

# Note 211: Alternative window managers for Green Bank

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## 1 Movtivation

CDE (Common Desktop Environment) is the native window manager for NRAO, Green Bank. This window manager tends to require large amounts of memory and to consume much of the available color allocation. This note explores alternative window managers which will provide the best environment for running AIPS++.

## 2 The Players

Four different window managers were considered:

CDE: Common Desktop Environment - a sophisticated customizable desktop environment.

FVWM2: F<sup>1</sup> Virtual Window Manager - a sophisticated customizable desktop environment. The '2' designates the current version in release.

TWM: Tom's Window Manager - one of the early window managers and consequently one of the more primitive. Does not support desktops.

OLWM: Open-look Window Manager - SUN's old window manager. Does not support desktops.

## 3 Memory Breakdown

The following table is a breakdown of the memory use of the different managers. The column outputs are the amounts of used swap space (in kilobytes) for different amounts of activity. '2 xterms' designates the memory usage for having two available xterms (in the case of olwm and fvwm2 this also includes a console

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<sup>1</sup>choose your favorite f word

terminal for network and status messages) while the subsequent rows indicate the addition of more xterminals, a netscape session, and an AIPS++ session.

	CDE	fvwm2	twm	olwm
2 xterms	28352	24680	24464	23512
+2 xterms	30176	25832	-	-
+netscape	34480	30032	-	-
+aips++	50560	46384	-	-

I only compared CDE and fvwm2 in all of the categories since they were the only two which supported desktops, considered an essential feature. Overall, twm and olwm do not represent great memory savings for significantly less performance.

In addition, the 'top' utility was also used to assess the memory usage. CDE requires a large amount of resident memory to pay for its sophistication while FVWM2 offers a similar package with a leaner presence.

PID	USERNAME	PRI	NICE	SIZE	RES	STATE	TIME	WCPU	CPU	COMMAND
8880	jmcmulli	33	0	2112K	1704K	sleep	0:00	0.03%	0.04%	fvwm2
8880	jmcmulli	34	0	2672K	2152K	sleep	0:01	0.05%	0.05%	twm
9660	jmcmulli	34	0	2208K	1920K	sleep	0:00	0.49%	0.38%	olwm
9817	jmcmulli	34	0	6376K	5528K	sleep	0:01	1.01%	0.24%	dtwm

Beyond memory, the color allocation within CDE has also caused problems when interacting with programs within AIPS++ (e.g. aipsview). This is true even without other color intensive processes (e.g. netscape) present.

Overall, the memory use and color consumption of CDE, combined with the disparity between the canonical AIPS++ machine and the typical low-memory IPC's generally in use at Green Bank strongly suggests that the CDE is actually the *worst* window manager system for those requiring high performance in their AIPS++ applications.

## 4 Switching from CDE

Switching from CDE to an alternative window manager requires three basic steps: 1) the addition of two files to the home directory; this is true for all of the alternative window managers discussed here, 2) the addition of a directory into your PATH and LD\_LIBRARY\_PATH, and 3) breaking out of CDE.

### 4.1 Adding the required files

The two files required are a .xinitrc file and a .wmrc file (window manager rc file, eg. .fvwm2rc, twmrc, etc.).

The `.xinitrc` file dictates the starting windows and window manager for your X session. The following is an example file:

```
#!/usr/bin/tcsh
#
# loads local X resource information
xrdb -load $HOME/.Xdefaults
# Console window for important network and status messages
xterm -C -title console -name console -geometry 98x6-0-0 -sb &
# starts up 2 xterminals and puts them in the upper right and
# lower left corners of the screen
xterm -geometry -0+0 -name xterm -sb &
xterm -geometry +0-0 -name xterm -sb &
# set up a clock in the lower right
clock -geometry 100x100-30-110 &
sleep 4
# setup a nice background image if you have one
# don't get too fancy or it will consume all of the colors!!
xloadimage -zoom 110 -onroot $HOME/img/bluepearl.gif &
# This is the window manager that I want to use.
# Alternatively, I could have specified twm or olwm.
fvwm2
```

The second file required is the `.wmrc` file (e.g. `.twmrc`, `.fvwm2rc`, etc.). The `.fvwm2rc` file sets the configuration of desktops, the attributes of various processes, etc. `fvwm2` appears to offer the best overall system in that it is relatively svelte in its memory and color usage, yet allows a great deal of freedom in setting up a personal work environment. In addition, `fvwm2` serves as a platform for other managers, if desired; the left mouse button, selecting on Exit FVWM, offers a startup for `twm` and `olwm`. As a result, I offer only a `.fvwm2r_sample` file for public use.

The `.fvwm2rc_sample` file may be copied from `~jmcmulli` to your home directory. Information on the various parameters can be found locally (the `fvwm2` manual) at <http://www.gb.nrao.edu/~jmcmulli/fvwm.man.html>; the FVWM home page is located at: <http://www3.hmc.edu/~tkelly/docs/proj/fvwm.html>.

## 4.2 Adding to your PATH and LD\_LIBRARY\_PATH.

Two directories of standard X-resources will be needed to run FVWM2: `/opt/local/X11R5/bin` and `/opt/local/X11R5/lib`.

If you use the `csh`, `tcsh`, add the following lines to the bottom of your `.cshrc`, `.tcshrc` file.

```
setenv LD_LIBRARY_PATH "$LD_LIBRARY_PATH":/opt/local/X11R5/lib
set path=($path /opt/local/X11R5/bin )
```

If you use the bash, add the following lines to the bottom of your `.bashrc` file.

```
export LD_LIBRARY_PATH=($LD_LIBRARY_PATH /opt/local/X11R5/lib)
export PATH=($PATH /opt/local/X11R5/bin)
```

### **4.3 Getting out of CDE and into FVWM2**

After the previous setups are finished. Logout of your CDE session. Then, use the mouse to show the Options menu on the CDE login screen. Select Command Line Login.

Hit <Return> to get to the login prompt. Type in your userid and password.

Once you're logged in, begin your new session by typing 'startx'.

You're in. Have fun.

If you are interested in seeing fvwm2 in action before committing to the change, please stop by my office and investigate.