



Service Control Application Suite for Broadband Installation Guide

Ver. 2.5.5
OL-72206-01

Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

Customer Order Number: DOC-72206-01
Text Part Number: OL-72206-01



THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The following information is for FCC compliance of Class A devices: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

The following information is for FCC compliance of Class B devices: The equipment described in this manual generates and may radiate radio-frequency energy. If it is not installed in accordance with Cisco's installation instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

Modifying the equipment without Cisco's written authorization may result in the equipment no longer complying with FCC requirements for Class A or Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Cisco equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits controlled by different circuit breakers or fuses.)

Modifications to this product not authorized by Cisco Systems, Inc. could void the FCC approval and negate your authority to operate the product.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

CCSP, the Cisco Square Bridge logo, Follow Me Browsing, and StackWise are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn, and iQuick Study are service marks of Cisco Systems, Inc.; and Access Registrar, Aironet, ASIST, BPX, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Empowering the Internet Generation, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, FormShare, GigaDrive, GigaStack, HomeLink, Internet Quotient, IOS, IP/TV, IQ Expertise, the IQ logo, IQ Net Readiness Scorecard, LightStream, Linksys, MeetingPlace, MGX, the Networkers logo, Networking Academy, Network Registrar, Packet, PIX, Post-Routing, Pre-Routing, ProConnect, RateMUX, ScriptShare, SlideCast, SMARTnet, StrataView Plus, SwitchProbe, TeleRouter, The Fastest Way to Increase Your Internet Quotient, TransPath, and VCO are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0501R)

Printed in the USA on recycled paper containing 10% postconsumer waste.

Service Control Application Suite for Broadband Installation Guide ver. 2.5.5

Copyright © 2002-2005 Cisco Systems, Inc.
All rights reserved.



Preface iii

- Audience iii
- Purpose iii
- Document Content iii
- Document Conventions iv
- Related Publications iv
- Obtaining Technical Assistance v
 - Cisco TAC Website v
 - Opening a TAC Case v
 - TAC Case Priority Definitions vi

Introduction 1-1

- System Components 1-1
- SCAS BB Components 1-2

Installing Other System Components 2-1

- The SCE Platform 2-1
 - SCE Topology 2-1
 - Installing the SCE Platform 2-5
- Installing the smartSUB Manager 2-6
- Installing the Collection Manager 2-7

Installing SCAS BB 3-1

- Before you start 3-1
- Installing the SCAS BB Application 3-2
 - Installing the SCAS BB PQI File 3-2
 - Installing SCAS BB on a smartSUB Manager (optional) 3-3
- Installing the SCAS BB Front-Ends 3-3
 - System Requirements 3-3
 - Software Installation 3-3

Installing the SCAS Reporter 3-4
Installing the SCAS BB Command-line Utility 3-4
Starting and Logging On to the front-ends 3-4

Glossary of Terms 1

Index 1



Preface

This guide contains instructions on how to install the *Service Control Application Suite for Broadband* solution. This guide assumes a basic familiarity with the Service Control SCE Platform and related components.

Audience

This guide is for the networking or computer technician responsible for installing and configuring the *Service Control Application Suite for Broadband*.

Purpose

The *Service Control Application Suite for Broadband Installation Guide* documents the process for installing the *Service Control Application Suite for Broadband*. It also briefly describes the installation of supporting system components, such as the SCE Platform, the smartSUB Manager, and the Collection Manager.

Document Content

This manual covers the following topics:

Chapter 1: *Introduction* provides a general overview of the overall system components, as well as the specific **SCAS BB** components that must be installed.





Chapter 2: *Installing the Other Components* briefly describes the installation of the SCE Platform, the smartSUB Manager, and the Collection Manager.

Chapter 3: *Installing Service Control Application Suite for Broadband* describes the system requirements and the procedures for installing the various **SCAS BB** components.

Glossary: Brief description of terms used throughout this guide.

Document Conventions

The following typographic conventions are used in this guide:

Typeface or Symbol	Meaning
<i>Italics</i>	References, new terms, field names, and placeholders.
Bold	Names of menus, options, and command buttons.
Courier	System output shown on the computer screen in the Telnet session.
Courier Bold	CLI code typed in by the user in examples.
<i>Courier Italic</i>	Required parameters for CLI code.
<i>[italic in brackets]</i>	Optional parameters for CLI code.
	Note.
	Notes contain important information.
	Warning.
	Warning means danger of bodily injury or of damage to equipment.

The CLI commands are written in the following format:

command *RequiredParameter* **constant** [*optional-parameter*]

[no] is an optional parameter that may appear before the command name.

When typing commands, you may enclose parameters in double-quote marks, and you *must* do so when there is a space or a question mark within a parameter name.

Examples are shown in courier style. **Bold courier** is used to show the commands as you type them and regular courier is used for system prompts and responses.

Related Publications

The *SCAS **BB** Installation Guide* should be used in conjunction with the *SCAS **BB** User Guide*, the *SCE 1000/SCE 2000 User Guides*, the *smartSUB Manager User Guide* and the *Collection Manager User Guide*.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance.

Cisco TAC Website

The Cisco TAC website (<http://www.cisco.com/tac> (<http://www.cisco.com/tac>)) provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year.

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

<http://tools.cisco.com/RPF/register/register.do> (<http://tools.cisco.com/RPF/register/register.do>)

Opening a TAC Case

The online TAC Case Open Tool (<http://www.cisco.com/tac/caseopen> (<http://www.cisco.com/tac/caseopen>)) is the fastest way to open P3 and P4 cases. (Your network is minimally impaired or you require product information). After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution.

If your issue is not resolved using these recommendations, your case will be assigned to a Cisco TAC engineer.

For P1 or P2 cases (your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

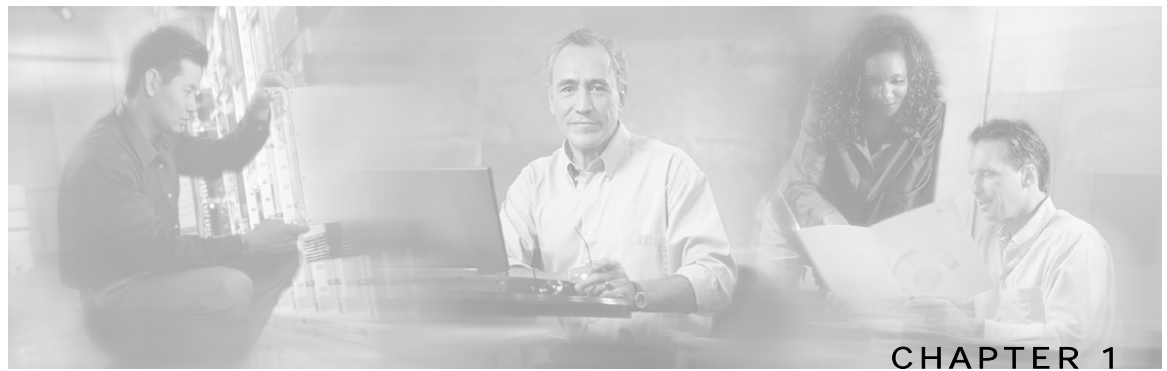
For a complete listing of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>
(<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>)

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

- **Priority 1 (P1)**—Your network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.
- **Priority 2 (P2)**—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.
- **Priority 3 (P3)**—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.
- **Priority 4 (P4)**—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.



Introduction

SCAS BB is the Service Control solution that allows broadband service providers to gain visibility into and control over the distribution of network resources, and thereby to optimize traffic in accordance with their business strategies. It enables service providers to reduce network costs, improve network performance and customer experience, and create new service-offerings and packages.

This chapter contains the following sections:

- [System Components](#) 1-1
- [SCAS BB Components](#) 1-2

System Components

The Service Control Application Suite for Broadband solution consists of three main components:

- The SCE Platform: A flexible and powerful dedicated network usage monitor that is purpose-built to analyze and report on network transactions at the application level.

For complete information regarding the installation and operation of the SCE Platform, refer to the *SCE 1000/SCE 2000 User Guides*.

- The Service Control smartSUB Manager (SM): A middleware software component used in cases where dynamic binding of subscriber information and policies is required. The SM manages subscriber information and provisions it in real time to multiple SCE Platforms. The SM can store subscriber policy information internally, and act as a state-full bridge between the AAA system (e.g. RADIUS, DHCP) and the SCE Platforms

For complete information regarding the installation and operation of the smartSUB Manager, refer to the *smartSUB Manager User Guide*.

- The Service Control Collection Manager (CM): An implementation of a collection system, listening in on RDRs from one or more SCE Platforms. It collects usage information and statistics, stores them in a bundled database, and provides a set of insightful reports from this data. The CM also converts subscriber usage information and statistics into simple text-based files for further processing and collection by external systems.

For complete information regarding the installation and operation of the Collection Manager, refer to the *Collection Manager User Guide*.

Together, the SCE Platform, the Collection Manager, and the smartSUB Manager are designed to support detailed observation, analysis, reporting, and control of IP network traffic. Note that the Collection Manager and smartSUB Manager are optional components, and are not required in all deployments of the solution. Sites that employ third party collection and reporting applications and/or do not require dynamic subscriber-aware processing may not require these components.

The following figure illustrates the flow of information within the Service Control Application Suite for Broadband solution.

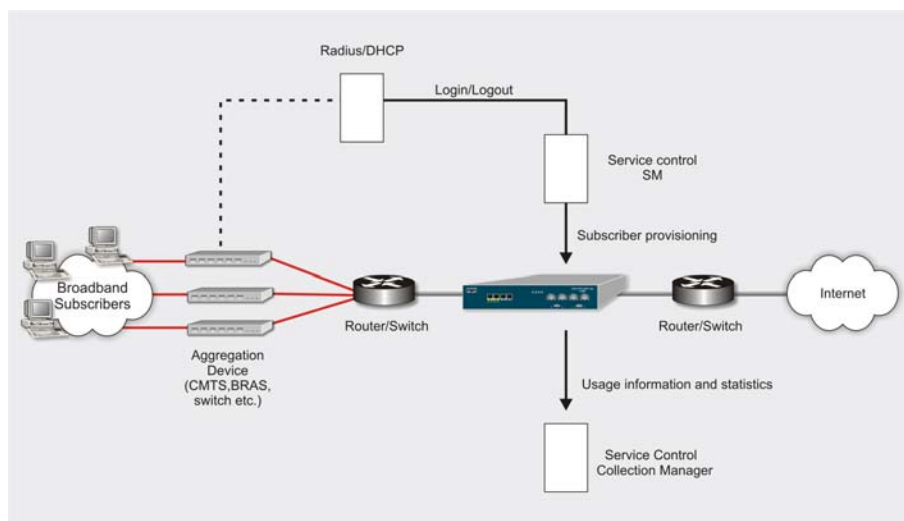
- Horizontal flow: Represents traffic between subscribers and IP network.

The SCE Platform monitors traffic flow.

- Vertical flow: Represents transmission of the Raw Data Records (RDRs) from the SCE Platform to the Collection Manager.

The *smartSUB Manager* may be added to the control flow to provide subscriber data. This enables the Service Control Application Suite for Broadband to conduct subscriber level analysis and control.

Figure 1-1: Flow of Information in Service Control Application Suite for Broadband



SCAS BB Components

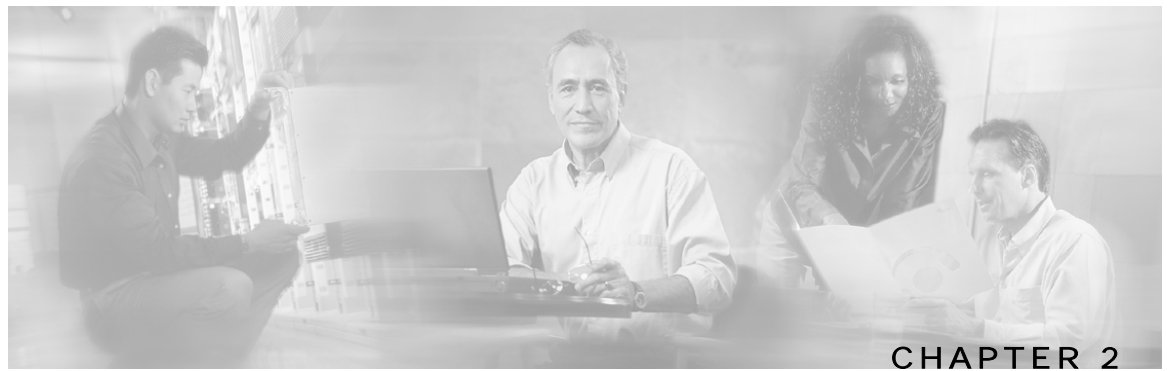
The *SCAS BB* comprises the following components:

- *SCAS BB PQI* files: install the *SCAS BB* on either the SCE Platform or the smartSUB Manager.
- *SCAS BB* front-ends:
 - SCAS BB Console: used to create and modify the service configuration (PQB files), and to apply the configuration to the SCE Platform(s)
 - SCAS Subscriber Manager GUI: GUI that accesses the smartSUB Manager
 - *SCAS BB* Service Configuration Utility: a simple command line tool that can be used to apply .PQB configuration files onto SCE devices

- SCAS Reporter: connects to a Collection Manager and generates reports

The SCAS BB Console and SCAS Subscriber Manager GUI are installed on the management workstation with a single procedure.

The SCAS Reporter is installed separately.



Installing Other System Components

This chapter provides a brief summary of the installation process for the other system components:

This chapter contains the following sections:

- [The SCE Platform 2-1](#)
- [Installing the smartSUB Manager 2-6](#)
- [Installing the Collection Manager 2-7](#)

The SCE Platform

This section explains some of the issues related to the deployment of the SCE Platform in the system and general system topology, as well as providing a summary of the procedure for installing the SCE Platform.

SCE Topology

The Service Control solution offers a number of basic topology options that permit the user to tailor the SCE Platform to fit the needs of a particular installation. Following is a brief overview of the various issues and options that the user must consider in order to design a topology that best meets the requirements of his individual system.

Please refer to the appropriate section:

- *SCE 1000 Topology* (on page [2-1](#))
- *SCE 2000 Topology* (on page [2-3](#))

For more information, refer to the “*Topology*” chapter in the *SCE 1000/SCE 2000 User Guides*.

SCE 1000 Topology

There are several issues that must be considered when designing the system:

- **Functionality:** The SCE Platform can serve one of two general functions:
 - **Monitoring and Control:** The SCE Platform monitors and controls traffic flow. Decisions are enforced by the SCE Platform depending on the results of its monitoring functions and the configuration of the SCE Platform application.

In order to perform control functions, the SCE Platform must be physically installed as a bump-in-the-wire, and the connection mode must be “Inline”.

- **Monitoring only:** The SCE Platform monitors traffic flow, but cannot control it.

Either a bump-in-the-wire installation or an installation using an external splitter/external switch with port mirroring may be used for monitoring only.

- **Redundancy:** Redundancy requires two platforms on parallel links, one active and one standby, in bump-in-the-wire topology. When the active SCE Platform detects a failure situation, it will immediately switch to Cutoff mode, causing the routers/switches on both ends to switch the traffic to the standby link and thus activate the standby SCE Platform.

There are two options when the failed SCE Platform is finished reloading:

- It may either actually resume operation in the defined operational bypass mode, returning to its status as the active SCE Platform.
- It may remain inactive in the failure bypass mode.

Link failure and recovery: The user must decide how the SCE Platform should respond to platform failure and subsequent recovery. This is controlled by the configuration of the bypass mechanism.

The SCE Platform includes a bypass mechanism that is enabled upon SCE Platform failure. In addition, when connected in-line it can also be enabled in normal operation to simultaneously bypass traffic flow to the other side and direct it internally for analysis. In this case it maintains "receive-only"-like monitoring functions, when control functionality is not required.

The bypass card supports the following modes in either the failure or the operational state:

- **Bypass:** The bypass mechanism preserves the network link, but traffic is not processed for monitoring or for control.
- **Forwarding:** This is the normal operational mode, in which the SCE Platform processes the traffic for monitoring and control purposes.
- **Cutoff:** There is no forwarding of traffic, and the physical link is forced down (cutoff functionality at layer 1).

These issues determine two important aspects of system deployment and configuration:

- **Physical topology of the system:** The actual physical placement of the SCE Platform in the system.
- **Topology-related configuration parameters:** The correct values for each parameter must be ascertained before configuring the system to make sure that the system will function in the desired manner.

SCE 1000 Topology-Related Parameters

Following is a brief description of the topology-related parameters.

- **Connection mode:** Can be either Inline or Receive-only, depending on the physical installation of the SCE Platform.
May be configured via either the **setup** command or the **connection-mode** command.
- **Bypass mode on-failure:** This parameter specifies the mode of the bypass mechanism if the SCE Platform should fail. It can be either Bypass or Cutoff.

May be configured via either the **setup** command or the "**on-failure**" option of the **connection-mode** command.

- **Status after reboot caused by fatal error or abnormal shutdown:** This parameter determines whether the SCE Platform returns to normal operational state after a failure.

May be configured via either the **setup** command or the **failure-recovery operation-mode** command.

- **Link failure reflection:** This parameter determines the behavior of the system when there is a link problem. In some topologies it is required that link failure on one port be reflected to the other port, to allow the higher layer redundancy protocol in the network to function correctly.

May be configured via the **link failure-reflection** command only.

SCE 2000 Topology

There are several issues that must be considered in order to arrive at the optimum configuration of the topology-related parameters:

- **Functionality:** The SCE Platform can serve one of two general functions:
 - **Monitoring and Control:** The SCE Platform monitors and controls traffic flow. Decisions are enforced by the SCE Platform depending on the results of the monitoring functions of the SCE Platform and the configuration of the Service Control solution.
In order to perform control functions, the SCE Platform must be physically installed as a bump-in-the-wire, and the connection mode must be "Inline".
 - **Monitoring only:** The SCE Platform monitors traffic flow, but cannot control it.
Either a bump-in-the-wire installation or an optical splitter installation may be used for monitoring only. In the latter case connection mode must be "receive-only".
- **Number of links:** The SCE Platform may be connected to one or two GBE links. The two-links topology may implement load-sharing and the SCE Platform in this case is able to process both directions of a bi-directional flow even if they split to both links.
- **Redundancy:** When a high degree of reliability is desired, a second SCE Platform should be installed to provide backup operation capabilities. The combination of two SCE Platforms guarantees uninterrupted functioning in case of a failure of one of the platforms. The two SCE Platforms are cascaded, so that, although all processing is performed only in the active SCE Platform, the standby SCE Platform is constantly updated with all the necessary information so that it can instantly take over processing the traffic on the data links should the active SCE Platform fail.

If only preservation of the network links is required, and uninterrupted functionality of the SCE Platform is not required, a single SCE Platform is sufficient.

- **Link continuity:** The bypass mechanism of the SCE Platform allows traffic to continue to flow, if desired, even if the device itself is not functioning. Note that when the SCE Platform is connected to the network through an optical splitter, a failure of the SCE Platform does not affect the traffic flow, as the traffic continues to flow through the optical splitter.

The SCE Platform includes a Network Interface Card with a bypass mechanism that is enabled upon SCE Platform failure. In addition, when connected in-line it can also be enabled in normal operation to simultaneously bypass traffic flow to the other side and direct it internally for analysis. In this case it maintains "receive-only"-like monitoring functions, when control functionality is not required.

The bypass card supports the following four modes:

- **Bypass:** The bypass mechanism preserves the network link, but traffic is not processed for monitoring or for control.
- **Forwarding:** This is the normal operational mode, in which the SCE Platform processes the traffic for monitoring and control purposes.
- **Sniffing:** The bypass mechanism preserves the network link, while in parallel allowing the SCE Platform to process the traffic for monitoring only.
- **Cutoff:** There is no forwarding of traffic, and the physical link is forced down (cutoff functionality at layer 1).

These issues determine three important aspects of system deployment and configuration:

- How many SCE Platform Platforms are needed and how will they be installed?
- Physical topology of the system: The actual physical placement of the SCE Platform in the system.

Topology-related configuration parameters: The correct values for each parameter must be ascertained before configuring the system to make sure that the system will function in the desired manner.

SCE 2000 Topology-Related Parameters

There are four topology-related parameters:

- **Connection mode:** Can be any one of the following, depending on the physical installation of the SCE Platform:
 - Inline: single SCE Platform inline
 - Receive-only: single SCE Platform receive-only
 - Inline-cascade: two SCE Platforms inline
 - Receive-only-cascade: two SCE Platforms receive-only
- **Physically-connected-links:** If the system consists of more than one device, this parameter defines which link is connected to this SCE Platform. Currently the system supports a maximum of two links, which are designated link 0 and link 1.

It is applicable only in a cascade topology.

- **Priority:** This parameter defines which is the primary SCE Platform.
 - Primary: The Primary SCE Platform is active by default
 - Secondary: The Secondary SCE Platform is the default standby.

It is applicable only in a cascade topology.

- **On-failure:** This parameter determines whether the system cuts the traffic or bypasses it when the SCE Platform either has failed or is booting. It is not applicable to receive-only topologies.

Any of these parameters may be configured via either the **setup** command or the **connection-mode** command.

Installing the SCE Platform

Following is a summary of the SCE Platform installation process. For complete details, refer to the "Installation and Startup" chapter in the *SCE 1000/SCE 2000 User Guide*.

To install the SCE Platform:

-
- Step 1** Mount the SCE Platform in a 19-inch rack, or place it on any flat surface that is large enough and allows for adequate air flow/ventilation around the sides of the unit.
 - Step 2** Ground the unit.
 - Step 3** Connect the power.
 - AC power: Insert the appropriate cable in to the power receptacle and then plug it into an (AC) electrical outlet.
Turn on the power switch.
 - DC power: Attach the appropriate cables (hex or loop connectors) and connect to the DC power source.
The unit powers on automatically.
 - Step 4** Connect the CON port on the front panel of the SCE device with a compatible local (serial) terminal using the enclosed RS-232 serial cable.
 - Step 5** At the local terminal, press **Enter** several times until the setup configuration dialog is entered.
Proceed through the setup utility to configure the SCE device.
 - Step 6** Connect the RJ-45 **Mng** port on the front panel SCE Platform to your management network.
 - Step 7** Cable the line ports:
 - SCE 1000:
 - The first port (#1), is the subscriber side port
 - The second (#2) is the network side port
 - SCE 2000: The SCE 2000 has four line ports, in addition to optional cascade ports for cascading two SCE 2000 Platforms.
Refer to the "Installation and Startup" chapter in the *SCE 2000 User Guides* for complete cabling information.
-

Installing the smartSUB Manager

You should install the smartSUB Manager only if you are working with *SCAS BB* in subscriber-aware mode. Subscriber-less mode, anonymous-subscriber mode and static-subscriber mode do not require a smartSUB Manager. See the “System Overview” of the *SCAS BB User Guide* for additional information on the various subscriber modes.

The procedure below briefly describes the installation of the smartSUB Manager. After installing the smartSUB Manager, refer to the *smartSUB Manager User Guide* for instructions on how to configure the smartSUB Manager, and how to configure the complete subscriber management solution.

The smartSUB Manager is installed on a SUN SPARC machine running Solaris. Installing the SM is an automated process that consists of executing an installation script residing on the root of the SM CD-ROM supplied by Cisco. The procedure also requires modifying the */etc/system* file. This can be done manually or by using another automated utility.

The procedure can install the following components:

- smartSUB Manager (SM) and Command Line Utilities (CLUs)
- TimesTen database and DSN
- Java Runtime Environment (JRE)
- The procedure also includes:
 - Setting up a **pcube** user and group
 - Adding startup and shutdown scripts
 - System configuration for TimesTen (performed manually)

All installations can be performed by executing one of the installation scripts located on the **root** of the SM CD-ROM. You can choose to install the SM, TimesTen, and Java separately. In most cases, the SM installation script is the only script needed for completing the installation.

Each installation script displays messages describing the significant steps that are being performed. These messages are also sent to the system log for future reference.

Following is a summary of the smartSUB Manager installation process. It assumes you already have a Java Runtime Environment installed.

For complete details on installing the smartSUB Manager, refer to Chapter 4, “Installation and Getting Started”, in the *smartSUB Manager User Guide*.

To install the smartSUB Manager:

-
- Step 1** Log on as the **root** user.
 - Step 2** Mount the CD-ROM on any mount point (usually, **/cdrom**) or make its contents available on your local network.
 - Step 3** Execute the **install-sm.sh** script.

If the script is run with no options, the TimesTen database and the TimesTen DSN for the SM are installed automatically.

If you choose not to install them automatically, they may be installed manually using the `install-tt.sh` and `install-dsn.sh` scripts respectively.

Step 4 Set a password for the user `pcube`.

Step 5 Configure the system for TimesTen.

This may be done automatically using the `tt-sysconf.sh` script, or manually by adding the following lines to `/etc/system file`:

```
* ---- Begin settings for TimesTen
set semsys:seminfo_semmni = 20
set semsys:seminfo_semmnl = 100
set semsys:seminfo_semmns = 2000
set semsys:seminfo_semmnu = 2000

set shmsys:shminfo_shmmax = 0x20000000
* ---- End of settings for TimesTen
```

Step 6 Reboot your computer.

Installing the Collection Manager

The Collection Manager can be installed on a SUN SPARC machine running Solaris, or a i386 machine running Redhat Enterprise Linux 3.0.

Following is a summary of the Collection Manager installation process. For complete details on installing the Collection Manager, refer to the chapter "Installing the CM and Getting Started", in the *Collection Manager User Guide*.

To install the Collection Manager and the Sybase database:

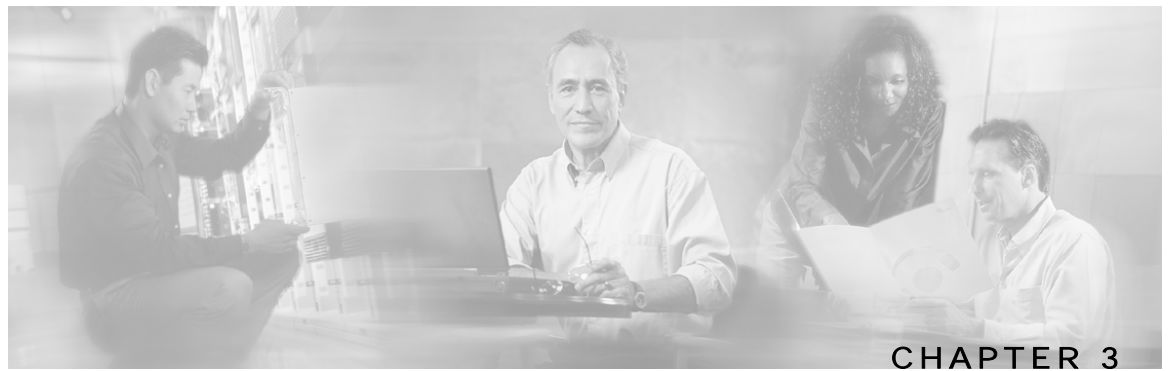
Step 1 Log on as the `root` user.

Step 2 Mount the CD-ROM on any mount point (usually, `/cdrom`) or make its contents available on your local network.

- If operating the CM in bundled mode: proceed to Step 3 to install the Sybase database.
- If NOT operating the CM in bundled mode: skip to Step 4.

Step 3 Install Sybase by running the `installsyb.sh` script as detailed in the *Collection Manager User Guide*.

Step 4 Install the Collection Manager by running the `install-dc.sh` script as detailed in the *Collection Manager User Guide*.



Installing SCAS BB

This chapter guides you through the process of installing and starting the *SCAS BB* application.

Installation of the *SCAS BB* application is composed of three stages:

- Installation of the *SCAS BB* application components using a *pqi* file.
- Installation of the *SCAS BB* Front-ends:
 - SCAS BB Console
 - SCAS Subscriber Manager GUI (optional)
 - *SCAS BB* Service Configuration Utility
 - SCAS Reporter (optional)
- Starting and logging on to the front ends

This chapter contains the following sections:

- [Before you start](#) 3-1
- [Installing the SCAS BB Application](#) 3-2
- [Installing the SCAS BB Front-Ends](#) 3-3

Before you start

Before you install the *SCAS BB* application, verify that the SCE Platform and the smartSUB Manager (if used) are operational.:

To verify that the SCE Platform is operational:

-
- Step 1** Verify that the status LED on the SCE flashes green. (Other colors indicate booting up (orange), warning (flashing orange) or failure (red)).
-

To verify that the SM is correctly installed:

Step 1 Open a telnet session to the smartSUB Manager, go to the SM bin directory, and type:

```
> p3sm --sm-status
```

The above command displays the operational status of the smartSUB Manager.

Installing the SCAS BB Application

SCAS BB has two software components that reside on the SCE Platform:

- *SCAS BB* SLI
- *SCAS BB* SCE applicative management plug-in, which performs some service configuration operations.

SCAS BB also has one software component that resides on the smartSUB Manager:

- *SCAS BB* SM applicative management plug-in, which performs some application-specific subscriber management operations.

The *SCAS BB* is installed by uploading the *SCAS BB* Package file (*.pqi) to the SCE Platform or to the smartSUB Manager.

Installing the SCAS BB PQI File

To install the *SCAS BB* PQI file on an SCE device:

Step 1 Locate the PQI file.

Step 2 In the command line of the SCE device, type:

```
>enable 10
Password: *****
#configure
(config)#interface LineCard 0
(config if)#pqi install file engXXXXX.pqi
```

Monitor the installation progress until it is completed.

The PQI file is now installed.

Installing SCAS BB on a smartSUB Manager (optional)

If the system configuration includes a smartSUB Manager, install the SM PQI.

To install the *SCAS BB* PQI file on an SM device:

Step 1 Upload the appropriate *pqi* file (for the SM) to the smartSUB Manager via FTP.

Step 2 Open a telnet session to the smartSUB Manager.

Step 3 Go to the SM bin directory, and type:

```
>p3inst --install --file=sm_engXXXXX.pqi
```

Monitor the installation progress until it is completed.

The PQI file is now installed.

Installing the SCAS BB Front-Ends

The following *SCAS BB* front-ends are installed with a single process (wizard), described below:

- SCAS BB Console
- SCAS smartSUB Manager

The SCAS Reporter is installed separately.

System Requirements

The *SCAS BB* GUI front-ends can be installed on any computer running Windows98, Windows 2000, Windows NT, Windows XP. (minimum 256MB memory)

Software Installation

To install the *SCAS BB* front-ends:

Step 1 Double-click on *SCAS_BB_Clients_Setup.exe*.

The files are extracted and the Installation Wizard opens.

Step 2 Follow the instructions in the Installation Wizard until the installation is complete.

Step 3 Click **Finish** to close the Installation Wizard.

SCAS BB is now installed on the machine, and can be opened from “**Start>Programs>Cisco SCAS**”.

Installing the SCAS Reporter

To install the SCAS Reporter:

-
- Step 1** Remove any existing Reporter or Templates installation from the PC via the “Add/Remove Programs” icon in the Control Panel.
 - Step 2** Click on *SCASReporter.exe* to install the reporter.
 - Step 3** Follow the instructions in the Installation Wizard until the installation is complete.
 - Step 4** Click on *rpt-tmpl-scas-bb* to install the **SCAS BB** templates.
 - Step 5** Follow the instructions in the Installation Wizard until the installation is complete.
-

Installing the SCAS BB Command-line Utility

To install the **SCAS BB** service configuration command-line utility:

-
- Step 1** Locate the file *scas_bb_util.tgz*, and copy it to a Windows or Solaris workstation.
 - Step 2** Unpack the file to a new folder.
 - Step 3** The *servconf* utility is located under the *bin/* folder.
-

Starting and Logging On to the front-ends

The installation procedure adds shortcuts to the **Start** menu for all the front-ends that you have installed.

Starting the SCAS SM GUI or the SCAS Reporter requires connecting to a device (the SCE Platform or the Collection Manager, respectively). Retrieving a Service Configuration from an SCE Platform also requires connecting to the relevant SCE Platform.

Connecting to an SCE Platform, smartSUB Manager, or Collection Manager requires the following information:

- user name
- password
- address of the SCE Platform/smartSUB Manager/Collection Manager

The log on procedure for each client is described separately in the following sections.

Opening the SCAS BB Console

The procedure for opening the SCAS BB Console varies slightly, depending on whether it is necessary to connect to the SCE device. When simply opening an existing Service Configuration or creating a new one, it is not necessary to connect to the SCE device. However, retrieving the current Service Configuration from an SCE device does require connecting to the device.

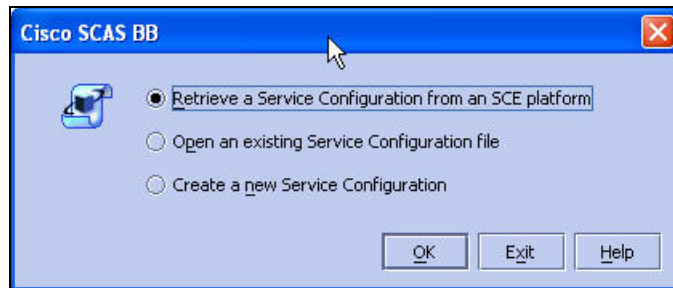
Connecting to the SCE device requires the following information:

- password
- IP address of the SCE Platform

To open the SCAS BB Console and open an existing Service Configuration or create a new one:

Step 1 Select **Start > Programs > Cisco SCAS > SCAS BB x.x.x > SCAS BB Console**.

The following dialog opens.



Step 2 Click the appropriate radio button to either open an existing Service Configuration or create a new one.

Step 3 Click **OK**.

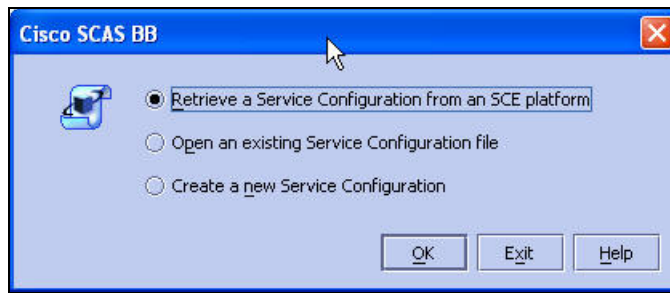
The system responds, depending on the selected choice:

- Open an existing Service Configuration: The *Open a Service Configuration* dialog opens.
- Create an new Service Configuration: A message appears indicating that a new Service Configuration file is being opened.

To open to the SCAS BB Console and retrieve a Service Configuration:

Step 1 Select **Start > Programs > Cisco SCAS > SCAS BB x.x.x > SCAS BB Console**

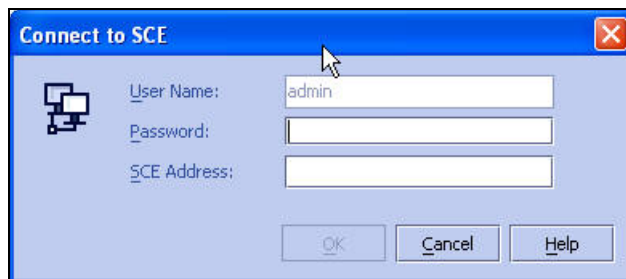
The following dialog opens.



Step 2 Click the appropriate radio button to retrieve a Service Configuration from an SCE device.

Step 3 Click **OK**.

The *Connect to SCE* dialog opens.



Step 4 Type in the Password, and address of the SCE device.

Step 5 Click **OK**.

The SCAS BB Console is connected to the specified SCE Platform, and the Service Configuration of that device is displayed in the SCAS BB Console.

Once the Service Configuration has been retrieved, the SCE device is disconnected from the SCAS BB Console.

Accessing the SCAS Subscriber Manager GUI

You can access the SCAS Subscriber Manager GUI from either the **Start** menu or the SCAS BB Console. **SCAS BB** must connect to the smartSUB Manager in order to open the Subscriber Manager GUI.

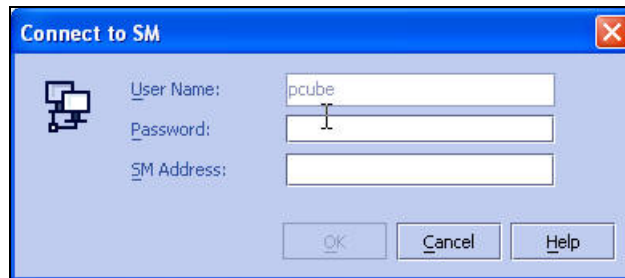
Connecting to the Subscriber Manager GUI requires the following information:

- user name
- password
- IP address of the SM

To access the SM from the Start menu:

Step 1 Select **Start > Programs > Cisco SCAS > SCAS BB x.x.x > SCAS Subscriber Manager**.

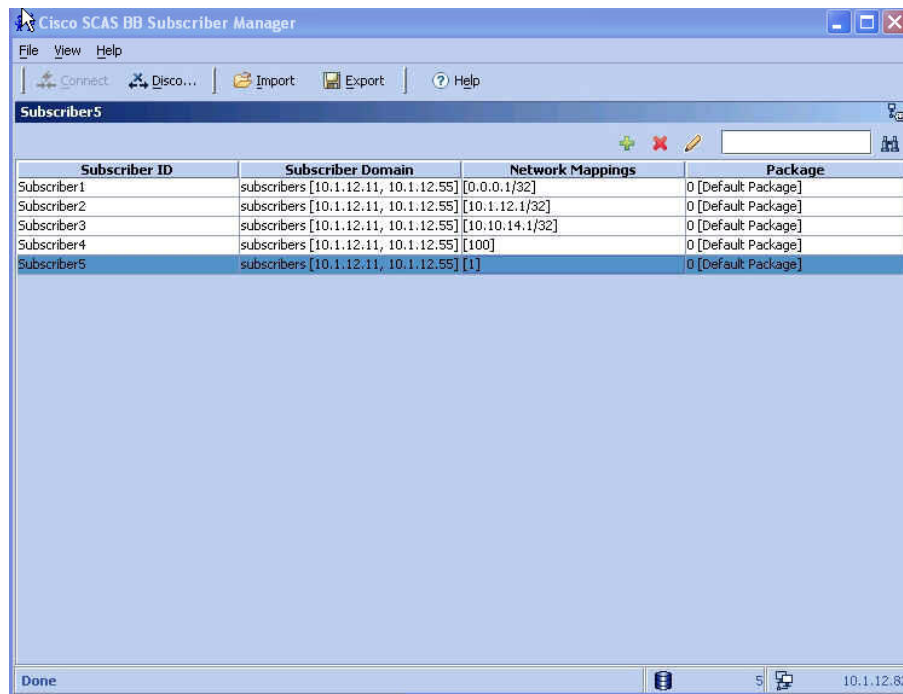
The **Connect to SM** dialog opens.



Step 2 Type in the password and IP address of the SM.

The system connects to the SM, and the *SM Main Window* opens.

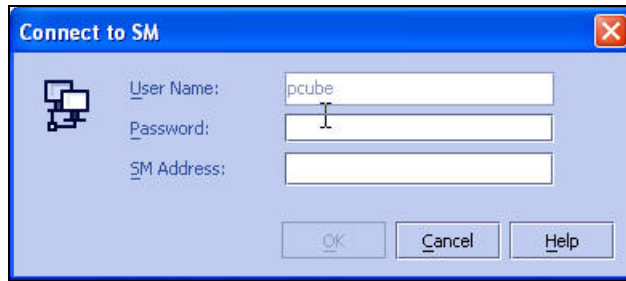
Figure 3-1: SM Main Window



To access the SM from the SCAS BB Console:

Step 1 In the SCAS BB Console, select **Tools > Subscriber Manager**.

The **Connect to SM** dialog opens.



Step 2 Type in the password and IP address of the SM.

The system connects to the SM, and the *SM Main Window* opens (see figure above).



Note In order to connect to the SM, the FTP server on the SM machine must be enabled on port 21. The connection password is that of the pcube account.

Accessing the SACS Reporter

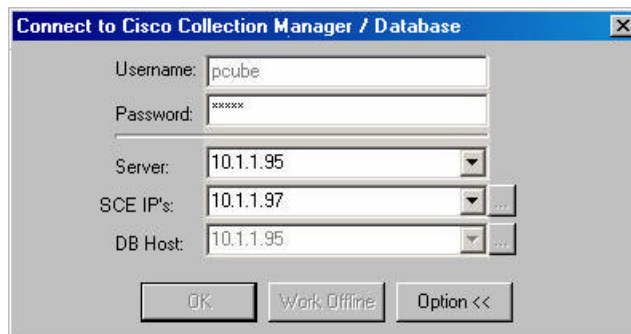
You can access the SCAS Reporter from either the **Start** menu or the SCAS BB Console. *SCAS BB* must connect to the Collection Manager in order to open the SCAS Reporter.

To access the SCAS Reporter:


Step 1 Choose the most convenient of the following two options:

- To access the SCAS Reporter from the **Start** menu:
Select **Start > Programs > Cisco SCAS > SCAS BB x.x.x > SCAS Reporter**.
- To access the SCAS Reporter from within the <GIU>:
Select **Tools > SCAS Reporter**

The **Connect to Cisco Collection Manager** dialog opens.

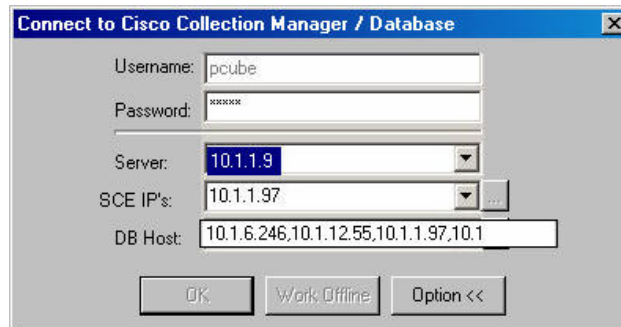


Step 2 Type in the password and Server IP address.

You can click the  button next to the **SCE IPs** field to display a listing of the IP addresses of all SCE devices that were or are connected to the Collection Manager. All options presented in the *Reporter Wizard* (available packages, services, etc.) are determined by the Service Configuration currently applied to the first SCE Platform in the list. However, the reports are generated on the basis of data from all the SCE devices in the list. Make sure the desired SCE Platform is at the beginning of the list.

If you want reports for one SCE Platform only, delete the other IP addresses from the list.

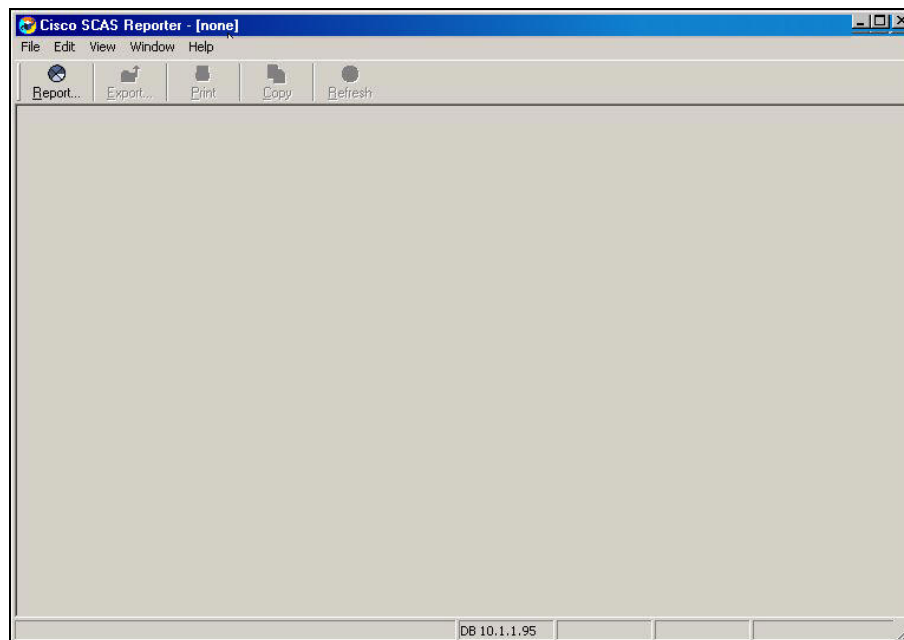
The **DB Host** field displays the same IP address as the **Server** field.

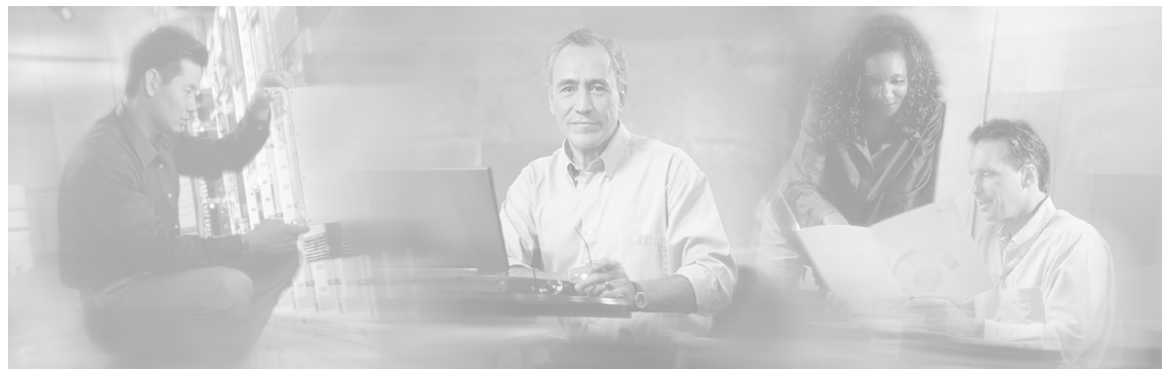


Step 3 Click **OK**.

The system connects to the Collection Manager, and the *Reporter Main Screen* opens.

Figure 3-2: Reporter Main Window





Glossary of Terms

B

Bump-in-the-wire topology

The SCE Platform physically resides on the data link between the subscriber side and the network side, and can both receive and transmit traffic.

Bypass module

Separated hardware mechanism in SCE Platforms, that forwards traffic independently of the status of the rest of the modules in the platforms.

C

Collection Manager (CM)

A software application that is responsible for collecting RDRs from the SCE Platforms, processing them, and preparing them for reports.

Cutoff

Mechanism that cuts the link so that there is no forwarding of traffic, and the physical link is forced down (cutoff at layer 1).

E

External splitter topology

The SCE platform does not reside physically on the data link. Data is forwarded to the SCE platform via an optical splitter, which splits the traffic on the link, sending all information to the SCE platform in parallel with its transmission through the splitter. The optical splitter is connected physically on the Gigabit Ethernet link and only the receive inputs of the two GBE interfaces in the SCE platform are connected to the splitter.

This topology permits monitoring of the traffic flow only.

External switch topology

The SCE platform does not reside physically on the data link. Data is forwarded to the SCE platform via an external switch, which sends all traffic (bi-directional) to one of the SCE platform Fast Ethernet traffic ports.

Note that the switch must support SPAN functionality that includes separation between ingress and egress traffic and multiple SPAN-ports destinations.

I

Inline connection mode

The SCE Platform physically resides on the data link between the subscriber side and the network side, and can both receive and transmit traffic, permitting traffic control as well as monitoring.

P**PQI (Service Control Application Installation) File**

An application package file that is installed on the SCE Platform or associated software modules.

R**RDR (Raw Data Record)**

A data record produced by the SCE Platform that reports on events in the traffic. RDRs produced by the SCE Platform are sent to the Collection Manager and then stored in the Collection Manager database or forwarded to third-party systems. The RDR typically contains quota (see Quota) request or reports service usage.

Receive-only connection mode

The SCE Platform does not reside physically on the data link, and therefore can only receive data and not transmit.

This mode has traffic monitoring capability only.

S**SCAS BB Console**

The user interface used for controlling the Service Control Application Suite for Broadband system, used to create, modify, and apply the service configuration.

SCE Platform

The Service Control purpose-built hardware service component. This hardware device is capable of performing smart analysis of the packets at wire speed. It monitors the traffic on the line, producing raw data to be provided to the loaded application, which processes the data for functions such as reporting, policy management, subscription management, and implementation of tiered service subscriber aware traffic policies.

The SCE Platform comes in three models: SCE 1000 2xGBE, SCE 2000 4xGBE and SCE 2000 4/8xFE. There may be one or more SCE Platform on the provider network.

Service Control Application

An SML program that determines how the SCE Platform operates.

SLI (SML Loadable Image) File

An SLI file is a software package (part of an Service Control Application solution) that contains the SML application that is loaded onto a SCE Platform. The SML application determines the behavior of the SCE Platform. Different SCE Platforms can have different SML applications, even when they are within the same POP. (Operators do not need to access the SLI file.)

smartSUB Manager (SM)

A middleware software component used in cases where dynamic binding of subscriber information and service configurations is required. The SM manages subscriber information and provisions it in real time to multiple SCE Platforms. The SM can store subscriber service configurations information internally, and act as a state-full bridge between the AAA system (for example, RADIUS and DHCP) and the SCE Platforms.



Index

A

- Accessing the SACS Reporter • 3-8
- Accessing the SCAS Subscriber Manager GUI • 3-6
- Audience • iii

B

- Before you start • 3-1
- Bump-in-the-wire topology • 1
- Bypass module • 1

C

- Cisco TAC Website • iv
- Collection Manager (CM) • 1
- Components
 - installing • 2-1
- Cutoff • 1

D

- dc-install.sh • 2-7
- Document Content • iii
- Document Conventions • iii

E

- External splitter topology • 1
- External switch topology • 1

I

- Inline connection mode • 1
- Installing Other System Components • 2-1
- Installing SCAS BB • 3-1
- Installing SCAS BB on a smartSUB Manager (optional) • 3-3
- Installing the Collection Manager • 2-7
- Installing the SCAS BB Application • 3-2
- Installing the SCAS BB Command-line Utility • 3-4

- Installing the SCAS BB Front-Ends • 3-3
- Installing the SCAS BB PQI File • 3-2
- Installing the SCAS Reporter • 3-4
- Installing the SCE Platform • 2-5
- Installing the smartSUB Manager • 2-6
- installsyb.sh • 2-7
- Introduction • 1-1

O

- Obtaining Technical Assistance • iv
- Opening a TAC Case • v
- Opening the SCAS BB Console • 3-5

P

- PQI (Service Control Application Installation) File • 2
- Preface • iii
- Purpose • iii

R

- RDR (Raw Data Record) • 2
- Receive-only connection mode • 2
- Related Publications • iv

S

- SCAS BB Components • 1-2
- SCAS BB Console • 2
- SCE 1000 Topology • 2-1
- SCE 1000 Topology-Related Parameters • 2-2
- SCE 2000 Topology • 2-3
- SCE 2000 Topology-Related Parameters • 2-4
- SCE Platform • 2-1, 2
 - installing • 2-5
- SCE Topology • 2-1
 - select-app.sh • 2-7
- Service Control Application • 2

Service Control Application Suite for
Broadband
installing • 3-1
installing on SM • 3-3
installing reporter • 3-4
SLI (SML Loadable Image) File • 2
smartSUB Manager
installing • 2-6
smartSUB Manager (SM) • 2
Software Installation • 3-3
Starting and Logging On to the front-ends •
3-4
System Components • 1-1
System Requirements • 3-3

T

TAC Case Priority Definitions • v
The SCE Platform • 2-1