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Best of Both Worlds--AIX and Linux

By Jaqui Lynch

The AIX OS is IBM's primary UNIX OS and runs on many mission-critical servers all around the world. As part of its commitment to Linux, IBM developed the AIX Toolbox for Linux that allows you to port and run Linux applications on AIX. This offers the user the best of both worlds--the proven benefits of running AIX and the ability to use open-source software and the RPM install feature.

Since many of the open-source tools are developed on Linux today and thus depend on Linux libraries and APIs, it makes sense to have a toolset on AIX that makes it easy to port those tools to AIX. The toolbox that's provided includes both recompiled versions and source code for a number of utilities, including the Gnome and KDE desktops, Samba, various shells, the GNU base utilities and a number of compilers. A complete list of the current content of the toolbox can be [found online](#).

Getting and Installing the Toolbox

The toolbox itself can be obtained in three different ways:

1. From the [toolbox Web site](#)
2. From [the toolbox FTP site](#)
3. From the toolbox CD that's shipped with your copy of AIX 5L

The tools and applications that come with the toolbox are all in RPM format, the standard Linux install format. Therefore, before using the toolbox, you must install the RPM Package Manager. This must be installed using the standard installp process and can be obtained from <ftp://ftp.software.ibm.com/aix/freeSoftware/aixtoolbox/INSTALLP/ppc/rpm.rte>. This is installed using the installp command. You're then able to use RPM to install the rest of the toolbox utilities if you so choose.

The root directory for the toolbox is /opt, and it's recommended that you create a separate file system called /opt/freeware before installing the toolbox. This will ensure you have sufficient space for all of the toolbox applications that you may want to install. You should also check that /var has plenty of free space and that the following directory exists: /var/opt/freeware/tmp.

Once RPM is installed, you should now be able to install and use the toolbox software. It's important to note that the software will be installed in the default location for that software (normally /opt/freeware) and symbolic links will be created to the correct AIX directories to make the software useable. However, where there are conflicts between the AIX software and the toolbox software, the software will be installed in the /usr/linux directory structure (most likely in /usr/linux/bin). You'll need to create an alternate PATH to use commands located there. Man pages get installed into /opt/freeware/man, so you'll need to add this to your MANPATH in order to use the man command. When the toolbox is installed, AIX will also create a symbolic link from /usr/opt/freeware to /opt/freeware.

Using RPM

RPM uses its own database to keep track of software--this is separate from the AIX ODM. In order to ensure that RPM is aware of all of the available AIX libraries and shells it's necessary to create a virtual package (AIX-rpm) that contains those libraries and shells and integrates them with RPM. This is done by running the updtvpkg script. This allows RPM to keep a record in its own database of what AIX will provide in terms of libraries, etc., and it will ensure that installs with AIX library dependencies move ahead smoothly.

Once RPM is installed, you can begin using it to install RPM packages. To use RPM, you must understand the associated flags and what they do. This is documented in the man pages and online (www.rpm.org). There are a significant number of flags available. Key flags include:

- `-i--install`
- `-e--erase`
- `-q--query`
- `--help--get help`
- `-v--verbose`; use this if you want to know what's going on

Packages can be installed individually or in multiples, either by naming them or using wildcards. Additionally packages can be installed either as binaries (can be used immediately) or as source RPMs. Source RPMs are used when you want to recompile the software in order to use specific flags on the compile.

Using the Toolbox After Install

Applications can be run in several ways. The application can be called by its absolute or relative path and name, you can create an alias to the command or you can update the PATH variable so that you can just type in the command name. When updating the PATH, it's recommended that the new directories be added to the end of the PATH. It's also recommended by IBM that you only change the PATH for individual users, not in the global files such as `/etc/environment` or `/etc/profile`. As mentioned previously, the MANPATH should also be updated so that you can access the man pages.

Supplementing Your System

The AIX Toolbox for Linux Applications is a useful supplement to your system to implement some of the open-source software. It allows those familiar with Linux to have access to the Gnome and KDE desktop environment, to use compilers such as gcc and to use many of the open-source utilities such as lsof, less, samba and gzip. Additionally, it allows you to have the flexibility to either install these as binaries or to recompile them to meet your needs. The primary goal of the toolbox is to increase the affinity with Linux systems, and this is an excellent way to do that as well as to familiarize yourself with Linux tools.

For more information, check out the following resources:

- [Whitepaper on Linux Affinity](#)
- [Download the latest copy](#)
- [Chapter 2 of Linux Applications on pSeries](#)

Jaqui Lynch, a senior systems engineer focusing on pSeries and Linux at Mainline Information Systems, has worked in the IS industry for more than 26 years. She's been responsible for a variety of projects and OSs across multiple vendor platforms, including mainframes, UNIX systems, midrange systems and personal workstations. Jaqui can be reached at jaqui.lynch@mainline.com.