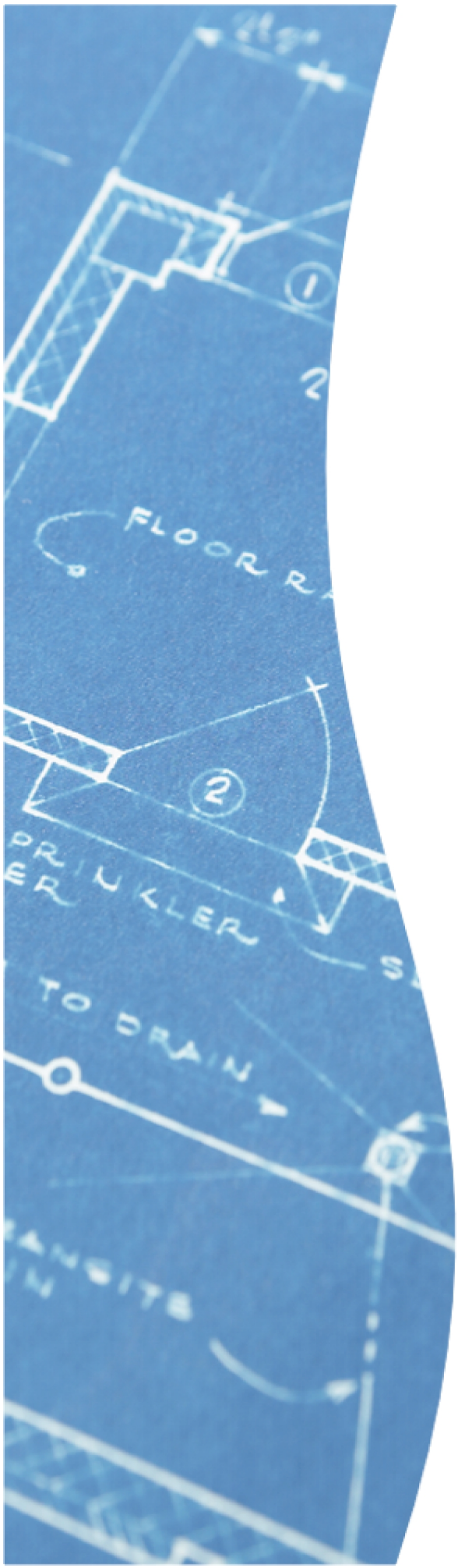

Sun Solaris Dual Boot PreInstall
Solaris 10 / S11SXDE

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Sun BluePrints™ On-Line — January 2008

Part No 820-xxxx-xx

Revision 1.0, 05/05/07

Edition: January 2008

Table of Contents

Revision History

Revision History		
1st Draft Version 1	1/2/2008	1st Draft placed written in form, Supplied for review
Version 2	1/3/2008	Updated Format of the document, Added more descriptive summary to the document. Created this Revision table, Fixed various form content
Version 3	1/6/2008	Updated further grammar, added blueprint template, made modifications to command output, updated doc format
Version 4	1/8/2008	Adjusted format of blueprint template adjusted further grammar corrections
Version 5	1/9/2008	Adjusted Authors Summary, Fixed punctuation throughout document, Removed unwanted sentences. minor changes
Version 6	1/9/2008	Made additional changes to pages 6,7,8,9. Updated Acknowledgments section.
Version 7	1/11/2008	Final Release submitted for review
Version 8	1/15/2008	Added additional modifications based on comments received
Version 9	1/22/2008	Incorporated changes/comments suggested by the Solaris Team, added pictures
Version 10	1/23/2008	Reduced Picture Size, Fixed grammar and sentences under Script Work
Version 11	2/10/08	Updated For review per Solaris Team
Version 12	2/25/08	Final Draft for Arc Review

Solaris Dual Boot Preinstall

Users can now have the ability to run Solaris 10 U4 or Solaris Express offering them the latest in development tools and collaborate with developers around the world to bind software and ideas together.

This article will go over the steps to produce a dual boot preinstall environment that will allow the user to choose either Sun S10 OS or the new Solaris Express user environment. Solaris 10 Installation steps on page 2 introduce what changes are made Solaris 10 preinstall

Sun Solaris and Live Upgrade

The reader should be familiar with Live Upgrade, Solaris Live Upgrade provides a method to upgrade Solaris while continuing to run in the background.

Test Environment

The environment used for testing and validation of the Solaris Dual Boot Preinstall consisted of the following

- Sun Ultra 24
- Solaris 10 1/08
- Solaris Express SXDE Build 77

Solaris Process Summary

A few steps are required for this process to occur,

- Solaris 10 Installation
- Solaris Express Install Prep
- Create Build Environments
- Solaris Express Installation
- Post Install Work
- Verification

What will be detailed in the next few pages is the formatting and installation of the two Solaris File systems.

Solaris 10 Installation

Jumpstart was used to install Solaris 10 Update 4, employing a “full+oem” cluster installationX86. Included were the following applications.

- Netbeans 5.5.1
- Sun Java Studio 2 Update 1
- Sun Studio Creator 12
- Sun Java Enterprise System Release 5 Update 1

The disk layout was changed from the standard preinstall template to account for an alternate root partition. The alternate root slice will host the Solaris Express build.

Slice 0 = 30GB for root

Slice 1 = 2GB for Swap

Slice 3 = 30GB for altroot

Slice 7 = Remainder of disk for /export

Slice 0 is Solaris 10 X86, Slice 3 would be the alternate root for the Solaris Express installation.

Solaris Express Install Prep

When performing a Live Upgrade (LU), it is extremely important that the Live Upgrade tools are at the same version of operating system to be installed. Solaris Express will usually contain more recent Live Upgrade tools compared to Solaris 10. The next few steps will cover removing the Live Upgrade packages on Solaris 10 and replacing them with LU packages from the Solaris Express image.

Begin by uninstalling the Solaris 10 Live Upgrade packages and installing the packages from Solaris Express LU into Solaris 10.

On the Solaris 10 Host issue the following commands to uninstall LU packages:

```
#pkgrm SUNWluu SUNWlur SUNWlucfg
```

Now replace with the packages from the Solaris Express Build, Insert the CD in the cdrom or navigate to it via NFS and issue

```
#pkgadd -d /path_to_image/Solaris_11/Product/
SUNWluu SUNWlur SUNWlucfg
```

Once this completes, LU will be used to create the Solaris Express environment.

Next, create the install point for Solaris Express using the "***lucreate***" command.

For more information regarding "***lucreate***" please see docs.sun.com

Create Live Upgrade Boot Environment

In the command below our Solaris Express build environment is created. This build environment will be the destination workspace of the Solaris Express installation.

- The first environment (our current working environment) is called ***s10x86***
- The 2nd build environment called ***solaris_sxde***. The environment is the target for the Solaris Express install.
- The mount point is denoted by “-m”. The full device path of the target environment must be specified. In this case, as stated in page 5, slice 3 of this disk was reserved to be used by Solaris Express. Therefore, /dev/dsk/c0d0s3 is specified as the target location. The file system option “:ufs” allows the user to create this build as a UFS volume. Please see reference to lucreate for more information on this process.

Note that in the following examples the build environment is always preceded by “-n”

```
#lucreate -c s10x86 -n solaris_sxde
-m /:/dev/dsk/c0d0s3:ufs
many lines of output
lucreate: Creation of Boot Environment
<solaris_sxde> successful.
```

Solaris Express Installation

If performing the install from DVD, use this method to install from local media.

```
#luupgrade -u -n solaris_sxde -s /cdrom/cdrom0
```

For NFS installations the Live Upgrade syntax would look like

```
#luupgrade -u -s /net/path_to_solaris11 -n
solaris_sxde
```

After this command is issued, the install begins. It can usually take anywhere between 30 and 45 minutes. After **luupgrade** is done, the Solaris Express environment will include an upgraded version of all the applications that were installed on Solaris 10 U4.

The next step is to activate Solaris Express. This will properly prepare the new OS to boot upon the next restart. This next step will also will make the necessary adjustments to the **grub**/**menu.lst** file once the reboot occurs

```
#luactivate -n solaris_sxde
```

- **Note** when rebooting the system only use the ***init 6*** or ***shutdown*** commands to reboot. If the following commands are used "***reboot***", "***halt***", or "***uadmin,*** Solaris does not properly switch boot environments, sometimes this may result in further damage to the boot environment.

Once Solaris Express is booted, a final verification checkout will commence. After a verification checkout has been completed, Solaris 10 will be reactivated followed by a sys-unconfig.

```
#luactivate -n  s10x86
```

Only use "init 6" to reboot the system after an luactivate has been issued

```
#sys-unconfig
```

Post Install Work

Post install work, includes the following.

- After activating Solaris Express,
  - Perform a brief checkout to validate the install
    - Run **pkgchk** against the live upgrade packages: **SUNWluu**, **SUNWlur**, **SUNWlucfg**
    - Boot and verify the applications and icons work
    - Test NIS and DNS
    - test the video drivers (in our case NVIDIA)
    - Verify that the applications installed properly run

- Following the small checkout, copy over the post install script which will allow the user to reboot/activate and use either of the builds as they see fit.

- Issue a "***luactivate"*** to Solaris 10 to reactivate S10 as the main build environment, then followed by a **sys-unconfig**, so that upon the next boot it will prompt the user for setup

Script Work

To facilitate allowing a user to pick an OS environment upon first boot, the grub menu will have both LU build environments, S10 and Solaris Express. A script (**s10preinstall** created by GDG) will be executed after the root logins querying the user if they wish to delete the alternate build environment. This script and the procedure to execute it will be installed on both the Solaris 10 X86 live upgrade environment and the Solaris Express live upgrade environment.

The **s10preinstall** script will be temporarily stored in **"/var/sun"** and removed once itself once finished executing.

Once the new system has been initially configured, it will then boot to a GUI login prompt. If the Root user logs in, the **s10preinstall** script will launch. This will occur in both CDE and GNOME. To accomplish this task in CDE the root profile ".dt/sessions/current/dt.session" is modified to include the following.

dtsmcmd -hints "-geometry 1x1+0+0 -state NormalState
-cmd \"/usr/dt/bin/dtterm - session dtwGaW7k -e /var/sun/s10preinstall \""
-screen 0 -cmd "/usr/dt/bin/dtterm -session d

twGaW7k -e /var/sun/s10preinstall"

For Gnome, the modification is made in "/.gnome/session-manual" which includes

0,RestartCommand=xterm -e /var/sun/s10preinstall

Below are 2 screen shots of the script launching upon login of the root user, Gnome and CDE.

Illustration 1: Gnome

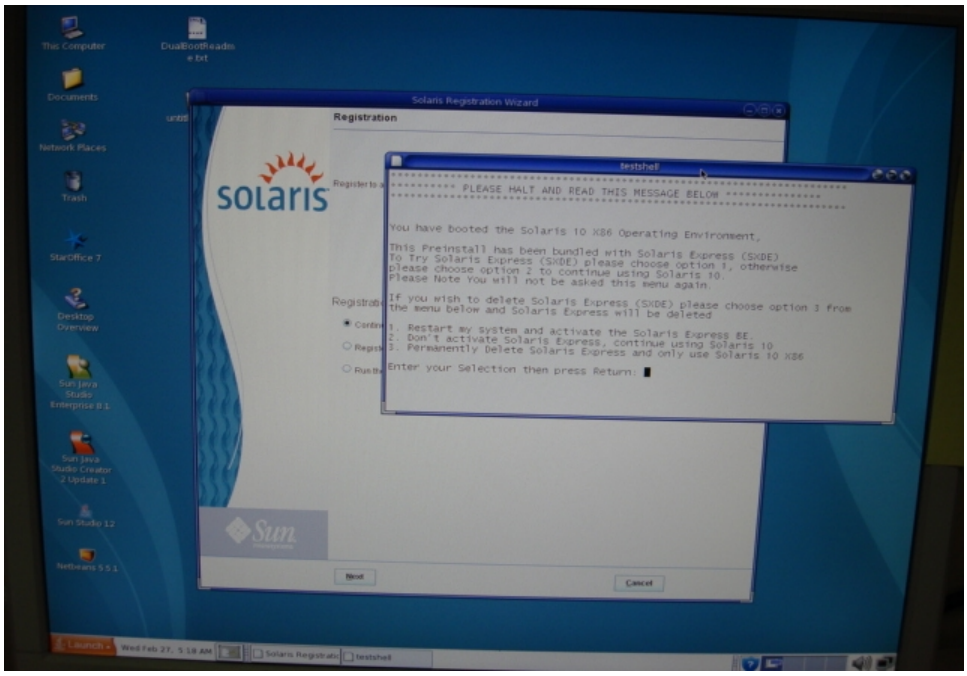


Illustration 2: CDE

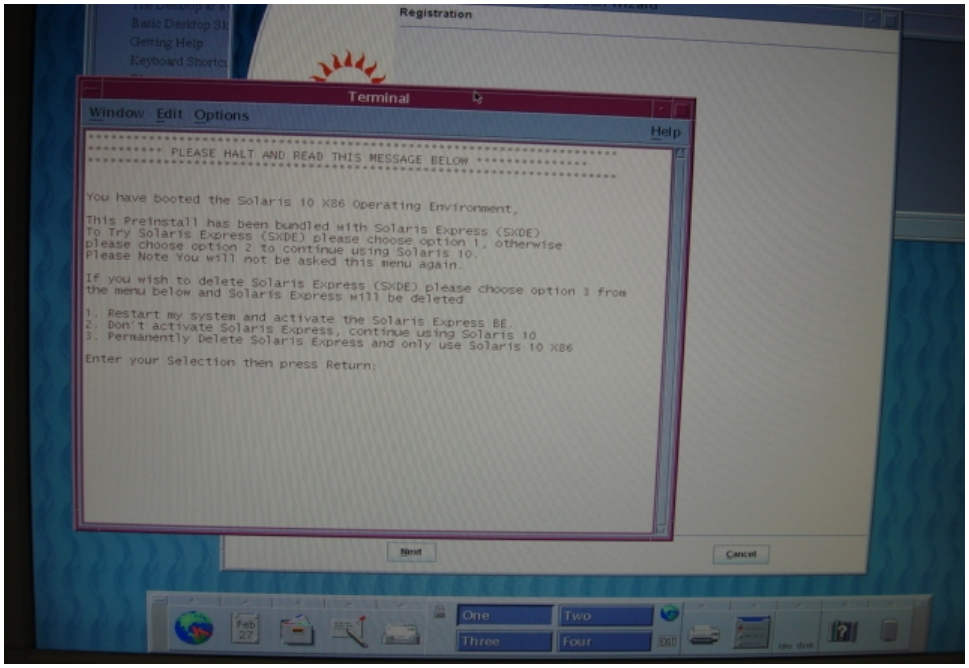
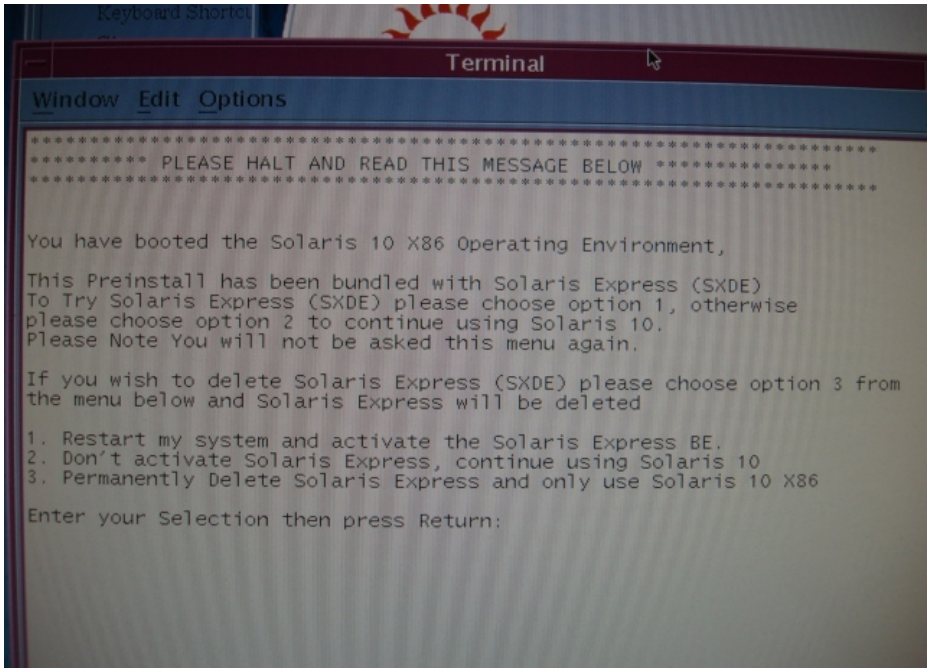


Illustration 3: Script



A detailed text file will be included on the Desktop of each OS. This text file describes how the dual boot is administered in the event that the user wants to manually switch his OS using a terminal window or add other modifications to the build environments

s10preinstall script

```
#!/bin/bash
#Preinstall Dual Boot User Options

# While-Do Loop with 3 questions

while :
do
  clear
  echo "*************************************************************************"
  echo "********** PLEASE HALT AND READ THIS MESSAGE BELOW **********"
  echo "*************************************************************************"
  echo ""
  echo ""
  echo "You have booted the Solaris 10 X86 Operating Environment,"
  echo ""
  echo "This Preinstall has been bundled with Solaris Express (SXDE)"
  echo "To Try Solaris Express (SXDE) please choose option 1, otherwise"
  echo "please choose option 2 to continue using Solaris 10."
  echo "Please Note You will not be asked this menu again."
  echo ""
  echo "If you wish to delete Solaris Express (SXDE) please choose option 3 from"
  echo "the menu below and Solaris Express will be deleted"
  echo ""
  echo "1. Restart my system and activate the Solaris Express BE."
  echo "2. Don't activate Solaris Express, continue using Solaris 10"
  echo "3. Permanently Delete Solaris Express and only use Solaris 10 X86"
```

```
  echo ""
  echo -n "Enter your Selection then press Return: "

#Read answer and execute case statement


  read CHOICE
  case $CHOICE in

# Option 1 will reboot and luactivate the alternate BE

    1)
      echo "System will now restart and boot Solaris Express"
      sleep 3
      echo "Activating solaris_sxde"
      luactivate -n solaris_sxde > /dev/null
      echo "Done, System Rebooting Please Wait"
      rm /var/sun/s10preinstall
      sed '6 d' /.gnome2/session-manual > session-manual.tmp
      mv /.gnome2/session-manual.tmp session-manual
      clear
      init 6
    ;;

# Option 2 will exit script and remove unwanted startup files

     2)
      echo "Please refer to System Documentation regarding activating Solaris Express"
      echo "Exiting Shell Menu"
      sleep 3
      rm /var/sun/s10preinstall
      sed '6 d' /.gnome2/session-manual > session-manual.tmp
      mv /.gnome2/session-manual.tmp session-manual
     break
```

```
;;


# Option 3 will destroy the alternate operating system


3)
        echo "You have chosen to permanently DELETE Solaris Express from the hard disk"
        echo ""
        echo "WARNING: THIS ACTION IS NOT REVERSIBLE, ALL DATA WILL BE LOST"
        echo ""
        sleep 2
        echo -n "Are you sure you wish to delete Solaris Express and keep Solaris 10 X86 ?
(yes or no) : "
        read DELETEME
          case $DELETEME in
            y|yes|Y|YES)
            echo "Deleting OS Please Wait"
            ludelete -n solaris_sxde >> /dev/null
            echo "Alternate OS has been removed"
            echo ""
            echo "Preparing the extra diskspace for use in $OSNAME Please Wait"
            echo "Extra workspace is prepared and ready to be mounted"
            echo ""
                  while :
                  do
            echo -n "Please Enter the Name of the Mount Point you would like to use (For
Example: newdisk) : "
                read MOUNTPOINT
                  echo -n "Are you sure $MOUNTPOINT is what you want? (y or n) : "
                   read VERIFY
                   case $VERIFY in
                   y|yes|Y|YES)
                  echo "Using $MOUNTPOINT as the mountpoint"
                  mkdir /$MOUNTPOINT
```

```
                echo "Running newfs on filesystem $MOUNTPOINT"
                newfs /dev/rdsk/c1d0s3
                echo "DONE"
                echo "Mounting $MOUNTPOINT to disk"
                mount /dev/dsk/c1d0s3 /$MOUNTPOINT
                clear
                echo "Mount Complete"
                sleep 1
                echo "Adding Mountpoint to /etc/vfstab"
                sed -e '$ d' vfstab >/tmp/x
                echo "/dev/dsk/c1d0s3 /dev/rdsk/c1d0s3       /$MOUNTPOINT ufs     3
yes     logging" >>
/tmp/x
                sed -n '$ p' vfstab >>/tmp/x
                mv /tmp/x /etc/vfstab
                echo "Done"
                sleep 1
                echo "Modifying Startup Files"
                sed -e /Command/d /.gnome2/session-manual > /.gnome2/session-
manual.new
                sed -e /s10preinstall/d /.dt/sessions/current/dt.session
> /.dt/sessions/current/dt.session.ne
w
                mv /.gnome2/session-manual.new /.gnome2/session.manual
                mv /.dt/sessions/current/dt.session.new /.dt/sessions/current/dt.session
                echo "Complete, This script will now remove itself"
                rm /var/sun/s10preinstall
                 sed '6 d' /.gnome2/session-manual > session-manual.tmp
                 mv /.gnome2/session-manual.tmp session-manual
                exit
                  ;;
                 n|no|N|NO)
                  echo "Ok Please re-enter your mountpoint name "
                  sleep 1
                  ;;
```

```
                *)
                  echo "Please enter a valid response (yes or no)"
                  echo "Returning to the MountPoint Selection"
                  sleep 1
                  ;;
                esac
              done
              ;;
          n|no|N|NO)
              echo "Returning to Main Menu, Press Enter to Continue"
              ;;
          *)
              echo "Unknown answer returning to the Main Menu, Press Enter to
Continue"
              ;;
        esac
    ;;


# This option cycles any response other than 1-3 back to the main menu

    *)
      echo " Invalid request, try again "
      read OTHER
     ;;
  esac
done
exit
```

About the Author

Sean Feole works for Sun GDG, currently responsible for generation, validation and distribution of the X64 Solaris and Windows preinstalls on the following platforms

- Sun Ultra 20 / Ultra 20M2
- Sun Ultra 24
- Sun Ultra 40/ Ultra 40M2
- Sun Fire X2100 / X2100M2
- Sun Fire X2200/ X2200M2
- Sun Fire X4100
- Sun Fire X4450

Acknowledgments

- Sun Microsystems Solaris Organization
- Neal Pollack – Sun SW Engineering Mgr, OPG Software
- Joe Moriarty – Software Program Manager, GDG Software
- Shidokht Yadegari – SUN SW Engineering, OPG Software

References

Internal Live Upgrade Cookbook: Thanks Neal Pollack

http://ego02-x86.west.sun.com/wiki/index.php/9500:LU_CookBook

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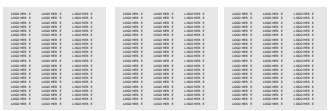

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