# BORSAT OS Users Guide

## Start Up

Start the VM as you would normally do. Using a shell script (q.sh) for QEMU, Virt-Manager (virsh) on KVM, or double click the VM on VirtualBox. You should see something similar to figure 1 below.
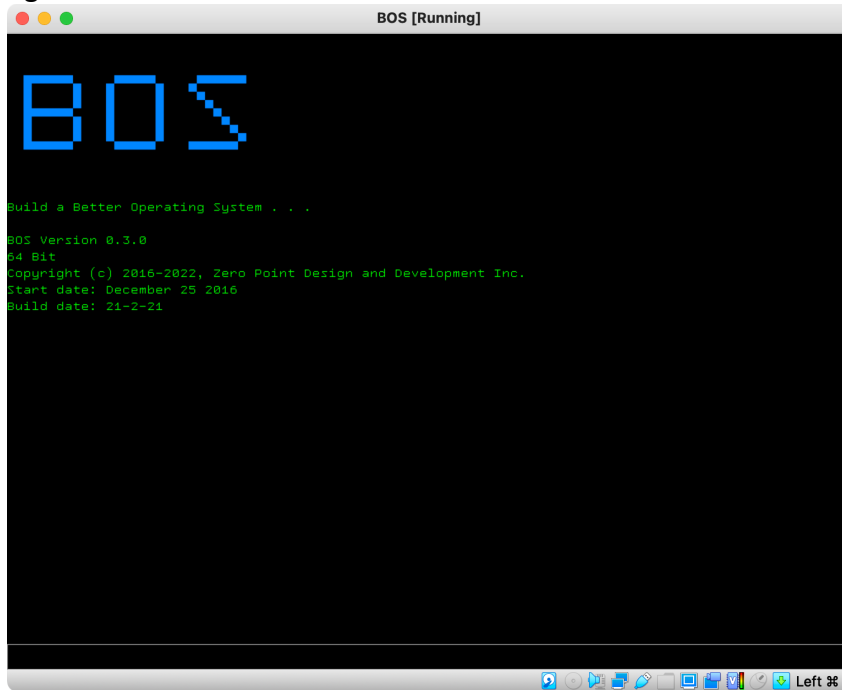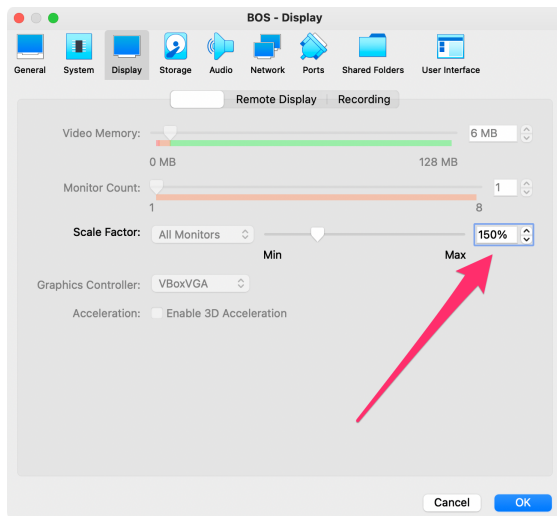


*Figure 1 - BORSAT OS*

On VirtualBox, if you find the BORSAT OS window either too small or too large:
1. Go to the VirtualBox main screen.
2. Right click (context menu) the BORSAT OS VM and select Settings.
3. From the top toolbar select Display.
4. Change the Scale Factor to something more desirable

## Shut Down

Shutting down BORSAT OS is very straight forward; there are no shut down routines therefore shutting down is as simple as powering off the VM itself:

### QEMU

In QEMU, you can quit (q, or quit) from the monitor screen. Or close the window.

### KVM

In Virt-Manager, 'force shutdown' to stop the OS. Or use virsh to do the same.

### VirtualBox

1. While the BORSAT OS VM is running, go to the VirtualBox main screen.
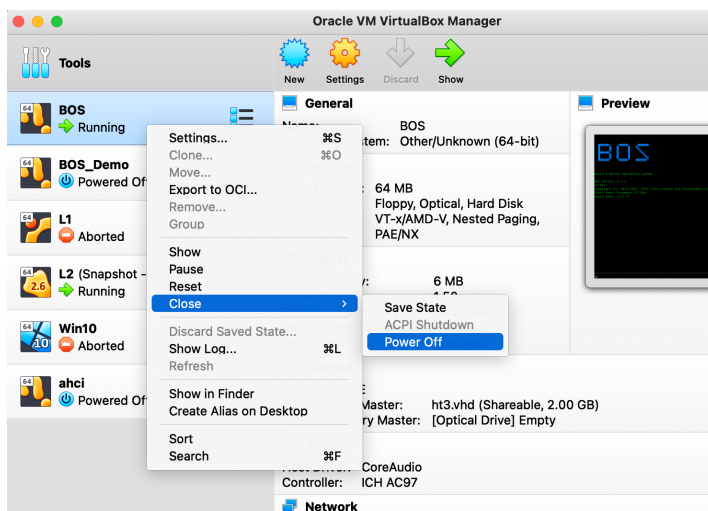2. Right click (context menu) on the BORSAT OS VM.
3. Select Close->Power Off.



*Figure 2 - Shutting Down BORSAT OS*

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## Using BORSAT OS

BORSAT OS is meant to be a purpose specific OS, because of this the main screen is very plain and left to user applications to use as they see fit. However, there are some basics to know.

The top part of the screen is left for user applications. A command box is located at the bottom of the screen. This is where commands for the OS are submitted. All interaction with the OS is with the keyboard and text commands.

To find out what commands are available for use, in the command box type the word 'help' or a question mark (?). To get help for a specific command, type the command itself with no parameters. This will bring up a description and usage of each command. Or, it will execute the command itself. An example of a one-word command is 'clear.'  This will clear the screen. An example of a multi word command is 'mem' (short for memory).

In addition, there are shortcuts to the commands. As long as enough of the command is typed to identify it, that is all you really need to type. For example, for the command 'clear'; issuing the command 'cl' will execute the clear command. A second example is the command 'kernel', 'ke' will execute the same command. Same holds true for parameters within a command, typing enough characters to identify the second parameter is all that is really needed (e.g. mem bi).

## Directory Structure

BORSAT OS, by default uses a very simple directory structure to keep things simple, smart and transparent:

APP – user programs

BIN – BORSAT OS system programs

CFG – configuration files

## Common Commands

Below is a list of very useful commands.

### File

```
cd
```
Change directory.

```
cd /
```
Change to the root directory.

```
cd ../
```
Go up one level in the directory.

```
dir
```
Print the directory.

```
pwd
```
Print the directory path.

### Network

```
ip sh
```
Shows the IP address of all network interface cards.

### Processes

```
proc list
```
This will list all running processes. BORSAT OS does not allow for hidden processes, therefore if you don't recognize a process, the recommendation is to stop it.

```
run <file_name>
```
This will run a process.

```
stop <process_number>
```
This will stop a process and reclaim all the memory used by the process.