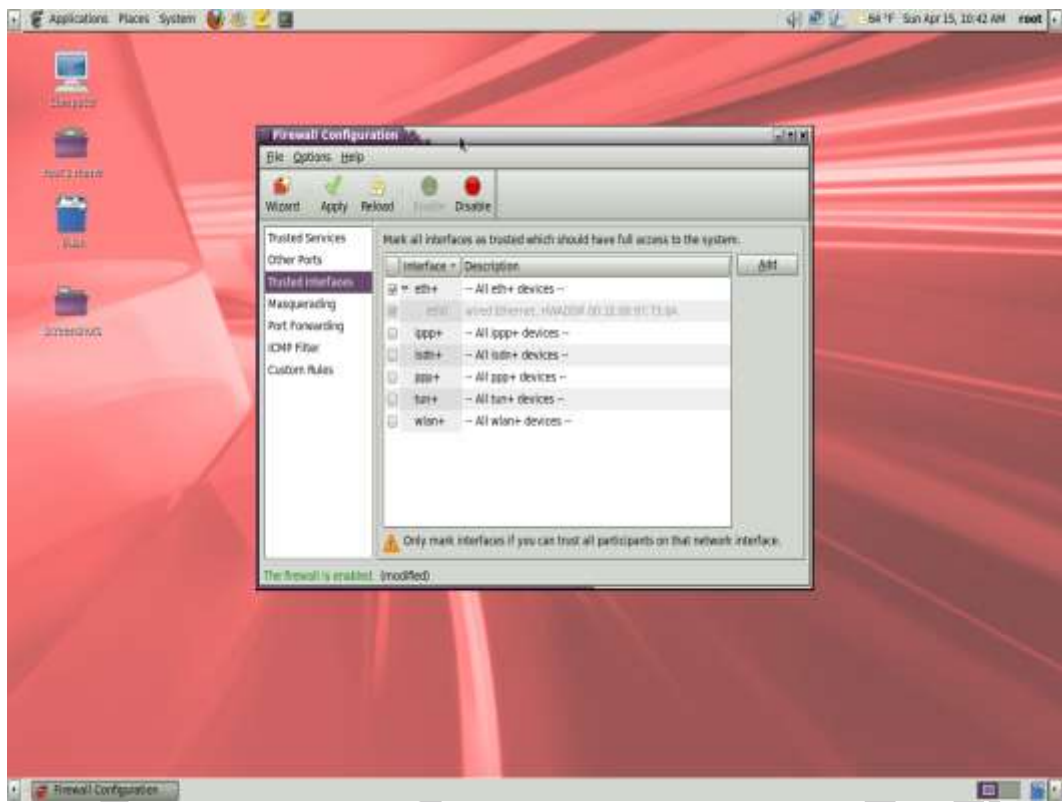


3. Once you are connected to the Interweb, you should check for software update by clicking on System → Administration → Software Update. The system will be checked for available updates, as shown below. If there are any updates, click on the Install Updates button to install the updates to the system. Once complete, you will see a message stating that all selected updates were installed.





4. Finally, in order for client machine to access to the server (more specifically, the Oracle database), you will need to modify the server's firewall settings to allow for trusted connections. Click on System → Firewall. Click on the Trusted Interfaces tab, click the checkbox to the left of eth+, then click the Apply button at the top of the dialog box. Click Yes when the nag screen pops up.



## B. Installing Oracle11g Release 2 Database

Now that the operating system installation and setup is complete, you can install the Oracle11g Release 2 database on your Oracle Linux 6 Release 2 64-bit server. Note that Oracle R Enterprise v1.1 requires that you either use (1) Oracle11g Release 2 (specifically, patchset 11.2.0.3.0) or (2) Oracle11g Release 2 (either 11.2.0.2.0 or 11.2.0.1.0) with the appropriate version-specific patches applied (described in Pre-Step 2 below).

### Pre-Step 1 – Download the Oracle11g Release 2 Database

Note that at the time of the writing of this document, Oracle11gR2 11.2.0.3.0 and 11.2.0.2.0 were not available from the public Download site, but are available from My Oracle Support. With that said, Oracle11gR2 version 11.2.0.1.0 is available from Oracle's public Download site, but the patch still needs to be downloaded from My Oracle Support.

To download Oracle11gR2 version 11.2.0.1.0, follow these instructions:

- a. Navigate to Oracle's website at <http://www.oracle.com>.
- b. Click on the Download button at the top of the page.
- c. Click on the Database 11g link.
- d. Click on the radio button to the left of the text Accept License Agreement.
- e. Click on the See All link to the right of Linux x86-64.
- f. Click on the radio button to the left of the text Accept License Agreement.
- g. Download the following files to your Oracle Linux server:
  - i. linux.x64\_11gR2\_database\_1of2.zip
  - ii. linux.x64\_11gR2\_database\_2of2.zip
- h. You may be asked to sign in. Go ahead and enter in your username and password and the download will start.
- i. Once your download has completed, you will have to navigate to My Oracle Support and download the patch #12598677 that fixes bug #11678127. Note that this particular patch is 11.2.0.1.0-specific.

Note that if you are installing a fresh database, it's a good idea to use Oracle11gR2 patchset 11.2.0.3.0. This is what I opted to do. Again, this is only available from My Oracle Support. The patchset consists of the following seven files:

File Description	File Name
Oracle Database	p10404530_112030_platform_1of7.zip p10404530_112030_platform_2of7.zip
Oracle Grid Infrastructure	p10404530_112030_platform_3of7.zip
Oracle Database Client	p10404530_112030_platform_4of7.zip
Oracle Gateways	p10404530_112030_platform_5of7.zip
Oracle Examples	p10404530_112030_platform_6of7.zip
Deinstall	p10404530_112030_platform_7of7.zip

Note that you only need files #1 and #2 to install Oracle11gR2 (11.2.0.3.0) database.

## Pre-Step 2 – Download the Appropriate Patches

As mentioned above, you will need to download the appropriate patches if you are using Oracle11gR2 versions 11.2.0.1.0 or 11.2.0.2.0:

- If you are currently running Oracle11gR2 11.2.0.1.0 database, you need to install patch #12598677 that fixes bug #11678127. Note that this particular patch is 11.2.0.1.0-specific.
- If you are currently running Oracle11gR2 11.2.0.2.0 database, you need to install patch #12976544 that fixes bug #11678127. Note that this particular patch is 11.2.0.2.0-specific.

## Pre-Step 3 – Update the Oracle Linux 6 Release 2 Operating System

Normally, when installing an Oracle database, you would have to go through several pre-installation steps such as creating the `oracle` user, creating several groups such as `oinstall` and `dba`, update several operating system parameter limits such as `shmmax`, etc. There is an RPM available from Oracle's Yum Server that does this for you eliminating the need to do it by hand. Specifically, the RPM

- causes the download and installation of various software packages and specific versions needed for database installation, with package dependencies resolved via yum
- creates the user `oracle` and the groups `oinstall` and `dba`, which are the defaults used during database installation
- modifies kernel parameters in `/etc/sysctl.conf` to change settings for shared memory, semaphores, the maximum number of file descriptors, and so on
- sets hard and soft shell resource limits in `/etc/security/limits.conf`, such as the number of open files, the number of processes, and stack size to the minimum required based on the Oracle Database 11g Release 2 Server installation requirements
- sets `numa=off` in the kernel boot parameters for `x86_64` machines

Note that if you are installing on Oracle Linux Release 5, the RPM to use is called `oracle-validated` whereas for Oracle Linux Release 6 it is called `oracle-rdbms-server-11gR2-preinstall`.

Oracle's Yum Server is located at <http://public-yum.oracle.com/>. A Yum server houses RPMs which can be easily downloaded and installed on your server. The `wget` command, described in Step #4 below, can be found under the Oracle Linux 6 section if you navigate to this website.

1. Log in as `root` on your Oracle Linux server
2. Open up the ever-popular terminal window.
3. Change directory to `/etc/yum/repos.d`.
4. Execute the following at the command line:

```
wget http://public-yum.oracle.com/public-yum-ol6.repo
```

This downloads the file `public-yum.ol6.repo` to your server. Note that the `ol6` is the letter "o", followed by the letter "l" followed by the number 6. This indicates **Oracle Linux 6**. (For Oracle Linux 5, download

public-yum-el5.repo.)

5. Edit the file `public-yum-ol6.repo` using the editor of your choice. Since you installed **Oracle Linux 6 Update 2**, find the section labeled `[ol6_u2_base]`. Change `enabled=0` to `enabled=1`. Save and exit.
6. Execute the appropriate RPM:
  - a. If running Oracle Linux 5, execute the following at the command line:

```
yum install oracle-validated
```

- b. If running Oracle Linux 6, execute the following at the command line:

```
yum install oracle-rdbms-server-11gR2-preinstall
```

You will see output *similar* to the following. Note that you will be asked several times `Is this ok` and you will be required to type in a `y` and hit the Enter key:

```
Loaded plugins: security
ol6_latest | 1.1 kB 00:00
ol6_latest/primary | 15 MB 01:07
ol6_latest 14723/14723
Setting up Install Process
Resolving Dependencies
--> Running transaction check
---> Package oracle-rdbms-server-11gR2-preinstall.x86_64 0:1.0-3.el6 will be installed
--> Processing Dependency: xorg-x11-utils for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: gcc-c++ for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: gcc for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: libstdc++-devel for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: glibc-devel for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: compat-libstdc++-33 for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: xorg-x11-xauth for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: libaio-devel for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: ksh for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Processing Dependency: compat-libcap1 for package: oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64
--> Running transaction check
---> Package compat-libcap1.x86_64 0:1.10-1 will be installed
---> Package compat-libstdc++-33.x86_64 0:3.2.3-69.el6 will be installed
---> Package gcc.x86_64 0:4.4.6-3.el6 will be installed
--> Processing Dependency: cpp = 4.4.6-3.el6 for package: gcc-4.4.6-3.el6.x86_64
--> Processing Dependency: cloog-ppl >= 0.15 for package: gcc-4.4.6-3.el6.x86_64
---> Package gcc-c++.x86_64 0:4.4.6-3.el6 will be installed
--> Processing Dependency: libmpfr.so.1()(64bit) for package: gcc-c++-4.4.6-3.el6.x86_64
---> Package glibc-devel.x86_64 0:2.12-1.47.el6_2.9 will be installed
--> Processing Dependency: glibc = 2.12-1.47.el6_2.9 for package: glibc-devel-2.12-1.47.el6_2.9.x86_64
--> Processing Dependency: glibc-headers = 2.12-1.47.el6_2.9 for package: glibc-devel-2.12-1.47.el6_2.9.x86_64
--> Processing Dependency: glibc-headers for package: glibc-devel-2.12-1.47.el6_2.9.x86_64
---> Package ksh.x86_64 0:20100621-12.el6_2.1 will be installed
---> Package libaio-devel.x86_64 0:0.3.107-10.el6 will be installed
---> Package libstdc++-devel.x86_64 0:4.4.6-3.el6 will be installed
---> Package xorg-x11-utils.x86_64 0:7.4-8.el6 will be installed
--> Processing Dependency: libXxf86misc.so.1()(64bit) for package: xorg-x11-utils-7.4-8.el6.x86_64
--> Processing Dependency: libdmx.so.1()(64bit) for package: xorg-x11-utils-7.4-8.el6.x86_64
--> Processing Dependency: libXmu.so.1()(64bit) for package: xorg-x11-utils-7.4-8.el6.x86_64
--> Processing Dependency: libXxf86dga.so.1()(64bit) for package: xorg-x11-utils-7.4-8.el6.x86_64
---> Package xorg-x11-xauth.x86_64 1:1.0.2-7.1.el6 will be installed
```



```

--> Running transaction check
--> Package cloog-ppl.x86_64 0:0.15.7-1.2.el6 will be installed
--> Processing Dependency: libppl_c.so.2()(64bit) for package: cloog-ppl-0.15.7-1.2.el6.x86_64
--> Processing Dependency: libppl.so.7()(64bit) for package: cloog-ppl-0.15.7-1.2.el6.x86_64
--> Package cpp.x86_64 0:4.4.6-3.el6 will be installed
--> Package glibc.x86_64 0:2.12-1.47.el6 will be updated
--> Processing Dependency: glibc = 2.12-1.47.el6 for package: glibc-common-2.12-1.47.el6.x86_64
--> Package glibc.x86_64 0:2.12-1.47.el6_2.9 will be an update
--> Package glibc-headers.x86_64 0:2.12-1.47.el6_2.9 will be installed
--> Processing Dependency: kernel-headers >= 2.2.1 for package: glibc-headers-2.12-1.47.el6_2.9.x86_64
--> Processing Dependency: kernel-headers for package: glibc-headers-2.12-1.47.el6_2.9.x86_64
--> Package libXmu.x86_64 0:1.0.5-1.el6 will be installed
--> Package libXxf86dga.x86_64 0:1.1.1-1.el6 will be installed
--> Package libXxf86misc.x86_64 0:1.0.2-1.el6 will be installed
--> Package libdmx.x86_64 0:1.1.0-1.el6 will be installed
--> Package mpfr.x86_64 0:2.4.1-6.el6 will be installed
--> Running transaction check
--> Package glibc-common.x86_64 0:2.12-1.47.el6 will be updated
--> Package glibc-common.x86_64 0:2.12-1.47.el6_2.9 will be an update
--> Package kernel-uek-headers.x86_64 0:2.6.32-300.11.1.el6uek will be installed
--> Package ppl.x86_64 0:0.10.2-11.el6 will be installed
--> Finished Dependency Resolution

```

#### Dependencies Resolved

Package	Arch	Version	Repository	Size
<b>Installing:</b>				
oracle-rdbms-server-11gR2-preinstall	x86_64	1.0-3.el6	ol6_latest	15 k
<b>Installing for dependencies:</b>				
cloog-ppl	x86_64	0.15.7-1.2.el6	ol6_latest	93 k
compat-libcap1	x86_64	1.10-1	ol6_latest	17 k
compat-libstdc++-33	x86_64	3.2.3-69.el6	ol6_latest	183 k
cpp	x86_64	4.4.6-3.el6	ol6_latest	3.7 M
gcc	x86_64	4.4.6-3.el6	ol6_latest	10 M
gcc-c++	x86_64	4.4.6-3.el6	ol6_latest	4.7 M
glibc-devel	x86_64	2.12-1.47.el6_2.9	ol6_latest	966 k
glibc-headers	x86_64	2.12-1.47.el6_2.9	ol6_latest	597 k
kernel-uek-headers	x86_64	2.6.32-300.11.1.el6uek	ol6_latest	702 k
ksh	x86_64	20100621-12.el6_2.1	ol6_latest	683 k
libXmu	x86_64	1.0.5-1.el6	ol6_latest	58 k
libXxf86dga	x86_64	1.1.1-1.el6	ol6_latest	21 k
libXxf86misc	x86_64	1.0.2-1.el6	ol6_latest	15 k
libaio-devel	x86_64	0.3.107-10.el6	ol6_latest	13 k
libdmx	x86_64	1.1.0-1.el6	ol6_latest	16 k
libstdc++-devel	x86_64	4.4.6-3.el6	ol6_latest	1.5 M
mpfr	x86_64	2.4.1-6.el6	ol6_latest	156 k
ppl	x86_64	0.10.2-11.el6	ol6_latest	1.3 M
xorg-x11-utils	x86_64	7.4-8.el6	ol6_latest	87 k
xorg-x11-xauth	x86_64	1:1.0.2-7.1.el6	ol6_latest	34 k
<b>Updating for dependencies:</b>				
glibc	x86_64	2.12-1.47.el6_2.9	ol6_latest	3.8 M
glibc-common	x86_64	2.12-1.47.el6_2.9	ol6_latest	14 M

#### Transaction Summary

```

=====
Install      21 Package(s)
Upgrade      2 Package(s)

```

Total download size: 43 M

**Is this ok [y/N]: y**

Downloading Packages:

```

(1/23): cloog-ppl-0.15.7-1.2.el6.x86_64.rpm | 93 kB
00:01
(2/23): compat-libcap1-1.10-1.x86_64.rpm | 17 kB
00:00
(3/23): compat-libstdc++-33-3.2.3-69.el6.x86_64.rpm | 183 kB
00:01
(4/23): cpp-4.4.6-3.el6.x86_64.rpm | 3.7 MB
00:28
(5/23): gcc-4.4.6-3.el6.x86_64.rpm | 10 MB
00:57
(6/23): gcc-c++-4.4.6-3.el6.x86_64.rpm | 4.7 MB
00:29

```

```

(7/23): glibc-2.12-1.47.el6_2.9.x86_64.rpm | 3.8 MB
00:19
(8/23): glibc-common-2.12-1.47.el6_2.9.x86_64.rpm | 14 MB
01:13
(9/23): glibc-devel-2.12-1.47.el6_2.9.x86_64.rpm | 966 kB
00:10
(10/23): glibc-headers-2.12-1.47.el6_2.9.x86_64.rpm | 597 kB
00:03
(11/23): kernel-uek-headers-2.6.32-300.11.1.el6uek.x86_64.rpm | 702 kB
00:03
(12/23): ksh-20100621-12.el6_2.1.x86_64.rpm | 683 kB
00:03
(13/23): libXmu-1.0.5-1.el6.x86_64.rpm | 58 kB
00:00
(14/23): libXxf86dga-1.1.1-1.el6.x86_64.rpm | 21 kB
00:00
(15/23): libXxf86misc-1.0.2-1.el6.x86_64.rpm | 15 kB
00:00
(16/23): libaio-devel-0.3.107-10.el6.x86_64.rpm | 13 kB
00:00
(17/23): libdmx-1.1.0-1.el6.x86_64.rpm | 16 kB
00:00
(18/23): libstdc++-devel-4.4.6-3.el6.x86_64.rpm | 1.5 MB
00:08
(19/23): mpfr-2.4.1-6.el6.x86_64.rpm | 156 kB
00:01
(20/23): oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64.rpm | 15 kB
00:00
(21/23): ppl-0.10.2-11.el6.x86_64.rpm | 1.3 MB
00:07
(22/23): xorg-x11-utils-7.4-8.el6.x86_64.rpm | 87 kB
00:00
(23/23): xorg-x11-xauth-1.0.2-7.1.el6.x86_64.rpm | 34 kB
00:00

```

```

-----
Total | 166 kB/s | 43 MB
04:23

```

```

warning: rpmts_HdrFromFdno: Header V3 RSA/SHA256 Signature, key ID ec551f03: NOKEY
Retrieving key from http://public-yum.oracle.com/RPM-GPG-KEY-oracle-ol6
Importing GPG key 0xEC551F03:
  Userid: "Oracle OSS group (Open Source Software group) <build@oss.oracle.com>"
  From : http://public-yum.oracle.com/RPM-GPG-KEY-oracle-ol6

```

Is this ok [y/N]: y

```

Running rpm_check_debug
Running Transaction Test
Transaction Test Succeeded
Running Transaction

```

```

Updating   : glibc-common-2.12-1.47.el6_2.9.x86_64 | 1/25
Updating   : glibc-2.12-1.47.el6_2.9.x86_64 | 2/25
Installing : mpfr-2.4.1-6.el6.x86_64 | 3/25
Installing : libXmu-1.0.5-1.el6.x86_64 | 4/25
Installing : libstdc++-devel-4.4.6-3.el6.x86_64 | 5/25
Installing : 1:xorg-x11-xauth-1.0.2-7.1.el6.x86_64 | 6/25
Installing : cpp-4.4.6-3.el6.x86_64 | 7/25
Installing : compat-libcap1-1.10-1.x86_64 | 8/25
Installing : compat-libstdc++-33-3.2.3-69.el6.x86_64 | 9/25
Installing : libXxf86dga-1.1.1-1.el6.x86_64 | 10/25
Installing : libXxf86misc-1.0.2-1.el6.x86_64 | 11/25
Installing : libdmx-1.1.0-1.el6.x86_64 | 12/25
Installing : xorg-x11-utils-7.4-8.el6.x86_64 | 13/25
Installing : ppl-0.10.2-11.el6.x86_64 | 14/25
Installing : cloog-ppl-0.15.7-1.2.el6.x86_64 | 15/25
Installing : ksh-20100621-12.el6_2.1.x86_64 | 16/25
Installing : kernel-uek-headers-2.6.32-300.11.1.el6uek.x86_64 | 17/25
Installing : glibc-headers-2.12-1.47.el6_2.9.x86_64 | 18/25
Installing : glibc-devel-2.12-1.47.el6_2.9.x86_64 | 19/25
Installing : gcc-4.4.6-3.el6.x86_64 | 20/25
Installing : gcc-c++-4.4.6-3.el6.x86_64 | 21/25
Installing : libaio-devel-0.3.107-10.el6.x86_64 | 22/25
Installing : oracle-rdbms-server-11gR2-preinstall-1.0-3.el6.x86_64 | 23/25
Cleanup    : glibc-common-2.12-1.47.el6.x86_64 | 24/25
Cleanup    : glibc-2.12-1.47.el6.x86_64 | 25/25

```

```

Installed:
  oracle-rdbms-server-11gR2-preinstall.x86_64 0:1.0-3.el6

```

```

Dependency Installed:
  cloog-ppl.x86_64 0:0.15.7-1.2.el6
  compat-libstdc++-33.x86_64 0:3.2.3-69.el6
  cpp.x86_64 0:4.4.6-3.el6
  gcc-c++.x86_64 0:4.4.6-3.el6
  glibc-devel.x86_64 0:2.12-1.47.el6_2.9
  kernel-uek-headers.x86_64 0:2.6.32-300.11.1.el6uek
  ksh.x86_64 0:20100621-12.el6_2.1
  libXxf86dga.x86_64 0:1.1.1-1.el6
  libXxf86misc.x86_64 0:1.0.2-1.el6
  libdmx.x86_64 0:1.1.0-1.el6
  libstdc++-devel.x86_64 0:4.4.6-3.el6
  ppl.x86_64 0:0.10.2-11.el6
  xorg-x11-utils.x86_64 0:7.4-8.el6
  compat-libcap1.x86_64 0:1.10-1
  gcc.x86_64 0:4.4.6-3.el6
  glibc-headers.x86_64 0:2.12-1.47.el6_2.9
  libXmu.x86_64 0:1.0.5-1.el6
  libaio-devel.x86_64 0:0.3.107-10.el6
  mpfr.x86_64 0:2.4.1-6.el6
  xorg-x11-xauth.x86_64 1:1.0.2-7.1.el6

Dependency Updated:
  glibc.x86_64 0:2.12-1.47.el6_2.9
  0:2.12-1.47.el6_2.9
  glibc-common.x86_64

Complete!

```

7. Since the `oracle` user was created automatically in Step 6 above, you will have to change its password. At the command prompt, issue the following:

```
passwd oracle password-of-your-choice
```

### Pre-Step 3 – Install the Oracle11gR2 Database

The next step is to install the Oracle11gR2 database. Since I opted to install the patchset 11.2.0.3.0, the screenshots below may not match exactly what you see.

1. Log in as `root`.
2. Copy the files for the Oracle11gR2 database to `/tmp/oracle`.
3. Issue the following command at the command line to change the owner of this directory:

```
chown -R oracle:oinstall /tmp/oracle
```

4. Issue the following commands to create a directory for the Oracle database application as well as a temporary location:

```
mkdir -p /u01/app
mkdir -p /u01/tmp
```

5. Issue the following command to change the owner and permissions to these directories:

```
chown -R oracle:oinstall /u01/app
chmod -R 775 /u01/app
chown -R oracle:oinstall /u01/tmp
chmod a+wr /u01/tmp
```

6. Log in as the `oracle` user. It is this user who will execute the database installation script. At the command line, issue the following commands:

```
export TMP=/u01/tmp
export TMPDIR=/u01/tmp
```

```
export ORACLE_BASE=/u01/app/oracle
export ORACLE_SID=orcl
```

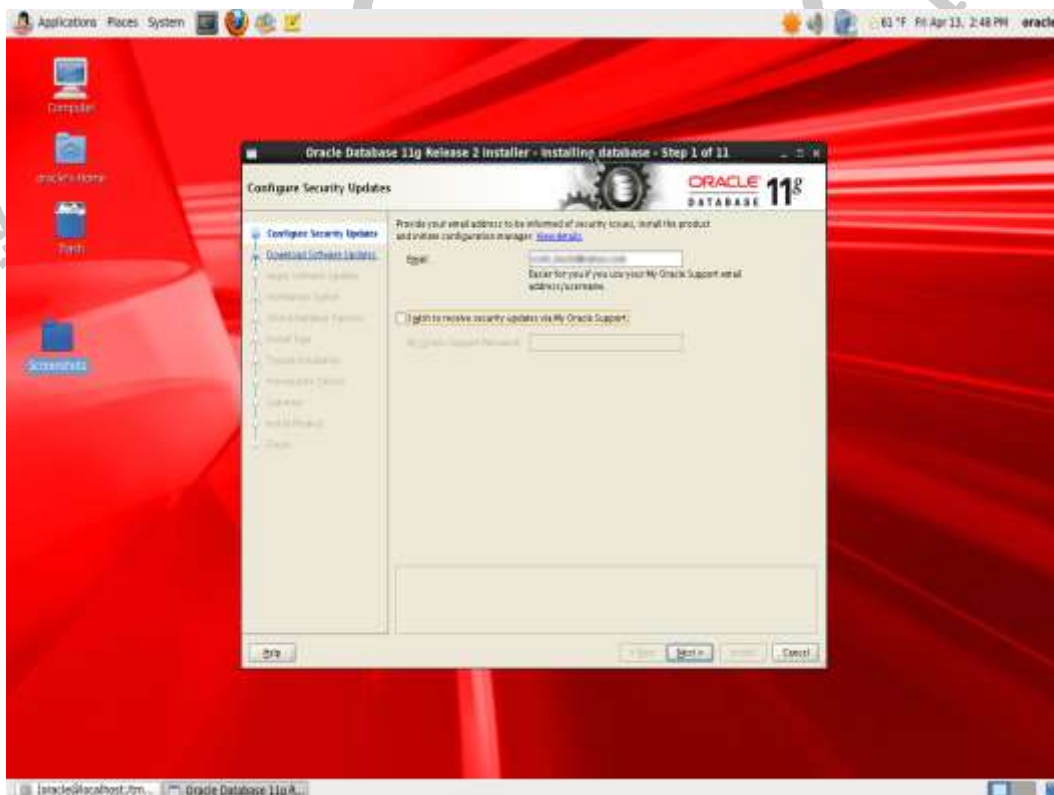
7. Change directory to /tmp/oracle. Issue the following commands to unzip the two files (changing the file names appropriately for your downloaded files):

```
unzip p10404530_112030_platform_1of7.zip
unzip p10404530_112030_platform_2of7.zip
```

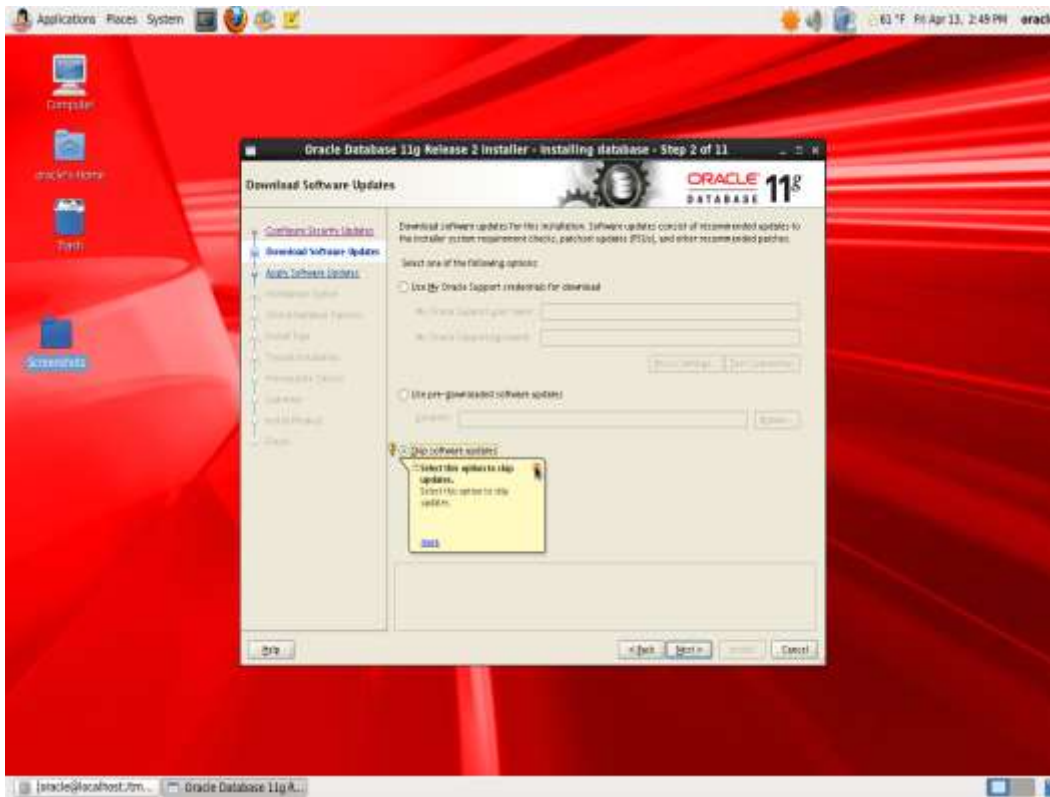
8. The unzip commands above create a subdirectory called database under /tmp/oracle. Change directories to this subdirectory and run the Oracle installer:

```
cd /tmp/oracle/database
./runInstaller
```

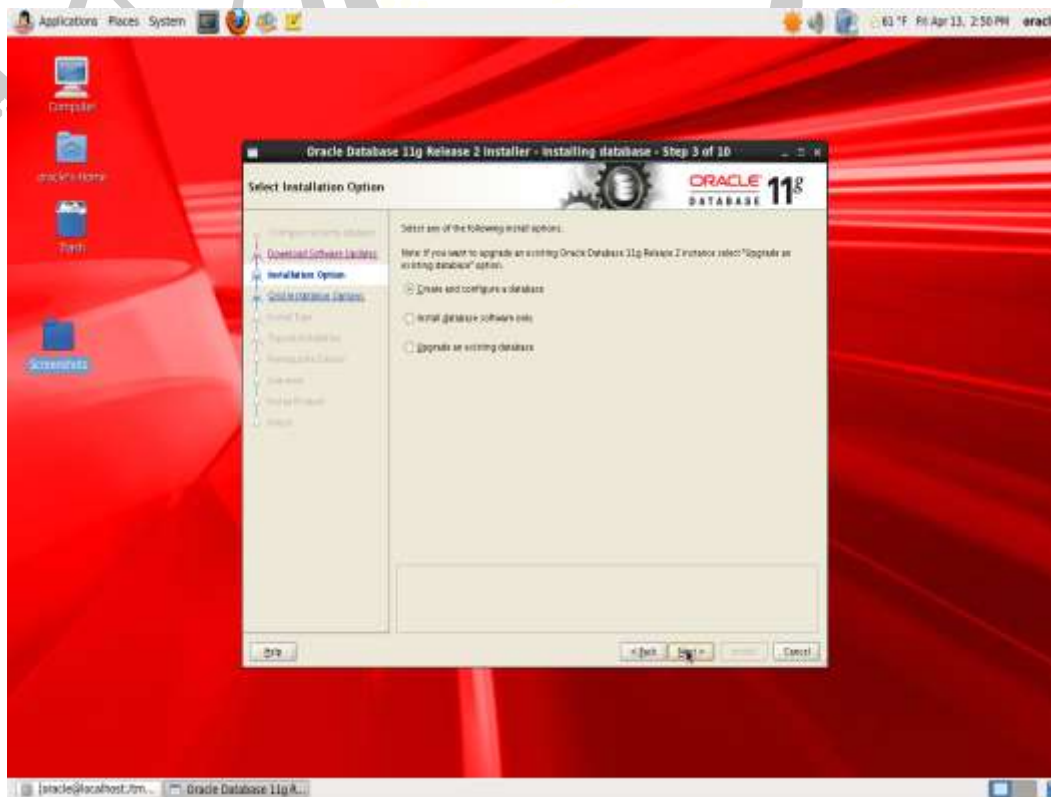
9. It may take a while, but you will eventually see the following installation screen. Enter in your e-mail address and ensure that the checkbox to the left of I wish to receive security updates via My Oracle Support. is **unchecked** (unless you have an account with My Oracle Support). Click Next.



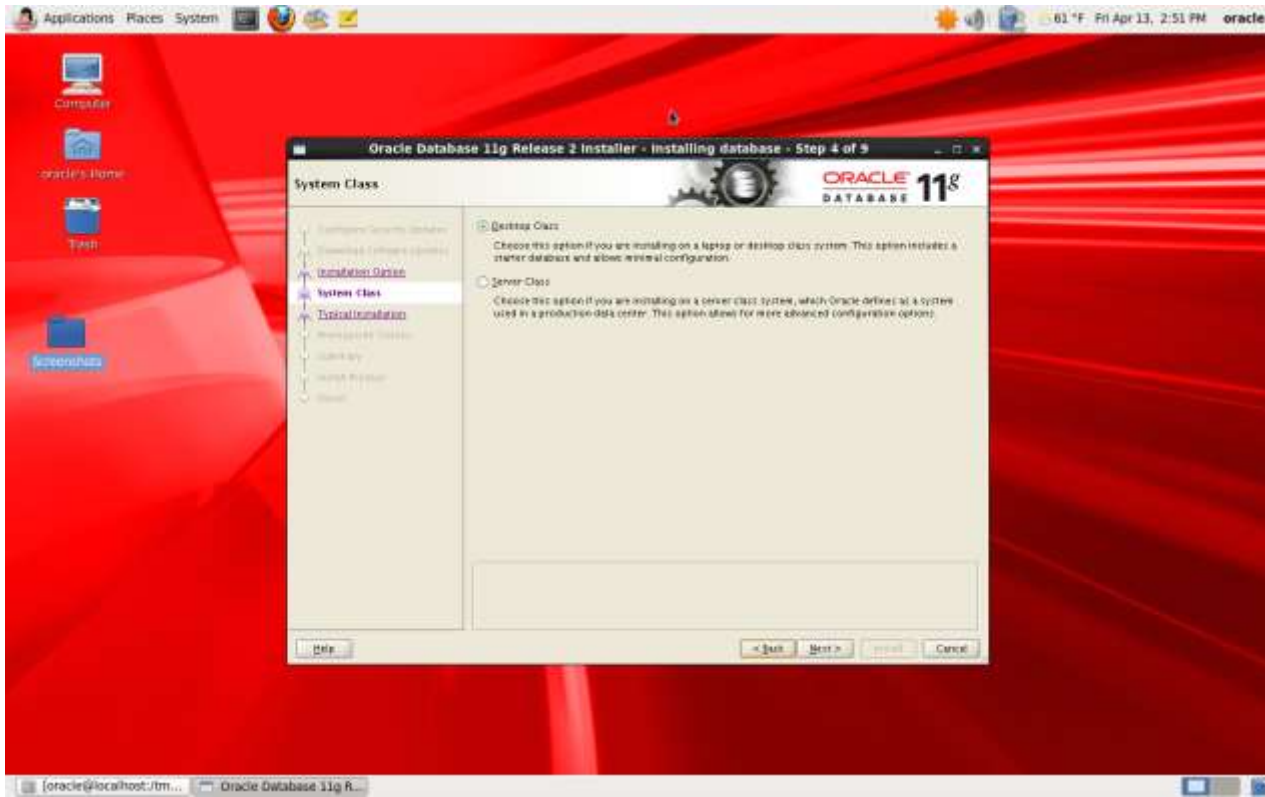
10. On the next screen, ensure that the radio button to the left of Skip software updates is checked (unless you have an account with My Oracle Support). Click Next.



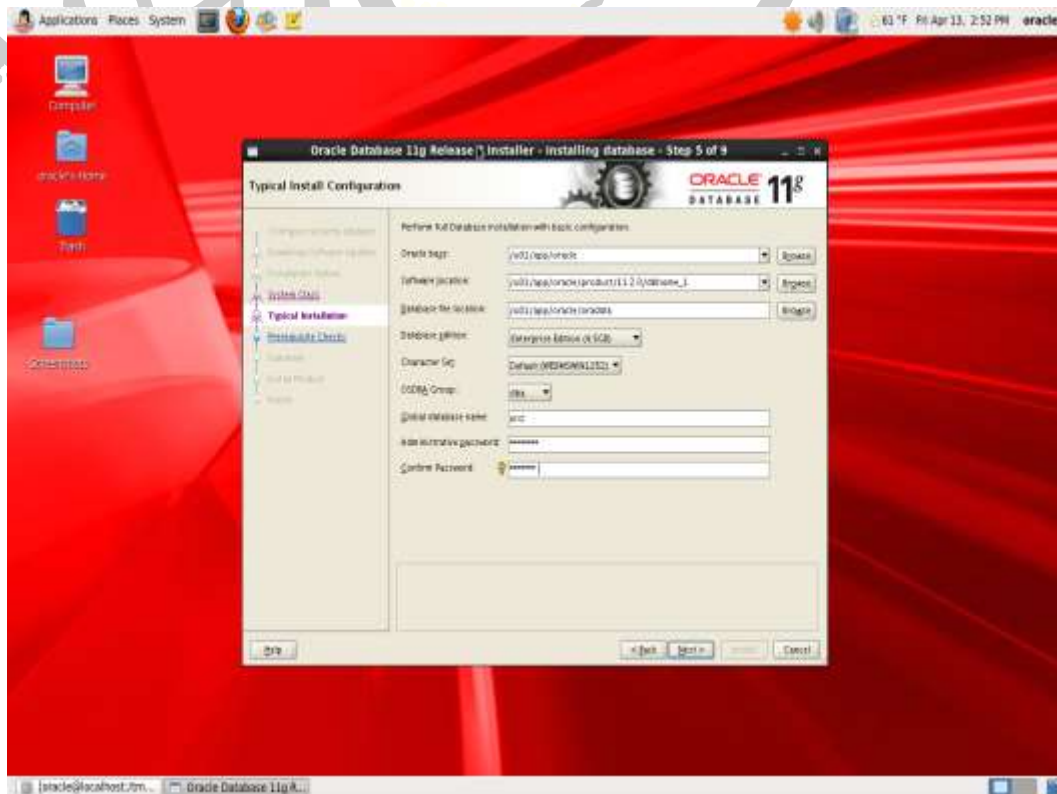
11. Ensure the radio button to the left of Create and configure a database is checked. Click Next.



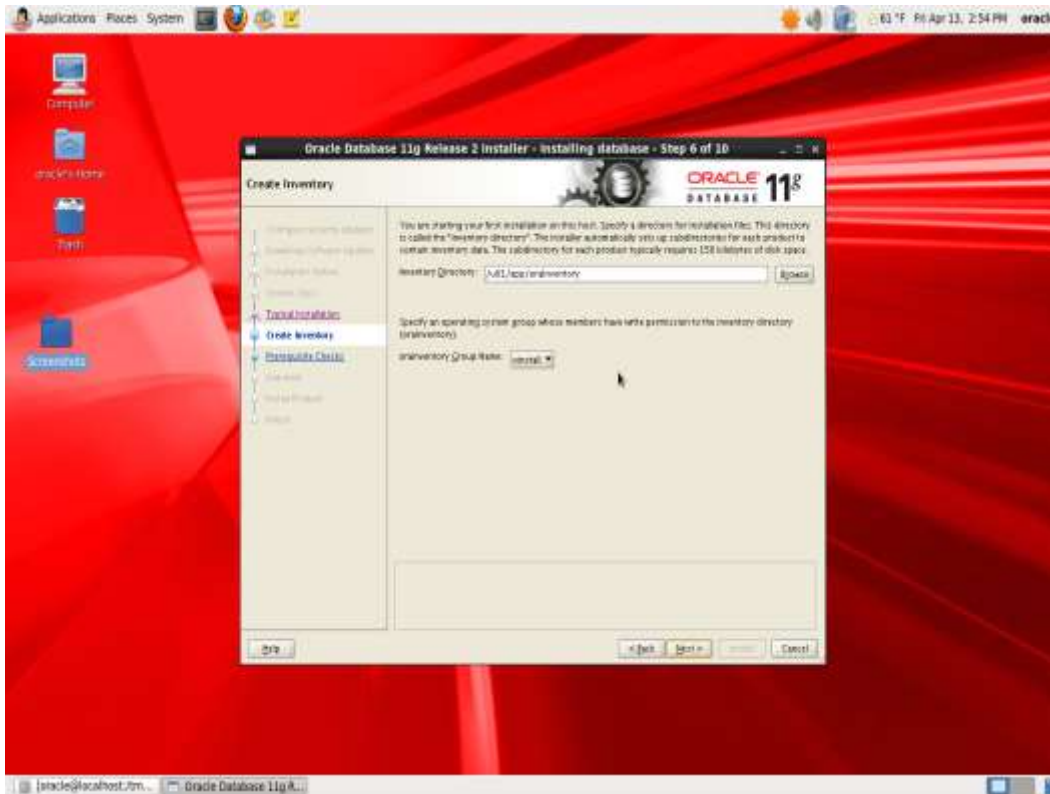
12. Ensure the radio button to the left of Desktop Class is checked. Click Next.



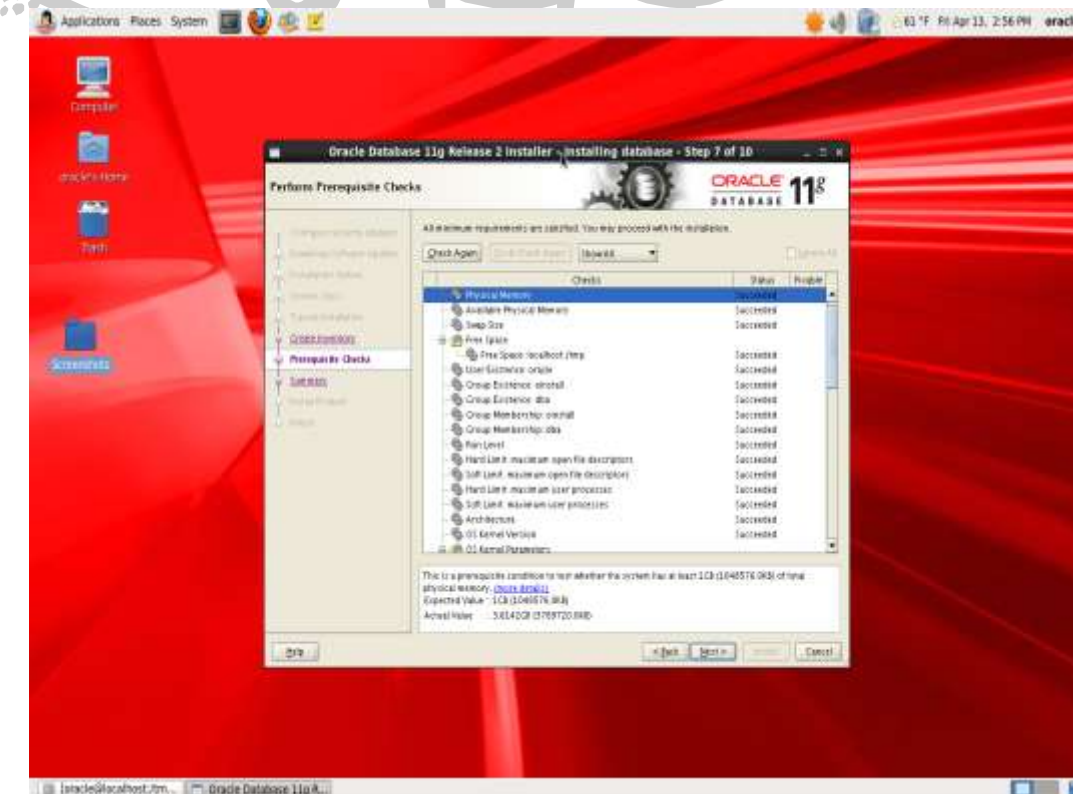
13. Fill in the input boxes as shown below (or appropriate for your system). Click Next.



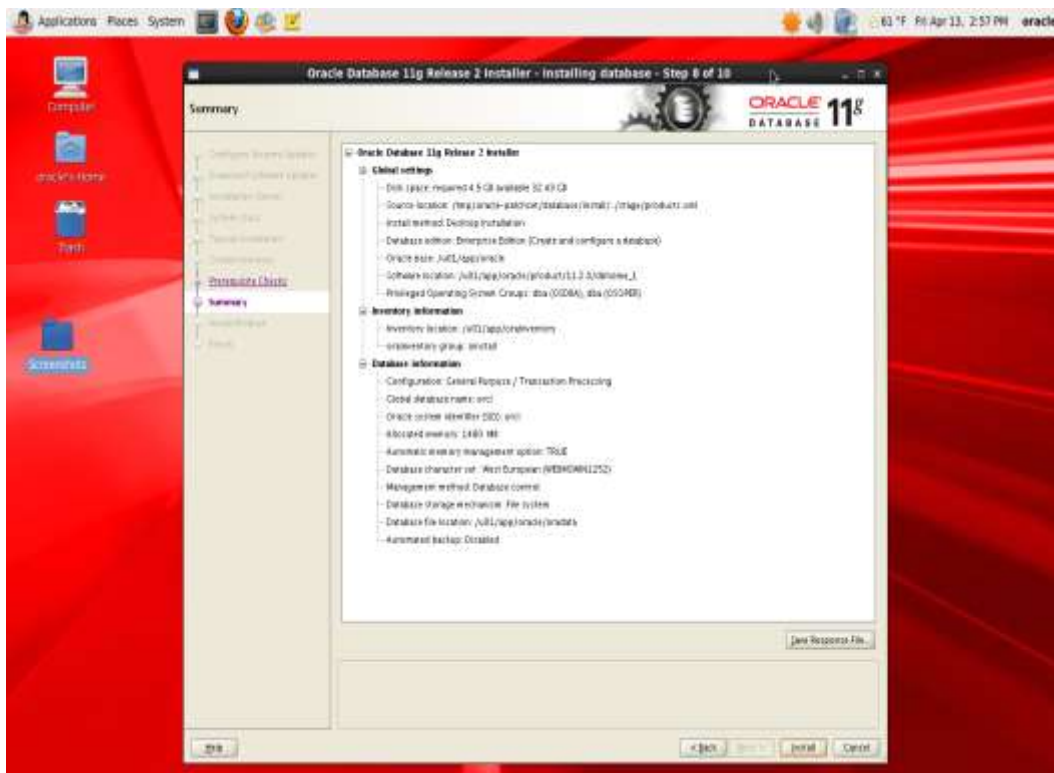
14. Enter in a location where you want the Oracle product inventory to be stored. Click Next.



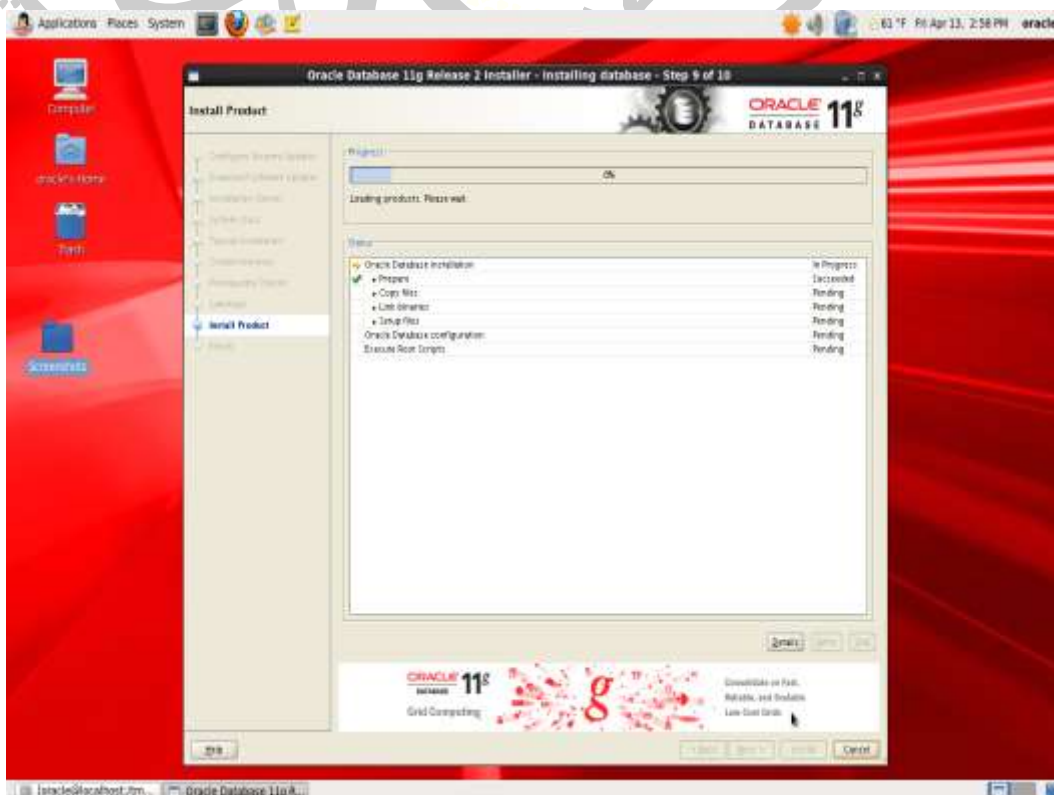
15. The next screen shows a summary of the Prerequisite checks. You will **not** see this screen if all of the prerequisite checks passed. I show this screen just in case there is a prerequisite that does not pass on your system. Take care of the problem and click Next.



16. The next screen shows a summary prior to installation of the database. Click Install to start the installation process.



17. This is what you will see during the installation process. Revel in its mystery!

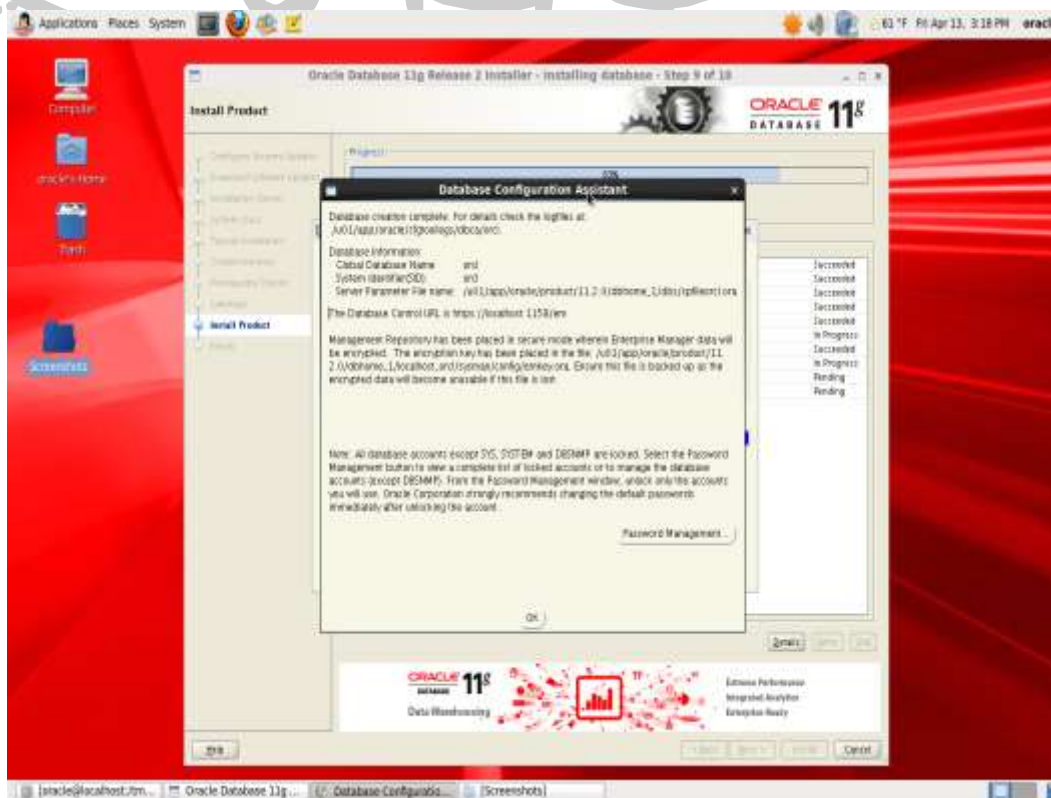




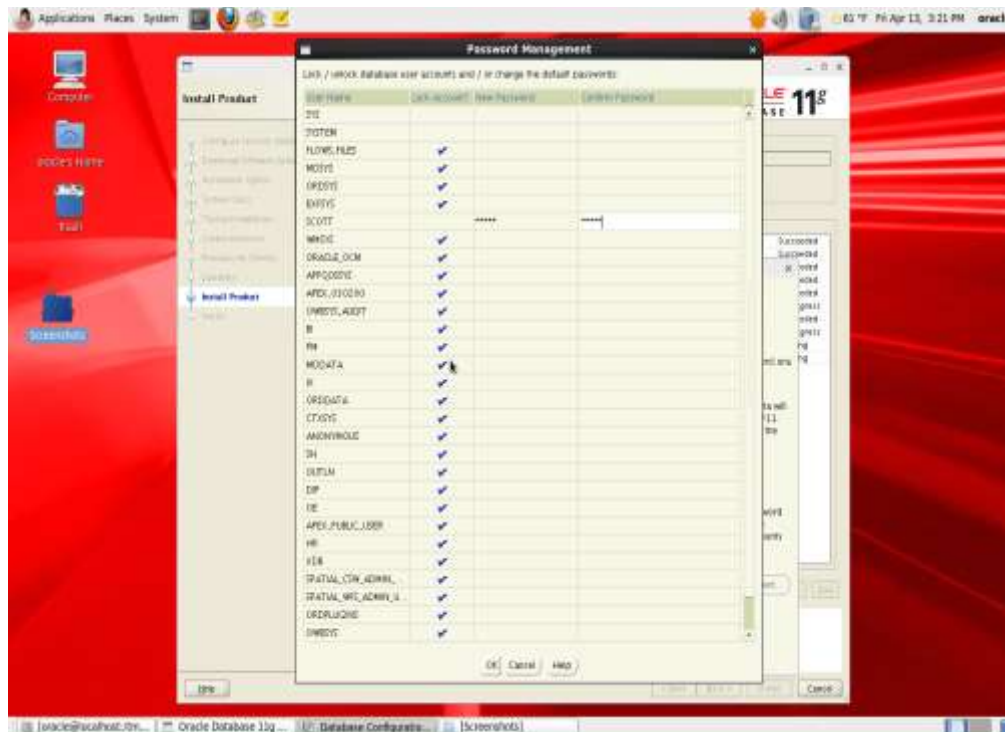
18. Eventually, you will see the following screen indicating that the Oracle Database Configuration Assistant is creating a database for you:



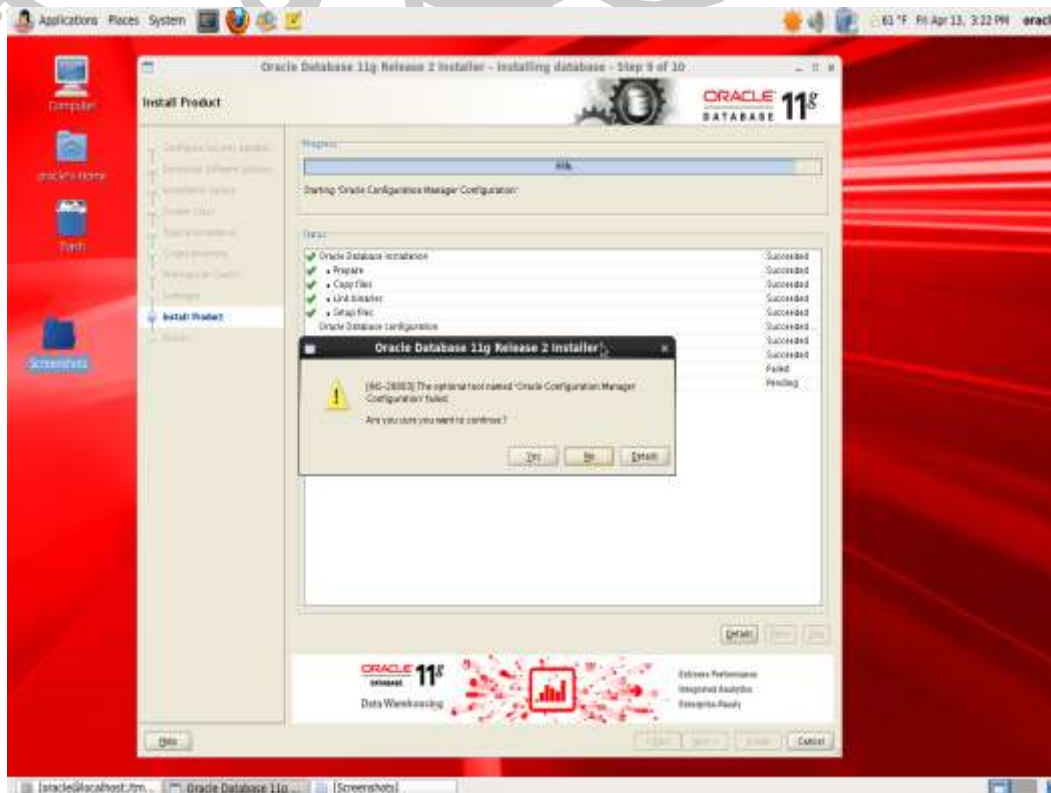
19. The Database Configuration Assistant will indicate that the creation of the database is complete by showing you the lovely screen below.



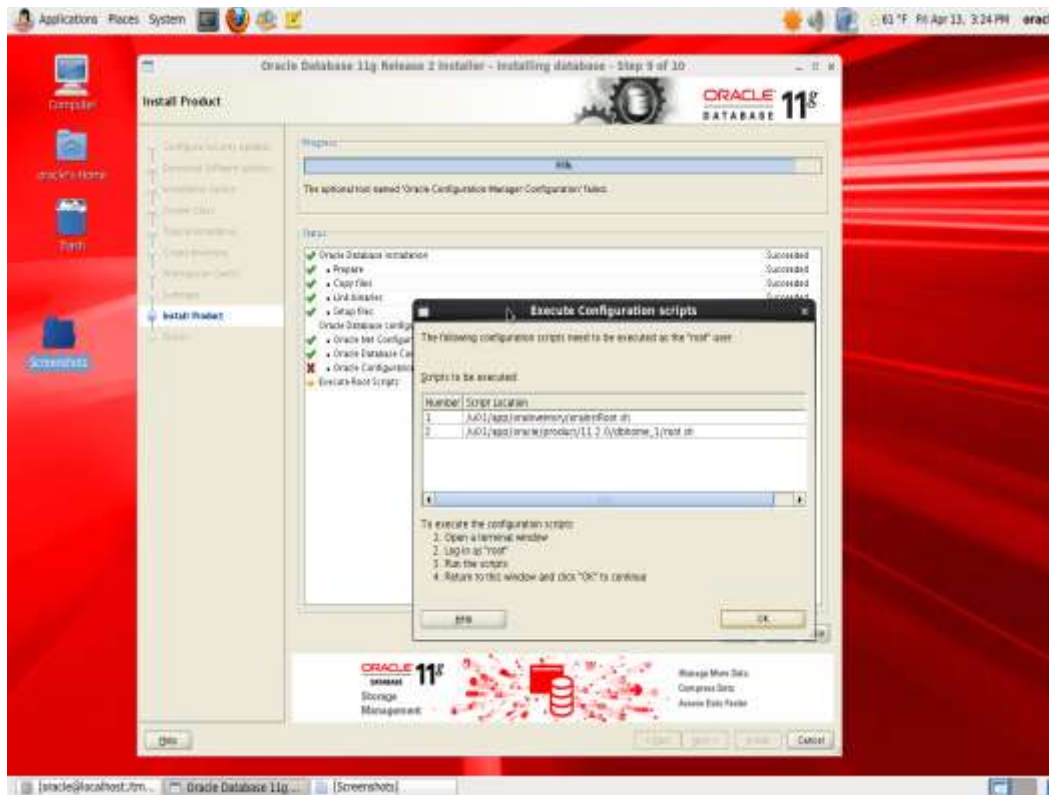
20. Click on the Password Management button. This brings up the dialog shown below. Remove the checkmark to the right of the SCOTT user and enter in the user's password (traditionally, it's tiger which probably means you don't want to use tiger). Click OK.



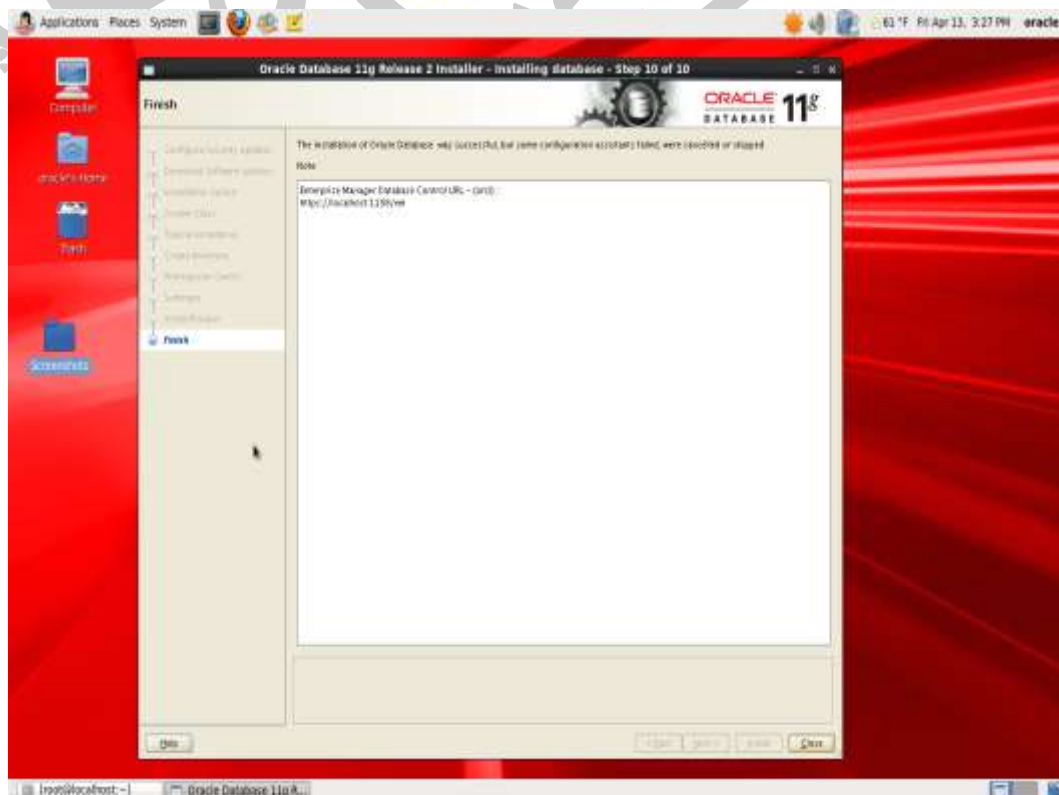
21. Click Yes when you are told that the Oracle Configuration Manager Configuration has failed. I suspect this happens because the word *configuration* appears too many times, but that's just a guess.



22. At this point in the installation process, you will be asked to run **two** scripts as `root`. Log in as `root` and execute these two scripts in a terminal (you can copy the text directly from the dialog box itself).



23. Finally, you are told that installation finished successfully. Click the Close button.



24. For the `oracle` user as well as any additional users of the database, you will have to update the user-specific `.bash_profile` to contain the following entries (adjust for your system):

```
# .bash_profile

# Get the aliases and functions
if [ -f ~/.bashrc ]; then
    . ~/.bashrc
fi

# User specific environment and startup programs

PATH=$PATH:$HOME/bin

export PATH

alias lsf="ls -aF"

export ORACLE_BASE=/u01/app/oracle
export ORACLE_SID=orcl
export TMP=/u01/tmp
export TMPDIR=/u01/tmp
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0/dbhome_1
export R_HOME=/usr/lib64/R
export PATH=$PATH:$ORACLE_HOME/bin
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:$R_HOME/lib
```

Although we did not install R on the server yet, please ensure that `oracle` user has `R_HOME` defined as `/usr/lib64/R` (`export R_HOME=/usr/lib64/R`).

## C. Install R on the Oracle Linux Server

This section outlines how to install R (2.13.2) on the Oracle Linux 64-bit server. Note that I provide two different series of instructions. The first series is what the Oracle documentation says to do which did not work for me; and, the second series is my workaround.

### Series 1 – Install R 2.13.2 based on Oracle's Instructions

1. Log in as `root`.
2. At the command line, issue the following command:

```
yum install R.x86-64
```

3. If you received successful installation messages, then you're good to go and can skip Series 2.

### Series 2 – (Series 1 Failed) Install R 2.13.2 based on My Workaround

When I attempted to perform the instructions as outlined in Series 1, I received dependency warnings and the installation of R was aborted. I believe that this is due to the fact that the installation of Oracle Linux 6 Release 2 installs newer versions of TCL and TK. Specifically, Oracle Linux 6 Release 2 installs TK 8.5 and TCL 8.5 whereas the R.x86-64 RPM requires TK 8.4 and TCL 8.4 to satisfy its dependencies. Yes, the later versions of TCL and TK should work, but again it's a dependency issue.

1. Log in as `root`.
2. Navigate your browser to:

[http://public-yum.oracle.com/repo/EnterpriseLinux/EL5/5/base/x86\\_64/](http://public-yum.oracle.com/repo/EnterpriseLinux/EL5/5/base/x86_64/)

3. Download the following RPMs:

- a. `tk-8.4.13-5.el5_1.1.x86_64.rpm`
- b. `tcl-8.4.13-4.el5.x86_64.rpm`

4. At the command line, issue the following commands:

```
rpm -ivh --force tk-8.4.13-5.el5_1.1.x86_64.rpm  
rpm -ivh --force tcl-8.4.13-4.el5.x86_64.rpm
```

5. With these two dependencies satisfied, at the command line, issue the following command and be sure to answer `Is this okay` with a `y`:

```
yum install R.x86-64
```

You should see something like this:

```
Loaded plugins: refresh-packagekit, security  
Setting up Install Process  
Resolving Dependencies  
--> Running transaction check
```

```

---> Package R.x86_64 0:2.13.2-5.el5 will be installed
--> Processing Dependency: libRmath-devel = 2.13.2-5.el5 for package: R-2.13.2-5.el5.x86_64
--> Processing Dependency: R-devel = 2.13.2-5.el5 for package: R-2.13.2-5.el5.x86_64
--> Running transaction check
---> Package R-devel.x86_64 0:2.13.2-5.el5 will be installed
--> Processing Dependency: R-core = 2.13.2-5.el5 for package: R-devel-2.13.2-5.el5.x86_64
--> Processing Dependency: pcre-devel for package: R-devel-2.13.2-5.el5.x86_64
--> Processing Dependency: tk-devel for package: R-devel-2.13.2-5.el5.x86_64
--> Processing Dependency: tcl-devel for package: R-devel-2.13.2-5.el5.x86_64
---> Package libRmath-devel.x86_64 0:2.13.2-5.el5 will be installed
--> Processing Dependency: libRmath = 2.13.2-5.el5 for package: libRmath-devel-2.13.2-5.el5.x86_64
--> Running transaction check
---> Package R-core.x86_64 0:2.13.2-5.el5 will be installed
---> Package libRmath.x86_64 0:2.13.2-5.el5 will be installed
---> Package pcre-devel.x86_64 0:7.8-3.1.el6 will be installed
---> Package tcl-devel.x86_64 1:8.5.7-6.el6 will be installed
---> Package tk-devel.x86_64 1:8.5.7-5.el6 will be installed
--> Finished Dependency Resolution

```

Dependencies Resolved

```

=====
Package                Arch      Version      Repository      Size
=====
Installing:
R                       x86_64    2.13.2-5.el5  el6_addons     15 k
Installing for dependencies:
R-core                  x86_64    2.13.2-5.el5  el6_addons     28 M
R-devel                 x86_64    2.13.2-5.el5  el6_addons     89 k
libRmath                x86_64    2.13.2-5.el5  el6_addons    112 k
libRmath-devel         x86_64    2.13.2-5.el5  el6_addons     20 k
pcre-devel              x86_64    7.8-3.1.el6   ol6_latest     317 k
tcl-devel               x86_64    1:8.5.7-6.el6 ol6_latest     161 k
tk-devel                x86_64    1:8.5.7-5.el6 ol6_latest     496 k
=====

```

Transaction Summary

```

-----
Install      8 Package(s)
-----

```

Total download size: 29 M

Installed size: 54 M

Is this ok [y/N]: y

Downloading Packages:

```

(1/8): R-2.13.2-5.el5.x86_64.rpm | 15 kB      00:00
(2/8): R-core-2.13.2-5.el5.x86_64.rpm | 28 MB     00:27
(3/8): R-devel-2.13.2-5.el5.x86_64.rpm | 89 kB     00:00
(4/8): libRmath-2.13.2-5.el5.x86_64.rpm | 112 kB    00:00
(5/8): libRmath-devel-2.13.2-5.el5.x86_64.rpm | 20 kB    00:00
(6/8): pcre-devel-7.8-3.1.el6.x86_64.rpm | 317 kB   00:00
(7/8): tcl-devel-8.5.7-6.el6.x86_64.rpm | 161 kB   00:00
(8/8): tk-devel-8.5.7-5.el6.x86_64.rpm | 496 kB   00:00
-----

```

```

Total                               976 kB/s | 29 MB   00:30

```

warning: rpmts\_HdrFromFdno: Header V3 DSA/SHA1 Signature, key ID 1e5e0159: NOKEY

Retrieving key from http://public-yum.oracle.com/RPM-GPG-KEY-oracle-el5

Importing GPG key 0x1E5E0159:

Userid: "Oracle OSS group (Open Source Software group) <build@oss.oracle.com>"

From : http://public-yum.oracle.com/RPM-GPG-KEY-oracle-el5

Is this ok [y/N]: y

Running rpm\_check\_debug

Running Transaction Test

Transaction Test Succeeded

Running Transaction

Warning: RPMDB altered outside of yum.

\*\* Found 2 pre-existing rpmdb problem(s), 'yum check' output follows:

1:tcl-8.5.7-6.el6.x86\_64 is a duplicate with tcl-8.4.13-4.el5.x86\_64

1:tk-8.5.7-5.el6.x86\_64 is a duplicate with tk-8.4.13-5.el5\_1.1.x86\_64

```

Installing : 1:tcl-devel-8.5.7-6.el6.x86_64          1/8
Installing : 1:tk-devel-8.5.7-5.el6.x86_64          2/8
Installing : R-core-2.13.2-5.el5.x86_64             3/8
Installing : libRmath-2.13.2-5.el5.x86_64           4/8
Installing : libRmath-devel-2.13.2-5.el5.x86_64     5/8
Installing : pcre-devel-7.8-3.1.el6.x86_64         6/8
Installing : R-devel-2.13.2-5.el5.x86_64           7/8
Installing : R-2.13.2-5.el5.x86_64                 8/8

```

Installed:

R.x86\_64 0:2.13.2-5.e15

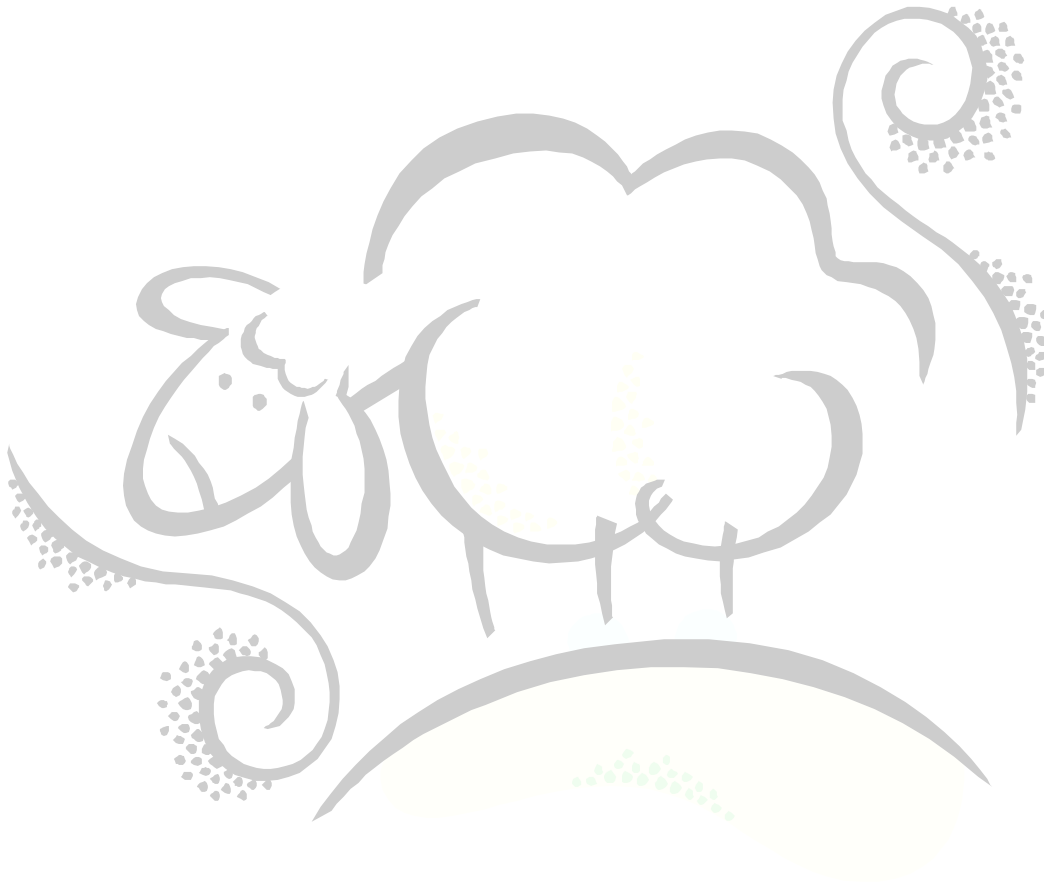
Dependency Installed:

R-core.x86\_64 0:2.13.2-5.e15 R-devel.x86\_64 0:2.13.2-5.e15 libRmath.x86\_64 0:2.13.2-5.e15  
libRmath-devel.x86\_64 0:2.13.2-5.e15 pcre-devel.x86\_64 0:7.8-3.1.e16  
tcl-devel.x86\_64 1:8.5.7-6.e16 tk-devel.x86\_64 1:8.5.7-5.e16

Complete!

6. Ensure that the `root` user has `R_HOME` defined as `/usr/lib64/R` in its `.bash_profile` scripts. Add the following line to it, or issue it at the command line:

```
export R_HOME=/usr/lib64/R
```



## D. Start the Oracle Database and Listener on the Server

Before we move on to installing the rest of the software, let's start the Oracle database as well as the Listener.

1. Log in as `oracle`.
2. Open up a terminal window and issue the following command:

```
sqlplus / as SYSDBA
```

3. In SQL\*Plus, you should be told that you've logged in to an inactive instance. Issue the following SQL\*Plus command:

```
startup
```

4. The database should startup by indicating that the database is mounted and opened.
5. Exit SQL\*Plus by entering in the keyword `exit` and hitting the Enter key.
6. Start the Oracle Listener by issuing the following command at the command line:

```
lsnrctl start
```

7. Ensure that the operating system is connected to the network and that you have enabled Trusted Interfaces for `eth0`. (See Section A/Step 4 above for detailed instructions.)
8. Determine the IP address (or hostname) of the server by entering the `ifconfig` command at the command line and looking for the IP address under the `eth0` section. Take note of this IP address. Here is an example from my system:

```
eth0  Link encap:Ethernet  HWaddr 00:1E:68:97:73:8A
      inet addr:192.168.0.253  Bcast:192.168.0.255  Mask:255.255.255.0
      inet6 addr: fe80::21e:68ff:fe97:738a/64 Scope:Link
      UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
      RX packets:1664 errors:0 dropped:0 overruns:0 frame:0
      TX packets:33 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:115035 (112.3 KiB)  TX bytes:5073 (4.9 KiB)
      Interrupt:18

lo    Link encap:Local Loopback
      inet addr:127.0.0.1  Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
      UP LOOPBACK RUNNING  MTU:16436  Metric:1
      RX packets:980 errors:0 dropped:0 overruns:0 frame:0
      TX packets:980 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:0
      RX bytes:88313 (86.2 KiB)  TX bytes:88313 (86.2 KiB)
```



## E. Install the Oracle Client on the Windows Client Machine

The instructions provided by Oracle say to take care of the installation and configuration of the client machine(s) next. Yes, we still have to install Oracle R Enterprise on the server, but we'll do that later after the client(s) are ready. In this section, we outline how to install the Oracle Client software on a Windows PC (Windows XP 32-bit, in my case...oh, shut up!).

### Pre-Step 1 – Download the Oracle11g Release 2 Database Client Software

To download Oracle11gR2 client software, follow these instructions:

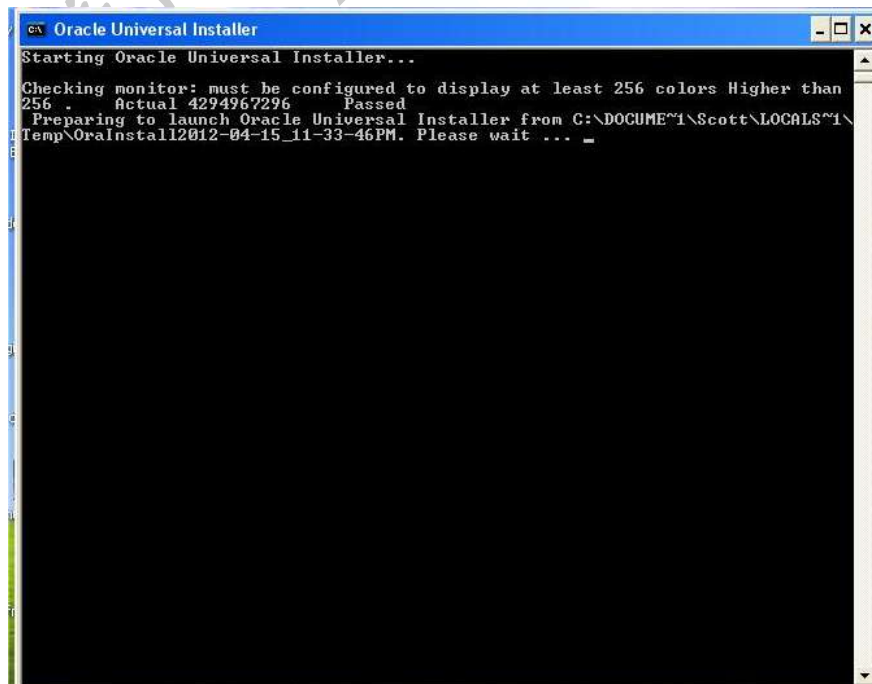
- a. Navigate to Oracle's website at <http://www.oracle.com>.
- b. Click on the Download button at the top of the page.
- c. Click on the Database 11g link.
- d. Click on the radio button to the left of the text Accept License Agreement.
- e. Click on the See All link to the right of Microsoft Windows (32-bit).
- f. Click on the radio button to the left of the text Accept License Agreement.
- g. Download the file `win32_11gR2_client.zip` to your client machine.
- h. You may be asked to sign in. Go ahead and enter in your username and password and the download will start.

### Pre-Step 2 – Unzip the Client Software

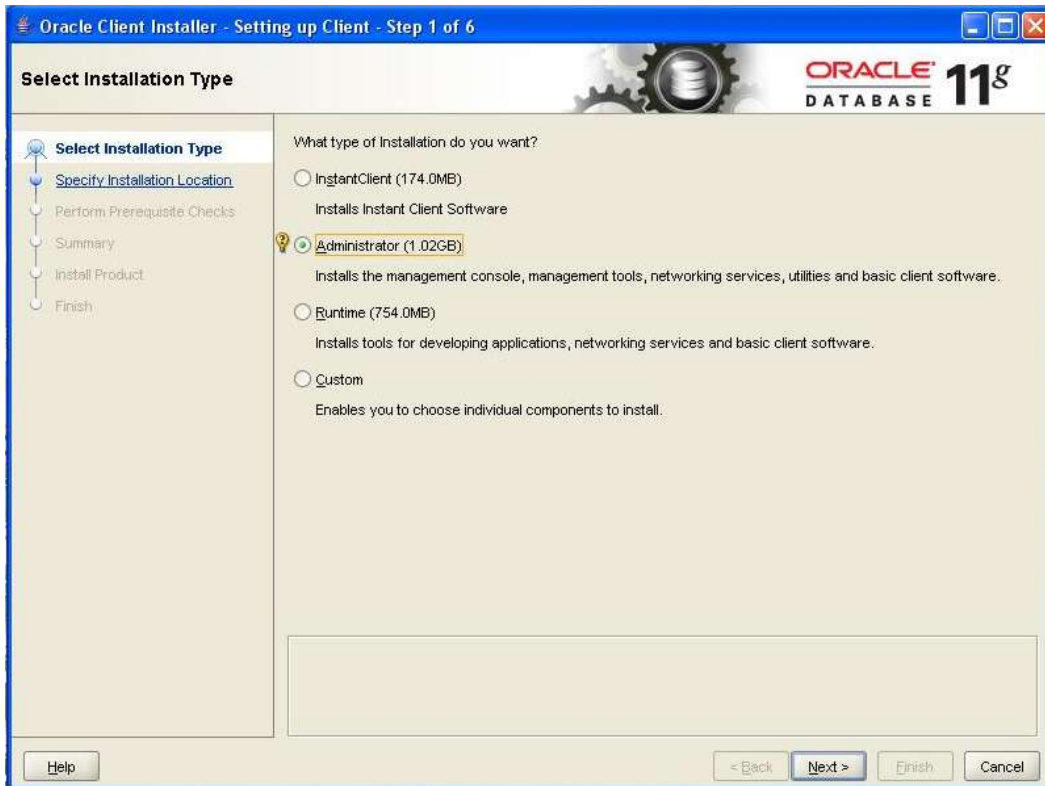
1. Using your favorite unzipping software, unzip `win32_11gR2_client.zip` to your PC's hard drive.

### Step 1 – Install the Client Software

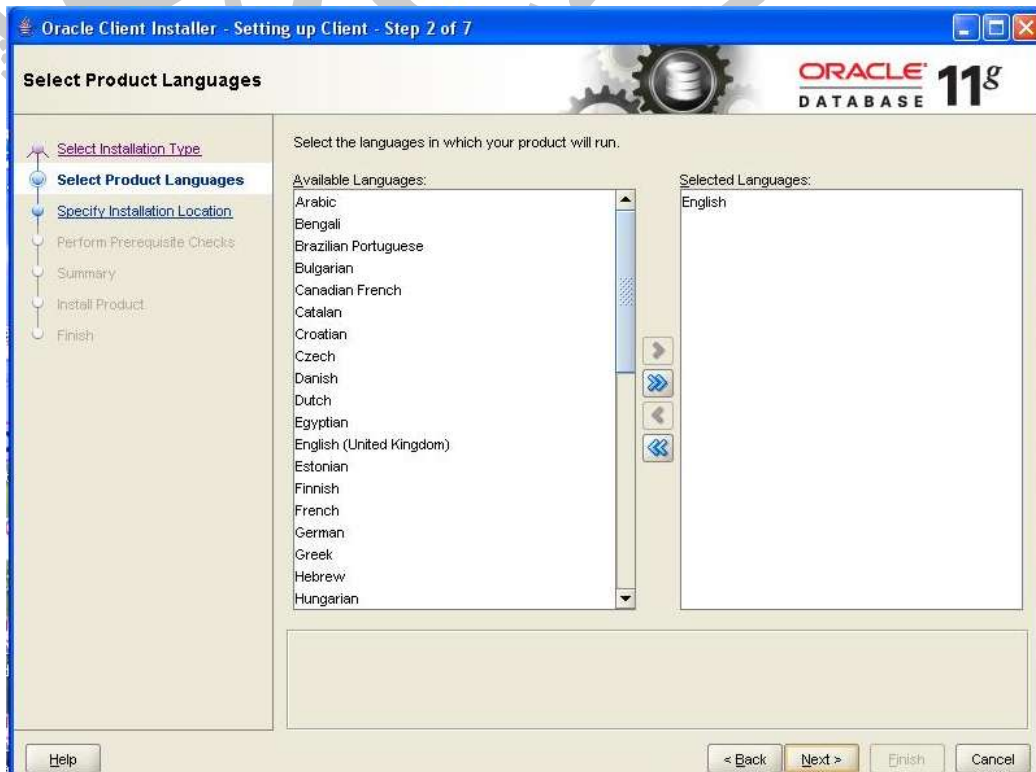
1. Locate the `setup.exe` executable and double-click on this to start it. Note that you may need to enable permissions to run this software. You will initially see the following screen:



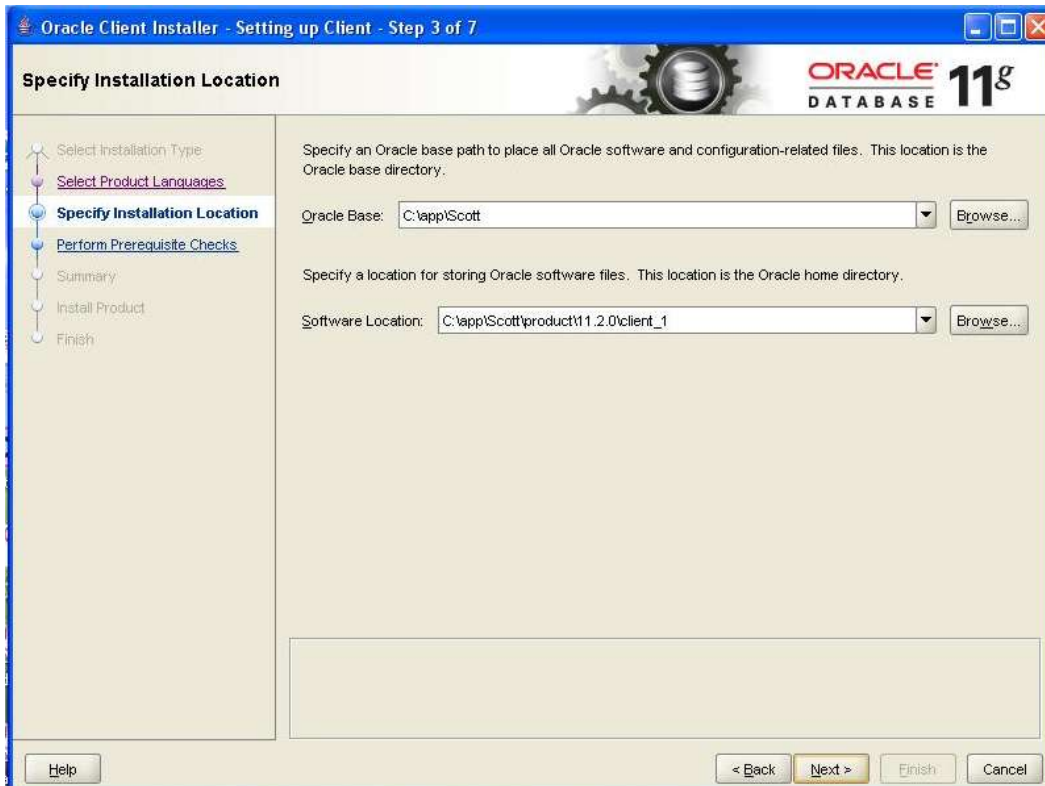
2. Eventually, the mysterious black screen will be replaced with the following dialog box asking you to Select Installation Type. Click on Administrator and click Next.



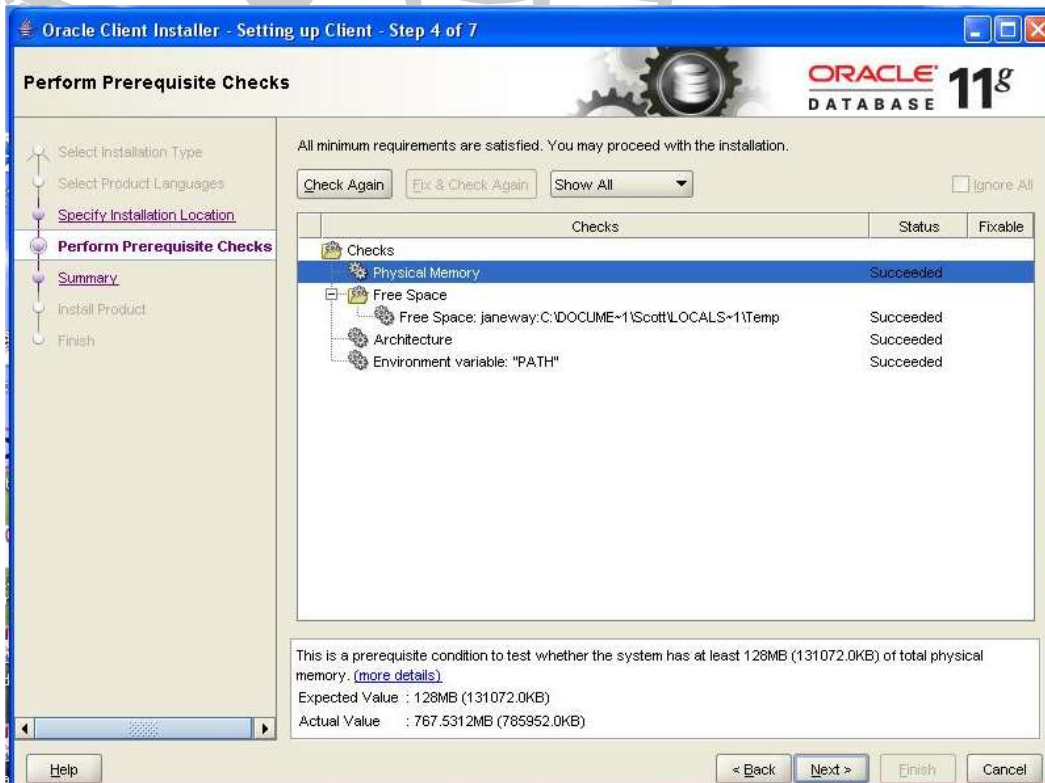
3. Select your language and click Next.



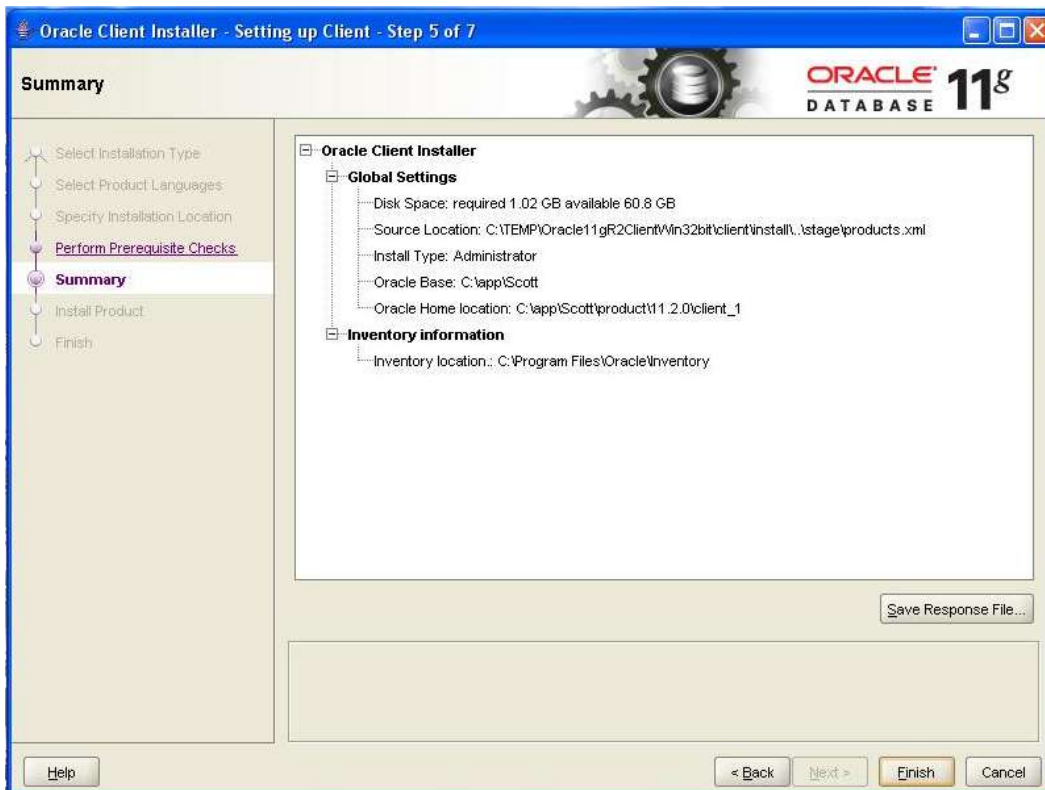
- Specify your installation location and click Next. Take note of the Software Location because the `tnsnames.ora` file is located under this folder (see Step 10).



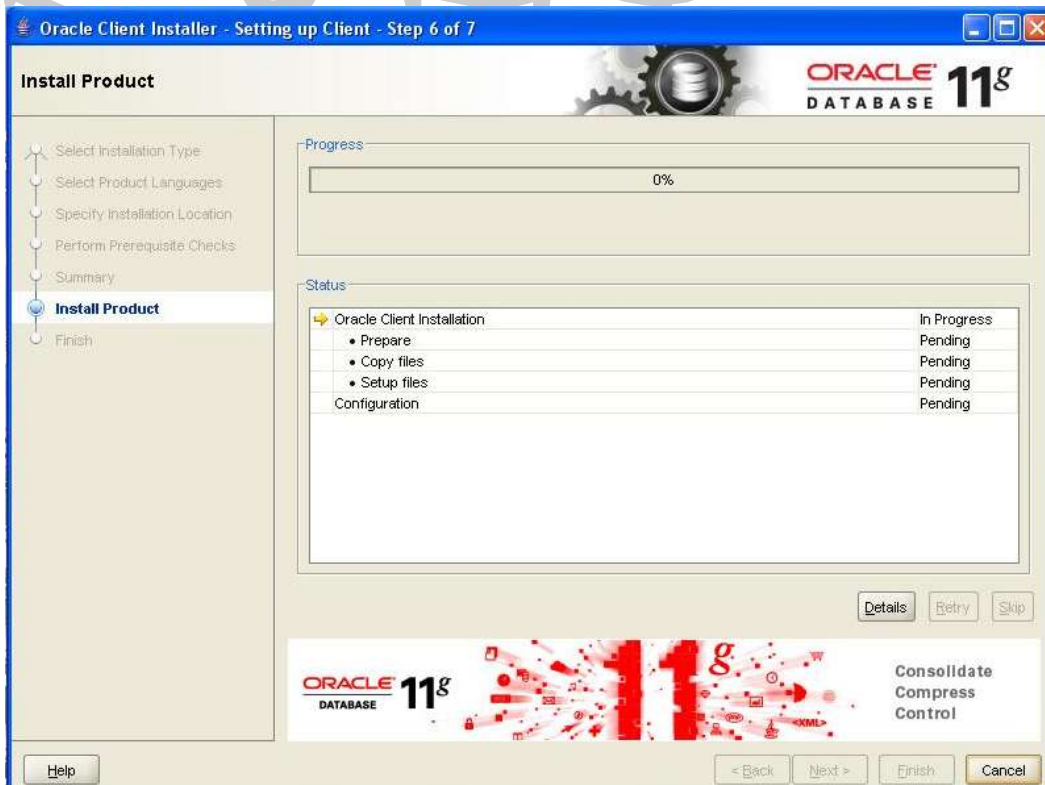
- The next screen performs pre-requisite checks. If everything goes well, you may not even see this screen. If there is a boo-boo, fix it and click Next.



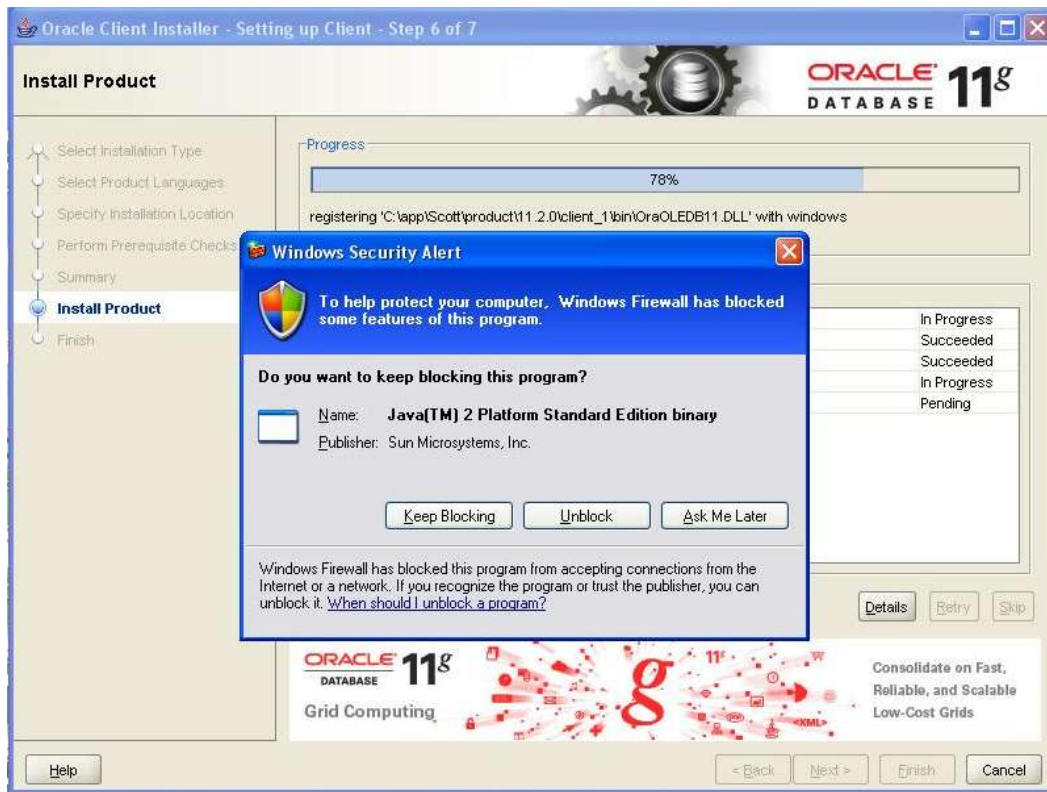
6. You will see the following summary screen. Click Finish to begin the installation of the Oracle Client Software.



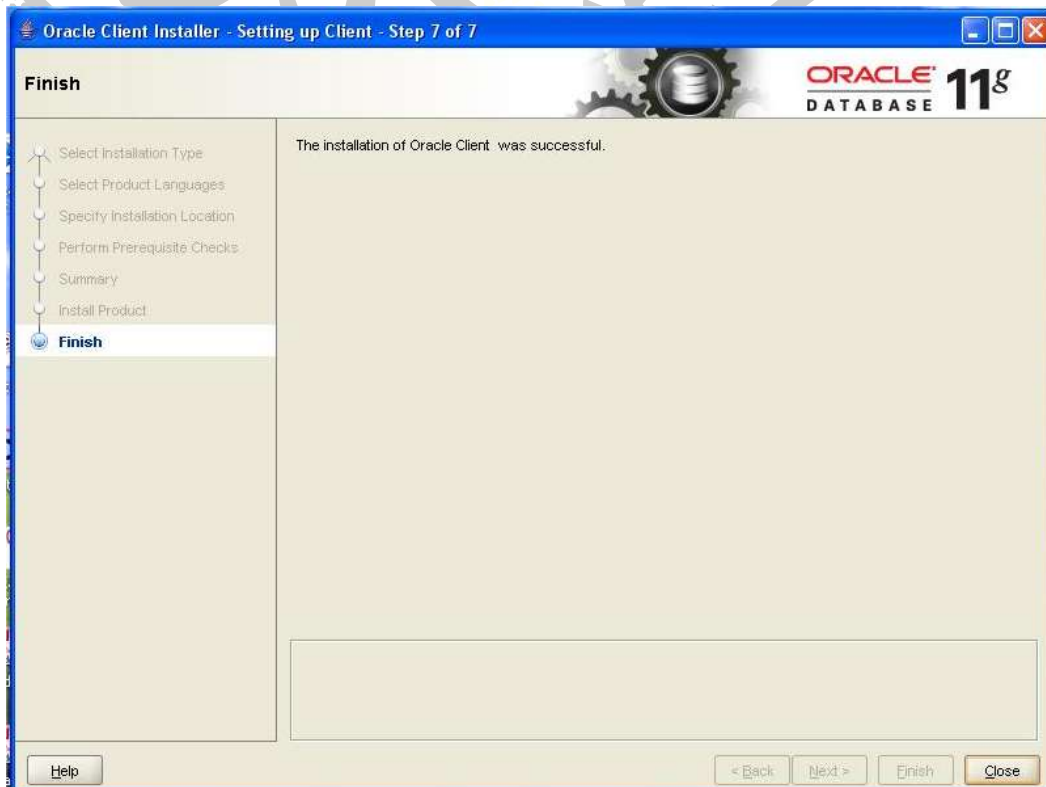
7. This is what you will see during the installation process..my, oh my, this screen looks suspiciously familiar!



8. You may be asked to Unblock Java because the Windows Firewall has no guts. Click the Unblock button.



9. Finally, you will see the following screen when the installation completes. Click Close.



10. You must update the `tnsnames.ora` file on the client machine in order for the Oracle client software to know where on which server Oracle database is located. The `tnsnames.ora` file is located under `SOFTWARE_LOCATION\network\admin` on your hard drive, where `SOFTWARE_LOCATION` is the Software Location indicated in Step 4 above. Specifically, the `tnsnames.ora` file located on the Server contains the definition of the ORCL database. Copy this text over to the client ensuring that the correct IP address or hostname for your server is used!
11. Test access to the database by starting the SQL\*Plus command line with the following command (replacing the password `tiger` with the password you used):

```
sqlplus scott/tiger@orcl
```

If all goes well, you should be given a SQL prompt.



## F. Install R (2.13.2) on the Windows Client Machine

Next, we install R (2.13.2) on the Windows client machine.

### Step 1 – Download and Install the R (2.13.2) Software

1. Navigate to <http://cran.r-project.org>.
2. Click on the Download R for Windows link.
3. Click on the base link.
4. Click on the Previous releases link under the Other builds heading.
5. Locate R 2.13.2 (September, 2011) and click on the link.
6. Click on the Download R 2.13.2 for Windows link and click on Run to start the installation of R 2.13.2. If you see the following dialog box, click on Run.



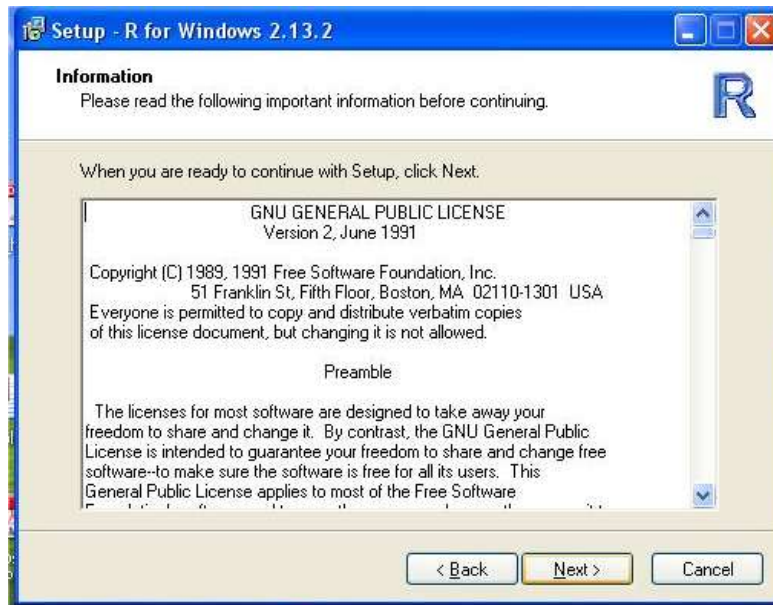
7. Select your language and click OK.



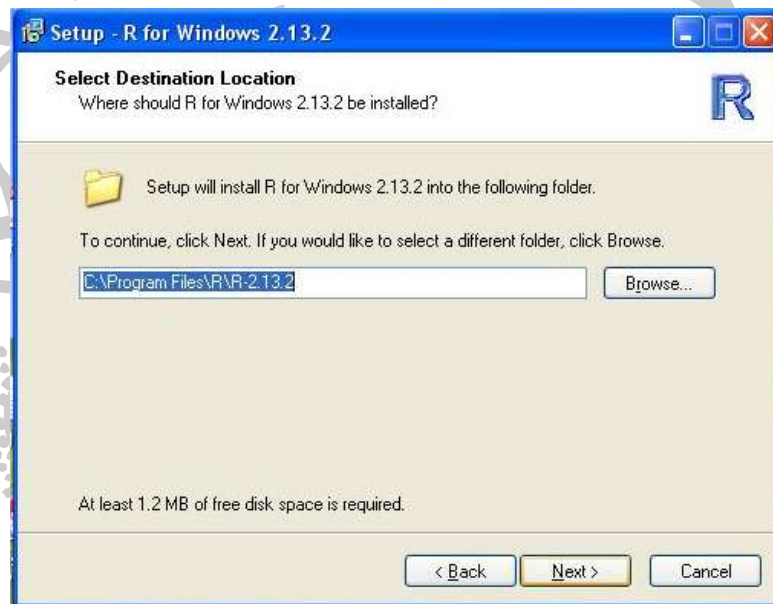
8. Click Next when the Welcome screen is displayed.



9. Click Next when the Information dialog is displayed.

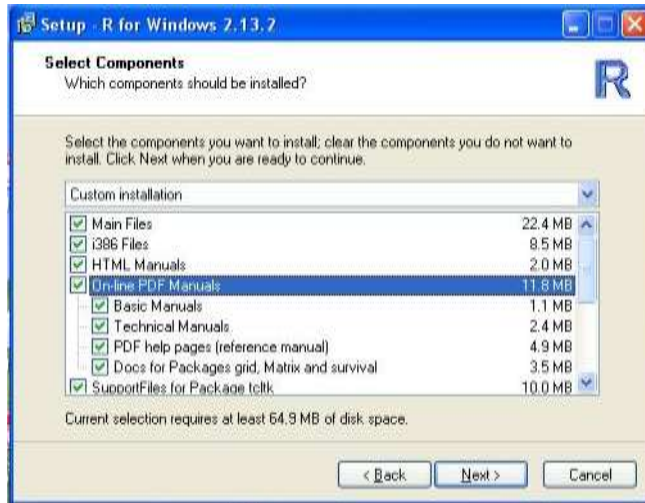


10. Click Next when the Select Destination Location dialog is displayed:

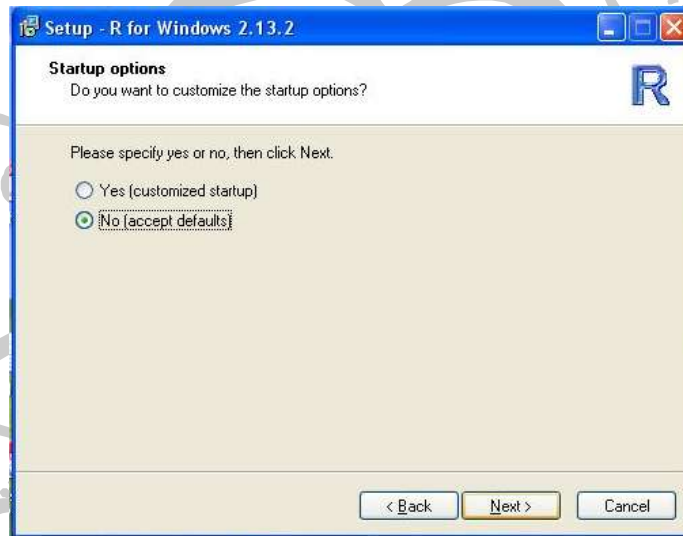


11. On the Select Components dialog, select Custom installation from the drop-down box and select all of the components. Click Next.

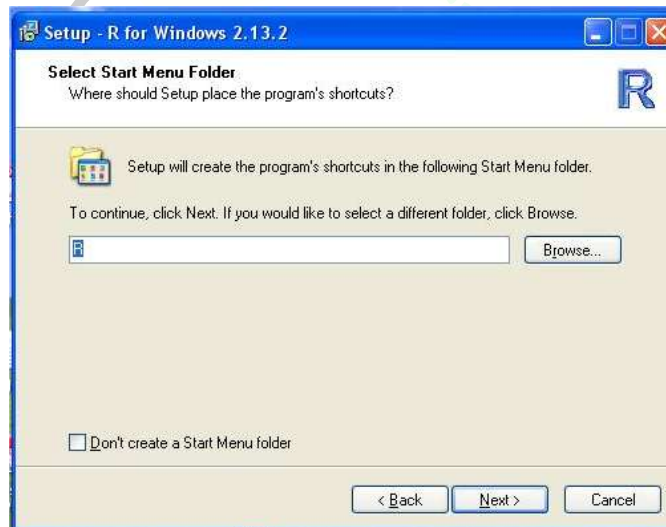




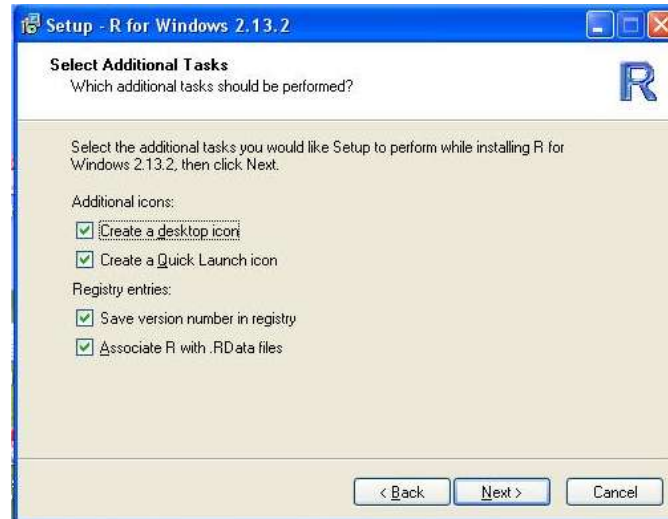
12. Ensure the radio button to the left of the text No (accept defaults) is selected on the Startup Options dialog box. Click Next.



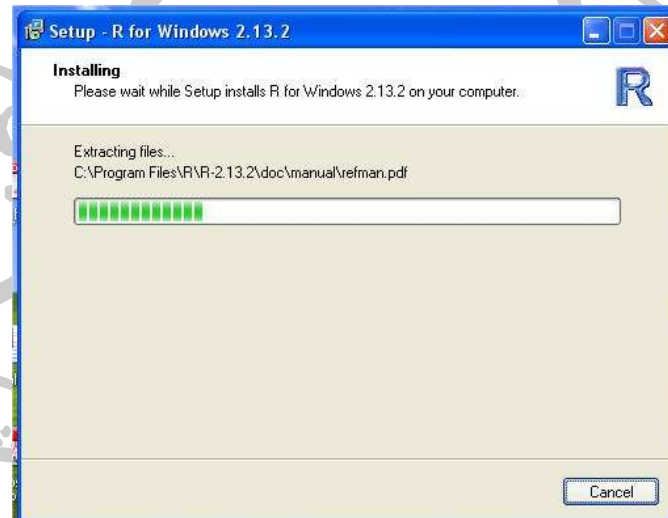
13. Click Next when the Select Start Menu Folder is displayed.



14. On the Select Additional Tasks dialog, ensure that all checkboxes are checked. Click Next.



15. As the installation proceeds, you will see this dialog:

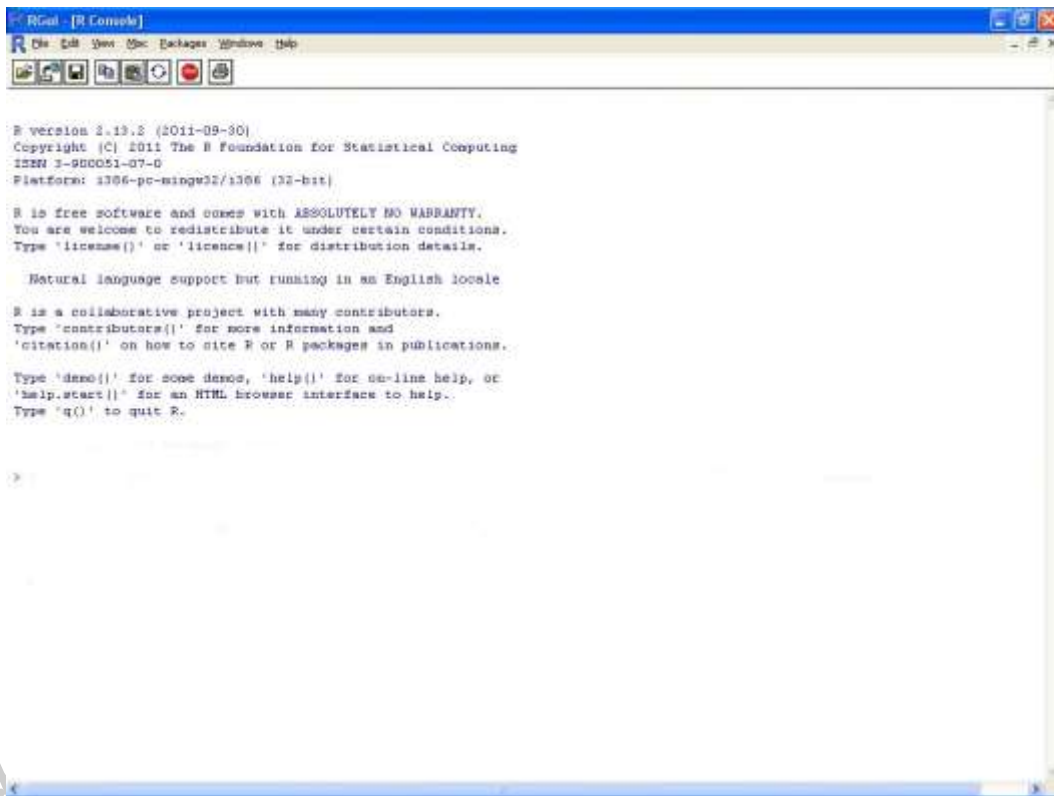


16. Finally, with no fanfare whatsoever, you will see the completed dialog. Click Finish.



## Step 2 – Test the R Installation

1. Locate the stylized capital R on your desktop and double-click it. R should start and you should see something like the following:



```
RGui - [R Console]
File Edit View Options Packages Windows Help

R version 2.13.2 (2011-09-30)
Copyright (C) 2011 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: i386-pc-mingw32/i386 (32-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

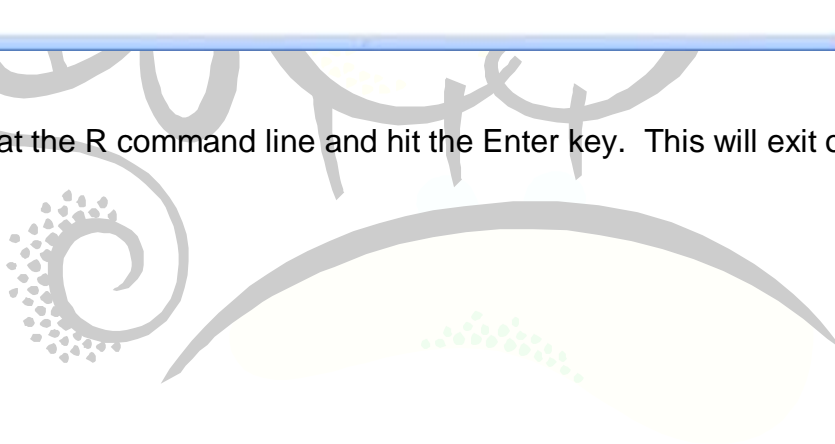
Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

>
```

2. Type `q("no")` at the R command line and hit the Enter key. This will exit out of R.



## G. Install Oracle R Client on the Windows Client Machine

Next, we install Oracle R Enterprise (version 1.1) on the Windows Client Machine. This will install several packages for R to use to communicate with the Oracle database on the server as well as use the additional features provided by Oracle R Enterprise.

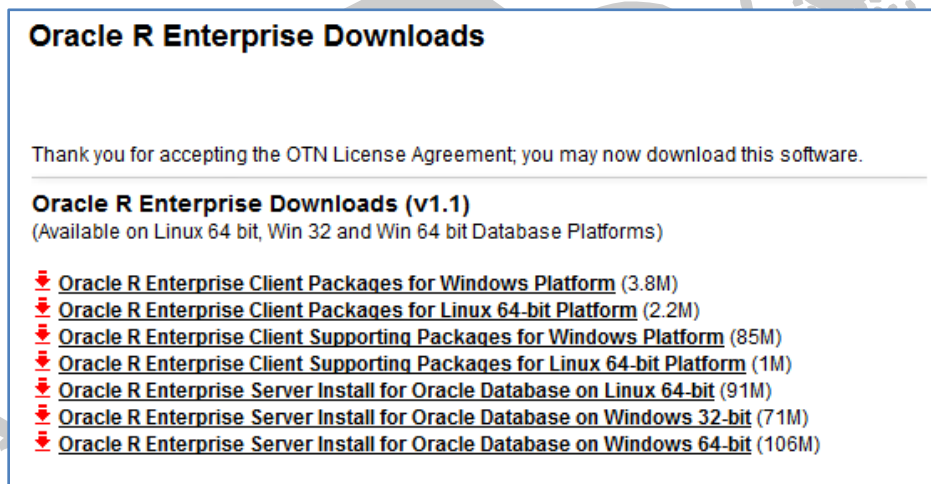
### Step 1 – Download and Install the Oracle R Client on the Windows Machine

1. Navigate your browser to the following URL:

<http://www.oracle.com/technetwork/database/options/advanced-analytics/r-enterprise/ore-downloads-1502823.html>

2. Click the radio button to the left of Accept License Agreement.

3. As you see below, there are seven files under the heading Oracle R Enterprise Downloads (v1.1).



**Oracle R Enterprise Downloads**

Thank you for accepting the OTN License Agreement; you may now download this software.

**Oracle R Enterprise Downloads (v1.1)**  
(Available on Linux 64 bit, Win 32 and Win 64 bit Database Platforms)

- ↓ [Oracle R Enterprise Client Packages for Windows Platform](#) (3.8M)
- ↓ [Oracle R Enterprise Client Packages for Linux 64-bit Platform](#) (2.2M)
- ↓ [Oracle R Enterprise Client Supporting Packages for Windows Platform](#) (85M)
- ↓ [Oracle R Enterprise Client Supporting Packages for Linux 64-bit Platform](#) (1M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Linux 64-bit](#) (91M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Windows 32-bit](#) (71M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Windows 64-bit](#) (106M)

For the Windows 32-bit client, download the following two files:

- Oracle R Enterprise Client Packages for Windows Platform (`ore-client-windows-1.1.zip`)
- Oracle R Enterprise Client Supporting Packages for Windows Platform (`ore-supporting-windows-1.1.zip`)

4. Unzip these two zipped files on the Windows client in the folder `C:\TEMP\OracleREnterpriseV11`.

5. Start R 2.13.2 on the Windows client machine.

6. Issue the following two commands within the R GUI:

```
install.packages(c("ROracle", "png"), repos="file:///C:/TEMP/OracleREnterpriseV11/ore-supporting-windows-1.1", type="win.binary")
install.packages("ORE", repos="file:///C:/TEMP/OracleREnterpriseV11/ore-client-windows-1.1", type="win.binary")
```

7. If everything is successful, you can quit out of R: `q("no")`.

## H. Install Oracle R Client on the Oracle Linux Server (Optional)

**While not strictly necessary**, if you plan on using the Linux server as a client machine to test Oracle R Enterprise, you will have to download the Oracle R Enterprise (v1.1) client for Linux x86-64 and install it on the server. Although not necessary, some Oracle R functions will require the ORE library to be installed, so you may want to do this step anyway!

Also, note that the instructions provided below will **ONLY** work when installing the client software **on the server itself**. If you have one or more Linux **client machines**, you will also have to install the Instant Client Downloads for Linux x86-64. Please see page 2-6 in the document *Oracle R Enterprise User's Guide Release 11.2 for Linux and Windows (E26499-04/March 2012)* for more information.

### Step 1 – Download and Install the Oracle R Client on the Oracle Linux (64-bit) Server

1. Log in as `root`.
2. Navigate your browser to the following URL:

<http://www.oracle.com/technetwork/database/options/advanced-analytics/r-enterprise/ore-downloads-1502823.html>

3. Click the radio button to the left of Accept License Agreement.
4. As you see below, there are seven files under the heading Oracle R Enterprise Downloads (v1.1).

#### Oracle R Enterprise Downloads

Thank you for accepting the OTN License Agreement; you may now download this software.

##### Oracle R Enterprise Downloads (v1.1)

(Available on Linux 64 bit, Win 32 and Win 64 bit Database Platforms)

- ↓ [Oracle R Enterprise Client Packages for Windows Platform](#) (3.8M)
- ↓ [Oracle R Enterprise Client Packages for Linux 64-bit Platform](#) (2.2M)
- ↓ [Oracle R Enterprise Client Supporting Packages for Windows Platform](#) (85M)
- ↓ [Oracle R Enterprise Client Supporting Packages for Linux 64-bit Platform](#) (1M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Linux 64-bit](#) (91M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Windows 32-bit](#) (71M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Windows 64-bit](#) (106M)

5. For the Linux 64-bit client, download the following two files:
  - a. Oracle R Enterprise Client Packages for Linux 64-bit Platform (`ore-linux-x86-64-1.1.zip`)
  - b. Oracle R Enterprise Client Supporting Packages for Linux 64-bit Platform (`ore-supporting-linux-x86-64-1.1.zip`)
6. Ensure that the variables `ORACLE_HOME` and `R_HOME` are defined for `root` as:

```
export ORACLE_HOME=/u01/app/oracle/product/11.2.0/dbhome_1
export R_HOME=/usr/lib64/R
```

7. Unzip the two files to /tmp/ore. Two subdirectories are created: supporting and client.
8. Change directory to /tmp/ore/supporting and issue the following commands:

```
R CMD INSTALL DBI_0.2-5_R_x86_64-unknown-linux-gnu.tar.gz
R CMD INSTALL ROracle_1.1-1_R_x86_64-unknown-linux-gnu.tar.gz
R CMD INSTALL png_0.1-4_R_x86_64-unknown-linux-gnu.tar.gz
```

9. Change directory to /tmp/ore/client and issue the following commands:

```
R CMD INSTALL ORE_1.1_R_x86_64-unknown-linux-gnu.tar.gz
R CMD INSTALL OREbase_1.1_R_x86_64-unknown-linux-gnu.tar.gz
R CMD INSTALL OREeda_1.1_R_x86_64-unknown-linux-gnu.tar.gz
R CMD INSTALL OREgraphics_1.1_R_x86_64-unknown-linux-gnu.tar.gz
R CMD INSTALL OREstats_1.1_R_x86_64-unknown-linux-gnu.tar.gz
R CMD INSTALL ORExml_1.1_R_x86_64-unknown-linux-gnu.tar.gz
```



## I. Install Oracle R Enterprise (v1.1) on the Oracle Linux Server

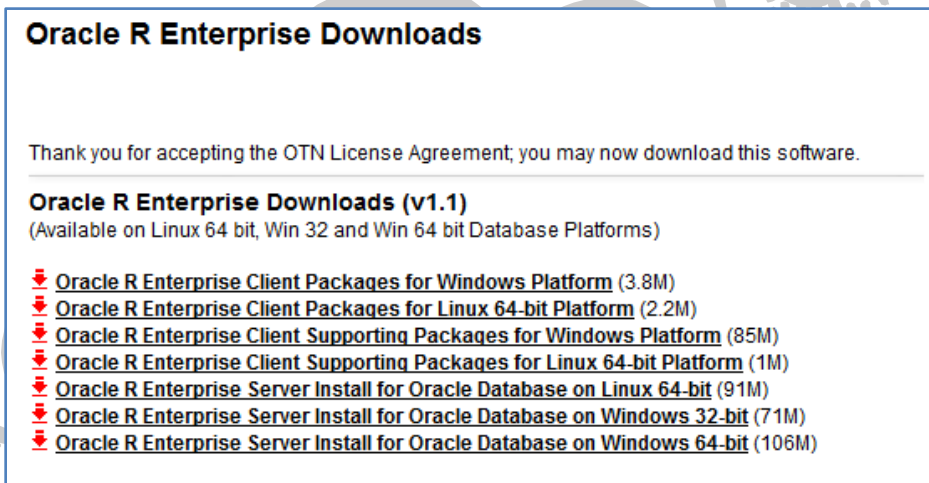
This section outlines how to install the Oracle R Enterprise (version 1.1) software on the Linux server.

### Step 1 – Download and Install Oracle R Enterprise (v1.1) on the Oracle Linux (64-bit) Server

1. Log in as `oracle`.
2. Navigate your browser to the following URL:

<http://www.oracle.com/technetwork/database/options/advanced-analytics/r-enterprise/ore-downloads-1502823.html>

3. Click the radio button to the left of Accept License Agreement.
4. As you see below, there are seven files under the heading Oracle R Enterprise Downloads (v1.1).



**Oracle R Enterprise Downloads**

Thank you for accepting the OTN License Agreement; you may now download this software.

**Oracle R Enterprise Downloads (v1.1)**  
(Available on Linux 64 bit, Win 32 and Win 64 bit Database Platforms)

- ↓ [Oracle R Enterprise Client Packages for Windows Platform](#) (3.8M)
- ↓ [Oracle R Enterprise Client Packages for Linux 64-bit Platform](#) (2.2M)
- ↓ [Oracle R Enterprise Client Supporting Packages for Windows Platform](#) (85M)
- ↓ [Oracle R Enterprise Client Supporting Packages for Linux 64-bit Platform](#) (1M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Linux 64-bit](#) (91M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Windows 32-bit](#) (71M)
- ↓ [Oracle R Enterprise Server Install for Oracle Database on Windows 64-bit](#) (106M)

5. For the Linux 64-bit server, download the following file:
  - a. Oracle R Enterprise Server Install for Oracle Database on Linux 64-bit (`ore-server-linux-x86-64-1.1.zip`)
6. Ensure that the variables `ORACLE_HOME` and `R_HOME` are defined for `oracle` as:

```
export ORACLE_HOME=/u01/app/oracle/product/11.2.0/dbhome_1
export R_HOME=/usr/lib64/R
```

7. Unzip the file to `/tmp/ore`. A single subdirectory is created: `server`.
8. Change directory to `/tmp/ore/server` and issue the following command:

```
./install.sh
```

9. You will be asked `Do you wish to proceed?`. Answer `yes`. You will also be asked for the names of the `PERMANENT` and `TEMPORARY` tablespaces. Hit the Enter key each time to accept the defaults. As the installation progresses, you should see output similar to the following:

```
[oracle@localhost server]$ ./install.sh
Oracle R Enterprise 1.1 Server Installation.
```

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**Do you wish to proceed? [yes] yes**

```
Checking R ..... Pass
Checking R libraries ..... Pass
Checking ORACLE_HOME ..... Pass
Checking ORACLE_SID ..... Pass
Checking sqlplus ..... Pass
Checking ORE ..... Pass
```

**Choosing RQSYS tablespaces**

**PERMANENT** tablespace to use for RQSYS [SYS\_AUX]:  
**TEMPORARY** tablespace to use for RQSYS [TEMP]:

Current configuration

```
R_HOME = /usr/lib64/R
R_LIBS_USER = /u01/app/oracle/product/11.2.0/dbhome_1/R/library
ORACLE_HOME = /u01/app/oracle/product/11.2.0/dbhome_1
ORACLE_SID = orcl
PERMANENT tablespace = SYS_AUX
TEMPORARY tablespace = TEMP
```

```
Installing libraries ..... Pass
Installing RQSYS ..... Pass
Installing ORE packages ..... Pass
Creating ORE script ..... Pass
```

NOTE: To use ORE functionality, a database user with RQROLE role, a few more grants and synonyms is required. A complete list of requirements is available in rquser.sql. There is also a demo script demo\_user.sh creating a new user RQUSER.

To use embedded R functionality, an RQADMIN role is required. Please, consult the documentation for more information on various roles.

Done

10. As the NOTE above indicates, you will have to grant any typical user of Oracle R Enterprise with the RQUSER role. If the user will be using embedded R functionality, then that user needs the RQADMIN role as well. Please see the rquser.sql and demo\_user.sh scripts. In any case, for the scott user, let's set him up with the ability to use Oracle R Enterprise:

- a. Log into SQL\*Plus as SYSDBA: sqlplus / as SYSDBA
- b. Issue the following commands for the scott user:

```
grant RQROLE,RQADMIN to scott;
grant execute on rqsys.rqGroupEvalImpl to scott;
alter session set current_schema = scott;
create synonym rqForeach for rqsys.rqForeach;
create synonym rq$object_seq for rqsys.rq$object_seq;
create synonym rqObject for rqsys.rqObject;
create synonym rqObjSet for rqsys.rqObjSet;
create synonym rqXMLObj for rqsys.rqXMLObj;
create synonym rqXMLSet for rqsys.rqXMLSet;
create synonym rqEvalImpl for rqsys.rqEvalImpl;
create synonym rqEval for rqsys.rqEval;
create synonym rqTableEvalImpl for rqsys.rqTableEvalImpl;
create synonym rqTableEval for rqsys.rqTableEval;
create synonym rqGroupEvalImpl for rqsys.rqGroupEvalImpl;
create synonym rqRowEvalImpl for rqsys.rqRowEvalImpl;
create synonym rqRowEval for rqsys.rqRowEval;
```



```

create synonym rqForeachUpdate for RQSYS.rqForeachUpdate;
create synonym rqBesselI for rqsys.rqBesselI;
create synonym rqBesselK for rqsys.rqBesselK;
create synonym rqBesselJ for rqsys.rqBesselJ;
create synonym rqBesselY for rqsys.rqBesselY;
create synonym rqRnorm for rqsys.rqRnorm;
create synonym ore_freq_cpipe for rqsys.ore_freq_cpipe;
create synonym rqNumericEltSet for rqsys.rqNumericEltSet;
create synonym rqKstestPexp for rqsys.rqKstestPexp;
create synonym rqKstestPnorm for rqsys.rqKstestPnorm;
create synonym rqKstestPpois for rqsys.rqKstestPpois;
create synonym rqKstestPunif for rqsys.rqKstestPunif;
create synonym rqKstestPweibull for rqsys.rqKstestPweibull;
create synonym rqRegressionType for rqsys.rqRegressionType;
create synonym rqRegressionTypeSet for rqsys.rqRegressionTypeSet;
create synonym rqRegressionImpl for rqsys.rqRegressionImpl;
create synonym rqRegression for rqsys.rqRegression;
create synonym rqCrossprodImpl for rqsys.rqCrossprodImpl;
create synonym rqCrossprod for rqsys.rqCrossprod;
create synonym rqUnlistTable for rqsys.rqUnlistTable;
create synonym rqGamma for rqsys.rqGamma;
create synonym rqLgamma for rqsys.rqLgamma;
create synonym rqDigamma for rqsys.rqDigamma;
create synonym rqTrigamma for rqsys.rqTrigamma;
create synonym rqErf for rqsys.rqErf;
create synonym rqErfc for rqsys.rqErfc;
create synonym rqPbeta for rqsys.rqPbeta;
create synonym rqQbeta for rqsys.rqQbeta;
create synonym rqQcauchy for rqsys.rqQcauchy;
create synonym rqPcauchy for rqsys.rqPcauchy;
create synonym rqDchisq for rqsys.rqDchisq;
create synonym rqPchisq for rqsys.rqPchisq;
create synonym rqQchisq for rqsys.rqQchisq;
create synonym rqPexp for rqsys.rqPexp;
create synonym rqQexp for rqsys.rqQexp;
create synonym rqDf for rqsys.rqDf;
create synonym rqPf for rqsys.rqPf;
create synonym rqQf for rqsys.rqQf;
create synonym rqDgamma for rqsys.rqDgamma;
create synonym rqQgamma for rqsys.rqQgamma;
create synonym rqPgamma for rqsys.rqPgamma;
create synonym rqDnbinom for rqsys.rqDnbinom;
create synonym rqPnbinom for rqsys.rqPnbinom;
create synonym rqQnbinom for rqsys.rqQnbinom;
create synonym rqPnorm for rqsys.rqPnorm;
create synonym rqQnorm for rqsys.rqQnorm;
create synonym rqPpois for rqsys.rqPpois;
create synonym rqQpois for rqsys.rqQpois;
create synonym rqQt for rqsys.rqQt;
create synonym rqPt for rqsys.rqPt;
create synonym rqPweibull for rqsys.rqPweibull;
create synonym rqQweibull for rqsys.rqQweibull;
create synonym rqDweibull for rqsys.rqDweibull;
create synonym rqHarmonic for rqsys.rqHarmonic;
create synonym rqSignP for rqsys.rqSignP;
create synonym rqCvmP for rqsys.rqCvmP;
create synonym rqDcauchy for rqsys.rqDcauchy;
create synonym rqDpois for rqsys.rqDpois;
create synonym rqDt for rqsys.rqDt;
create synonym rqDnorm for rqsys.rqDnorm;
create synonym rqDexp for rqsys.rqDexp;
create synonym rqDbeta for rqsys.rqDbeta;
create synonym rqStepType for rqsys.rqStepType;
create synonym rqStepTypeSet for rqsys.rqStepTypeSet;
create synonym rqStepImpl for rqsys.rqStepImpl;
create synonym rqStep for rqsys.rqStep;
create synonym rqLargeStepType for rqsys.rqLargeStepType;
create synonym rqLargeStepTypeSet for rqsys.rqLargeStepTypeSet;
create synonym rqLargeStepImpl for rqsys.rqLargeStepImpl;
create synonym rqLargeStep for rqsys.rqLargeStep;
create synonym rqPsignrank for rqsys.rqPsignrank;
create synonym rqQsignrank for rqsys.rqQsignrank;
create synonym rqDsignrank for rqsys.rqDsignrank;
create synonym rqDbinom for rqsys.rqDbinom;
create synonym rqPbinom for rqsys.rqPbinom;
create synonym rqQbinom for rqsys.rqQbinom;

```

## J. Oracle R Enterprise Quick Start Guide

This section serves as a Quick Start Guide to Oracle R Enterprise (version 1.1). Note that there are several ORE-specific presentations available on Oracle's website at <http://www.oracle.com/technetwork/database/options/advanced-analytics/r-enterprise/index.html>. The presentations are named:

- a. Oracle R Enterprise Training 1 – Getting Started
- b. Oracle R Enterprise Training 2 – Introduction to R
- c. Oracle R Enterprise Training 3 – Transparency Layer
- d. Oracle R Enterprise Training 4 – Embedded R Scripts
- e. Oracle R Enterprise Training 5 – Operationalizing R Scripts
- f. Oracle R Enterprise Training 6 – Advanced Topics

### Step 1 – Pre-Checks

Before attempting to use Oracle R Enterprise from your Windows Client R software, ensure sure that the:

1. Oracle database is running on the server
2. Listener is running on the server
3. Server has access to the network
4. eth0 has been given a Trusted Interface in the Firewall
5. You can `tnsping` the ORCL database from the client machine: `tnsping orcl`
6. SCOTT Oracle user has the required permissions to run Oracle R Enterprise such as being granted the RUSER and RQADMIN roles, has the full set of private synonyms available, etc.

Also, besides the Trusted Interface for eth0, you *may* need to allow port 1521 access from the Firewall's perspective. Start the Firewall software and allow port 1521 access to the server.

### Step 2 – Test Oracle R Enterprise from the Windows Client

The next step is to start R on the client and bring in the appropriate package to allow you access to the Oracle database from R using Oracle R Enterprise. Follow these instructions:

1. Start R on the Windows Client
2. Enter the following command at the R command prompt:

```
library(ORE)
```

If all goes well, you should see something like the following:

```
Loading required package: OREbase  
Loading required package: ROracle  
Loading required package: DBI
```

```
Attaching package: 'OREbase'
```

```
The following object(s) are masked from 'package:base':
```

```
cbind, data.frame, eval, interaction, order, paste, pmax, pmin,  
rbind, table
```

```
Loading required package: OREstats  
Loading required package: MASS  
Loading required package: OREgraphics  
Loading required package: OREeda  
Loading required package: ORExml
```

3. Next, let's attempt to make a connection to the Oracle database. Execute the following instructions at the R command line. Note that you will have to use your IP Address or hostname and the password for the SCOTT user.

```
ore.connect("scott","orcl","your-ip-address","password",1521);  
ore.sync();  
ore.attach();
```

If all goes well, you should receive no error messages. This indicates that you have successfully connected to the database as well as sync'd the schema's tables into R. Sync-ing tables into R allows you to refer to Oracle tables just by their name. For instance, the EMP table is generated when the Oracle Database Configuration Assistant generates a database during the installation of the Oracle11gR2 database software. You can refer to EMP throughout your R scripts just by using EMP and R will treat it as if it were an R data frame.

### Step 3 – Quick Start Guide

Besides just connecting to the Oracle database from within R and pulling Oracle tables into R, there are several additional things you can do:

1. You can run R code/scripts ignoring the database completely. That is, once you bring in the ORE library, it does not mean that you are "stuck" doing only database-specific R commands.
2. You can pull Oracle tables from the database into R. The Oracle R Enterprise software is responsible for translating Oracle data types into equivalent R data types.
3. You can push R data frames into the Oracle database as a table. The Oracle R Enterprise software is responsible for translating the R data types into the equivalent Oracle data types.
4. You can refer to the sync'd Oracle schema tables in most R functions. In some cases, Oracle R Enterprise is intelligent enough to know to run the R code within the database.
5. From within the R GUI, you can execute R code directly within the Oracle database on the server rather than the client. This is because Oracle has R built-in to it (after you install the Oracle R Enterprise server software, of course).
6. From within SQL, you can execute R code directly within the Oracle database on the server. That is, you can completely ignore the R GUI and client and just run R code within SQL in the database.
7. Oracle has included additional software to mimic some of the more popular SAS procedures such as SUMMARY/MEANS, RANK, SORT, CROSSTABS, FREQ, CORR and UNIVARIATE via the Oracle R Enterprise equivalents ore.summary, ore.rank, ore.sort,

ore.crosstab, ore.freq, ore.corr, ore.univariate. Additionally, you can add row and column sums to ore.crosstab output by using ore.extend.

Here are some elementary commands available within R to get you started:

```
ore.connect("schema","sid","hostname","password",port#,all=TRUE|FALSE)
```

This command connects to the Oracle database. The all parameter forces a sync and attach command automatically when the connection is established. The default is all=FALSE. Specifying all=TRUE forces the sync/attach.

```
ore.sync()
```

This command synchronizes the tables currently in your schema to the R session. If you add additional tables in your schema *outside* R, then you will have to re-issue this command.

```
ore.attach()
```

This command is similar to R's attach() command for data frames and adds the table and its columns into the search path.

```
ore.ls()
```

This command lists all of the tables in your Oracle schema that are available from within your R session. Note that you may need to ore.sync() if you've added additional tables to your schema via SQL\*Plus, or other means.

```
class(object)
```

This command prints out the type of structure for the *object* provided to it. For example, if *object* is an R data frame, the text data.frame will be displayed. For an Oracle table, the text is ore.frame.

```
str(object)
```

This command shows you the structure of the *object* and is similar to DESC in Oracle SQL\*Plus. For example, if *object* is an R data.frame, the columns are shown along with the number of rows. If *object* is an ore.frame, then you will see much more information. For example, below is the structure of the R data.frame iris:

```
> str(iris)
'data.frame': 150 obs. of 5 variables:
 $ Sepal.Length: num 5.1 4.9 4.7 4.6 5 5.4 4.6 5 4.4 4.9 ...
 $ Sepal.Width : num 3.5 3 3.2 3.1 3.6 3.9 3.4 3.4 2.9 3.1 ...
 $ Petal.Length: num 1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
 $ Petal.Width : num 0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
 $ Species : Factor w/ 3 levels "setosa","versicolor",...: 1 1 1 1 1 1 1 1 1 1 ...
```

Here is the structure when the iris data.frame is loaded into the Oracle database:

```

> str(IRIS)
'data.frame':150 obs. of  5 variables:
Formal class 'ore.frame' [package "OREbase"] with 12 slots
 ..@ .Data      : list()
 ..@ dataQry    : Named chr "obj26_12 as ( select rowid ore$name, \"Sepal.Length\" ,
\"Sepal.Width\" , \"Petal.Length\" , \"Petal.Width\" , \"Species\" fro| __truncated__
 .. ..- attr(*, "names")= chr "26_12"
 ..@ dataObj    : chr "26_12"
 ..@ desc      : 'data.frame':5 obs. of  7 variables:
 .. ..$ name    : chr [1:5] "Sepal.Length" "Sepal.Width" "Petal.Length" "Petal.Width" ...
 .. ..$ Sclass  : chr [1:5] "numeric" "numeric" "numeric" "numeric" ...
 .. ..$ type    : chr [1:5] "BINARY_DOUBLE" "BINARY_DOUBLE" "BINARY_DOUBLE"
"BINARY_DOUBLE" ...
 .. ..$ len    : int [1:5] 8 8 8 8 4000
 .. ..$ precision: int [1:5] 0 0 0 0 0
 .. ..$ scale   : int [1:5] 0 0 0 0 0
 .. ..$ nullOK  : logi [1:5] TRUE TRUE TRUE TRUE TRUE
 ..@ sqlName    : chr "rowid"
 ..@ sqlValue   : chr [1:5] "\"Sepal.Length\"" "\"Sepal.Width\"" "\"Petal.Length\""
 "\"Petal.Width\"" ...
 ..@ sqlTable   : chr "\"SCOTT\".\"IRIS\""
 ..@ sqlPred    : chr ""
 ..@ extRef     : list()
 ..@ names      : chr(0)
 ..@ row.names  : int(0)
 ..@ .S3Class   : chr "data.frame"

```

```
ore.pull(table)
```

This command pulls the Oracle table from the schema and returns an R data.frame. It is used like this:

```
dfEMP <- ore.pull(EMP);
```

```
ore.create(Rdataframe,table="table-name")
```

This command pushes an R data frame into the Oracle schema with the name *table-name*. Take note that the name of the table must be in quotes.

```
ore.drop(table="table-name")
```

This command drops an Oracle table named *table-name*. The dropped table is no longer available within your R session.

```
ore.exec("DDL")
```

This command executes SQL data definition language (such as create table, drop table, etc.) from the R session. Note that DML is not allowed and no table data will be returned to the R session.

## K. Appendix

### Appendix A – RQUSER.SQL File

```
Rem
Rem Copyright (c) 2011, 2012, Oracle and/or its affiliates.
Rem All rights reserved.
Rem
Rem NAME
Rem   rquser.sql - RQuery create USER schema
Rem
Rem DESCRIPTION
Rem   Creates RQUSER schema and grants RQROLE role.
Rem
Rem NOTES
Rem   The script takes four parameters:
Rem   arg1 - user name (RQUSER)
Rem   arg2 - user password
Rem   arg3 - default tablespace (USER)
Rem   arg4 - tempopary tablespace (TEMP)
Rem   arg5 - quota on default tablespace (unlimited)
Rem
Rem MODIFIED   (MM/DD/YY)
Rem demukhin  11/23/11 - Created
Rem
```

```
set echo on
set feedback 1
set numwidth 10
set linesize 80
set trimspool on
set tab off
set pagesize 100
```

```
-- create RQUSER user
create user &&1 identified by &&2
default tablespace &&3
temporary tablespace &&4
quota &&5 on &&3;
```

```
-- grant privileges
grant create session, rqrole
to &&1;
```

```
-- BUG: the following grant does not work when granted to RQROLE
grant execute on rqsys.rqGroupEvalImpl to &&1;
```

```
alter session set current_schema = &&1;
```

```
-- create private synonyms
create synonym rqForeach for rqsys.rqForeach;
create synonym rq$object_seq for rqsys.rq$object_seq;
create synonym rqObject for rqsys.rqObject;
create synonym rqObjSet for rqsys.rqObjSet;
create synonym rqXMLObj for rqsys.rqXMLObj;
create synonym rqXMLSet for rqsys.rqXMLSet;
create synonym rqEvalImpl for rqsys.rqEvalImpl;
create synonym rqEval for rqsys.rqEval;
create synonym rqTableEvalImpl for rqsys.rqTableEvalImpl;
create synonym rqTableEval for rqsys.rqTableEval;
create synonym rqGroupEvalImpl for rqsys.rqGroupEvalImpl;
create synonym rqRowEvalImpl for rqsys.rqRowEvalImpl;
create synonym rqRowEval for rqsys.rqRowEval;
create synonym rqForeachUpdate for RQSYS.rqForeachUpdate;
create synonym rqBesselI for rqsys.rqBesselI;
create synonym rqBesselK for rqsys.rqBesselK;
create synonym rqBesselJ for rqsys.rqBesselJ;
create synonym rqBesselY for rqsys.rqBesselY;
create synonym rqRnorm for rqsys.rqRnorm;
create synonym ore_freq_cpipe for rqsys.ore_freq_cpipe;
create synonym rqNumericEltSet for rqsys.rqNumericEltSet;
create synonym rqKstestPexp for rqsys.rqKstestPexp;
create synonym rqKstestPnorm for rqsys.rqKstestPnorm;
create synonym rqKstestPpois for rqsys.rqKstestPpois;
```

```

create synonym rqKstestPunif for rqsys.rqKstestPunif;
create synonym rqKstestPweibull for rqsys.rqKstestPweibull;
create synonym rqRegressionType for rqsys.rqRegressionType;
create synonym rqRegressionTypeSet for rqsys.rqRegressionTypeSet;
create synonym rqRegressionImpl for rqsys.rqRegressionImpl;
create synonym rqRegression for rqsys.rqRegression;
create synonym rqCrossprodImpl for rqsys.rqCrossprodImpl;
create synonym rqCrossprod for rqsys.rqCrossprod;
create synonym rqUnlistTable for rqsys.rqUnlistTable;
create synonym rqGamma for rqsys.rqGamma;
create synonym rqLgamma for rqsys.rqLgamma;
create synonym rqDigamma for rqsys.rqDigamma;
create synonym rqTrigamma for rqsys.rqTrigamma;
create synonym rqErf for rqsys.rqErf;
create synonym rqErfc for rqsys.rqErfc;
create synonym rqPbeta for rqsys.rqPbeta;
create synonym rqQbeta for rqsys.rqQbeta;
create synonym rqQcauchy for rqsys.rqQcauchy;
create synonym rqPcauchy for rqsys.rqPcauchy;
create synonym rqDchisq for rqsys.rqDchisq;
create synonym rqPchisq for rqsys.rqPchisq;
create synonym rqQchisq for rqsys.rqQchisq;
create synonym rqPexp for rqsys.rqPexp;
create synonym rqQexp for rqsys.rqQexp;
create synonym rqDf for rqsys.rqDf;
create synonym rqPf for rqsys.rqPf;
create synonym rqQf for rqsys.rqQf;
create synonym rqDgamma for rqsys.rqDgamma;
create synonym rqQgamma for rqsys.rqQgamma;
create synonym rqPgamma for rqsys.rqPgamma;
create synonym rqDnbinom for rqsys.rqDnbinom;
create synonym rqPnbinom for rqsys.rqPnbinom;
create synonym rqQnbinom for rqsys.rqQnbinom;
create synonym rqPnorm for rqsys.rqPnorm;
create synonym rqQnorm for rqsys.rqQnorm;
create synonym rqPpois for rqsys.rqPpois;
create synonym rqQpois for rqsys.rqQpois;
create synonym rqQt for rqsys.rqQt;
create synonym rqPt for rqsys.rqPt;
create synonym rqPweibull for rqsys.rqPweibull;
create synonym rqQweibull for rqsys.rqQweibull;
create synonym rqDweibull for rqsys.rqDweibull;
create synonym rqHarmonic for rqsys.rqHarmonic;
create synonym rqSignP for rqsys.rqSignP;
create synonym rqCvmP for rqsys.rqCvmP;
create synonym rqDcauchy for rqsys.rqDcauchy;
create synonym rqDpois for rqsys.rqDpois;
create synonym rqDt for rqsys.rqDt;
create synonym rqDnorm for rqsys.rqDnorm;
create synonym rqDexp for rqsys.rqDexp;
create synonym rqDbeta for rqsys.rqDbeta;
create synonym rqStepType for rqsys.rqStepType;
create synonym rqStepTypeSet for rqsys.rqStepTypeSet;
create synonym rqStepImpl for rqsys.rqStepImpl;
create synonym rqStep for rqsys.rqStep;

create synonym rqLargeStepType for rqsys.rqLargeStepType;
create synonym rqLargeStepTypeSet for rqsys.rqLargeStepTypeSet;
create synonym rqLargeStepImpl for rqsys.rqLargeStepImpl;
create synonym rqLargeStep for rqsys.rqLargeStep;

create synonym rqPsignrank for rqsys.rqPsignrank;
create synonym rqQsignrank for rqsys.rqQsignrank;
create synonym rqDsignrank for rqsys.rqDsignrank;

create synonym rqDbinom for rqsys.rqDbinom;
create synonym rqPbinom for rqsys.rqPbinom;
create synonym rqQbinom for rqsys.rqQbinom;

-----
--* end of file rquser.sql                                     *--
-----

```

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