

Building O.I. by sb

Using TWW sb tool to build OpenIndiana OS

WHAT: This page document the process to build OpenIndiana OS using a tool called "sb".

WHY: TBC.

WHERE: tww.uk.openindiana.org

HOW: See "Procedure to setup TWW tool-sets on O.I-148."

TWW tool-sets overview

/opt/TWWfsw/bin/sb is part of [TWW Inc's](#) GNU licensed tool-sets.

- /opt/TWWfsw/bin/sb : sb is a python script to automate the software building process.
- /opt/TWWfsw/bin/pb : pb is a python wrapper script to act as proxy to different package manager to create native package formats for RPM,SVR4, SD-UX and others.
- /opt/TWWfsw/bin/pkg-info, pkg-inst, pkg-rm : pkg-info, pkg-inst and pkg-rm are python wrapper script provide a layer of abstraction in terms of query package information, package installation and package removal.

pb and pkg-* tools are not subject of this page. We are going to only describe sb for building O.I. OS(software).

sb aim for high degree of automation in the domain of software building. In short, it is a [DSL\(Domain Specific Language\)](#) to describe and repeat software building process as much as possible by program(sb). Don't worry, it still can not replace software packager's job. But it surely can increase software building quality and speed.

O.I. is still branded and keeping itself very close to Solaris-2.11 and TWW tool-sets for Solaris 2.10 works on Solaris 2.11 x86 and Sparc CPUs.

Procedure to setup TWW tool-sets on O.I-148.

1. Lets use tww.uk.openindiana.org as example host.
 - a. Setup tww-init directory and machine info.

```
tjyang@tww.uk.openindiana.org:~$ mkdir tww-init;cd tww-init
tjyang@tww.uk.openindiana.org:~/tww-init$ pwd
/export/home/tjyang/tww-init
tjyang@tww.uk.openindiana.org:~/tww-init$ uname -a
SunOS tww.uk.openindiana.org 5.11 oi_147 i86pc i386 i86pc
tjyang@tww.uk.openindiana.org:~/tww-init$ grep tjyang /etc/user_attr
tjyang:::type=normal;profiles=Primary Administrator
tjyang@tww.uk.openindiana.org:~/tww-init$
```

2. Install a few tools by "pfexec pkg install lftp git gnu-make wget rsync zip developer/object-file header-math imake makedepend"
3. Use lftp to grab pkgutils-1.6.4.pkgadd.tar and others for i386-pc-solaris2.10 OS platform.

```
tjyang@tww.uk.openindiana.org:~/tww-init$ lftp ftp://support.thewrittenword.com/dists/9.0/support/i386-
pc-solaris2.10
cd ok, cwd=/dists/9.0/support/i386-pc-solaris2.10
lftp support.thewrittenword.com:/dists/9.0/support/i386-pc-solaris2.10>mget \
pkgutils-1.6.4.pkgadd.tar \
sbutils-1.3.0-2.pkgadd.pkg-inst \
pbutils-1.1.22-1.pkgadd.pkg-inst \
rpm-4.2-6.pkgadd.pkg-inst
lftp support.thewrittenword.com:/dists/9.0/support/i386-pc-solaris2.10>
```

4. untar pkgutils and use pkgadd to install TWW* SVR4 packages. Answer yes to all the questions.

```
tjyang@tww.uk.openindiana.org:~/tww-init$ ls -lrt
total 142449
-rw-r--r-- 1 tjyang  tjyang  24161554 Mar 18  2010 sbutils-1.3.0-2.pkgadd.pkg-inst
drwxr-xr-x 4 tjyang  tjyang    7 Feb 18 21:47 TWWpkgutils16u
drwxr-xr-x 3 tjyang  tjyang    5 Feb 18 21:47 TWWpkgutils16c
drwxr-xr-x 3 tjyang  tjyang    6 Feb 18 21:47 TWWpkgutils16m
-rw-r--r-- 1 tjyang  tjyang  30825984 Feb 18 21:47 pkgutils-1.6.4.pkgadd.tar
-rw-r--r-- 1 tjyang  tjyang  10723264 Feb 18 23:38 pbutils-1.1.22-1.pkgadd.pkg-inst
-rw-r--r-- 1 tjyang  tjyang   7251511 Feb 18 23:38 pbutils-1.1.22-1.rpm.pkg-inst
tjyang@tww.uk.openindiana.org:~/tww-init$ for i in TWW*; do pfexec pkgadd -d . $i; done
```

5. Install sbutils,pbutils and (optional) rpm package manager for Solaris x86.

```
tjyang@tww.uk.openindiana.org:~/tww-init$pfexec /opt/TWWfsw/bin/pkg-inst \
sbutils-1.3.0-2.pkgadd.pkg-inst \
pbutils-1.1.22-1.pkgadd.pkg-inst \
rpm-4.2-6.pkgadd.pkg-inst
```

6. Make sure /opt/SUNWspro/bin is in PATH of /opt/TWWfsw/sbutils13/etc/sbutils.conf since TWW packages use OS vendor supported compiler by default.

```
<snipped>
environment {
    PATH = "/opt/TWWfsw/sbutils13/lib/aux/bash/bin:\
/opt/SUNWspro/bin:\
/opt/TWWfsw/sbutils13/lib/aux/bzip2/bin:\
<snipped>
```

7. Quick check of installed tool-sets

```
tjyang@tww.uk.openindiana.org:~/tww-init$ sb --version;pb --version;pkg-inst --version
1.3.0
1.1.21
1.6.4
tjyang@tww.uk.openindiana.org:~/tww-init$
```

8. Read http://en.wikibooks.org/wiki/CPAM_with_TWW/User_Guide to get the big picture.
9. RTFM of TWW tool-sets.

```
man sb
man 4 depot-db.xml
man 4 sb-db.xml
man 4 sbutils.conf
```

Use sb to create your first hello-world package source

```
mkdir -p hello-2.7/src
cd hello-2.7/src/
wget http://ftp.gnu.org/gnu/hello/hello-2.7.tar.gz
```

Using sb with GNU Makefile to build all O.I. consolidations.

Run "/opt/TWWfsw/bin/sb -m" with a wrong module name "test" to list out available consolidations.

```

oi@openindiana:~/oi$ sb -m test oi.xml
OpenIndiana-148
error: while the program was found in the repository, no modules
error: matching any requested were found. the modules I know about
error: are: caiman, default, distro, glnn, gnome, illumos, ips,
error: osnet, setup, sfw, sic_team, tww, vpanels, x.
oi@openindiana:~/oi$

```

Before and After Digitization

English Instruction to build consolidations	Digitized the instruction into The Written Words(XML) that a program(sb) can repeat
Setup the build Environment	To be published.
Creating the O.I. distro	<pre> <module name="distro"> <install-name>distro</install-name> <script-header> <![CDATA[SLIMCD="/usr/share/distro_const/slim_cd" DISTRO_NAME="OpenIndiana_Live_X86_TJYANG"]]> </script-header> <configure> <![CDATA[case "\${SB_SYSTYPE}" in i?86*-solaris*) if [! -x /usr/bin/distro_const] ; then pfexec pkg install install/distribution-creator fi; esac]]> </configure> <build> <![CDATA[pfexec cp \${SLIMCD}/slim_cd_x86.xml \${SLIMCD}/tjyang_slim_cd_x86.xml pfexec perl -pi -e "s!OpenIndiana_Live_X86!\${DISTRO_NAME}!" \${SLIMCD} /tjyang_slim_cd_x86.xml pfexec rm -f /rpool/dc/media/\${DISTRO_NAME}.* time pfexec distro_const build \${SLIMCD}/tjyang_slim_cd_x86.xml]]> </build> <install> <![CDATA[scp /rpool/dc/media/\${DISTRO_NAME}.* tjyang@192.168.1.2:/tmp]]> </install> </module> </pre>
Filler	Filler

References:

1. <http://www.illumos.org/projects/cpamtww>
2. http://en.wikibooks.org/wiki/CPAM_with_TWW