



Cisco SCMS SM SCE-Sniffer RADIUS LEG

Reference Guide

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Cisco SCMSSM SCE-Sniffer RADIUS LEG Reference Guide

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Preface iii

- Document Revision History iii
- Audience iii
- Organization iv
- Related Documentation iv
- Conventions iv
- Obtaining Documentation v
 - World Wide Web v
 - Documentation CD-ROM vi
 - Ordering Documentation vi
 - Documentation Feedback vi
- Obtaining Technical Assistance vii
 - Cisco.com vii
 - Technical Assistance Center vii

About the SCMS SM SCE-Sniffer RADIUS LEG 1-1

- RADIUS Integration Overview 1-2
- Terms and Concepts 1-2
 - LEG (Login Event Generator) 1-2
 - RDR (Raw Data Record) 1-3
 - NAS (Network Access System) 1-3
 - RADIUS Authentication transactions 1-3
 - RADIUS Accounting transactions 1-3
 - Accounting-Start packet 1-3
 - Accounting-Stop packet 1-3
 - RADIUS Sniffer 1-3
 - Subscriber ID 1-3
 - Subscriber Mappings 1-4
 - Subscriber Domain 1-4

Subscriber Policy 1-4

SCE-Sniffer RADIUS LEG Functionality 2-1

RADIUS Attributes 2-1

Subscriber ID Association 2-1

Domain Association 2-2

Mapping Association 2-2

Policy Association 2-2

RADIUS Packets 2-3

Accounting-Start packet 2-3

Accounting-Stop packet 2-3

Access-Accept packet 2-4

Access-Request packet 2-4

Installing the SCE-Sniffer RADIUS LEG 3-1

Installing the SCE-Sniffer RADIUS LEG Software 3-1

Uninstalling the SCE-Sniffer RADIUS LEG 3-2

Upgrading the SCE-Sniffer RADIUS LEG 3-3

Configuring the SCE-Sniffer RADIUS LEG 4-1

Configuring the General Settings 4-1

Configuring the Subscriber ID 4-2

Configuring the Policy Settings 4-3

Policy Configuration Example 4-4

SCE-Sniffer RADIUS LEG CLU 5-1

Viewing the SCE-Sniffer RADIUS LEG Status 5-2

Viewing the SCE-Sniffer RADIUS LEG Version 5-2

Viewing SCE-Sniffer RADIUS LEG Statistics 5-3

Index I-1



Preface

This guide describes the concept of a Remote Authentication Dial-In User Service (RADIUS) Login Event Generator (LEG) based on an RDR server, and explains how to install and configure it on the SCMS Subscriber Manager (SM) platform.



Note

This guide assumes a basic familiarity with telecommunications equipment and installation procedures, Cisco SCMS subscriber management, subscriber integration concepts, and the RADIUS protocol.

For complete information regarding Cisco's subscriber integration concept, see the *SCMS Subscriber Manager User Guide*.

Document Revision History

Cisco Service Center Release	Part Number	Publication Date
Release 3.0	OL-8234-01	December, 2005

Description of Changes

New Subscriber Manager component release.

Audience

This document is intended for system administrators and system integrators who are familiar with the SCE-Sniffer RADIUS LEG concepts and with the Cisco SCMS Subscriber Management and Subscriber Integration concepts.

Organization

This guide covers the following topics:

Chapter	Title	Description
Chapter 1	<i>About the SCMS SM SCE-Sniffer RADIUS LEG</i> (on page 1-1)	Describes the SCE-Sniffer RADIUS LEG software module, and terms and concepts
Chapter 2	<i>SCE-Sniffer RADIUS LEG Functionality</i> (on page 2-1)	Provides a description of SCE-Sniffer RADIUS LEG transactions for login and logout operations
Chapter 3	<i>Installing the SCE-Sniffer RADIUS LEG</i> (on page 3-1)	Describes the installation process for installing the SM SCE-Sniffer RADIUS LEG
Chapter 4	<i>Configuring the SCE-Sniffer RADIUS LEG</i> (on page 4-1)	Provides the configuration instructions to configure the SCE-Sniffer RADIUS LEG
Chapter 5	<i>SCE-Sniffer RADIUS LEG CLU</i> (on page 5-1)	Describes the Command-Line Utilities to retrieve information and statistics about the LEG

Related Documentation

This *SM SCE-Sniffer RADIUS LEG* Reference Guide should be used in conjunction with the following Cisco documentation:

- *SCMS Subscriber Manager User Guide*
- *Service Control Application for Broadband User Guide*

Conventions

This document uses the following conventions:

Convention	Description
boldface font	Commands and keywords are in boldface .
<i>italic</i> font	Arguments for which you supply values are in <i>italics</i> .
[]	Elements in square brackets are optional.
{x y z}	Alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string, or the string will include the quotation marks.
screen font	Terminal sessions and information the system displays are in screen font.
boldface screen font	Information you must enter is in boldface screen font.

<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
→	This pointer highlights an important line of text in an example.
^	The symbol ^ represents the key labeled Control —for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
<>	Non printing characters, such as passwords, are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Notes use the following conventions:



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.

Cautions use the following conventions:



Caution

Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

Warnings use the following conventions:



Warning

Means *reader be warned*. You are capable of doing something that might result in bodily injury.

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We appreciate your comments.

Obtaining Technical Assistance

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Cisco.com

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Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for *Cisco.com* (on page [viii](#)), go to the following website:

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

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

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

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.



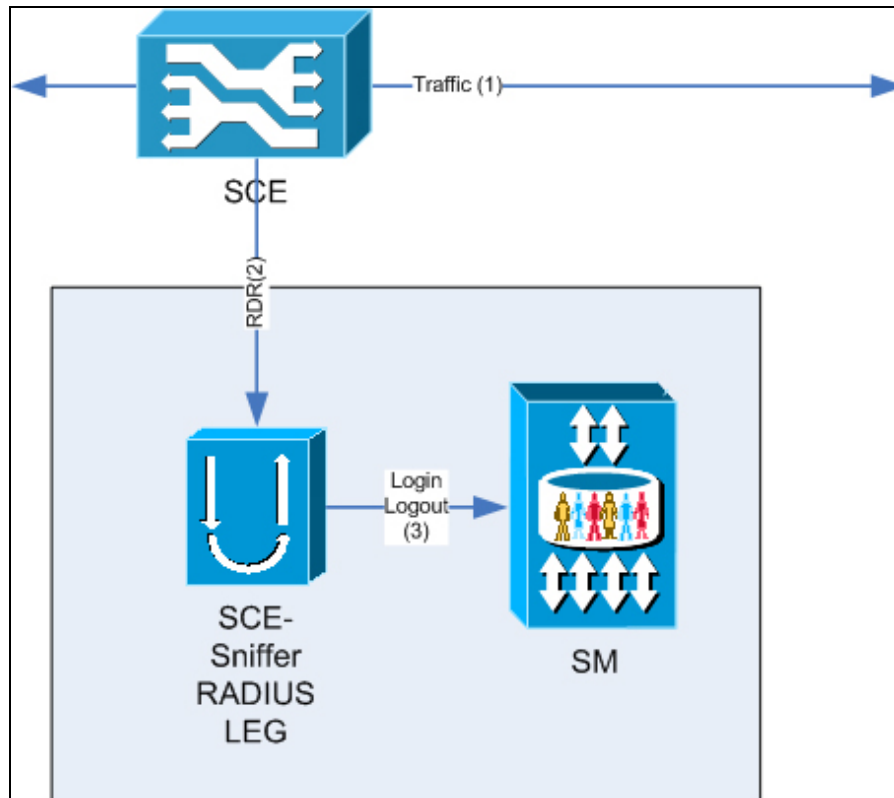
About the SCMS SM SCE-Sniffer RADIUS LEG

This chapter contains the following sections:

- [RADIUS Integration Overview](#) 1-2
- [Terms and Concepts](#) 1-2

The SCMS SM SCE-Sniffer RADIUS LEG is a software module that receives RDR (Raw Data Record) messages containing RADIUS information from SCE devices configured with a RADIUS Sniffer service. The SCE-Sniffer RADIUS LEG is an extension of the Subscriber Manager (SM) software and runs as part of the SM process.

The SCE device analyzes RADIUS traffic that traverses it (1), and reports the RADIUS transactions to the LEG using the RDR protocol (2). The LEG associates the RDR data to subscriber properties (name, mappings, domain, and policies), and triggers a login or logout operation to the SM (3).



RADIUS Integration Overview

This implementation of the SCE-Sniffer RADIUS LEG supports RFC 2865 (RADIUS protocol) and RFC 2866 (RADIUS Accounting).

The following packet types are used by the LEG:

- Accounting-Start – Initiates login operations (with mappings, domain, and policies)
- Accounting-Stop – Initiates logout operations.
- Access-Request – Initiates domain and policies associations
- Access-Accept – Initiates login operations (with mappings and policies)

The following attributes are used by the LEG:

- User Name (Attribute #1) – Default attribute for subscriber ID
- NAS-IP-Address (Attribute #4) – Associates the NAS IP address as the subscriber's domain (optional)
- Framed-IP-Address (Attribute #8) – Associates IP address mappings to the subscriber
- Framed-IP-Netmask (Attribute #9) – Associates IP netmask mappings to the subscriber
- NAS-Identifier (Attribute #32) – Associates the NAS identifier as the subscriber's domain (optional)
- Acct-Status-Type (Attribute #40) – Distinguishes between the different accounting transactions.

To associate policies to the subscribers, it is required to configure the LEG with the attribute that contains the policy information. The Vendor Specific attribute (Attribute #26) can be used to associate policies to the subscribers in addition to all other RADIUS attributes of type *string* or *integer*.

To determine the subscriber ID, the LEG can be configured with the attribute that contains the subscriber ID information. The Vendor Specific attribute (Attribute #26) can be used to determine the subscriber ID in addition to all other RADIUS attributes of type *string*. By default, the User-Name (attribute #1) is configured to hold the subscriber ID.

Terms and Concepts

The following list of terms and concepts are necessary to understand the SCE-Sniffer RADIUS LEG, configuration, and operation. Additional information regarding other various issues can be found in the *SCMS Subscriber Manager User Guide*.

LEG (Login Event Generator)

A software component that performs subscriber login and logout operations on the SM, which is used to handle dynamic subscriber integration.

RDR (Raw Data Record)

A client/server data protocol that enables the SCE devices to export network transactions reports to external collectors. This is a Cisco proprietary protocol.

NAS (Network Access System)

A network device that serves as an access point for a remote user. It initiates RADIUS transactions to the RADIUS server to authenticate a remote user.

RADIUS Authentication transactions

The RADIUS transactions are used for authenticating a remote user, and authorizing access to the network's resources. The LEG supports RADIUS authentication based on RFC 2865. The authentication RADIUS packets used by the LEG are **ACCESS-REQUEST** and **ACCESS-ACCEPT**.

RADIUS Accounting transactions

The RADIUS accounting transactions are used to keep track of the services used by the user for administrative purposes. The LEG supports RADIUS accounting based on RFC 2866. The only RADIUS accounting packet that is used by the LEG is **ACCOUNTING-REQUEST**.

Accounting-Start packet

An abbreviated term used in this document to describe an **ACCOUNTING-REQUEST** packet with the **ACCT-STATUS-TYPE** attribute set to *start*. This packet is sent from the NAS to the RADIUS server when the remote user starts using a network service. It is used by the LEG to initiate a login operation on the SM.

Accounting-Stop packet

An abbreviated term used in this document to describe an **ACCOUNTING-REQUEST** packet with the **ACCT-STATUS-TYPE** attribute set to *stop*. This packet is sent from the NAS to the RADIUS server when the remote user stops using a network service. It is used by the LEG to initiate a logout operation on the SM.

RADIUS Sniffer

The software logic inside the SCE device that analyzes RADIUS traffic and sends the information to the SCE-Sniffer RADIUS LEG using the RDR protocol.

Subscriber ID

The Service Control solution requires a unique identifier for each subscriber. A subscriber ID represents a logical subscriber entity from the service provider perspective.

Subscriber Mappings

The SCE platform requires mappings between the network IDs (IP addresses) of the flows it encounters and the subscriber IDs. The SM database contains the network IDs that map to the subscriber IDs. The SCE network-ID-to-subscriber mappings are constantly updated from the SM database.

Subscriber Domain

The SM provides the option of partitioning SCE platforms and subscribers into subscriber domains. A subscriber domain is a group of SCE platforms that share a group of subscribers. Subscriber domains can be configured using the SM configuration file and can be viewed using the SM Command-Line Utility (CLU).

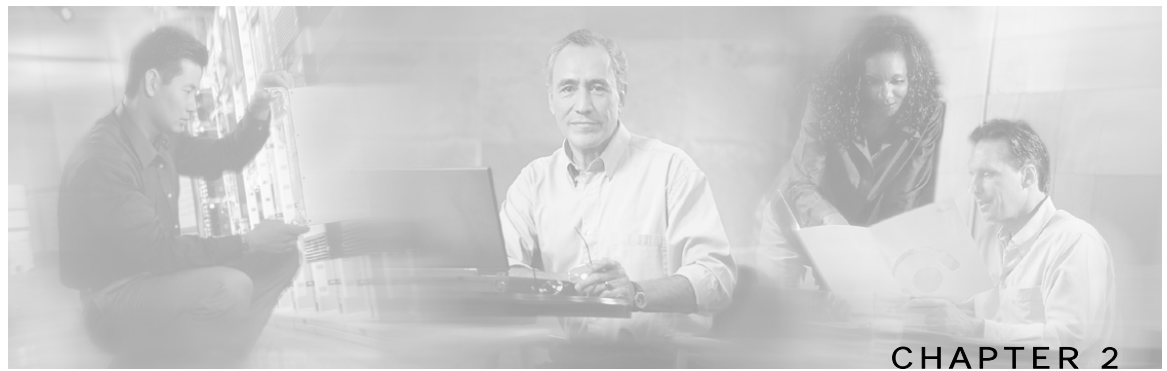
For additional information about domains and domain aliases, see the *SCMS Subscriber Manager User Guide*.

Subscriber Policy

The policy enforced by Cisco Service Control solutions on a specific subscriber is usually defined by a policy package. The SCE-Sniffer RADIUS LEG can handle the policy in any of the following ways:

- Set the policy according to configurable attributes of the RADIUS transactions
- Set using a constant default value
- Leave the package ID unset.

For additional information, see the *Service Control Application for Broadband User Guide*.



SCE-Sniffer RADIUS LEG Functionality

This chapter contains the following sections:

- [RADIUS Attributes](#) 2-1
- [RADIUS Packets](#) 2-3

The SCE devices analyze the RADIUS transactions and send the information to the SCE-Sniffer RADIUS LEG that resides on the SM. The LEG performs login or logout operations to the SM using the information sent from the SCE devices.

The LEG supports the following integrations with the RADIUS transactions:

- **Integrating with the RADIUS Accounting transactions**

In this mode the Accounting-Start packets are used for login operations, and (optionally) the Accounting-Stop packets are used for logout operations. This integration mode is the simplest; therefore if accounting transactions are used in your network it is advisable to use this integration mode.

- **Integrating with the RADIUS Authentication transactions**

In this mode the Access-Request and Access-Accept packets are used for login operations. Logout operations are not supported in this mode. Use this integration mode if RADIUS accounting is not used in your network.

- **Integrating with the RADIUS Accounting and Authentication transactions**

This mode combines the previous two modes. Authentication transactions are used for login operations, and Accounting transactions are used for logout operations.

RADIUS Attributes

This section describes how subscriber properties are extracted from the RADIUS attributes.

Subscriber ID Association

By default, the attribute used for the subscriber ID association is the **User-Name** attribute (#1), but it can be configured to any other attribute including the **Vendor-Specific** attribute (#26).

The only requirement is that the configured attribute must be of type string.

This attribute must exist in the RADIUS traffic for successful login operations, because a subscriber cannot be introduced to the SM without its ID.

For logout operations, which are triggered by Accounting-Stop packets only, this attribute is not mandatory, because logouts can be performed using the mapping information.

Domain Association



Note Domain association is only relevant for login operations and is optional.

Domain association is based on the Network Access System (NAS) that initiated the RADIUS transaction. The RADIUS attributes that identify the NAS are **NAS-Identifier** (#32), and **NAS-IP-Address** (#4). If none of the attributes exist, the LEG tries to identify the NAS using the IP address of the NAS taken from the UDP packet.

Before a login operation occurs, the NAS properties, **NAS-Identifier** and **NAS-IP-Address**, are matched against the configured domains or domain aliases of the SM. If a match is found, the matched domain or domain alias is used as the subscriber domain for the login operation.

The domain association is performed in stages, as follows:

- Step 1** If the **NAS-Identifier** attribute exists, and a domain name or alias is configured in the SM for the same **NAS-Identifier**, the domain name or alias is used as the subscriber domain.
- Step 2** If the previous step fails, the same test is performed on the **NAS-IP-Address** attribute.
- Step 3** If the **NAS-IP-Address** does not exist as well, the same test is performed on the IP address of the NAS.
- Step 4** If the **NAS-Identifier** and the **NAS-IP-Address** attributes are missing or does not match to an existing SM domain or alias, the default subscriber domain is used.

Mapping Association

Mapping association is based on the **Framed-IP-Address** (#8) and the **Framed-IP-Netmask** (#9) attributes according to the following logic:

- Step 1** If both attributes exist, the operation is performed with the IP range represented by the IP address and the IP netmask.
- Step 2** If only the IP address attribute exists, the operation is performed with a single IP address.
- Step 3** If the IP address attribute does not exist, the operation is performed with no mapping information.

Policy Association



Note Policy association is only relevant for login operations and is optional.

Policy association is designed to be configurable by the user. Any RADIUS attribute can be used for policy association, including the **Vendor-Specific** attribute.

The term "policy association" refers to the act of setting a subscriber property according to information extracted from the RADIUS packets. An example of policy association is setting the *packageId* property of the Service Control Application for Broadband (SCA BB) solution to control the network service level for which the subscriber is entitled.

To associate policy from a RADIUS attribute, the configured attribute must be of type *string* or *integer*. The subscriber property values are always integers. However, if the association is based on a string RADIUS attribute, it is mandatory to configure a mapping table. If the association is based on an integer RADIUS attribute, a mapping table is not needed, but can be used. See *Configuring the Policy Settings* (on page 4-3) for more information on configuring a mapping table.

You can define a default value for the policy if the configured RADIUS attribute is missing from the packet. The default value is valid only if the policy has not been set before (for example by other LEGs, or the Subscriber Manager).

The *Configuring the Policy Settings* (on page 4-3) section describes how to configure the policies.

RADIUS Packets

This section describes the RADIUS packets supported by the SCE-Sniffer RADIUS LEG and their impact on the SM.

Accounting-Start packet

An Accounting-Start packet initiates a login operation with the following subscriber properties:

- Subscriber ID – See *Subscriber ID Association* (on page 2-1)
- Mappings – See *Mapping Association* (on page 2-2)
- Domain – See *Domain Association* (on page 2-2)
- Policy – See *Policy Association* (on page 2-2)

If the Accounting-Start packet does not hold the subscriber ID, the login operation is not performed and an error message is written to the user log. All other properties (mappings, domain, and policy) are optional.



Note

The Accounting-Start packet is the **only** packet that holds all the subscriber properties. It is recommended to use this packet if possible.

Accounting-Stop packet

An Accounting-Stop packet initiates a logout operation with the following subscriber properties:

- Subscriber ID – See *Subscriber ID Association* (on page 2-1)

- Mappings – See *Mapping Association* (on page 2-2)

Opposite from the Accounting-Start packet, the subscriber ID is not mandatory in the Accounting-Stop packet. If it does not exist, the logout is based only on the mappings information. If the Accounting-Stop packet has a subscriber ID but does not have the mappings, all mappings of the subscriber are logged out. If both properties are missing, the logout operation is not performed and an error message is written to the user log.

**Note**

The Accounting-Stop packet is the **only** packet that initiates a logout operation. If you need to perform logouts, you **must** use this packet for integration.

Access-Accept packet

An Access-Accept packet initiates a login operation with the following subscriber properties:

- Subscriber ID – See *Subscriber ID Association* (on page 2-1)
- Mappings – See *Mapping Association* (on page 2-2)
- Policy – See *Policy Association* (on page 2-2)

The subscriber ID is mandatory, mappings and policy are not. If the subscriber ID is missing, the login operation is not performed and an error message is written to the user log.

**Note**

The Access-Accept packet does not hold any information needed for domain association. If you are using domains, consider using the accounting packets for domain integration.

Access-Request packet

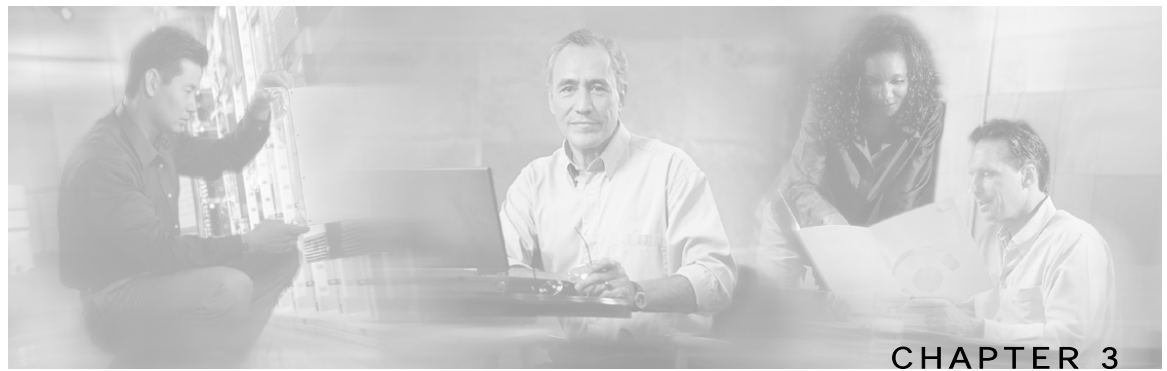
An Access-Request packet initiates a login operation with the following subscriber properties:

- Subscriber ID – See *Subscriber ID Association* (on page 2-1)
- Domain – See *Domain Association* (on page 2-2)
- Policy – See *Policy Association* (on page 2-2)

The subscriber ID is mandatory, domain and policy are not. If the subscriber ID is missing, the login operation is not performed and an error message is written to the user log.

**Note**

The Access-Request packet is used in conjunction with the Access-Accept packet because the Access-Request packet does not hold the attributes needed for mapping association.



Installing the SCE-Sniffer RADIUS LEG

This chapter describes the procedures for installing and running the SCE-Sniffer RADIUS LEG. It also describes the procedure to uninstall the SCE-Sniffer RADIUS LEG.

The SCE-Sniffer RADIUS LEG is provided as an external component (PQI file) of the SM software that should be installed separately using the SM command-line utilities. The SCE-Sniffer RADIUS LEG distribution is part of the SM LEG distribution.

The installation package of the LEG includes a set of configuration files and command-line utilities for the LEG.

This chapter contains the following sections:

- [Installing the SCE-Sniffer RADIUS LEG Software](#) 3-1
- [Uninstalling the SCE-Sniffer RADIUS LEG](#) 3-2
- [Upgrading the SCE-Sniffer RADIUS LEG](#) 3-3

Installing the SCE-Sniffer RADIUS LEG Software



Note Before installation, verify that the Service Control Application for Broadband (SCA BB) is installed on all SM and SCE devices. If the application has not been installed, install the application as described in the *Service Control Application for Broadband User Guide*.



Note After the installation of the PQI file, the SM will automatically restart.

To Install the SCE-Sniffer RADIUS LEG:

Step 1 Install the PQI file of the SCE-Sniffer RADIUS LEG

Run the p3inst command line utility from the SM CLU `<sm-inst-dir>/sm/server/bin` (`sm-inst-dir` refers to the SM installation directory):

```
> p3inst --install -f rad_snif.pqi
```

Step 2 Edit the configuration file of the SCE-Sniffer RADIUS LEG

The configuration file is called *rad_snif.cfg*, and is located under the configuration folder of the SM (*<sm-inst-dir>/sm/server/root/config*). It is recommended to familiarize yourself with this file immediately after the first installation, and edit it according to your specific needs. See *Configuring the SCE-Sniffer RADIUS LEG* (on page 4-1) for more information.

Step 3 Load the configuration file to the SM

Run the **p3sm** command line utility from the SM CLU:

```
> p3sm --load-config
```

This command-line utility loads the new configuration to the SM and activates it.

Step 4 Configure the SCE to send RDRs to the LEG

Run the RDR-formatter Command-Line Interface (CLI) in the SCE to add the LEG as a category 3 RDR destination:

```
SCE2000> configure
SCE2000(config)> RDR-formatter destination <SM-IP> port <port>
category number 3 priority 100
SCE2000(config)> exit
```

Use the same port number as defined by the RDR server in the SM. The default port number is 33001.



Note To support SM cluster topology, set the cluster VIP as the SM-IP in the above CLI command.

Uninstalling the SCE-Sniffer RADIUS LEG

To uninstall the SCE-Sniffer RADIUS LEG:

Step 1 Configure the SCE to stop sending RDRs to the LEG:

Run the RDR-formatter CLI command in the SCE to remove the LEG as category 3 RDR destination

```
SCE2000> configure
SCE2000(config)> no RDR-formatter destination <SM-IP> port <port>
SCE2000(config)> exit
```

Step 2 Uninstall the SCE-Sniffer RADIUS LEG:

Run the **p3inst** command line utility from the SM CLU:

```
> p3inst --uninstall -f rad_snif.pqi
```



Note After the uninstall process has successfully completed, the SM will automatically restart.

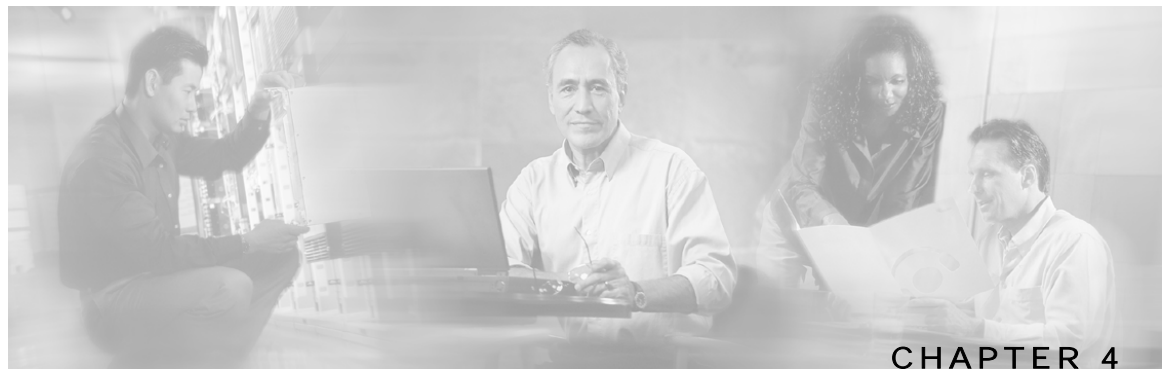
Upgrading the SCE-Sniffer RADIUS LEG

The SCE-Sniffer RADIUS LEG must be upgraded when upgrading is performed between major versions of the SM as part of the SM upgrade process.

The upgrade for the SCE-Sniffer RADIUS LEG should be performed together with the upgrade process of the SM.

To upgrade the SCE-Sniffer RADIUS LEG:

- Step 1** Backup the configuration file of the SCE-Sniffer RADIUS LEG. The original configuration file is deleted by the uninstall process in the next step.
 - Step 2** Uninstall the SCE-Sniffer RADIUS LEG by running the **p3inst --uninstall** CLU of the SM.
 - Step 3** Perform the upgrade of the SM as described in the SM user guide.
 - Step 4** Install the SCE-Sniffer RADIUS LEG by running the **p3inst --install** CLU of the SM.
 - Step 5** Restore the configuration files of the SCE-Sniffer RADIUS LEG.
 - Step 6** Load the new configuration by using the **p3sm --load-config** CLU of the SM.
-



Configuring the SCE-Sniffer RADIUS LEG

The SCE-Sniffer RADIUS LEG is configured using the configuration file *rad_snif.cfg*, which resides in the `<sm-inst-dir>/sm/server/root/config` directory (*sm-inst-dir* refers to the SM installation directory).

The configuration file is divided into sections that are defined by brackets, for example `[SCE-Sniffer RADIUS LEG]`. Each section consists of several parameters with the format of `parameter=value`. The number sign (“#”) at the beginning of a line denotes that this is a remark line.

This chapter contains the following sections:

- [Configuring the General Settings](#) 4-1
- [Configuring the Subscriber ID](#) 4-2
- [Configuring the Policy Settings](#) 4-3

Configuring the General Settings

The general configuration of the LEG appears under the section name `[SCE-Sniffer RADIUS LEG]`. The following list describes the general configuration parameters:

- `start`
Defines whether the SM should run the LEG at startup.
Possible values for this parameter are **yes** and **no**. The default value is **no**.
To start using the LEG, change this setting to **yes**.
- `packet_types`
Defines the RADIUS packet types to analyze. You should set this parameter according to the integration mode you have chosen.
Possible values are any combination of: **access-request**, **access-accept**, **accounting-start**, and **accounting-stop** separated by commas.
The default value is **accounting-start, accounting-stop**.
- `log_failures`
Defines whether the LEG should add messages about failures to the user log.
Possible values for this parameter are **true** and **false**. The default value is **true**.

Configuring the Subscriber ID

- `log_all`

Defines whether the LEG should add all messages, including successful logins and logouts, to the user log.

Possible values for this parameter are **true** and **false**. The default value is **false**.

**Note**

For this LEG to work correctly, the RDR server must be enabled in the SM by using the configuration file.

Configuring the Subscriber ID

**Note**

The Subscriber ID configuration is optional.

The subscriber ID is identified by the **User-Name** attribute by default. The LEG can be configured to use any other RADIUS attribute to identify the subscriber ID, including using the **Vendor-Specific** attribute.

**Note**

If you want to keep the default identification according to the **User-Name** attribute, you can skip this section.

**Note**

The configured attribute must be of data type *string*. When using the **Vendor-Specific** attribute, the configured vendor specific subtype must be of data type *string*.

The section used for subscriber ID configuration is called `[RADIUS.Subscriber ID]`. The following list describes the parameters:

- `radius_attribute`

Defines the attribute number for the subscriber ID classification.

The default value is 1 (User-Name attribute).

- `radius_attribute_vendor_id`

This parameter is only relevant if **radius_attribute** is configured to 26 (**Vendor-Specific** attribute).

The parameter defines the vendor ID number for the subscriber ID classification.

This parameter has no default value.

- `radius_sub_attribute`

This parameter is only relevant if **radius_attribute** is configured to 26 (**Vendor-Specific attribute**).

The parameter defines the sub attribute within the vendor specific attribute that is used for subscriber ID classification.

This parameter has no default value.

Configuring the Policy Settings



Note The Policy configuration is optional.

Policy configuration assigns policy information such as package ID, according to the RADIUS packets. Configure the SCE-Sniffer RADIUS LEG using the policy section(s) to assign the policy information.



Note This section is optional. If you do not need to set policy information according to RADIUS packets, you can skip this section. The SCE-Sniffer RADIUS LEG will not include any policy information when it logs in subscribers. If the subscriber already has some policies set, it will not be affected by the LEG.

For each policy you want to define, you need to specify a different section named `[RADIUS.Policy.policyName]`. You can use any string you want for policyName provided that the policy name is unique inside the configuration file.

Each policy section has the following parameters:

- **radius_attribute**
Defines the attribute number that holds the policy information.
This parameter has no default value.
- **radius_attribute_vendor_id**
This parameter is only relevant if **radius_attribute** is configured to 26 (**Vendor-Specific attribute**).
The parameter defines the vendor ID number that holds the policy information.
This parameter has no default value.
- **radius_sub_attribute**
This parameter is only relevant if **radius_attribute** is configured to 26 (**Vendor-Specific attribute**).
The parameter defines the sub attribute of the vendor specific attribute that holds the policy information.
This parameter has no default value.
- **radius_attribute_type**

Defines the type of the attribute.
Possible values are **string** or **integer**.
This parameter has no default value.

- `default_value`

Defines the default value to set in case the attribute is not found in the traffic.
The default value is set only if this policy has not been already set, for example by other LEG interfaces.
This parameter is optional. If it does not exist, a default value will not be set for this policy.

- `policy_name`

Defines the name of the subscriber property. For instance, policies of the SCA BB solution are defined by the `packageID` property.
This parameter has no default value.

- `mapping_table.<key>=<value>`

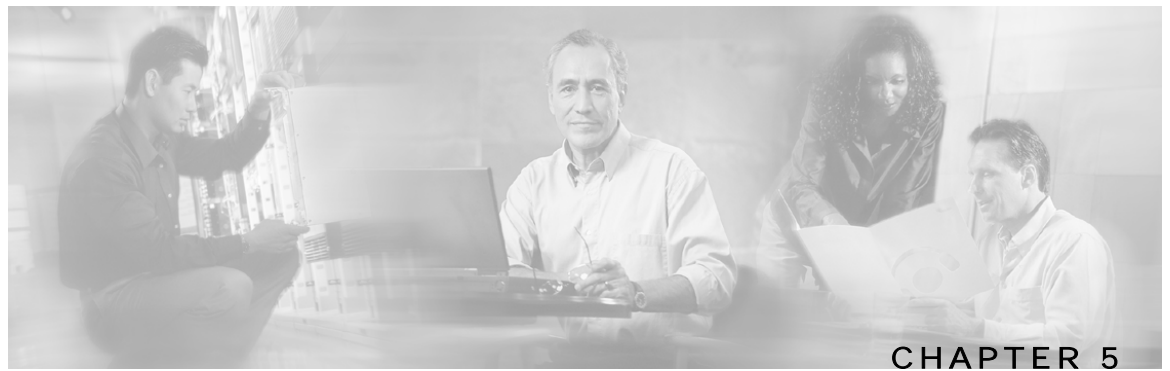
A set of values (key, value) used to map the data retrieved from the RADIUS attribute to the policy index configured by the application.

Policy Configuration Example

The following configuration section associates the *packageID* property of the SCA BB solution with a Vendor Specific attribute of the RADIUS packet:

```
[RADIUS.policy.packageId]
radius_attribute=26
radius_attribute_vendor_id=1000
radius_sub_attribute=2
radius_attribute_type=string
default_value=1
policy_name=packageId
mapping_table.gold=11
mapping_table.silver=12
mapping_table.bronze=13
```

This configuration indicates that if the configured RADIUS attribute of data type string holds the value *gold*, the package ID that will be introduced to the SM will have the value of 11. If the configured vendor specific attribute does not appear in the traffic, the package ID that will be introduced to the SM will have the value 1.



SCE-Sniffer RADIUS LEG CLU

This chapter contains the following sections:

- [Viewing the SCE-Sniffer RADIUS LEG Status](#) 5-2
- [Viewing the SCE-Sniffer RADIUS LEG Version](#) 5-2
- [Viewing SCE-Sniffer RADIUS LEG Statistics](#) 5-3

The SCE-Sniffer RADIUS LEG contains its own Command-Line Utility (CLU) commands, called **p3radiusniff**, for retrieving information and statistics about the LEG.

The **p3radiusniff** utility is used for viewing the LEG configuration and statistics. The command format is:

```
p3radiusniff operation
```

The following table lists the **p3radiusniff** operations.

Table 5-1 p3radiusniff Operations

Operation	Description
--show	Displays all of SCE-Sniffer RADIUS LEG configuration and status
--show-statistics	Displays counters of RADIUS messages handled and number of login/logout operations performed
--show-version	Displays the SCE-Sniffer RADIUS LEG version number
--help	Displays a list of available operations and arguments with a short explanation of their meanings

You can use the **p3radiusniff** CLU to view the SCE-Sniffer RADIUS LEG status and statistics.

Viewing the SCE-Sniffer RADIUS LEG Status

The following example illustrates the p3radiusniff Command-Line Utility using the show operation:

```
> p3radiusniff --show
```

```
SCE-Sniffer RADIUS LEG:
=====
Active:      true
RADIUS packet types:
accounting_start
accounting_stop
Subscriber ID Association
Attribute: 1
Policy Association:
  attribute=26
  vendorIdAttribute=1000
  subAttribute=2
  attributeType=string
  defaultValue=1
  policyName=packageId
Command terminated successfully
>
```

Viewing the SCE-Sniffer RADIUS LEG Version

The following example displays the p3radiusniff Command-Line Utility using the show-version operation:

```
> p3radiusniff --show-version
```

```
SCE-Sniffer RADIUS LEG 3.0 Build 5
Command terminated successfully
>
```

Viewing SCE-Sniffer RADIUS LEG Statistics

The following example displays the p3radiusniff Command-Line Utility using the show-statistics operation:

```
> p3radiusniff --show-statistics
```

```
SCE-Sniffer RADIUS LEG statistics
=====
Total Received RDRs:      12
Accounting RDRs:         12
Accounting-Start RDRs:   6
Accounting-Stop RDRs:    6
Access RDRs:              0
Access-Request RDRs:     0
Access-Accept RDRs:      0
Invalid RDRs:            0
Successful logins:        6
Successful logouts:       6
Failed logins:            0
Failed logout:           0
Command terminated successfully
>
```




Index

A

- About the SCMS SM SCE-Sniffer RADIUS LEG • 1-1
- Access-Accept packet • 4-2
- Access-Request packet • 4-2
- Accounting-Start packet • 3-1, 3-2
- Accounting-Stop packet • 3-1, 4-2
- Audience • iii

C

- Cisco.com • vii
- Configuring the General Settings • 1-4
- Configuring the Policy Settings • 3-4
- Configuring the SCE-Sniffer RADIUS LEG • 1-4
- Configuring the Subscriber ID • 2-4
- Contacting TAC by Telephone • viii
- Contacting TAC by Using the Cisco TAC Website • vii
- Conventions • iv

D

- Document Revision History • iii
- Documentation CD-ROM • vi
- Documentation Feedback • vi
- Domain Association • 2-2

I

- Installing the SCE-Sniffer RADIUS LEG • 1-3
- Installing the SCE-Sniffer RADIUS LEG Software • 1-3

L

- LEG (Login Event Generator) • 2-1

M

- Mapping Association • 2-2

N

- NAS (Network Access System) • 3-1

O

- Obtaining Documentation • v
- Obtaining Technical Assistance • vi
- Ordering Documentation • vi
- Organization • iv

P

- Policy Association • 3-2
- Policy Configuration Example • 4-4
- Preface • iii

R

- RADIUS Accounting transactions • 3-1
- RADIUS Attributes • 1-2
- RADIUS Authentication transactions • 3-1
- RADIUS Integration Overview • 2-1
- RADIUS Packets • 3-2
- RADIUS Sniffer • 3-1
- RDR (Raw Data Record) • 3-1
- Related Documentation • iv

S

- SCE-Sniffer RADIUS LEG CLU • 1-5
- SCE-Sniffer RADIUS LEG Functionality • 1-2
- Subscriber Domain • 4-1
- Subscriber ID • 3-1
- Subscriber ID Association • 2-2
- Subscriber Mappings • 4-1
- Subscriber Policy • 4-1

T

Technical Assistance Center • vii
Terms and Concepts • 2-1

U

Uninstalling the SCE-Sniffer RADIUS LEG
• 2-3
Upgrading the SCE-Sniffer RADIUS LEG •
3-3

V

Viewing SCE-Sniffer RADIUS LEG
Statistics • 3-5
Viewing the SCE-Sniffer RADIUS LEG
Status • 2-5
Viewing the SCE-Sniffer RADIUS LEG
Version • 2-5

W

World Wide Web • v