Chapter 33
Installing the SRC Software on a Solaris Platform

This chapter describes how to install the SRC software. Topics include:

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- Overview of Steps to Install the SRC Software on page 267

- Logging the Installation Session on page 267

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Information About Installing IP Filter, Python Libraries, and the SNMP Agent

Before you install the SRC software, make sure that you are familiar with the information in this section about installing IP Filter, Python libraries, and the SNMP agent.

IP Filter

You must install ipfx (the 64-bit IP Filter package) before you install ipf (the 32-bit IP Filter package). Both packages must be installed for a 64-bit Solaris system.

Python Libraries

You must install the Python runtime environment (SMCpython) before you install the Python additional libraries (UMCpyadd).

SNMP Agent

Consider the following factors when installing the SNMP agent:

- If you install the SNMP agent on a host running other SRC components, you must restart the other SRC components after the installation to enable the SNMP agent to manage them.

- If you install the SNMP agent to run under a nonroot user:

  - In the GUI installation program, you can specify authorized nonroot users in the Get User Input window.

  - In a package installation, select the "under a user identification" option when asked where to install UMCagent during the package installation. Provide the login name for the nonroot user when prompted. The SNMP agent is then installed in the home directory of the named user.

  If you install the SNMP agent to run under a nonroot user and later want to start, stop, or monitor the SNMP agent while logged in as the root user, you must use the **smagentroot** command instead of the **smagent** command. Failure to do so may cause the agent to create files, such as log files, that are owned by `root`. If a nonroot user later runs the SNMP agent, the agent will not be able to update these files.

- The SDX SNMP agent cannot act as a master agent, and it can communicate with master agents only by using the Agent Extensibility (AgentX) protocol. The SDX SNMP agent runs as a subagent to an installed AgentX master agent, such as the Net-SNMP agent. The SRC software distribution includes a prepackaged integration for the Net-SNMP agent.

Overview of Steps to Install the SRC Software

The steps to install the SRC software are independent of the hosts on which you load the software.

To install the SRC software:

1. Complete preinstallation steps. See *Chapter 32, Before You Install the SRC Software on a Solaris Platform*.

2. Install components from the SRC software distribution.

   See one of the following procedures:

   ■ *Installing the SRC Software on a Solaris Platform in Silent Mode* on page 270

   ■ *Installing the SRC Software on a Solaris Platform in Graphical Mode* on page 271

   ■ *Overview of Installing SRC Components as Solaris Packages* on page 277.

3. Install directory software.

   See *SDX Integration Guide: Network Devices, Directories, and RADIUS Servers* for information about directory software.

4. Install RADIUS software.

   See *SDX Integration Guide: Network Devices, Directories, and RADIUS Servers* for information about installing RADIUS software.

5. (For software upgrades only) Reboot your host(s).

6. Define the initial configuration, and start software components.

   See *Chapter 34, Defining an Initial Configuration on a Solaris Platform*.

Logging the Installation Session

You can log your installation session. UNIX provides several different ways to capture a session.

■ If you are using a Telnet or SSH client to connect to the installation host, you can use the logging capabilities of that client to capture the session.

■ You can use a terminal that supports logging, such as dtterm. The command **/usr/dt/bin/dtterm -l -lf /tmp/dtterm.log** enables output logging to the file */tmp/dtterm.log*. You must exit the dtterm terminal before it flushes all the output to the file.

■ You can use the UNIX **tee** command to redirect the standard out and standard error to a specified file. For example:

pkgadd -d /cdrom/cdrom0/solaris 2>&1 | tee -a sessionlog

■ You can use the UNIX **script** command. The following command sequence captures a **pkgadd** session to the file *capture.txt*; pressing Ctrl + d exits the script:

script capture.txt
pkgadd -d /cdrom/cdrom0/solaris
<Ctrl+d>

See the UNIX **man** pages for **dtterm**, **tee**, and **script** for more information.

When you use the SRC GUI installation program for installation on a Solaris platform, all the installation session output is captured and appended to the log file for the GUI installation program in */opt/UMC/var/InstallerData/solpkg_Install.log*. This file is created if it does not already exist.

Installation Feature Sets, Components, and Packages

The SRC software contains standard Solaris packages, Java Web Archives, and Java Enterprise Archives. Table 18 lists SRC components available in the various feature sets, the packages that contain the components, and the directories into which SRC components are installed.

Table 18: Solaris Packages and Installation Directories for All Installation Components

Feature Set	Components	Package	Installation Directory
Env	■ Java Runtime Environment	■ UMCjre	■ jre
	■ Python Runtime Environment (includes Python additional libraries)	■ SMCpython and UMCpyadd	■ python
License Server	■ License Server	■ UMClicsvr	■ licsvr
Application and Web Server	■ JBoss	■ UMCjboss	■ jboss
SAE System	■ SAE	■ UMCsae	■ sae
	■ System Management Agent	■ UMCagent	■ agent
SDX Management System	■ Command Line Interface	■ UMCcli	■ cli
	■ SDX Web Administration	■ UMCwebadm	■ webadm
	■ SDX Command Line Interface	■ UMCeditor	■ editor
Captive Portal System	■ IP Filter (Solaris 9)	■ ipfx, ipf	■ ipf
	■ Web Redirect	■ UMCredir	■ redir
	■ omniORB	■ omniORB	■ omni
NIC System	■ NIC System	■ UMCnic	■ nic
PDF Viewer	■ PDF Viewer	■ UMCxpdf	■ xpdf

Table 18: Solaris Packages and Installation Directories for All Installation Components (continued)

Feature Set	Components	Package	Installation Directory
Admin Workstation	■ Policy Editor ■ SDX Admin ■ omniORB	■ UMCpom ■ UMCsmg ■ omniORB	■ pom ■ smg ■ omni
Juniper Policy Server	■ Juniper Policy Server	■ UMCjps	■ jps
Redundancy Monitor System	■ Redundancy Monitor System	■ UMCredmon	■ redmon
Directory Server	■ Fedora Directory Server ■ COS Naming Service ■ Sun ONE Directory Server Add-On ■ DirX Add-On ■ Oracle Internet Directory Add-On ■ eTrust Directory Server Add-On ■ Migration	■ UMCjfds, UMCjdb ■ UMCnaming ■ UMCiDSa ■ UMCdirxa ■ UMCoida ■ UMCedsa ■ UMCmig	■ jdb ■ naming ■ conf/iDS ■ $DIRX_HOME$ ■ conf/OID ■ conf/etrust ■ migration

Installation Choices

You can install the SRC software by:

■ Using the installation program—a wrapper around the Solaris packages

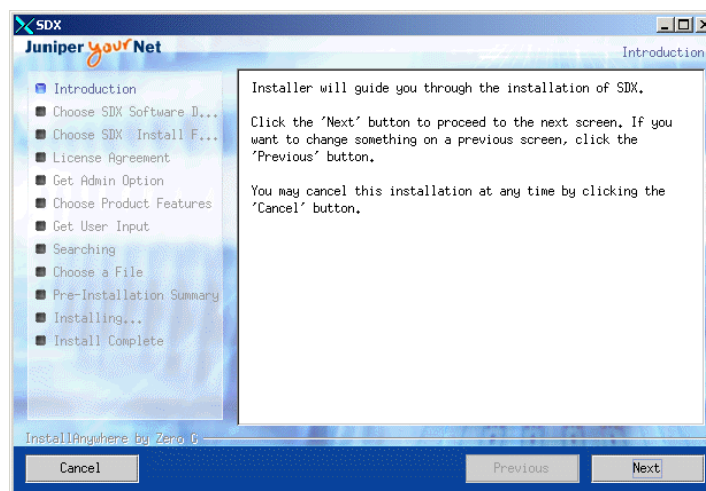■ Installing SRC components as Solaris packages

If you use the SRC installation program, you run the program with or without a GUI.

■ Silent mode does not display the installation GUI.

When you run the command for silent mode, the system prompts you for input in a UNIX window as the various components of the SRC software are installed. Provide input as requested by the program to proceed with the installation.

■ Graphical mode lets you use the GUI shown in Figure 27 on page 270 to install the software.

You can select which SRC components you want to install and where you want to install them. Buttons at the bottom of the window let you cancel the installation, move to a previous step, and move to the next step. You can move, minimize, or close the window for the installation program.

Figure 27: Installation Program GUI

We use the graphical mode to illustrate the installation procedures.

Installing the SRC Software on a Solaris Platform in Silent Mode

You use the **UMCsdx.bin** command to run the installation program. Table 19 shows the possible inputs to this command.

Table 19: Command Options for UMCsdx.bin

[argument]	default [value]	Notes
ADMIN_FILE	pkgadd.SSC.default	SDX Admin file
INSTALLER_DATA_DIR	/opt/UMC/var/InstallerData	Installation data directory
USER_INSTALL_DIR	/opt/UMC	Installation destination directory
USER_INPUT_RESULT_1	sdxuser	User with nonroot privileges who can install the SRC software. See *Logging the Installation Session* on page 267.
USER_INPUT-RESULT_2	staff	Group for users with nonroot privileges who can install the SRC software. See *Logging the Installation Session* on page 267.
MEDIAFOLDER	cdrom/cdrom0/SDX	Installation source directory

To start the installation process in silent mode:

- Enter the following command at the UNIX command line:

   ./UMCsdx.bin -D[*argument*]="[*value*]" -i silent

If you want nonroot users to configure and administer the SRC software after it is installed, you can define users with nonroot privileges with the USER_INPUT_RESULT_1 and USER_INPUT_RESULT_2 arguments to the command. For example:

> **./UMCsdx.bin -DUSER_INPUT_RESULT_1="sdxuser"**
> **-DUSER_INSTALL_DIR="/opt/UMC" -DMEDIA_FOLDER="/cdrom/cdrom0" -i**
> **silent**

Installing the SRC Software on a Solaris Platform in Graphical Mode

You can install the SRC software by installation set. In general, an installation set corresponds to a group of software components that provide specific functionality. For example, if you want a particular host to act as an SAE and as a directory server, you could install the SAE and Directory Server installation set on that host.

Table 20 lists the components and feature sets that are included by default for each installation set.

NOTE: For a specified installation set, you can select additional components or deselect components. Be careful if you do this; deselecting required components can have undesired results.

Table 20: Default Installation Set Components

Installation Set	Feature Sets and Components
SDX Demo	■ Env
	■ Java Runtime Environment
	■ Python Runtime Environment
	■ Application and Web Server
	■ JBoss
	■ SAE System
	■ SAE
	■ System Management Agent
	■ SDX Management System
	■ Command Line Interface
	■ SDX Web Administration
	■ SDX Command Line Interface Editor
	■ Captive Portal System
	■ IP Filter (Solaris 9); the installation program detects the Solaris version on the host and installs the appropriate IP Filter for that OS.
	■ Web Redirect
	■ PDF Viewer

Table 20: Default Installation Set Components (continued)

Installation Set	Feature Sets and Components
	■ Admin Workstation
	■ Policy Editor
	■ SDX Admin
	■ omniORB
	■ Juniper Policy Server
	■ Directory Server
	■ Fedora Directory Server
	■ COS Naming Service
SDX License Server	■ Env
	■ Java Runtime Environment
	■ Python Runtime Environment
	■ License Server
SAE and Directory Server	■ Env
	■ Java Runtime Environment
	■ Python Runtime Environment
	■ SAE System
	■ SAE
	■ System Management Agent
	■ Directory Server
	■ Fedora Directory Server
	■ COS Naming Service
SAE Server	■ Env
	■ Java Runtime Environment
	■ Python Runtime Environment
	■ SAE System
	■ SAE
	■ System Management Agent
Policy Server	■ Juniper Policy Server
Application and Web Server	■ Env
	■ Java Runtime Environment
	■ Application and Web Server
	■ JBoss
NIC Server	■ Env
	■ Java Runtime Environment
	■ Python Runtime Environment
	■ NIC System
Redundancy Monitor Server	■ Env
	■ Java Runtime Environment
	■ Python Runtime Environment
	■ Redundancy Monitor System

Table 20: Default Installation Set Components (continued)

Installation Set	Feature Sets and Components
Captive Portal	■ Env 　■ Python Runtime Environment ■ Captive Portal System 　■ IP Filter (Solaris 9); the installation program detects the Solaris version on the host and installs the appropriate IP Filter for that OS. 　■ Web Redirect 　■ omniORB
Administrator WorkStation	■ Env 　■ Java Runtime Environment 　■ Python Runtime Environment ■ PDF Viewer ■ Admin Workstation 　■ Policy Editor 　■ SDX Admin 　■ omniORB
Directory Server	■ Directory Server 　■ Fedora Directory Server 　■ COS Naming Service
Custom	■ Env 　■ Java Runtime Environment 　■ Python Runtime Environment ■ Application and Web Server 　■ JBoss ■ SAE System 　■ SAE 　■ System Management Agent ■ SDX Management System 　■ Command Line Interface 　■ SDX Web Administration 　■ SDX Command Line Interface Editor ■ PDF Viewer ■ Admin Workstation 　■ Policy Editor 　■ SDX Admin 　■ omniORB ■ Juniper Policy Server ■ Directory Server 　■ Fedora Directory Server 　■ COS Naming Service

To Install the SRC software from the installation program in graphical mode:

1. On the Solaris platform where you will install the SRC software, log in as `root`.

2. Ensure that the display variable is set.

   echo $DISPLAY

3. (Optional) Create nonroot users and groups using the UNIX **admintool** utility to enable nonroot users and groups to administer the SRC software.

4. Load SDX software disk 1, and start the installation program.

   /cdrom/cdrom0/UMCsdx.bin

5. Follow the instructions in the various windows.

   a. In the Choose Software Distribution Folder window, specify the location of the software to be installed. You can accept the default location, or specify a different location.

   b. In the Choose SDX Install Folder window, specify the directory into which the software will be installed. The program displays the default installation directory, */opt/UMC*. Although you can specify a different installation directory, you cannot change the location where SRC components are installed within that directory.

   ☞ **NOTE:** All examples in this book presume that you have accepted the default directory.
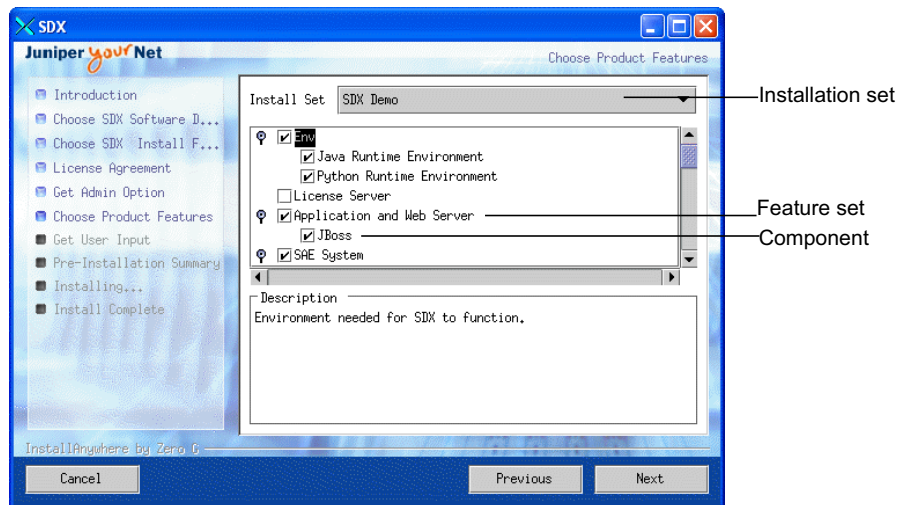
   ☞ **NOTE:** The SRC software does not support the use of spaces in filenames or directories. If you create files or directories inside the installation directory structure, you must do the following:

      ■ Ensure that the names do not include spaces.

      ■ Manage the files and directories outside the context of SRC software.

      If a filename or directory name includes a space, the removal of various packages will fail.

   c. In the License Agreement window, read then accept the software license for the SRC software. You must accept the license agreement to proceed with the installation.

d. In the Get Admin Option window, select the *admin* file from which the SRC installation program obtains installation parameters. An *admin* file assigns values to various installation parameters to define default installation actions. See the UNIX **man** page for **admin(4)**. You can select one of the following:

■ SDX Admin file—Uses SRC installation parameters.

■ Solaris Admin file—Uses Solaris default installation parameters from the Solaris default *admin* file. This file is located in */var/sadm/install/admin/default*.

The selected admin option is used to install all the packages. You cannot change admin options for an individual package. The admin selection affects only the current GUI installation instance; if you start the installation program again, the program does have access to any value previously set for the admin option and therefore does not use any previous settings.

e. In the Choose Product Features window, select sets of SRC components to install. You select an installation set that includes one or more feature sets, in part or whole. A feature set includes one or more components. Figure 28 shows how installation sets, feature sets, and components appear in the Choose Product Features window.

Figure 28: Choose Product Features Window

For each installation set, various recommended or required components are selected by default for installation. Click on a package or component to display a brief description.

NOTE: If you install SRC software over an existing installation, the installation program displays a message stating that the existing software will be overwritten.

Table 18 on page 268 lists components for each available feature set, their Solaris package names, and the directories in which each component is installed.

f. In the Get User Input window, you can specify nonroot users or groups. The users or groups must already exist (created with the UNIX **admintool**), or the installation program returns an error.

> ☞ **NOTE:** Some SRC processes, such as the SAE and the LDAP directory server, use many open files and sockets. You may need to customize the hard and soft limits for the system resources that are used by such SRC processes. Examine your system configuration information and UNIX account holder configuration that runs the SRC processes. See your Solaris system administration documentation for more information about determining the limits of your system configuration and UNIX account holder configuration. The UNIX **man** pages for the **limit(1)** command and the **sysdef(1M)** command also provide useful information.
>
> For example, if you are installing the SRC software in a nonroot environment in a typical Solaris 9 or Solaris 10 installation, the maximum number of file descriptors is too low for nonroot users. The hard limit is 1024, and the soft limit for nonroot users is 256. You can use the UNIX **ulimit** command to increase the number.

g. In the Preinstallation Summary window, review the feature sets, the components in the feature sets to be installed, and the folder into which the components will be installed. If the list is correct, click Install. The installation program installs the components listed.

The Installing SDX window shows the progress of the installation for the components selected. The installation program opens a UNIX window as it uses the **pkgadd** command to install each component. Messages in the UNIX window request confirmation or other input for installation of a package.

After the installation program finishes installing SRC software components, the Install Complete window displays a message that indicates whether the installation was completed successfully.

6. In the Install Complete window, click Done when the installation program indicates that the installation is complete.

Overview of Installing SRC Components as Solaris Packages

The SRC software is constructed as a set of standard Solaris packages. You can use the Solaris package tools directly to install and remove SRC components. The tools are available as standard UNIX commands accessible through a shell command-line interface. See the Software Package Administration documentation for Solaris for detailed information. The *admin* installation file with the following entries is used:

```
mail=
instance=unique
partial=ask
runlevel=ask
idepend=nocheck
rdepend=ask
space=ask
setuid=nocheck
conflict=nocheck
action=nocheck
basedir=default
```

Refer to your Solaris documentation for more information about these settings. Also see the online UNIX **man** pages for the **admin(4)** utility. You cannot configure these settings with the GUI installation program.

⚠ **CAUTION:** The conflict = nocheck setting results in an automatic overwriting of existing files. If you use directory links (hard or soft), they will be replaced automatically with files from the installation media.

You can install the software into a directory or under a user identification. If you choose to install the software under a user identification, you specify a username. The name of the group associated with the user account must be the same as the username. The installation script expects the username and the group name to be the same.

Solaris IP Filter Software Installation Notes

If your host system hardware is based on 64-bit processors, then you must install ipfx (the 64-bit IP Filter package) before you install ipf (the 32-bit IP Filter package). Both packages must be installed for a 64-bit Solaris system. For 32-bit processors, install only ipf.

☞ **NOTE:** For Solaris 9, install the packages from the *solaris9* directory.

Installing SRC Components as Solaris Packages

Table 18 on page 268 lists the Solaris packages for SRC feature sets.

To install individual SRC components as Solaris Packages:

1. On the Solaris platform where you will install the SRC software, log in as root.

2. Load SDX software disk 1, and access the CD directory.

   cd /cdrom/cdrom0/

3. List the contents of the CD.

   ls

   See *Overview of Steps to Install the SRC Software* on page 267 for a list of the directories and their contents on SDX disk 1.

4. Install the components using the UNIX **pkgadd** or **admintool** utility. For example, to install the UMCagent package:

   pkgadd -d /cdrom/cdrom0/solaris UMCagent

Related Topics

- *Chapter 34, Defining an Initial Configuration on a Solaris Platform*

Transferring SRC Packages to Other Hosts

The SRC software is distributed as packages in the distribution in the file system format. If you want to transfer the packages to another host—for example, by using FTP—you must first convert the file system format to generate a single file that you can then transfer to the host.

You can use the **pkgtrans** tool to translate the file system format of the desired packages to a single file (datastream format). You can optionally compress the file with compression tools such as the UNIX **compress** or **gzip** utilities.

You can use the **md5sum** utility to verify the integrity of the file transfer. The utility computes and checks the MD5 message digest for a file. After packaging the file for transfer, run **md5sum** on the package file to compute an MD5 checksum for the file. Send both the checksum and the file to the destination host by using FTP. After the transfer, run **md5sum** on the destination host to compute a checksum for the transferred file and compare it with the original checksum. If the two checksums do not match, **md5sum** fails, and you know an error occurred in the transfer. You must repeat the transfer. If a transfer log exists, you can examine the log to determine why the transfer has failed before you attempt to retransmit the file. Only when the checksum passes, indicating a successful file transfer, can you use the file for installation.

If you compressed the file before transfer, you must uncompress the transferred file on the destination host. You can either translate the package from datastream format to file system format or use the datastream format directly.

Example: Transferring and Installing Packages

The following sample commands and output illustrate the transfer and installation of the UMCsae and UMCnic packages from the SRC software disk 1 on a source host to the destination host.

- On the source host:

  # mount /cdrom/cdrom0
  # cd /tmp
  # pkgtrans -d /cdrom/cdrom0/solaris /tmp/UMCftp.pkg UMCsae UMCnic
  Transferring <UMCsae> package instance
  Transferring <UMCnic> package instance
  # gzip /tmp/UMC.pkg
  # md5sum -b UMCftp.pkg.gz > md5sum.txt
  # cat md5sum.txt
  588d1fe4ee7d59febef7c26cd441b5bd UMCftp.pkg.gz

  Now use FTP to transfer the *UMCftp.pkg.gz* and *md5sum.txt* files in binary mode to the destination host, and place them in the */tmp* directory.

- On the destination host:

  # cd /tmp
  # md5sum -c md5sum.txt
  UMCftp.pkg.gz: OK
  # gzip -d UMCftp.pkg.gz
  # pkgadd -d /tmp/UMCftp.pkg

  If the checksum had failed, instead of the text above you would see something like the following:

  # md5sum -c md5sum.txt
  UMCftp.pkg.gz: FAILED
  md5sum: WARNING: 1 of 1 computed checksum did NOT match

Uninstalling the SRC Software on a Solaris Platform

Use the **uninstall** program only if you installed the SRC software or components with the GUI installation program. If you installed the application or components with the Solaris package tools, you must also use these tools to uninstall the software. You can also use these tools directly to uninstall SRC components that you installed by using the GUI. For example, to remove the NIC package, issue the following command, and respond as prompted by the process:

pkgrm UMCnic

The GUI program to uninstall the SRC software is a wrapper around the Solaris packages that simplifies the removal of SRC software components.

The **uninstall** program checks whether any processes currently running belong to the component being uninstalled. If the program finds an active process, you can do one of the following:

■ Exit from the **uninstall** program.

■ Have the **uninstall** program force the process to halt. The program generates a warning if halting is not a safe option.

■ Manually stop the process, and then continue to uninstall the software with the **uninstall** program.

When you use the **uninstall** program to uninstall the software, all the session output is captured and appended to a special log file that is created if it does not already exist. The sessions are captured to the file */opt/UMC/var/InstallerData/solpkg_Uninstall.log*.

When the process to uninstall the software has been completed, the Uninstall SDX dialog box displays only components that you did not select for removal. You can verify removal of the selected packages by starting the **uninstall** program again. Packages that were successfully removed will not be displayed. If you previously selected all packages for removal, the program displays an alert indicating that there are no SRC components available for removal.

To uninstall the SRC software by using the GUI program:

1. On the Solaris platform, log in as `root`.

2. Stop all SRC services that are running.

   To stop the SAE:

   /opt/UMC/sae/etc/sae stop

   For information how to stop other SRC services, see the associated documentation.

3. Access the directory that contains the **uninstall** program.

   cd /opt/UMC/uninstall

4. Start the **uninstall** program.

   ./sh uninstall_SDX

5. Select one or more of the displayed packages in the Uninstall SDX dialog box, and click Uninstall.

6. Click OK in the Please Confirm dialog to proceed with the package removal.

Related Topics

■ *Overview of Steps to Install the SRC Software* on page 267.