AIX 6 Basics

(Course Code AU13)

Lab Set Up Guide

ERC 10.0

IBM Certified Course Material

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Purpose

This **Lab Set Up Guide** provides directions for installing, preparing, and verifying the lab hardware and software in preparation for conducting a class of course AU13.

The Requirements sections of this document may also be used to determine the specific hardware and software needed to conduct a class.

Requirements

The following tables list the hardware, software, and other materials needed to set up a lab to conduct a class of course AU13.

Hardware Requirements

Comments: All classrooms are required to have 64-bit Common Hardware Reference Platform (CHRP) based IBM System p servers. Classrooms without this equipment will not be able to successfully run all lab exercises. This course has been updated to AIX 6.1, which requires 64-bit CHRP systems to operate.

Recommended Configuration:

There should be **two** IBM System p servers or LPARs configured for each class. Each student requires a network-connected PC running some terminal emulation software, used to connect to the IBM System p server or LPAR. Table 1 lists the hardware needed to prepare one student lab set. When preparing for a class, multiply the items below by the number of lab sets needed for the class.

Table 1: Hardware for one student lab set

Platform Use	Machine Type	Machine Model	Minimum Memory	Minimum Free DASD	Features
Classroom Server	IBM System p server or LPAR	System p5 520 or higher	512 MB	4.5GB Disk	Ethernet
Instructor	PC				Ethernet
Students	PC				Ethernet

Additional equipment required:

- All systems connected via Ethernet

Software Requirements

Table 2 lists the software needed to prepare the student and/or instructor lab set(s). When preparing for a class, be sure you have the correct number of licensed copies of any non-IBM software.

Table 2: Software for AU13

Platform Use	Operating System	OS Version	Applications	Application Version	Licensing Requirement
System p	AIX	6.1	Standard system load		
System p	AIX	6.1	AIX 6.1 Documentation (see note)		
System p	AIX	6.1	VNC Server		
System p	AIX	6.1	Mozilla Firefox see note		

Note: This course would normally be taught in an environment where the student classroom workstations (for example a PC running Linux or MS Windows), would have Internet access. In that situation, the student will use the browser on the PC to access the IBM web site for the documentation.

It is only when the class is being taught in an environment where the students are isolated from the Internet, that the setup for the site will need to include installation of the AIX infocenter (and the associated documentation files) on the AIX lab system. If that documentation server is going to accessed from the AIX lab systems, rather than from the PC browsers), then Mozilla will also need to be installed on the AIX lab system.

Set Up Instructions

Configuration Information

The following describes the configurations of the student and/or lab set systems.

Installation Comments: Each IBM System P or pSeries machine should have AIX 6.1 installed.

If the classroom environment does not have access to the Internet, the AIX 6.1 Infocenter needs to be installed. To install the Infocenter, you will need access to the following software (see notes for table 2):

1) Mozilla Firefox (available via download from *www.ibm.com/servers/aix/browsers)*

2) AIX 6.1 Documentation CD.

The student machines will be Network Attached PCs with software to provide an interactive ASCII interface to the AIX system. Examples of such software are:

- Microsoft Windows **telnet.exe** (included with Windows)
- PuTTY terminal emulator
  available from *http://www.chiark.greenend.org.uk/~sgtatham/putty/*

For the exercises involving using and configuring the AIXWindows and CDE environment, a VNC client program is required. VNC Viewer is available via download from *www.realvnc.com*

Hardware Set Up Instructions

Use the following information in addition to the normal hardware installation procedures to set up the lab hardware.

If standalone System p or pSeries machines are to be used, they need to be physically set up in the classroom and connected to the class network. If external peripherals are required (such as tape drive, CD-ROM, DVD-RAM) to install AIX, please connect them.

For the student machines, attach the PC to the network and follow the applicable instructions for PC hardware and AIX connection software setup.

If LPARs are to be used for the AIX systems, it needs to be configured in the following manner:

- 512Mb RAM
- 4.5Gb DASD (physical or virtual)
- 1logical CPU (minimum 0.2 processing units)
- Ethernet (physical or virtual)

AIX Installation Instructions

Use the following information, in addition to the normal software installation procedures, to set up the lab software. Once the hardware is connected, you can begin software installation.

Instructions on installing AIX can be obtained from the *AIX Installation and Migration Guide.* An online copy of the guide is available at:

http://publib.boulder.ibm.com/infocenter/pseries/v6r1/index.jsp

When going through the AIX Installation Menus, verify that the AIXWindows and CDE filesets will be installed. Ensure that the **Graphics Software** option is set to **yes**, and the **Desktop** option is set to **CDE**.

If using a **mksysb** image provided by ITES, please follow the instructions accompanying the image.

AIX Configuration Tasks

__ 1. When the system boots after AIX 6.1 is loaded, you will get a screen titled `Configuration Assistant TaskGuide` on the console. In a standalone environment, this will be either the LFT, or a terminal. In an LPAR environment, the console can be obtained from the HMC. Through this, screen you can begin customizing the systems for the classroom environment. It is a menu driven screen.

   a. Select `Set Date and Time` on the `Configuration Assistant TaskGuide` menu. Follow the instructions on the screen to set the date and time as appropriate to your time zone.

   b. Select `Set root Password` on the `Configuration Assistant TaskGuide` menu. Type **`ibmaix`** and press **`Enter`**. Type **`ibmaix`** again and press **`Enter`** when prompted to verify the password.

   c. Exit from the `Configuration Assistant TaskGuide` menu. Do not just close the window, select finished from the menu. If you do not, the `Configuration Assistant TaskGuide` menu will appear each time the system boots.

__ 2. Configure the network interfaces with IP addresses that can be reached from the student machines. Consult with the site network administrator for the network configuration to use. The list of configured hostnames and IP addresses should be provided to the instructor for the start of class.

__ 3. The /**etc**/**security**/**mkuser.sys** script needs to be modified to create an appropriate **xstartup** file for the VNC server software when the student userids are created.

```
# vi /etc/security/mkuser.sys
```

   Add the following lines to the **bottom** of the file:

```
# Create the .vnc directory and xstartup script within it
mkdir $1/.vnc
chown $2 $1/.vnc
chgrp $3 $1/.vnc

cat > $1/.vnc/xstartup << EOF
PATH=\$PATH:/usr/local/bin:/usr/dt/bin
xrdb \$HOME/.Xdefaults
xsetroot -solid grey
aixterm -geometry 80x24+10+10 -ls &
xclock -geometry -0+0 &
mwm &
EOF

chown $2 $1/.vnc/xstartup
chgrp $3 $1/.vnc/xstartup
chmod +x $1/.vnc/xstartup
```

__ 4. A series of normal user accounts now needs to be created, one for each student. If the number of students is known ahead of time, you can just create enough to satisfy the class size, plus two extra accounts. Otherwise create at least 24 user accounts. When creating the accounts divide them evenly across both AIX systems.

Create the user accounts in the following manner:

 # mkuser team01

A password will also have to be set for each user account. To set the password for the new user type:

 # passwd team01

on the command line and press **Enter**. You will be prompted to enter a new password twice. Use the user name as the password.(team01/team01)

Clear the **ADMCHG** flag that is set on the user account when the root user assigns the initial password for the user:

 # pwdadm -c team01

Repeat the instructions until all users have been created and passwords set

__ 5. The file /**usr**/**share**/**man**/**whatis** needs to be created by the command:

 # catman -w

__ 6. Update the /**etc**/**hosts** file so that you can use hostnames to communicate with other AIX hosts on the network.

 # smit hostent

Add a Host

Add the hostname and IP address of each AIX system in the network. It is also necessary to fill in the alias for each hostname listed. For example, the hostname of **sys2** must also have an alias of **sys2**. (Note the period after the hostname). This is necessary for the AIX 6.1 mail functions to work correctly. Press **Enter** after each entry.

When all the AIX hosts have been entered, view the file at the command line to verify that it is correct. This can be done with the **more /etc/hosts** command.

The /**etc**/**netsvc.conf** file needs to be modified to allow hostname lookups in /**etc**/**hosts** before using a network nameserver. Execute the following command:

```
# echo "hosts = local, bind" >> /etc/netsvc.conf
```

__ 7. If necessary, install any fixes for AIX.

__ 8. For the AIXWindows and CDE exercises the VNC server software needs to be installed The VNC server software tested with this course can be obtained from:

http://www.bullfreeware.com/

Click on **AIX 4.3.3** on the left side of the browser window, and scroll down to the bottom. The two files that need to be downloaded are:

vnc-3.3.3.2.exe
zlib-1.1.3.2.exe

Once downloaded, the files need to be transferred to the AIX system. To transfer the files, you can use any method available (FTP, SSH, NFS).

The following is an example of transferring the files to an AIX system using the **scp** program, uncompressing the filesets, transferring them to the default fileset install directory /**usr**/**sys**/**inst.images**/, and using SMIT to install them:

```
# scp vnc-3.3.3.2.exe zlib-1.3.3.2.exe root@1.2.3.4:/tmp
root@1.2.3.4's password:
#
```

The two files are in a compressed format; they need to be executed to extract the **.bff** filesets.

```
# cd /tmp
# chmod +x vnc-3.3.3.2.exe zlib-1.1.3.2.exe
# ./vnc-3.3.3.2.exe
UnZipSFX 5.32 of 3 November 1997, by Info-ZIP
(Zip-Bugs@lists.wku.edu).
inflating: vnc-3.3.3.2.bff
inflating: vnc-3.3.3.2.bff.asc
# ./zlib-1.1.3.2.exe
UnZipSFX 5.32 of 3 November 1997, by Info-ZIP
```

```
(Zip-Bugs@lists.wku.edu)
inflating: zlib-1.1.3.2.bff
inflating: zlib-1.1.3.2.bff.asc

# bffcreate -d /tmp all
# smit installp
```

- Select **Install Software**
- The **Input device/directory** is /**usr**/**sys**/**inst.images** (F4, select it from the list)
- For **SOFTWARE to install** press F4 to get the list. Select the VNC and zlib filesets by scrolling down the list and pressing F7. Press Enter when finished.

The user's **$PATH** variable will need to be updated to include /**usr**/**local**/**bin**. This can be done in the /**etc**/**environment** configuration file.

__ 9. Be sure the network-attached PCs have been properly attached and that the AIX 6.1 connection software has been properly configured.

__ 10. Reboot the system. This is required for the changes made to the default user interface and to allow the on-line documentation to work.

Verification Procedures

Use the following information to verify the installation and configurations of the AIX systems.

__ 1. Start up a terminal emulation application on one of the student PCs and connect to the IP address of the AIX system.

__ 2. Login as one of the user accounts with the appropriate password.

__ 3. To test the VNC server, run the **vncserver** command from the userid. The program will ask you to enter a password (twice) for the VNC session, then exit. Run **vncserver** again, and it will start the VNC server session and display the name and session number. (typically of the form **hostname:1**).

Start a VNC client from the student PC and connect to the VNC session you just set up. The client should ask you for your password (the one you just set up), then display a window with the AIXWindows environment in it (large aixterm and xclock).

Close the VNC client session by closing the window, then return to your terminal emulator application, and kill the VNC server by typing **vncserver -kill <sessionid>** where <sessionid> is the VNC session number. (for example, **vncserver -kill :1**)

Log out of the user account.

__ 4. Open a new terminal emulator window, and login as **root** with password **ibmaix.**

__ 5. Display the contents of /**etc**/**passwd** to ensure the other user ids were created by issuing the following command from the command line:

```
# more /etc/passwd
```

__ 6. Access online man pages.

```
# man tar
```

This should present information about the **tar** command if the documentation was installed correctly.

__ 7. Log out of the **root** account.

__ 8. Verify Internet connectivity from the student PCs.

Open a web browser, and connect to the AIX 6.1 Infocenter located at:
http://publib.boulder.ibm.com/infocenter/pseries/v6r1/index.jsp