



Simplified Chinese Solaris System Administrator's Guide

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Contents

Preface	5
1 Starting the Simplified Chinese Solaris Software	9
Installing the Simplified Chinese Solaris Software	10
Applications Defaults Files	10
2 System Environment	11
Changing the Default Locale	11
Locale and Category Terminology	12
Keybinding for the ht t Input Server	12
Customizing Keybinding Control Keys	13
Interfacing With the Simplified Chinese Solaris Localization Facility	13
3 Setting Up Simplified Chinese Solaris Printing Facilities	15
Line Printer Support	15
Simplified Chinese Solaris Code Filters	15
Laser Printer Support	16
Using the xetops Utility	16
4 TTY Environment and Support	19
Terminal Support	19
Installing a Terminal	19
Serial Port Interface for Adding Terminals	20
Using the Command Line Interface to Add Terminals	20

Setting a User's TTY 21

A OpenWindows Information 23

Starting OpenWindows 23

Setting `.cshrc` for the Required Environment 23

`http` Input Server and `openwin-init` Files 24

Setting the `.owdefaults` File 24

Applications Defaults Files 25

Customizing Mail Transmission and Storage 26

Mail Transmission Formats 26

Mail Reception and Storage Formats 27

Making `.mailrc` Changes Take Effect 27

Report of Incoming Mail 28

Index 29

Preface

Simplified Chinese Solaris System Administrator's Guide provides system administration information specific to Simplified Chinese Solaris™ operation in the Common Desktop Environment (CDE) and the OpenWindows™ environment. This guide also includes some additional information that advanced users and developers can use to access and control the features of the Simplified Chinese Solaris operating environment.

Who Should Use This Book

You should read this guide if:

- You need specific instructions on how to set up features for users.
- You are a system administrator who has not used the Simplified Chinese Solaris operating environment, CDE, or the OpenWindows 3.x environment before.
- You are a developer who needs information on accessing and controlling the Simplified Chinese features of the Simplified Chinese Solaris operating environment.
- You are an advanced user who wants to use or customize the Simplified Chinese Solaris operating environment.
- You want information on a variety of details internal to the operation of the Simplified Chinese Solaris operating environment.

You should already be familiar with Sun's standard product documentation and the documentation of the window system that you are using, either CDE or OpenWindows. This guide adds only Simplified Chinese features.

Before You Read This Book

Before you read this book, please review the product overview and any last-minute changes that arrived too late to be included in this document:

- *Simplified Chinese Solaris Release Overview*
- *Asian Solaris 8 (SPARC Platform Edition) Release Notes*
- *Asian Solaris 8 (Intel Platform Edition) Release Notes*

Make sure to install your system properly as described in the document appropriate to your hardware platform:

- *Solaris Advanced Installation Guide*
- *Solaris 8 (SPARC Platform Edition) Information Library*
- *Solaris 8 (Intel Platform Edition) Information Library*

Each chapter of this manual addresses a different aspect of administration of the Simplified Chinese Solaris operating environment. Some chapters give step-by-step instructions for using or customizing product features.

Chapter 1 introduces the Simplified Chinese Solaris operating environment, including CDE and the locales included in the product.

Chapter 2 describes advanced ways to use Simplified Chinese window system features.

Chapter 3 describes the set up for printers that can print Simplified Chinese output and the use of PostScript™ printers.

Chapter 4 covers setting terminals to use the proper protocols for the input and display of Simplified Chinese characters.

Appendix A describes administration tasks relating to modifications made to the OpenWindows 3.x environment to localize it for Simplified Chinese and types of mail transmission and storage available.

Related Books

The following books are related to the topic of this book and may prove helpful for further reading.

For information on how to use the window system and associated applications:

- *Solaris User's Guide*
- *Solaris Advanced User's Guide*

For information about how to develop applications for this Simplified Chinese Solaris release:

- *International Language Environments Guide*

What Typographic Changes Mean

The following table describes the typographic changes used in this book.

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% You have mail.</code>
AaBbCc123	What you type, contrasted with on-screen computer output	<code>machine_name% su</code> Password:
<i>AaBbCc123</i>	Command-line placeholder: replace with a real name or value	To delete a file, type <code>rm filename</code> .
<i>AaBbCc123</i>	Book titles, new words or terms, or words to be emphasized	Read Chapter 6 in <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be root to do this.

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell prompt	machine_name%
C shell superuser prompt	machine_name#
Bourne shell and Korn shell prompt	\$
Bourne shell and Korn shell superuser prompt	#

Starting the Simplified Chinese Solaris Software

The Simplified Chinese Solaris operating environment must be specially set up for using Simplified Chinese text facilities. This chapter describes the steps required to set up an environment for running the Simplified Chinese Solaris operating environment.

The Simplified Chinese Solaris operating environment provides two window environments: the Common Desktop Environment (CDE) and OpenWindows. CDE is a fully internationalized environment; it does not require most of the administration tasks that OpenWindows requires to handle Simplified Chinese. For information on starting OpenWindows, see Appendix A. The Simplified Chinese Solaris product includes the following locales:

- `C`—ASCII English environment
- `zh`—Simplified Chinese environment in extended UNIX code (EUC)
- `zh.GBK`—Simplified Chinese environment in GBK, an extension of GB2312-80 (that is Guo Biao Kuo in Chinese PinYin, which supports all CJK characters that are in Unicode 2.1).
- `zh_CN.EUC`—Symbolic link to `zh` locale.
- `zh_CN.GBK`—Symbolic link to `zh.GBK` locale.
- `zh.UTF-8`—Simplified Chinese environment in Unicode 3.0.
- `zh_CN.UTF-8`—Symbolic link to `zh_CN.UTF-8`.

Note – The `zh_CN.EUC`, `zh_TW.GBK`, `zh_CN.GBK`, `zh.UTF-8` and `zh_CN.UTF-8` locales support CDE but do not support the OpenWindows environment.

Installing the Simplified Chinese Solaris Software

Make sure the Simplified Chinese Solaris operating environment is installed as directed in the documents appropriate to your hardware platform:

- *Solaris Advanced Installation Guide*
- *Solaris 8 (SPARC Platform Edition) Information Library*
- *Solaris 8 (Intel Platform Edition) Information Library*
- *Asian Solaris 8 (SPARC Platform Edition) Release Notes*
- *Asian Solaris 8 (Intel Platform Edition) Release Notes*

Applications Defaults Files

The Simplified Chinese CDE includes the following directories for applications defaults, including one for system-wide defaults and two specific to locale features:

- The `/usr/dt/app-defaults/C` directory stores system wide application defaults. These values are for the C locale.
- The `/usr/dt/app-defaults/zh` directory stores application defaults that are specific to that locale.
- The `/usr/dt/app-defaults/zh.GBK` directory stores application defaults that are specific to that locale.
- The `/usr/dt/app-defaults/zh.UTF-8` directory stores application defaults that are specific to that locale.
- The `$(OPENWINHOME)/lib/locale/zh/app-defaults/Http` file has all http resource default values that depend on that locale.

System Environment

Users can change their locale settings with shell environment variables. Each category names an existing locale. The `setlocale()` function directly sets or queries the setting of these categories. Internationalized functions use these settings to access the appropriate tables for the desired locale.

Environment variables can indirectly set the categories: when `setlocale()` sets the categories to the default setting for that site, it uses the setting of each environment variable to set the associated categories. The `setlocale()` function does not change the settings of environment variables, it only reads their settings.

Changing the Default Locale

You can change the default locale system-wide with the following procedure.

1. **Edit the `/etc/default/init` file by adding or changing the line.**

Substitute `C`, `zh`, `zh.GBK` or `zh.UTF-8` for *locale*.

```
LANG=locale
```

2. **Have all users exit CDE.**
3. **Type the following commands:**

```
% su  
# /usr/dt/bin/dtconfig -kill
```

4. **Type the following commands:**

```
% su  
# reboot
```

Locale and Category Terminology

The terms locale and category relate to each other as follows:

- A *locale* includes specification of a language, territory, code set, and other features. The Simplified Chinese Solaris operating environment includes the following locales:
 - `C`—For the ASCII English environment, the locale must be set to `C`.
 - `zh`—For the Simplified Chinese environment in EUC, the locale must be set to `zh`.
 - `zh.GBK`—For the Simplified Chinese environment in GBK, the locale must be set to `zh.GBK`.
 - `zh.UTF-8`—For the Simplified Chinese environment in Unicode, the locale must be set to `zh.UTF-8`.
- A *category* is a set of features that comprise a locale. For example, character displays or time/date representations, whose behavior depends on the *locale*. Simplified Chinese Solaris categories include the following:
 - `LC_CTYPE` sets the character-type for classification and conversion.
 - `LC_TIME` sets the locale for representation of date and time.
 - `LC_NUMERIC` sets the number representation locale (used also for I/O).
 - `LC_MONETARY` sets the currency representation locale.
 - `LC_MESSAGES` sets the language locale for messages to users.
 - `LC_COLLATE` sets the locale-dependent collation of strings.

The environmental variable `LC_ALL` explicitly sets the same locale for all categories; it has the highest priority. If categories or `LC_ALL` are not set, the `LANG` environmental variable will determine the category setting.

Keybinding for the `http` Input Server

In reference to the Simplified Chinese window system input server, the keybinding process links certain keys on the keyboard with certain actions by an application. You can keybind a complex action by an application, for example closing its open windows, to a single key or sequence of keys like `CTRL-H` or `ESC w c`.

All input conversion mode *Control-key* commands associated with non-ASCII input conversion are set in `/usr/lib/mle/zh/data/keybind.dat`. The default commands are listed in the table at the end of Chapter 4, “Entering Simplified Chinese Input,” in *Simplified Chinese Solaris User’s Guide*.

Customizing Keybinding Control Keys

In the `zh` locale only, keybindings can be changed by changing the names of the keys in this file and then restarting the `htt` input server. You can make and use your own customized `keybind.dat` file as follows:

1. **Make a customized copy named `keybind.dat` in another directory.**
2. **Set the environment variable `MLE_PATH` to the path name of the directory containing this customized file.**
3. **Start the input server.**

The directory set in `MLE_PATH` is then searched for a `keybind.dat` file and the commands in that file are set for the user.

If `MLE_PATH` is not set or does not contain a usable `keybind.dat` file, `/usr/lib/mle/zh/data/keybind.dat` is used.

To change the keybindings, edit the keybinding file to replace default keys with new keys. Key combinations and ON/OFF toggling also can be used.

Interfacing With the Simplified Chinese Solaris Localization Facility

At the C shell level, each environment variable can be set to *locale* (C for ASCII, `zh` for Simplified Chinese in EUC, `zh.GBK` for Simplified Chinese in GBK or `zh.UTF-8` for Simplified Chinese in Unicode) by a shell command as follows:

- **C shell users can enter a shell command as follows:**

```
system% setenv LC_TIME locale
```

- **Bourne shell (sh) users can use `set` or `export`:**

```
$ set -a LC_TIME
$ LC_TIME=locale
```

or

```
$ LC_TIME=locale
$ export LC_TIME
```

Making `zh` or `zh.GBK` the *locale* allows the user's environment to display time in Simplified Chinese format and text. A user can define a mix of locales for the working environment. For example, characters can be typed and converted in Simplified Chinese, time can be displayed in French format, and messages can appear in English.

Many users work in a single cultural environment. The `LC_ALL` and `LANG` environment variables set the system default for all categories. For example, these C shell commands set the system default for all categories to *locale*.

```
system% setenv LC_All locale
system% setenv LANG locale
```

System administrators or users can set the default and the `setenv` syntax can be used in programming.

This setting is put into effect the next time a `setlocale()` function call in an application program line sets a category to the default setting:

```
setlocale(LC_XXX "")
```

Setting Up Simplified Chinese Solaris Printing Facilities

The Simplified Chinese Solaris operating environment supports printing Simplified Chinese output through the following types of printing facilities:

- Line printer containing built-in Simplified Chinese fonts
- PostScript-based printer containing built-in scalable fonts
- Any PostScript-based printer for bitmap printing

The system administrator installs printer(s) as described in the printer product documentation. Then users can print Simplified Chinese text using procedures described in this chapter.

Follow the printer documentation for physically connecting the printer. Then use the following instructions.

Line Printer Support

For the Simplified Chinese Solaris operating environment to run a line printer, the printer must recognize EUC.

Simplified Chinese Solaris Code Filters

A printer that does not support EUC needs filters that convert EUC files for printing. For example, the following command sequence tells LP, the print service, that printer `lp1` accepts only GB format files. This command line also installs printer `lp1` on port `ttya`. The `lpadmin(1)` man page explains this command more fully.

```
# lpadmin -p lp1 -v /dev/ttya -I GB
# accept lp1
```

```
# enable lp1
```

An `lpfilter` command line like the following can be used in the process of printing files whose format is not supported by the printer:

```
# lpfilter -f filter-name -F pathname
```

The above command tells LP that a converter called *filter-name* (for example `euctogb`) is available through the filter description file named *pathname*. The content of *pathname* can be as follows:

```
Input types: simple
Output types: GB
Command: euctogb
```

The above filter takes default type file input and converts it to GB format by using `euctogb`.

To print an EUC file, use the command in the following example:

```
system% lp EUC-filename
```

To print a GB format file, use the following command:

```
system% lp -T GB GB-filename
```

Laser Printer Support

To print Simplified Chinese characters using a PostScript-based printer, a Simplified Chinese Solaris software application must have the Simplified Chinese Solaris `xetops` utility.

Using the `xetops` Utility

The `xetops` utility produces a bitmapped graphics printed image.

The Simplified Chinese Solaris operating environment includes the `xetops` utility so any system can print Simplified Chinese on a PostScript printer.

Using `xetops` is described in *Simplified Chinese Solaris User's Guide*, in the chapter "Simplified Chinese Printing Facilities," and in the `xetops(1)` man page.

A typical command line for printing a file named *filename* containing Simplified Chinese characters with or without ASCII/English characters, would be as follows:

```
system% pr filename | xetops | lp
```

Make *filename* the name of the file to print. This file can contain ASCII/English characters as well as Simplified Chinese.

TTY Environment and Support

This chapter assumes you are familiar with:

- How the Solaris operating environment communicates with external devices using STREAMS and `ioctl`.
- How different terminal types are supported by `termcap` and `terminfo`.

Refer to the `termio(7)` man pages for background information on STREAMS and TTY drivers.

Terminal Support

The Simplified Chinese Solaris operating environment supports Chinese terminals (EUC-GB). The terminals should have built-in Simplified Chinese fonts and input methods.

Installing a Terminal

If you have not added a terminal to your system before, first try installing a terminal in ASCII mode only. For more information, see *System Administration Guide*.

Serial Port Interface for Adding Terminals

Serial Ports is available from the Admintool menu to configure serial ports for terminals. Serial Ports provides the easiest method of installing a terminal. Serial Ports is invoked by `admintool`. For more information on `admintool`, see *System Administration Guide*.

Accessing Serial Ports

Using Serial Ports Menus

A Chinese terminal is installed as you would install an ASCII terminal.

Using the Command Line Interface to Add Terminals

The following procedure is required to set up a terminal on `ttya` port via the command line:

1. **Determine the port monitor version number.**

The port monitor version number will display.

```
# ttyadm -v
```

2. **Enter the following commands, substituting the port monitor version number for *ver*.**

(For more information on `sacadm` (1M) and `pmadm` (1M), see their man pages.)

```
# pmadm -r -p zsmon -s ttya
# sacadm -a -p zsmon -t ttymon -c /usr/lib/saf/ttymon -v ver
```

3. **Use the `pmadm` command that matches your terminal type to add a login service:**

For EUC terminals, use the following command:

```
# pmadm -a -p zsmon -s ttya -i root -fu -v ver -m "`ttyadm -S y \
-T terminal_type -d /dev/ttya -l 9600 -m ldterm,ttcompat -s \
/usr/bin/login`"
```

4. **Turn on the terminal.**

Follow the documentation that accompanies the terminal.

5. **Log in the terminal.**

6. Check the correctness of the installation:

```
# setenv LANG locale
# /bin/stty cs8 -istrip defeucw
```

Note – These values show that the operating system is set to communicate with the terminal in “8-bit no-parity” mode. Make sure the terminal is set up in “8-bit no-parity” mode. Refer to the terminal’s setup manual for the proper way to set terminal options.

Setting a User’s TTY

To verify that your TTY is properly set up:

1. Type the `/bin/stty` command with the `-a` option:

```
system% /bin/stty -a
```

2. If the values from above (`cs8, -istrip`) are not listed, then use the following command to set them:

```
system% /bin/stty cs8 -istrip defeucw
```

This is the last step in setting up a terminal.

OpenWindows Information

This appendix describes how to administer the Simplified Chinese OpenWindows environment.

Starting OpenWindows

This section describes the steps required to set up the Simplified Chinese environment and to start Simplified Chinese Solaris operation.

Setting `.cshrc` for the Required Environment

Each user's environment variables and `~/ .cshrc` (in other words, `$HOME/ .cshrc`) file command lines must be set as described in this section to use Simplified Chinese text. You must make sure the following three `.cshrc` file features (and consequently the users' C shells) are set correctly before any user starts up the Simplified Chinese OpenWindows environment.

The following three conditions are prerequisites to using Simplified Chinese:

- `OPENWINHOME` shell variable set to the path to `/usr/openwin`
- `LANG` shell-environment language-locale variable set for Simplified Chinese
- `TTY` mode set appropriately for Simplified Chinese character codes

To set these features, make sure each user's `.cshrc` file includes the following lines:

```
setenv LANG zh
setenv OPENWINHOME /usr/openwin
```

```

set path=( /usr/SUNWale/bin $OPENWINHOME/bin $path )
...
if ($?USER != 0 && $?prompt != 0) then
    /bin/stty cs8 -istrip defeucw
endif

```

Only `/bin/stty` can set the required features. Do not use `/usr/ucb/stty` because it does not set all required features.

Also, make sure each `.cshrc` file puts `$OPENWINHOME/bin` in the user's path before any other OpenWindows file. One way to ensure this is to put the following line in after other path assignments:

```

set path=(/usr/SUNWale/bin $OPENWINHOME/bin $path)

```

htt Input Server and openwin-init Files

The `htt` input server must be running before any application that uses Simplified Chinese input can run. It is started at OpenWindows startup from each user's home directory `.openwin-init` file. This file must contain the line:

```

toolwait $OPENWINHOME/bin/htt

```

This line must be ahead of the lines that start Simplified Chinese Solaris applications because they depend on the `htt` input server for Simplified Chinese operation. If `.openwin-init` is missing from the home directory, `htt` is started from the `$OPENWINHOME/lib/locale/zh/openwin-init` file distributed with the Simplified Chinese Solaris operating environment. The `htt(1)` man page explains more about the operation of `htt`.

Setting the .OWdefaults File

The `.OWdefaults` file in the user's home directory specifies the language used for several Solaris features: display language, numbers, time/date, messages, and other basic Simplified Chinese OpenWindows properties. Some other entries in `.OWdefaults` affect the behavior and appearance of the user's OpenWindows user interface.

Each user's `.OWdefaults` file should contain the following five lines before running the Simplified Chinese OpenWindows environment. So add these five lines at the end of users' existing `.OWdefaults` files. (Refer to the "Using Localization on the Workspace Properties Worksheet" section in *Simplified Chinese Solaris User's Guide*.)

<code>OpenWindows.BasicLocale:</code>	zh
<code>OpenWindows.DisplayLang:</code>	zh
<code>OpenWindows.InputLang:</code>	zh
<code>OpenWindows.TimeFormat:</code>	zh
<code>OpenWindows.NumericFormat:</code>	zh

These fields can be set to zh, for Simplified Chinese, or C, for English/ASCII operation. These five Simplified Chinese OpenWindows variables have the following properties:

TABLE A-1 Properties Set in `.OWdefaults` File

Property	Description
<code>BasicLocale</code>	Specifies the country (locale) of the user interface. With the basic locale set, a user can set other specific settings, such as input language.
<code>DisplayLang</code>	Specifies the language for labels, messages, menu items, help text, and other displays.
<code>InputLang</code>	Specifies the language used for keyboard input.
<code>TimeFormat</code>	Specifies the representation format of the time and date.
<code>NumericFormat</code>	Specifies the character system for number input/display.

These five fields can be added to an `.OWdefaults` file by using the localization category (Locale) in the Workspace Properties worksheet as described in the “Using Localization on the Workspace Properties Worksheet” section in *Simplified Chinese Solaris User’s Guide*.

.xinitrc File

If you want to maintain your own `.xinitrc`, update it according to `$OPENWINHOME/lib/xinitrc`.

Applications Defaults Files

Two directories for applications defaults are part of the Simplified Chinese OpenWindows environment. One is for system-wide defaults, and one is specific to locale features:

- The `$OPENWINHOME/lib/app-defaults/C` directory stores system wide application defaults. These values are for the `C` locale.
- The `$OPENWINHOME/lib/locale/zh/app-defaults` directory stores application defaults that are specific to the `zh` locale.
- The `$OPENWINHOME/lib/locale/zh/app-defaults/Http` file has all `http` resource default values that depend on the locale.
- The `$OPENWINHOME/lib/locale/zh/app-defaults/Olwm` file lists all `olwm` window manager resources default values that depend on the locale. Such resource file names have the locale name suffixed to the resource name, for example `ButtonFont.zh`. When a resource named with the locale suffix is lacking, the resource named without the suffix is used.

Customizing Mail Transmission and Storage

As you compose a mail message on the keyboard, the Simplified Chinese Solaris Mail Tool sends the characters in EUC (8-bit) format to the workstation. But for transmitting the message across the network, receiving, and storing received messages, the tool has several standard transmission formats available.

Mail Transmission Formats

The initial default setting for mail transmission is the commonly used (7-bit) ISO 2022 encoding standard. This is the same as having the following command line in a user's `.mailrc` file:

```
set encoding=zh.iso2022-7
```

However, Mail Tool can instead transmit via EUC format as directed by the following command line in a user's `~/ .mailrc` file:

```
set encoding=zh.euc
```

To set Mail Tool to use one of these transmission formats, perform the following steps:

1. **Put the `encoding=zh,format` command line in your `.mailrc` file.**
2. **Follow the directions in the following section “*Making .mailrc Changes Take Effect.*”**

Mail Reception and Storage Formats

The Simplified Chinese Solaris Mail Tool stores incoming mail in the `/var/mail` directory in whatever format the mail arrives in.

Then, as Mail Tool reads the messages from the spool file and sends them to the screen display, it converts the text from the original ISO 2022 to EUC format, for display on the screen.

When you then direct Mail Tool to save a message, its initial default setting is to save the message in EUC format, regardless of the format originally received. This initial default setting is the same as having the following command line in the user's `.mailrc` file:

```
set folderconv
```

To have mail stored in its originally received format (ISO2022-7 or other formats) and not converted, use a command line, such as the following, in the user's `.mailrc` file:

```
set nofolderconv
```

The following section explains how to make such command lines take effect.

Making `.mailrc` Changes Take Effect

Whenever Mail Tool is started up from the Workspace Programs menu, or a `mailx` session is started at a system prompt, the mail utility uses the settings in `~/.mailrc`. After a Mail Tool or session is running it ignores changes in the `.mailrc` file. So changes to `.mailrc` affect only Mail Tool or mail sessions that are started after the changes are saved.

However, changes made to `.mailrc` after a `mailx` session has been started can be put into effect in that existing `mailx` session using the `source .mailrc` command issued inside the session, as follows:

```
system% mailx
(Ongoing mailx session during which .mailrc is changed,
for example from another Shell Tool window.) &
source .mailrc
(Continuing mailx session during which new .mailrc settings are in effect.)
& q
system%
```

In the above example, the user types `q` to quit the `mailx` program.

Report of Incoming Mail

comsat is the server process that listens for reports of incoming mail and notifies users, who have requested notification, when mail arrives. To be able to display Simplified Chinese for this notification, the following steps should be taken:

The file `/etc/inet/inetd.conf` has a line:

```
comsat dgram udp wait root /usr/sbin/incomsat in.comsat
```

This line should be manually edited by superuser (`root`) or changed by running `install_comsat`.

```
comsat dgram udp wait root /usr/SUNWale/sbin/in.comsat in.comsat -l zh
```

Index

A

admintool, 20,
applications default files, 10, 25
/bin/stty command, 21

C

C locale, 9
category definition, 12
commands
 /bin/stty, 21
 pmadm, 20
Common Desktop Environment (CDE), 9
configuring a terminal port, 20
.cshrc, 23

D

default environment
 OpenWindows, 13

H

htt, 24

I

installing
 a terminal, 19
 Simplified Chinese Solaris software, 10

K

keybinding, customizing control keys, 13

L

laser printer support, 16
locale
 Chinese, 13
 terminology, 12
locales
 C, 9
 overview, 10
 zh, 9
 zh.GBK, 9

M

mail
 incoming reports, 28
 transmission formats, 26
Mail Tool, 26
.mailrc, 27

O

OpenWindows, 9
 default environment, 13
openwin-init file, 24

P

pmadm command, 20
printer support, 16

S

Serial Ports, 20,
setlocale, 11
setting
 a user's TTY, 21
Solaris Advanced User's Guide, 7
*Solaris Internationalization Guide for
 Developers*, 7
Solaris User's Guide, 7
storage formats, mail, 27

T

terminal port, configuring, 20
terminal support, 19
TTY, setting, 21

X

X start-up file, 25
.Xdefaults, 24
xetops print filter, 16
.xinitrc, 25

Z

zh locale, 9
zh.GBK locale, 9