

What's New:

- Before attempting to use or customize these instructions for your installation, the complete installation instructions contained in Volume 1 of the CODE Guide ([v1_setup_code_b12_3r1_2.pdf](#)) should be reviewed.
- **Red Hat Enterprise 5 Desktop with Workstation Option** is required for the ORPG. The *Workstation Option* is needed to use the development tools with Red Hat. See CODE Guide Volume 1 Appendix A CODE System Requirements for details.
- GNOME Software Development is required (for package libgtop2-devel and gtk2-devel)

Concise examples of successful command checklists for installation of the most recent CODE B12.3r1.2 are provided here for your reference.

A "quick install" checklist can simplify your process, and is helpful when you need to quickly make clones of your initial installation. Checklists ensure uniformity of installations. Use of a command set as similar as possible to the one provided above will make it easier for CODE maintainers to provide fast and efficient assistance, by quickly pinpointing where you are in the installation process.

All commands provided are written in the C shell, as that is the required shell for compilation and execution of the ORPG. Understand that these command sets may or may not work "as is" on your system due to possible differences in directory names on your system. Placement of these commands in a single script is not recommended due to execution requirements of the various commands, including occasional need for root privileges.

NWS & PUBLIC EDITIONS

Installation & Configuring Linux for ORPG

Checking Operating System

```
code11r1_2:/home/code11r1_2: 24>more
/etc/redhat-release
Red Hat Enterprise Linux Client release 5.2 (Tikanga)
code11r1_2:/home/code11r1_2: 25>uname -a
Linux dev5 2.6.18-92.el5 #1 SMP Tue Apr 29
13:16:12 EDT 2008 i686 athlon i386 GNU/Linux
code11r1_2:/home/code11r1_2: 26>
```

Modifying /etc/hosts

```
# Do not remove the following line, or various
programs
# that require network functionality will fail .
127.0.0.1 localhost.localdomain localhost
192.168.###.### dev5
```

Modifying /etc/sysconfig/network

```
NETWORKING=yes
HOSTNAME=dev5
GATEWAY=192.168.###.##
```

Modifying /etc/sysconfig/networking/devices/ifcfg-eth0

```
DEVICE=eth0
ONBOOT=yes
BOOTPROTO=none
NETMASK=255.255.255.0
USERCTL=no
PEERDNS=yes
GATEWAY=192.168.###.##
TYPE=Ethernet
IPADDR=192.168.###.###
```

1. From the RedHat Welcome Screen, enter your **Username and Password** to log into **ANY** account on your LINUX machine.
2. You are expected to have RedHat Enterprise 5 (32-bit version because ORPG software is 32-bit only) & required Linux packages. Type:


```
more /etc/redhat-release
uname -a
```

 (See e.g. on left). “i386 GNU/Linux” implies 32-bit version.
 If you have RedHat Enterprise 5, and you know that the Guidance in [code_b12_3r1_2/pdf_doc/v1_setup_code_b12_3r1_2.pdf](#) was followed, go to **step #5** to continue.
3. **If you do not have RedHat Enterprise 5, install RedHat Enterprise 5 before continuing with this installation.**
4. After you have finished all RedHat Enterprise 5 installations, **repeat step #2 again.**
5. If you have RedHat Enterprise 5, make sure below packages are installed. Type:


```
rpm -qa | grep libgtop2-devel ; rpm -qa | grep gtk2-devel
```

 If these packages are not installed, you can use System -> Add/Remove Software tool to install GNOME Software Development to get these packages installed.


```
rpm -qa | grep giflib-devel
rpm -qa | grep ncompress ; rpm -qa | grep tcl-devel
rpm -qa | grep tk-devel ; rpm -qa | grep gsl
```

 If these packages are not installed, you need to copy the RPM files from the installation CD or from the CODE B12.3r1.2 CD (GSL packages can be found in directory **files_other_sw/**) to /tmp and install them. The version numbers of the package may differ with Enterprise distributions:


```
su (login as root with root password)
rpm -Uvh /tmp/giflib-devel-4.1.3-7.1.el5.1.i386.rpm
rpm -Uvh /tmp/ncompress-4.2.4-47.i386.rpm
rpm -Uvh /tmp/tcl-devel-8.4.13-3.fc6.i386.rpm
rpm -Uvh /tmp/tk-devel-8.4.13-5.el5_1.1.i386.rpm
rpm -Uvh /tmp/gsl-1.8-1.1.i386.rpm
rpm -Uvh /tmp/gsl-devel-1.8-1.1.i386.rpm
```
6. The ORPG requires that TCP/IP networking be configured; it is not compatible with DHCP. A common configuration error involves the hosts file. Open **/etc/hosts** with the editor of your choice and modify it to add the name and IP address of your PC. (See e.g. on left).
7. Open **/etc/sysconfig/network** with the editor of your choice and modify it to add the Hostname of your PC. (See e.g. on left).
8. Open **/etc/resolv.conf** with the editor of your choice and modify it to add the Nameserver. If you are not sure what it is ask your local SA. An example is:


```
nameserver 140.90.148.33
```
9. Open **/etc/sysconfig/networking/devices/ifcfg-eth0** with the editor of your choice and make sure it has been customized. (See e.g. on left). The eth0 file is the configuration file for the primary or only network interface card. The entries that must be customized for the workstation are: **IPADDR – the IP address; GATEWAY – the default router address; NETMASK – 255.255.255.0; ONBOOT – should be yes; and DEVICE – the filename.**
10. Copy all changed Networking files to the default directory. Answer **y** to overwrite. Type:


```
cd /etc/sysconfig/networking/profiles/default
cp /etc/hosts .
cp /etc/resolv.conf .
cp /etc/sysconfig/network .
cp /etc/sysconfig/networking/devices/ifcfg-eth0 .
```
11. Logout from root. Type:


```
exit
```
12. Reboot your system by typing:


```
reboot
```

Creating a New Account

1. From the RedHat Welcome Screen, enter your **Username and Password** to log into **ANY** account on your LINUX machine.
2. Open a terminal and type:
su (login as root with root password)
3. Determine your new user account name, parent directory, home directory, data directory, group name, etc. then write them down. **Whenever you see a command with <> brackets around it, refer to the table below.** Here are some suggested examples. Add your own names:

COMMANDS	DEFINED	EXAMPLES
<user12_3r1_2>		code12_3r1_2
<parent_dir>		/home
<home_dir>	<parent_dir>/<user12_3r1_2>	/home/code12_3r1_2
<group_name>		staff or rpg
<ip_address>		192.168.##.###

Summary of Commands

```
[root@dev5 ~]# grep staff /etc/group
[root@dev5 ~]# groupadd staff

[root@dev5 ~]# useradd -d
/home/code12_3r1_2 -m -g staff -s /bin/csh -c
"CODE B12.3r1.2" code12_3r1_2

[root@dev5 ~]# passwd code12_3r1_2
Changing password for user code12_3r1_2.
New password:
Retype new password:
passwd: all authentication tokens updated
successfully.
[root@dev5 ~]# chmod +rx
/home/code12_3r1_2
[root@dev5 ~]# exit
```

4. Check to see if the group already exists. (See e.g. on the left).
grep <group_name> /etc/group
If it does not exist, type:
groupadd <group_name>
5. Create a new account by using the useradd command. In your terminal type:
useradd -d <home_dir> -m -g <group_name> -s /bin/csh
-c "CODE B##r#.##" <user12_3r1_2>
(See e.g. on the left).
6. Create a password for the user and write it down somewhere. Type:
passwd <user12_3r1_2>
Enter new password when prompted twice.
7. Change modifications for home directory. Type:
chmod +rx <home_dir>
8. Logout from root. Type:
exit
9. To logout of the account you are in, select **Main Menu => Log Out**. Then click **OK**.

Installing RPG & CODE Software

1. Login using your new `<user12_3r1_2>` account and password.
2. Obtain the CODE B12.3r1.2 CD, copy folder `code_b12_3r1_2` (for NWS Edition) or `pub_code_b12_3r1_2` (for Public Edition) to your home directory.
3. Go to the home directory to make sure the folder has been downloaded by typing:
`cd; ls -al`
4. Copy the RPG source file to your home directory. Type:
If you have the NWS Edition:
`cd code_b12_3r1_2/files_orpg_sw`
`cp -p rpg_b12_3r1_2_nws_src_tar.gz ~`
If you have the Public Edition:
`cd pub_code_b12_3r1_2/files_orpg_sw`
`cp -p rpg_b12_3r1_2_pub_src_tar.gz ~`
5. Copy the CODE configuration file to your home directory. Type
`cd ../config_files`
`cp -p code_config_b12_3r1_2.tar ~`
6. Uncompress and untar the RPG source file by typing:
`cd; ls`
If you have the NWS Edition:
`gunzip rpg_b12_3r1_2_nws_src_tar.gz`
`tar xvf rpg_b12_3r1_2_nws_src_tar`
If you have the Public Edition:
`gunzip rpg_b12_3r1_2_pub_src_tar.gz`
`tar xvf rpg_b12_3r1_2_pub_src_tar`
7. Untar the CODE configuration file by typing:
`tar xvf code_config_b12_3r1_2.tar`
8. Go to the env directory and run the env script. Type:
`cd code_config_b12_3r1_2/env; ls`
`./inst_env_config` (answer `y` when prompted)
9. If more than one installed ORPG is going to run at the same time on a single workstation, open `orpg_env_cshrc` from your `$HOME` directory with the editor of your choice and manually change the defined value of `RMTPORT` on each account. It is recommended that the first account have a value of 50000, the second 51000, etc. Create a backup of the file if changed. Type:
`cd; cp orpg_env_cshrc orpg_env_cshrc.B12`
10. Remove all tar files:
`rm *tar` (answer `y` when prompted)
11. To logout of the account you are in, select **Main Menu => Log Out**. Then click **OK**.

Modifying orpg_env_cshrc

```
# in order to simultaneously run multiple
instances of the ORPG on a
# single platform, RMTPORT must differ.
setenv RMTPORT 51000
```

Compiling & Configuring the RPG

1. From the RedHat Welcome Screen, enter your **Username and Password** to login using your new `<user12_3r1_2>` account and password. Open a terminal console and verify your environment variables. Make sure your \$HOME is set to the correct paths. Type:
env | grep -e HOME
2. To conduct a quick test compile of a portion of the source code, type:
cd; ls
test_make_cpc100 \$HOME >& test_make_cpc100_linux.out
After compilation has finished, check for errors. Type:
grep -e 'Error [1-9]' test_make_cpc100_linux.out
If there are errors, check the file:
code_b12_3r1_2/pdf_doc/v1_setup_code_b12_3r1_2.pdf
3. To compile the RPG, type:
make_rpg \$HOME >& make_rpg_linux.out
After compilation has finished, check for errors. Type:
grep -e 'Error [1-9]' make_rpg_linux.out
If there are errors, check the file:
code_b12_3r1_2/pdf_doc/v1_setup_code_b12_3r1_2.pdf
4. Install the ORPG configuration files by typing:
cd code_config_b12_3r1_2/orpg; ls
./inst_orpg_config (answer **y** when prompted)
Note: You need answer '**N**' for NWS Edition or '**P**' for Public Edition when prompted to install the right version of task_tables.
5. Open **.rssd.conf** from your **\$HOME** directory with the editor of your choice. Modify the **client** variable to be the `<ip_address>` of your machine. Save the file **.rssd.conf** and exit.
6. Create a backup of the file, by typing:
cp .rssd.conf .rssd.conf.B12 (if asked, answer **y** to overwrite)
7. To logout, select **Main Menu => Log Out**, then click **OK**.

Modify the .rssd.conf file

```
# RPG Development Workstations
Client: 192.168.###.###

# Pathnames
# [SORPGDIR]
Path: ORPGDIR

# NEW B9
Path: HOME/save_logs
```

Testing the RPG & Installing CODE Software (1 of 2)

Testing the RPG: Steps 1-9

Using the HCI & play_a2 Tools

```
code12_3r1_2:code12_3r1_2/ 43 >hci &
[1] 7278
code12_3r1_2:code12_3r1_2/ 44 > play_a2
Playback...
Playing file:
/home/code12_3r1_2/ar2data/KMLB_1993_03_
13_09_26_21.ar2.bz2
Volume date [yyyy-mm-dd] 1993-03-13
Volume time [hh:mm:ss]: 09:26:21
```

Option 1 – Install CODE software: Steps 10-13

- Sample Algorithms

1. From the RedHat Welcome Screen, enter your **Username and Password** to login using your new `<user12_3r1_2>` account and password.
2. Open a terminal for testing the RPG. If errors, check the file: `code_b12_3r1_2/pdf_doc/v1_setup_code_b12_3r1_2.pdf`. Type: **mrpg -p -v startup**
3. To check for running tasks type: **rpg_ps**
4. To make sure the human computer interface will run, type: **hci &**
5. Ingest default Archive II data into the HCI by typing: **play_a2**
When you are confident that data is being ingested into the HCI properly, press **Ctrl C** to end play_a2 then close the HCI. (See e.g. on left).
6. Check CVT version, **Version 4.4.3**. Type: **cvt version**
7. Launch CVG by typing: **cvg**
8. The title on the CVG window should show CODEview Graphics **9.1c**. Close the CVG window by clicking File → Exit.
9. If everything works as expected, your CODE installation is complete. You can shutdown and cleanup the RPG by typing: **mrpg shutdown; mrpg cleanup**
Remove all tar files:
rm ~/src/*tar
If you do not want to install the below options, you are done.
10. Obtain the CODE software archive files from `code_b12_3r1_2/files_code_sw` and save them in `~/src`:
cd code_b12_3r1_2/files_code_sw
cp -p code_alg_1_22a.tar ~/src
11. To configure the CODE sample algorithms and copy the snippets, type:
cd ~/src; ls
tar xvf code_alg_1_22a.tar
cd cpc305
./install_sample_alg
12. Re-start RPG, type:
mrpg -p -v startup
rpg_ps | grep -e sample1_dig -e sample3_t2
13. Shutdown and cleanup the RPG by typing:
mrpg shutdown; mrpg cleanup
rm ~/src/*tar

Testing the RPG & Installing CODE Software (2 of 2)

Option 2 – Install Test products Steps 14-17

- Test product 600-605, 700-705

Option 3 – Install level II data: Steps 18-26

Modifying the .cshrc File

```
setenv AR2_DIR /opt/code/data/ar2data
```

14. Create directory extensions in ~/cfg if not already exists:
cd ~/cfg
mkdir -p extensions
15. Copy 6 configuration files to directory extensions:
cd extensions
cp ~/tools/cfg/extensions/* .
16. Re-start RPG, type:
mrpg -p -v startup
rpg_ps | grep -e test_base
17. Shutdown and cleanup the RPG by typing:
mrpg shutdown; mrpg cleanup
18. A suggested location to install all of the desired CODE Archive II data sets is **/opt/code/data/ar2data**. Your local procedures might establish a different location. Check for the ar2data directory by typing:
cd /opt/code/data/ar2data
su (login as root with root password)
If the directory has been created already, **go to next step**. (This directory might be different on your machine). If the directory has not been created, create the directories. Type:
cd /opt; mkdir code
cd code; mkdir data
cd data; mkdir ar2data
cd ar2data;
19. To install archive II data sets, obtain the CODE B12.3r1.2 CD, copy the desired data sets in ar2data directory to /opt/code/data/ar2data.
exit (to logout as root)
20. Check the **.cshrc** file to see if AR2_DIR has been set already. Type:
more ~/.cshrc | grep AR2_DIR
If the \$AR2_DIR has not been set to /opt/... directory, open **.cshrc** from your **\$HOME** directory with the editor of your choice. Modify the **setenv AR2_DIR** line to point to **/opt/code/data/ar2data**. (See e.g. on left). Save the file **.cshrc** and exit the editor that you used.
21. Create a backup of the file, by typing:
cp .cshrc .cshrc.B12
22. For each console that is opened, type:
source .cshrc
23. Start the ORPG for testing Archive II data. If errors, check the file:
code_b12_3r1_2/pdf_doc/v1_setup_code_b12_3r1_2.pdf. Type:
mrpg -p -v startup
24. To start the human computer interface, type:
hci &
25. Ingest default Archive II data into the HCI by typing:
play_a2 -d f_load
(If you downloaded another directory from the CD, replace f_load with the name of the downloaded directory). When you are confident that data is being ingested into the HCI properly, press **Ctrl C** to end play_a2 then close the HCI.
26. Shutdown and cleanup the RPG by typing:
mrpg shutdown; mrpg cleanup
27. **Installation is done.**

The End