

# Setting up the recommended build environment

## Overview

*The recommended OS to build OpenIndiana on will always be the latest development release at the time you are building.* The exception to the OS rule is for bootstrapping OpenIndiana from OpenSolaris where you should have the latest development binary release (b134) installed which can be obtained from [Genunix](#). (In case you want to upgrade an older OpenSolaris install to osol-134, follow [How to upgrade to osol-134](#)).

## Setup Compiler

The recommended build environment uses a patched Sun Studio 12 to compile along side a patched Sun Studio 12.1 to provide the lint. Both compilers are available to download as tarballs from here:



These links are no longer active. Oracle has removed these packages from public view.

- [Sun Studio 12](#) (choose the Sep 2009 version)
- [Sun Studio 12u1](#) (choose the February 2010 version)

Make sure your regular user account has "pkg install/uninstall" privilege in /etc/user\_attr.

```
myregularaccount:::profiles=Primary Administrator;roles=root
```

Before beginning, make sure you don't have Sun Studio installed:

```
pkg info | grep sunstu
```

If they are installed, remove. Eg:

```
pfexec pkg uninstall -r pkg://opensolaris.org/developer/sunstudioexpress \  
    pkg://opensolaris.org/sunstudioexpress \  
    pkg://opensolaris.org/ss-dev \  
    pkg://opensolaris.org/developer/sunstudio12u1
```

Keep running "pkg info | grep sunstu" and uninstalling until nothing reports back.

Then double check there is nothing under /opt related to compilers, and remove as necessary, eg:

```
ls -l /opt  
pfexec rm -rf /opt/SUNWspro /opt/sunstudio12.1 /opt/onbld  
# etc
```

Then install the tarballs:

```
pfexec mkdir /opt/SUNWspro  
cd /opt/SUNWspro  
bzip2 -dc $DOWNLOAD_LOCATION/sunstudio12-patched-ii-2009Sep-sol-{x86,sparc}.tar.bz2 | pfexec tar xvf -  
cd /opt  
gzip -dc $DOWNLOAD_LOCATION/sunstudio12u1-patched-ii-2010Feb-sol-{x86,sparc}.tar.gz | pfexec tar xvf -  
pfexec ln -s ../sunstudio12.1 /opt/SUNWspro
```

Information of installed Sun Studio Compiler for x86 platform.

```

root@oi:/opt/SUNWspro# ls -lrt
total 904990
drwxr-xr-x  3 root sys      3 2008-06-03 12:15 inventory
drwxr-xr-x 12 root sys     13 2008-06-03 12:15 man
drwxr-xr-x  2 root sys      3 2008-06-03 12:16 docs
drwxr-xr-x 21 root sys     21 2008-06-03 12:17 prod
drwxr-xr-x  2 root sys      5 2008-06-03 12:17 include
drwxr-xr-x  5 root sys      5 2008-06-03 12:17 contrib
drwxr-xr-x  2 root sys      7 2008-06-03 12:17 examples
drwxr-xr-x  2 root sys     25 2008-06-03 12:17 READMEs
drwxr-xr-x  3 root sys     95 2008-06-03 12:18 bin
drwxr-xr-x  9 root sys     40 2008-06-03 12:18 lib
drwxr-xr-x  5 root sys      5 2008-06-03 12:18 sfw
lrwxrwxrwx  1 root root      9 2011-04-01 11:37 atd1 -> prod/atd1
lrwxrwxrwx  1 root root     15 2011-04-01 11:37 LEGAL-SS12 -> prod/LEGAL-SS12
lrwxrwxrwx  1 root root     16 2011-04-01 11:40 sunstudio12.1 -> ../sunstudio12.1
root@oi:/opt/SUNWspro#

root@oi:~# cc -V
cc: Sun C 5.9 SunOS_i386 Patch 124868-10 2009/04/30
usage: cc [ options] files.  Use 'cc -flags' for details
root@oi:~# which cc
/opt/SUNWspro/bin/cc
root@oi:~#

```

Note: Sun Studio 12.2 is available but **has not been tested** so please do not use at this time.

Install some packages:

```

pfexec pkg install developer/gcc-3 \
developer/opensolaris/pkg5 \
developer/swig \
developer/build/automake-110 \
developer/build/autoconf \
developer/versioning/subversion

```

## Setup Common Build Environment

1. CBE(Common Build Environment) is a RPM based software build tool but it generate SVR4 package format for OpenSolaris, Solaris 10 and prior.
2. Get CBE 1.7.0

```

svn co svn+ssh://anon@svn.opensolaris.org/svn/jds/jds-cbe/trunk jds-cbe
or from http://dlc.sun.com/osol/jds/downloads/cbe/test/

```

### 3. Install CBE

- a. The ./cbe-install script is not meant to be run as root. It has to be run as user with "Software Installation" or "Primary Administrator" rights! (See /etc/user\_attr).

```

<snipped>
Package SUNWgpc is not installed
* Would you like the CBE installer to install this package for you? [yes] no
* Would you like to skip all missing packages? [no]: yes
* Enter the base directory (prefix) of the cbe [/opt/dtblld]: enter for default
* Would you like to do this now? [no]: enter for default
* Would you like to configure more compilers for use with the Desktop CBE? [no]: enter for default
* Please select the default compiler [3]: enter for default

Answer 'no' to all remaining questions.

```

- b. Following log is the last part of install log.

```

<snipped>
Installation of <SFpkgbuild> was successful.
Building CBEenv
INFO: Copying %use'd or %include'd spec files to SPECS directory
INFO: Processing spec files
INFO: Installing package CBEenv

Summary:

              package |      status | details
-----+-----+-----
              CBEenv |  INSTALLED |

CBE setup complete
Run
. /opt/dtbld/bin/env.sh [environment]
or
source /opt/dtbld/bin/env.csh [environment]
depending on your shell, to use this build environment.
You can also run /opt/dtbld/bin/env.sh [environment] to start subshell.
Installation log saved in /tmp/desktop-cbe-install-2011-04-06-08:58.log
oi@openindiana:~/oi/src/jds-cbe$

```

c. Set the CBE build environment by env.sh

```

oi@openindiana:~/oi/src/jds-cbe$ . /opt/dtbld/bin/env.sh
Desktop CBE version 1.7.0 built on 2011-04-06 by oi@openindiana
Unsetting USER
Unsetting LANG
Using CC=/opt/SUNWspro/bin/cc
Using CXX=/opt/SUNWspro/bin/CC
Setting PATH=/opt/dtbld/bin:/opt/SUNWspro/bin:/usr/ccs/bin:/usr/gnu/bin:/usr/bin:/usr/sbin:/bin:/usr/sfw/bin
Setting CONFIG_SHELL=/bin/bash
Setting MAKESHELL=/bin/bash
Setting MAKE=/opt/dtbld/bin/make
Setting M4=/opt/dtbld/bin/m4
oi@openindiana:~/oi/src/jds-cbe$

```

Then remove gnu make, so that (the other) make is the default. Different consolidations require different make versions so **do not remove** any binaries you install while setting up your environment. Please pay close attention to the PATH variables that are set in each consolidations build instructions.

[CBE source browser](#)

Install GNU gettext-0.16.1:

- Get <http://ftp.gnu.org/pub/gnu/gettext/gettext-0.16.1.tar.gz>
- On oi\_148, Install math header by "pkg install library/math/header-math"
- install it using: `./configure --prefix=/opt/dtbld && make && pfexec make install`

Alternative: You may use pkgbuild from CBE (above).

```

[18:04] <Meths> Otherwise, cd jds-cbe-dir; pkgbuild -bb CBEgettext.spec
[18:04] <Meths> cd ~/packages/PKGS/CBEgettext/reloc
[18:05] <Meths> tar cf - * | ( cd /opt/dtbld; pfexec tar xvpf - )

```

*Once you've setup and installed the recommended build environment, the build process can/shall be entirely done as user.*

## References

1. [http://blogs.sun.com/migi/entry/opensolaris\\_howto\\_install\\_sun\\_studio](http://blogs.sun.com/migi/entry/opensolaris_howto_install_sun_studio)