

Turning your AWIPS HP Workstations into SACs Step by Step

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1. Please read these instructions in their entirety before beginning the conversion of a Workstation. Get all of the hardware parts and software you will use (CDROM reader, tape and hard drives, cables, CDROMS) assembled before turning the power on to the system.
2. Take one HP AWIPS Workstation, hereafter referred to as Athe Workstation@, as excessed and make sure the mouse and keyboard are plugged into the appropriate ports located on the upper right part of the back of the unit. Symbols are the same as those used on PCs.
3. Take the AWIPS CDROM drive and plug it into the SCSI II port on the back of the Workstation. It=s the narrow SCSI. Attach the cables to any tape drives, extra hard drives you wish to use. Take the terminator that is on the workstation and attach it the last device on the SCSI.
4. Plug the monitor into the GRAPHICS0 card. (Card closest to the floor when looking at back of workstation.
5. Attach the workstation to the desired network by attaching the network RJ45 connector to the UTP port.
6. Obtain all the network info, DNS, IP and DNS Server, Network Gateway and its IP, the domain the computer will be on, an IP for the computer, and a REGISTERED host name for the PC.
7. Get the Install Core OS, HP Unix 10.2 disk. This is the original 1994 OS w/o any patches and w/o Y2K. USE THE SET THAT CAME WITH THE SAC, NOT THE AWIPS DISKS!!!! Load this disk in the CDROM drive.
8. Turn on the workstation, when you hear the monitor come to life, (that sorta loud hum it makes), press the TOC switch on the back of the workstation and hold it for a few seconds.
9. As soon as the boot process starts and you see items scroll by on the screen, press the return key to enter the boot menu.
10. At the boot menu type the following
 - A. pa con graphics0
 - B. pa key ps2

C. Reset

This sets the default monitor and keyboard, and reboots the Workstation.

11. During the reboot hit the return to bring up the boot menu. At the boot menu prompt type ASEA@. This will search out devices with bootable media. The CDROM drive should be on the list. Each item will have an entry on its left P1, P2, PX etc. Select the item for the CDROM and enter ABoot Px@ where x is the number of the CDROM drive. This begins the HPUX install.

12. You will be asked if you wish to interact with the IPL, answer NO.

13. You will go into the standard HPUX OS install. Additional references for this process can be found at the STRC website, or in the Operating Install section of the NWSTC UNIX Admin course. Key steps are highlighted below, but not all steps.

14. After starting the install, answer the question do you wish to install it on a network NO!.

15. To safely install the root file system and required patches and software you need at least a 2 gig hard drive. Use LVM to partition it. Most of the AWIPS HPS had 4 gig. Partition the rest of it into a /usr1 drive for software. You manually add a /usr1 directory with 1600 meg and that leaves 176 meg or so extra space unused. If you need the space later you can adjust your partitions accordingly with LVM. When the OS install asks for partition sizes this is what I have set up as minimum sizes.

- / -84 meg
- /stand - 48 meg
- /swap - 512 meg
- /home 120 meg
- /opt 540 meg
- /tmp 32 meg
- /usr 500 meg
- /var 480 meg

16. Just before the install begins you may get an error message about the size of the drive and not enough physical extents **if your HD is greater than 8-9gig**. You will have to change the number of physical extents. As an example if the HD was 18GIG, actual size, 17547 megabytes, standard PE is 4 meg (17547/4) rounded down is 4386 Physical Extents. Enter this.

17. Once the OS is finished installing a blue screen will appear asking if you want to connect to a network. This time answer YES, and respond to the rest of the questions.

IP address - **xxx.xxx.xxx.xxx**

DNS Server - **ddddddddd.nnnnnn.ssssss.noaa.gov**

DNS IP - **xxx.xxx.xxx.xxx**

Domain - **domain.noaa.gov**

Another screen asks for time zones. Select Europe and then create a time zone called UTC with 00 00 difference from GMT. Enter AUTC00:00" The GMT on the machine goes on British Summer Time April 1st, so we don't use that.

18. Answer questions, set up root password.

19. Once the computer comes up, mount any external hard drives using SAM, and the option ANot Using LVM@. Example:

/usrX

20. Any tape drives you connected to the SCSI in step 3 should be configured on the system and ready to use. You should create the default drivers for the tape drive using SAM, Peripheral Devices, Tape Drives. WATADS will require a modification of the tape driver, more on that later.

21. Review the Instructions Cold Install of HP-UX 10.2 by Peggy Bruehl. These are on the SOO/STRC page. They are pretty good, except don't install any patches from those instructions. The main thing you need to do here is copy the /usr/dt/config/C/sys.resources to /etc/dt/config/C/sys.resources, and edit the following line in the in that file

```
!*enableBtn1Transfer: button2_transfer
```

```
to
```

```
*enableBtn1Transfer: False
```

22. Next Instal HP Application Bundle software from the CD. Place the CD in the CD drive, mount the CDROM either with a mount command or SAM. Use SWIntall program in SAM to install the software. You can access the install software from the Software Management menu in SAM. Use the AInstall Software to Local Host option. Install any compilers your want. (ANSI C, both FORTRAN, C++ and aC++) and the 700xxx1020 Extension software patch thats on the application CDROM. Don't bother with the version of Netscape that is on the Application bundle CD, it is obsolete. The reboots after this step and step 23 will take some time, as the Workstation configures the new software bundles. Don't be alarmed.

23. Next install HPUX 10.20 Patch bundle from CD. This CD was distributed by Bob Rozumulsi in 2000. Most of this install can be done from SAM SWInstall Program. However when you run the software install program from SAM, give the path to the Depot as /cdrom/(filename of patch bundle). Example /cdrom/XSW700HW1020.

This takes care of most security and Y2K issues.

The major patches you install are:

700QPK1020 - Y2k & critical security items

XSW700HW1020

XSW700GR1020.

24. Load the LaserRom 10.* CD. It came with the SACS. If you don't have it, you can live without it. Once you load the CDROM, change to the UXINSTAL directory on it, and follow the instructions in the README file.

25. Go into SAM and change name server switch sequence to /etc/hosts, then DNS, and make sure it goes to the next item if the first is not found. This is required for WATADS to work.

26. Edit /etc/issue file and /etc/dt/config/C/Xresources file with Government computer warnings. Details in HP System Admin Book from NWSTC 1-15, and 1-25

27. Edit /etc/inetd.conf to read the issue commands. Comment out ALL services except ftp, telnet and auth. These will be secured with TCP_Wrappers.

28. Go into the /etc/rc.config.d/ directory and edit the sendmail file from 1 to 0, this shuts off sendmail.

28. Go into SAM and create a user account for yourself

29. Go to <http://strc.comet.ucar.edu/unix/index.htm>, and get the 1998 version of Mozilla. Mozilla is a browser much like Netscape. On the link package search, enter Mozilla. You may have to download this to a PC, then FTP it to the Workstation, then install it. Once its installed you need to change the ownership. Change into the /opt directory and type Achown -R bin:bin mozilla@. The first time you get it going, go under preferences and change the default web page to a noaa.gov site of your choice. The www.netscape.com default it comes with causes errors.

30. Do a net search and find the most recent version of tcp wrappers. You can get it at: <http://ciac.llnl.gov/ciac/ToolsUnixNetSec.html>
Download the software into your root directory, unzip it. Read the README file,

edit the make file for your system, and compile it. Move the tcpd files to the same directory the daemon files are in (Ftp,telnet,tcp,etc) usually the /etc directory, or place them in the /usr/local/bin directory. If you do the latter, make sure you change the permissions of this directory to 700.

31. Goto NSSL and download WATADS. Most recent instructions included. [Http://www.nssl.noaa.gov/~watads](http://www.nssl.noaa.gov/~watads). Install WATADS in a special WATADS user account.

32. Install WATADS as per instructions in /usr1 directory. The two most common problems are fixing the 10.x Device driver problem, and INTF hostname not found. The fixes for these are on the WATADS webpage under troubleshooting. In addition to the basic install you need to:

A. create a driver for the tape drive. There is one important departure you need to make from the instructions on the WATADS page. The command to create the tape drivers should be /usr/sbin/mknod /dev/rmt/ex8500nb c 205 0X01S0c3 where S is your tape drives SCCI ID number.

B. Fix the /etc/hosts file and Name Server Switch**if you did step 10 this is done.

33. Go to SOO Training resources web page <http://www.comet.ucar.edu/strc/> and download entire NAWIPS/Gempak/Garp Package. Install this exactly as listed in instructions.

34. Run back ups along the way. The following should be backed up, /, /stand, /var, /usr, /usr1, /opt, /home, /tmp. Finally set up automated back ups using SAM for these.

35. This configuration will result in a relatively secure system. As such it passed a Harris scan at Albany. However it may not meet the 2004 NOAA security protocol. A SAC set up in this manner at ALY has run without incident since 1999. However you will need to have your ESA run the security scan, and there may be additional patches to install. The easiest way is to run this machine for WATADS is offline, and move your data by CD, or only bring it up on line to FTP data from NCDC.

Another approach to keep out of the patch business is to buy a router/firewall of the type used in home networks for around \$79 for the router to \$300 for the Cisco pix firewall, configure the router/firewall for the desired network, and the Workstation with a 192.169.1.X address that is behind the router/firewall and invisible to the net. The only thing the Workstation needs to do after the initial install and build is go out to get data, mainly for WATADS from NCDC. Even using the old NAWIPS, LDM or other scripts these computers have little or no need to be accessed from offsite.

36. This entire process for one with a working knowledge of Unix should take about 20 hours. However half that time the Workstation will be installing and configuring software, and can be left pretty much unattended. If its connected to a network, while your building it, you should shut it down each night until the security patches, tcp wrappers and inetd.conf configurations have been made. If you have any questions my email is warren.snyder@noaa.gov and I can be reached at 518-435-9569.