



Cisco Application Visibility and Control Installation and Troubleshooting Guide

Release 1.1 – March 2012

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-26679-01
Text Part Number: OL-26679-01



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.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned 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. (1110R)

Cisco Application Visibility and Control V1.1 End-to-End Installation and Troubleshooting Guide

Copyright © 2012 Cisco Systems, Inc.
All rights reserved.



CONTENTS

Preface i

Document Revision History	i
Organization	i
Related Documentation	ii
Conventions	ii
Obtaining Documentation and Submitting a Service Request	iii

CHAPTER 1. Introduction 1-1

Cisco ASR 1000 Series Router	1-2
Cisco Network-Based Application Recognition 2 (NBAR 2)	1-2
Cisco Flexible NetFlow	1-2
Cisco NetFlow V9 Export Format	1-2
Cisco Collection Manager	1-3
Cisco Collection Manager Database	1-3
Cisco Insight Reporter	1-3
Deployment Scenarios	1-3
Cisco Collection Manager, Cisco Insight Reporter are on Single Machine with MySQL as Database	1-4
Hardware	1-4
Software	1-4
Cisco Collection Manager & Cisco Insight Reporter are on Different Machines with MySQL as Database	1-4
Installation	1-4

CHAPTER 2. Configuring ASR1K Devices2-1

Router Configuration	2-1
----------------------	-----

CHAPTER 3. Requirement for Cisco Insight Reporter Installation	3-1
Hardware Requirements	3-1
Software Requirements	3-2
Operating System	3-2
Java Runtime Environment (JRE)	3-2
Supported Browsers	3-2
Screen Resolution	3-3
Working with Firewall	3-3
Supported Databases	3-4
CHAPTER 4. Installing Cisco Insight Reporter	4-1
Downloading the Installation Package	4-1
Installing Cisco Insight Reporter v3.2	4-3
Full installation	4-3
Integration with an Existing MySQL v5.1 Server	4-7
Checking the Installation	4-9
CHAPTER 5. Requirement for Cisco Collection Manager Installation	5-1
Introduction	5-1
Checking System Prerequisites	5-1
System Requirements	5-2
Solaris Requirements	5-2
Hardware	5-3
Software and Environment	5-3
Setting the Locale and Time Zone	5-5
Red Hat Linux Requirements	5-5
Hardware	5-5
Software & Environment	5-6
Setting the Locale and Time Zone	5-7
CentOS Linux Requirements	5-7
Hardware	5-7
Software & Environment	5-7
Distribution Content	5-7
Default Configuration Settings	5-8

CHAPTER 6. Installing Cisco Collection Manager	6-1
Introduction	6-1
Downloading the Installation Package	6-1
Creating the default MySQL schema and user for CM access	6-2
Installing Cisco Collection Manager	6-3
Install-cm.sh Script	6-3
Actions Performed by install-cm.sh	6-3
Starting the Cisco Collection Manager	6-6
Setting the Time Zone	6-6
Router Configuration	6-7
CHAPTER 7. Configuring Cisco Collection Manager	7-1
Activating Servers	7-1
Controlling Adapters	7-2
Enabling Adapters	7-3
Managing NF_INI_VALUES table for Netflow	7-3
CHAPTER 8. Configuring Cisco Insight Reporter	8-1
Setting the Global Settings	8-1
Configuring Traffic Databases and Devices	8-3
Configuring Network Topology	8-6
Configuring Accounts	8-9
Running the First Report	8-11
CHAPTER 9. Troubleshooting	9-1
Troubleshooting NF_INI_VALUES Table Data	9-3
Troubleshooting NF_INI_VALUES not Getting Updated	9-6
Troubleshooting the Cisco Collection Manager	9-6
Troubleshooting MySQL Compatibility Issue	9-6
Troubleshooting Tomcat Not Started	9-7
Troubleshooting MySQL Start-up and Connectivity Problem	9-7
Troubleshooting the “No Data Found” Message when Running Reports	9-8
Troubleshooting No Interface Showing any Associated Traffic	9-8
Troubleshooting “NO more Sessions Allowed”	9-9
Troubleshooting User Interface that is not Loading Correctly	9-9
Troubleshooting Application Startup Problem	9-9
Troubleshooting Connectivity with Traffic Database	9-10

Troubleshooting Issues when Setting a Master Device	9-10
Troubleshooting Connection Timeout from Traffic Database	9-11
Troubleshooting if User is Not Able to View Full DB Query in Logs	9-11
Troubleshooting if User wants to View Aggregation Interval in case of Non-Aggregation	9-11
Troubleshooting if Remote DB Connection Failed	9-11
Troubleshooting if Device Discovery Failed	9-11
Troubleshooting if Error Comes during Report Execution	9-12
Troubleshooting if User Login Fails	9-12
Troubleshooting No Data is Displayed in Report after Successful Execution (Report Wizard)	9-12
Troubleshooting if “Auth Token is Not Valid.” Message appears	9-12
Troubleshooting Reports are Showing Data in Bar Chart However Area and Line Charts are Not Working Fine	9-12
Troubleshooting if Report is Taking Long Time to Generate (Report Wizard)	9-13
Cisco Insight Reporter Error Codes	9-13

Appendix 1

Alternative Scenarios and Options 1

Upgrading Cisco Collection Manager	1
Upgrading Cisco Insight Reporter from v2.0/3.0 /3.12	
Installing Cisco Insight Reporter on Solaris	3
Enabling HTTPS for Cisco Insight Reporter	6
Changing the MySQL Server Password	8
Using Cisco Collection Manager with Bundled Sybase Database	8

Uninstalling the Software 11

Uninstalling Cisco Collection Manager	11
Uninstalling Cisco Insight Reporter v3.2	11

Index 14



Preface

This preface describes who should read the *Cisco Application Visibility and Control V1.1 End-to-End Installation and Troubleshooting Guide*, how it is organized, its document conventions, and how to obtain documentation and technical assistance.

It contains the following sections:

[Document Revision History](#)

[Organization](#)

[Related Documentation](#)

[Conventions](#)

[Obtaining Documentation and Submitting a Service Request](#)

Document Revision History

Cisco Service Center Release	Part Number	Publication Date
Release 1.1	OL-26679-01	March 30, 2012

Organization

The *Cisco Application Visibility and Control v1.1 End-to-End Installation and Troubleshooting Guide* is categorized into the following chapters:

Table 1. Document Organization

Chapter	Title	Description
1	Introduction	Provides details about the various scenarios under which the AVC can be deployed.
2	Configuring ASR1K Devices	Provides detailed instructions on how to configure XE with ASR1K.
3	Requirement for Cisco Insight Reporter Installation	Provides detailed instructions on preparation for installing the Cisco Insight Reporter v3.2 Installation.
4	Installing Cisco Insight Reporter	Provides detailed instructions on how to install the Cisco Insight Reporter v3.2
5	Requirement for Cisco Collection Manager Installation	Provides detailed instructions on preparation for installing the Cisco Collection Manager v3.7.5.
6	Installing Cisco Collection Manager	Provides detailed instructions on how to install the Cisco Collection Manager v3.7.5
7	Configuring Cisco Collection Manager	Provides detailed instructions on how to configure the Cisco Collection Manager v3.7.5
8	Configuring Cisco Insight Reporter	Provides detailed instructions on how to reconfigure the Cisco Insight Reporter v3.2
9	Troubleshooting	Provides detailed instructions on how to troubleshoot various problems of AVC.

Related Documentation

The *Cisco Application Visibility and Control* should be used in conjunction with the following documentation:

Cisco Collection Manager User Guide

Cisco Insight Reporter User Guide

Conventions

The document uses the following conventions:

Table 2. Conventions

Convention	Indication
bold font	Commands and keywords and user-entered text appear in bold font .
<i>italic font</i>	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic font</i> .

Convention	Indication
[]	Elements in square brackets are optional.
{x y z }	Required 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 non-quoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
<code>courier font</code>	Terminal sessions and information the system displays appear in <code>courier</code> font.
< >	Nonprinting 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.
 Note	Means <i>reader take note</i> .
 Tip	Means <i>the following information</i> will help you solve a problem.
 Caution	Means <i>reader be careful</i> . In this situation, you might perform an action that could result in equipment damage or loss of data.
 Timesaver	Means <i>the described action saves time</i> . You can save time by performing the action described in the paragraph.
 Warning	Means <i>reader be warned</i> . In this situation, you might perform an action that could result in bodily injury

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.



CHAPTER 1. Introduction

The Cisco Application Visibility and Control solution integrates multiple internal components of the Cisco ASR 1000 Series Aggregation Services Router and external components. The core components of the Cisco Application Visibility and Control solution include:

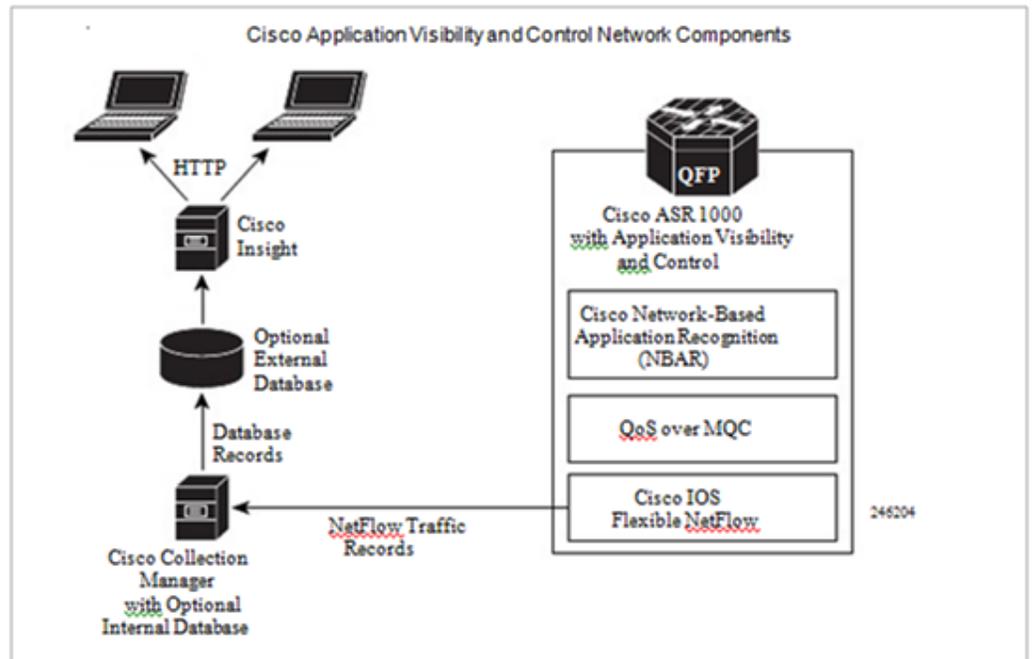
Cisco ASR 1000 Series Router

- Cisco Network-Based Application Recognition 2 (NBAR 2)
- Cisco Flexible NetFlow
- Cisco NetFlow V9 Export Format

Cisco Collection Manager

- Cisco Collection Manager Database

Cisco Insight Reporter



Cisco ASR 1000 Series Router

The Cisco ASR 1000 Series router is Cisco's midrange routers offering convergence of network services on a scalable routing platform. The Cisco ASR 1000 Series uses the Cisco Quantum Flow Processor (QFP), which offers multiprocessing, advanced memory management, customized quality of service (QoS), and silicon-based service delivery and programmability. The flexibility of this processor allows network services such as packet encryption, packet inspection, application recognition, traffic differentiation, and subscriber management to be integrated on a single routing platform. It does not need to use external network appliances or service modules for this platform. The router delivers the resiliency, intelligent services, and modularity for needed for the future.

Cisco Network-Based Application Recognition 2 (NBAR 2)

Cisco NBAR 2 is an important component of the Cisco Content networking architecture. It acts as a classification engine in Cisco IOS Software and can recognize a wide variety of Layer 7 applications. These applications include Web-based applications and client/server applications that dynamically assign TCP or User Datagram Protocol (UDP) port numbers. After the application is recognized, the network can invoke specific services for that particular application. NBAR 2 can work with quality-of-service (QoS) features to help ensure that the network bandwidth is used efficiently.

Cisco Flexible NetFlow

The original NetFlow is a Cisco IOS technology that provides statistics on packets flowing through the router. It is the standard for acquiring IP operational data from IP networks. It provides data to enable network and security monitoring, network planning, traffic analysis, and IP accounting. Flexible NetFlow improves on the original NetFlow by adding the capability to customize the traffic analysis parameters for your specific requirements. Flexible NetFlow facilitates the creation of more complex configurations for traffic analysis and data export by using reusable configuration components.

Cisco NetFlow V9 Export Format

Flexible NetFlow exports information to reporting servers in various formats including NetFlow version 9. NetFlow version 9 is the format used by the Cisco Application Visibility and Control solution. NetFlow version 9 is a flexible and extensible format. It includes a template to describe what is being exported and the export data. The template is periodically sent to the Flexible NetFlow collector telling it what data to expect from the router or switch. The data is then sent for the reporting system to analyze. Any data available in the device can theoretically be sent in NetFlow version 9 format. Flexible NetFlow allows the user to configure and customize what information is exported using NetFlow version 9. NetFlow version 9 is the basis for the IETF standard IPFIX associated with the IP Flow and information working group in IETF.

Cisco Collection Manager

The Cisco Collection Manager is a set of software modules that runs on a server. It receives and processes NetFlow Records. The NetFlow Records used by the Cisco Collection Manager are generated by the Cisco ASR 1000 Series router. The process uses Cisco Network-Based Application Recognition (NBAR) and Cisco Flexible NetFlow. The processed records are stored in the Cisco Collection Manager database. The Cisco Collection Manager also interoperates with the Cisco Service Control Management Suite (SCMS) and the Cisco Service Control Engine (SCE) platform. The Cisco Collection Manager is able to operate with both the Cisco ASR 1000 Series and the Cisco SCE platform at the same time.

Cisco Collection Manager Database

The Cisco Collection Manager database is either a bundled database or an external database. In bundled mode, the Cisco Collection Manager uses the Sybase Adaptive Server Enterprise database. This database is located on the same server as the other Cisco Collection Manager components. It uses a simple schema that includes a group of small, simple tables. The Cisco Collection Manager is also able to use a Java Database Connectivity (JDBC) compliant database. This includes standard databases, such as Oracle or MySQL. The JDBC-compliant database can be located on the same server as the Cisco Collection Manager or hosted on an external server.

Cisco Insight Reporter

Cisco Insight Reporter is reporting platform software. It processes the formatted data from the Cisco Collection Manager database. Cisco Insight Reporter presents customizable reports, charts, and statistics about the traffic on the Cisco ASR 1000 Series. It is a web-based application accessed with a browser.

Deployment Scenarios

The Cisco Application Visibility and Control solution supports different deployment scenarios to match different business requirements. Following deployment scenarios can be there:

1. Cisco Collection Manager & Cisco Insight Reporter are on single machine with MySQL as database
2. Cisco Collection Manager & Cisco Insight Reporter are on different machines with MySQL as database

Cisco Collection Manager, Cisco Insight Reporter are on Single Machine with MySQL as Database

When you are installing Collection Manager, Insight Reporter & MySQL on single machine, please consider following points:

1. Make sure Collection Manager and MySQL use separate disk partitions.
2. The disk partitions should ideally be located on separate disks.
3. Deactivate any other unused process or resource on the workstation

Following are the software & hardware requirements for installing Collection Manager, Insight Reporter & MySQL on a single machine:

Hardware

Minimum 2 GHz CPU with multi-core 64-bit architecture

Minimum 8 GB RAM

Hard disk: at least 100 GB

Software

Refer to section [5.3](#) for Collection Manager specific software requirements.

Refer to section [3.2](#) for Insight Reporter specific software requirements.

Cisco Collection Manager & Cisco Insight Reporter are on Different Machines with MySQL as Database

This scenario will give better performance than the single machine scenario, as the corresponding applications can run on a dedicated hardware.

Refer to section [5.3](#) for Collection Manager specific hardware/software requirement.

Refer to section [3.2](#) for Insight Reporter specific hardware/software requirement.

Installation

Following are the installation steps required to install Cisco Application Visibility and Control solution:

1. Installation of Cisco Insight Reporter with MySQL Database
2. Installation of Cisco Collection Manager

**Note**

Installation steps given in section [1.2](#), is the recommended installation of Cisco Application Visibility and Control solution.



CHAPTER 2. **Configuring ASR1K Devices**

Router Configuration

This chapter provides the information required to configure IOS 15.1(3)S (XE 3.4.0S) & above versions on ASR1K devices.

The current AVC solution for ASR1K devices supports the following IOS versions:

IOS 15.1(3)S (XE 3.4.0S)

IOS 15.2(1)S (XE 3.5.0S)

IOS 15.2(2)S (XE 3.6.0S)

The IOS configuration to set on ASR1K devices is provided below (IOS XE 3.6.0S uses the same settings as IOS XE 3.5.0S).



Note

Legend:

Normal - XE 3.4.0S and above

*Italics+Bold** – XE 3.5.0S Configuration

Bold** – XE 3.5.0S Configuration for IPv6 configuration

```
flow record my-input-usage-monitor-record
    match application name account-on-resolution
    match flow direction
    match interface input
    match ipv4 version*
    collect interface output
    collect timestamp sys-uptime first
    collect timestamp sys-uptime last
    collect counter bytes long
    collect counter packets
```

```
collect connection new-connections
collect connection sum-duration
collect routing vrf input*
```

```
flow record my-output-usage-monitor-record
  match application name account-on-resolution
  match flow direction
  match interface output
  match ipv4 version*
  collect interface input
  collect timestamp sys-uptime first
  collect timestamp sys-uptime last
  collect counter bytes long
  collect counter packets
  collect connection new-connections
  collect connection sum-duration
  collect routing vrf input*
```

```
flow record my-total-input-usage-monitor-record
  match flow direction
  match interface input
  match ipv4 version*
  collect interface output
  collect application name
  collect timestamp sys-uptime first
  collect timestamp sys-uptime last
  collect counter bytes long
  collect counter packets
  collect connection new-connections
  collect connection sum-duration
  collect routing vrf input*
  collect ipv4 dscp
```

```
flow record my-total-output-usage-monitor-record
    match flow direction
    match interface output
    match ipv4 version*

    collect interface input
    collect application name
    collect timestamp sys-uptime first
    collect timestamp sys-uptime last
    collect counter bytes long
    collect counter packets
    collect connection new-connections
    collect connection sum-duration
    collect routing vrf input*
    collect ipv4 dscp

!
flow record my-tr-monitor-record
    match connection transaction-id
    collect  ipv4 version*
    collect interface input
    collect interface output
    collect flow direction
    collect ipv4 protocol
    collect ipv4 source address
    collect ipv4 destination address
    collect transport source-port
    collect transport destination-port
    collect  routing vrf input*
    collect application name
    collect connection initiator
    collect timestamp sys-uptime first
    collect timestamp sys-uptime last
    collect counter bytes long
    collect counter packets
```

```
collect flow sampler
collect flow end-reason
```

```
flow record my-ipv6-tr-monitor-record**
    match connection transaction-id**
    collect ipv6 version**
    collect interface input**
    collect interface output**
    collect flow direction**
    collect ipv6 protocol**
    collect ipv6 source address**
    collect ipv6 destination address**
    collect transport source-port**
    collect transport destination-port**
    collect routing vrf input**
    collect application name**
    collect connection initiator**
    collect timestamp sys-uptime first**
    collect timestamp sys-uptime last**
    collect counter bytes long**
    collect counter packets**
    collect flow sampler**
    collect flow end-reason**
```

```
flow exporter expl
    destination <CM_IP_address>[1] vrf mng
    transport udp 2055
    option interface-table timeout 300
    option vrf-table timeout 3600[2]
    option sampler-table timeout 300
    option application-table timeout 300
    option application-attributes timeout 300
!
!
```

**Note**

[1] `<CM_IP_address>` needs to be replaced with the IP address of the Cisco Collection Manager.

[2] Another common value for vrf-table timeout is 300 (seconds)

```
flow monitor my-input-usage-monitor
  exporter expl
  cache timeout inactive 300
  cache timeout active 300
  cache entries 10000*
  record my-input-usage-monitor-record
!
!
flow monitor my-output-usage-monitor
  exporter expl
  cache timeout inactive 300
  cache timeout active 300
  cache entries 10000*
  record my-output-usage-monitor-record
!
flow monitor my-total-input-usage-monitor
  record my-total-input-usage-monitor-record
  exporter expl
  cache type normal
  cache entries 100*
  cache timeout active 300
  cache timeout inactive 300

flow monitor my-total-output-usage-monitor
  record my-total-output-usage-monitor-record
  exporter expl
  cache type normal
  cache entries 100*
  cache timeout active 300
  cache timeout inactive 300
```

```

!
flow monitor my-tr-monitor
    record my-tr-monitor-record
    exporter expl
    cache timeout event transaction-end
    cache entries 20000
!
!
flow monitor my-ipv6-tr-monitor**
    record my-ipv6-tr-monitor-record **
    exporter expl**
    cache timeout event transaction-end**
    cache entries 3000**
!
!
sampler sampler
    mode random 1 out-of 1000*
    granularity Connection

Interface
ip flow monitor my-input-usage-monitor input
ip flow monitor my-output-usage-monitor output
ip flow monitor my-total-input-usage-monitor input
ip flow monitor my-total-output-usage-monitor output
ip flow monitor my-tr-monitor sampler sampler input
ip flow monitor my-tr-monitor sampler sampler output
ipv6 flow monitor my-ipv6-tr-monitor sampler sampler input**
ipv6 flow monitor my-ipv6-tr-monitor sampler sampler output**
ipv6 flow monitor my-input-usage-monitor input**
ipv6 flow monitor my-output-usage-monitor output**
ipv6 flow monitor my-total-input-usage-monitor input**
ipv6 flow monitor my-total-output-usage-monitor output**

```

**Note**

Sometimes it is required to adjust the number of maximum NBAR flows in case more than the default number of flows is expected.

The following command will present the maximum number of sessions which configured on the device:

```
XE3.6#sh ip nbar resources flow
NBAR flow statistics
      Maximum no of sessions allowed : 1000000
      Maximum memory usage allowed   : 734003 KBytes
      Active sessions                  : 0
      Active memory usage              : 52260 KBytes
      Peak session                     : 16661
      Peak memory usage                : 63981 Kbytes
```

The Following command will set the maximum number of session for the ASR1K device:

```
XE3.6#conf t
XE3.6(config)#ip nbar resources flow max-session <50000-3500000>
<50000-3500000> Number of Session
```




CHAPTER 3. Requirement for Cisco Insight Reporter Installation

The Cisco Insight Reporter v3.2 software requires installation on appropriate hardware, as well as an initial setup to make it operational and generate data traffic reports.

This chapter contains the following sections:

[Hardware](#)

[Software Requirements](#)

[Service Control Software Components Requirements](#)

[Deployment Scenarios](#)

Hardware Requirements

You can install the Cisco Insight Reporter v3.2 on any server with following minimum hardware specifications:

Table 3. Hardware Specifications

Components	Specifications
CPU	Single or dual-core 2.0 GHz or greater Intel x86/64 processor OR 32/64 bit single or dual-core 2.0 GHz or greater SPARC processor
RAM	4 GB or greater
Free disk space	10 GB for the operating system + free space for data retention. Recommended size is greater than 100 GB
Network interface	Single 100BASE-T Ethernet or greater

If you have any questions, you can contact Cisco Support to get an estimate of the required CPU power, RAM capacity, and disk storage.

**Note**

The performance of the Cisco Insight Reporter depends on the size of the SCE/ASR1K deployment and the number of users simultaneously running the reports. To get an optimal performance, the hardware may have to be scaled accordingly.

The above recommendations are only valid for hosts dedicated to running the Cisco Insight Reporter application. In case the same device is used to co-host Cisco Insight Reporter with other applications, the hardware has to be upgraded accordingly in terms of RAM, CPU and storage.

Software Requirements

You can install the Cisco Insight Reporter v3.2 on any server with following software specifications:

Operating System

Table 4. Supported Operating Systems

Operating System	Version	Architecture
Red Hat Enterprise Linux or CentOS	5.x	Intel 32/64 bit
Solaris	9 or 10	Intel 32/64 bit SPARC 32/64 bit

**Note**

The recommended operating system is Red Hat Enterprise Linux version 5.1, 64-bit. Please see the chapter on troubleshooting for platform specific installation considerations.

Java Runtime Environment (JRE)

Cisco Insight Reporter v3.2 requires JRE6. If it doesn't find JRE6 on the system, it will automatically install it.

Supported Browsers

The Cisco Insight Reporter v3.2 is compliant with the following browsers:

Firefox, v3.0 and later

IE, v6.0 and later

Google Chrome v5.0 and later



Note As a prerequisite, the Flash Player v 10.x or above should be installed on all client PCs that will be used to display reports.

Screen Resolution

The application GUI supports a variety of screen resolution modes including 1280 X 1024, 1024 X 768, and 1680 X 1050 with consistent support of 4:3 and 16:9 aspect ratios (wide screen). It is recommended that you use a minimum vertical resolution of 1024 pixels.



Note Resolution of 1024X768 is supported with vertical and horizontal scroll bars. For other resolutions, scrollbars may appear if the screen resolution is lower than the application workspace or if there are too many toolbars configured on the browser. To maximize the user experience, it is suggested to set the browser to full-screen mode (F11 function key).

Working with Firewall

Ensure that the TCP/IP ports you are using are not blocked by a firewall or port blocking service.

Configure firewall to allow traffic to the following:

- Port for running the local MySQL 5.1 database (default is 3306)

- Port for running the application (HTTP-default is 80 and HTTPS-default is 443)

- Port for connecting to TACACS+ server (default is 49)

- Connections to remote database servers storing Traffic Data being populated by Cisco Collection Manager(s)

- Connections to Subscriber Manager

- Connections to Email (SMTP) server

Ensure that the UDP ports you are using are not blocked by a firewall or port blocking service.

- Port for connecting to RADIUS server (UDP- default is 1812)

If using an existing MySQL instance, ensure that:

- MySQL server running,

- Network connections to the server are enabled

- The network port you specify in firewall configuration is the one configured on the server.

**Note**

Cisco Insight Reporter does not work in SELinux enabled environment.

To Check the status of SELinux use the following command:

```
Shell> /usr/sbin/getenforce
```

If the output of this command is not “Disabled”, edit “/etc/selinux/config” to disable SELinux and set

```
“SELINUX=disabled”
```

Supported Databases

The Cisco Insight Reporter v3.2 supports multi-vendor drivers for connecting to the Cisco Collection Manager databases to retrieve traffic data and SCE/ASR1K configurations.

The application is distributed with an embedded MySQL 5.1 server (required for its internal operations) but can also integrate an existing MySQL 5.1 instance, when installed on a pre-configured environment running Cisco Collection Manager software. In that case, the database engine must be MySQL 5.1 and it will host both the Insight Reporter’s proprietary schemas and the CM schema containing traffic data.

Cisco Insight Reporter can also be configured to work with external traffic databases populated by Cisco Collection Manager(s).

The supported vendors and versions for external traffic databases are:

Oracle v9.x or later

Sybase ASE v12.x or later

MySQL v5.x

**Note**

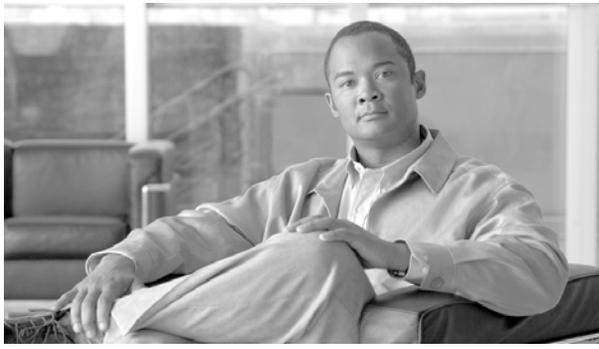
For licensing reasons, the default installation kit only provides the JDBC driver to connect to external MySQL 5.x traffic databases.

To configure the application to use Sybase or Oracle as traffic databases, please copy the JDBC connector JAR file, provided with the respective database engine, to the following directory of the application:

```
< [user home directory]/Insight/apache-tomcat-6.0.20/webapps/insight/WEB-INF/lib >
```

**Note**

If the Cisco Collection Manager database and Cisco Insight Reporter v3.2 are installed on the same machine, the database engine shall be MySQL 5.1.



CHAPTER 4. **Installing Cisco Insight Reporter**

The Cisco Insight Reporter v3.2 software requires installation on appropriate hardware selected. Installation steps required to install the software, are captured in this chapter

This chapter contains the following sections:

[Downloading the Installation Package](#)

[Installing Cisco Insight Reporter](#)

[Checking the Installation](#)

The Cisco Insight Reporter software is distributed as an archive file available at <http://www.cisco.com>.

The installation package for each platform contains:

Cisco Insight Reporter v3.2 software

Web server (Apache Tomcat)

MySQL v5.1 database.

Downloading the Installation Package

This section describes how to download and extract the package of Cisco Insight Reporter software.

To download and extract the installation package, perform the following steps:

Step 1 Connect to Cisco.com and download the software package.



Note There are a number of installers available for download; select the installer according to your OS.

OS Name	File Name
Red Hat Enterprise Linux 5 - 32 bit	InsightReporter-<version no.>_rhel5-x86-32bit.zip
Red Hat Enterprise Linux 5 – 64 bit	InsightReporter-<version no.>_rhel5-x86-64bit.zip
Solaris 10 - SPARC 32 bit	InsightReporter--<version no.>_solaris10-sparc-32bit.zip
Solaris 10 - SPARC 64 bit	InsightReporter--<version no.>_solaris10-sparc-64bit.zip
Solaris 10 - Intel x86 32 bit	InsightReporter-<version no.>_solaris10-x86-32bit.zip
Solaris 10 - Intel x86 64 bit	InsightReporter-<version no.>_solaris10-x86-64bit.zip
Solaris 9 - SPARC 32 bit	InsightReporter-<version no.>_solaris9-sparc-32bit.zip
Solaris 9 - SPARC 64 bit	InsightReporter-<version no.>_solaris9-sparc-64bit.zip
Solaris 9 - Intel x86 32 bit	InsightReporter-<version no.>_solaris9-x86-32bit.zip

Step 2 Copy the file on the file system of the destination server.

Step 3 Connect as root on the server and extract the downloaded .zip file with the following command:

```
Shell> unzip InsightReporter-[Version]-[TargetOS]-[TargetArchitecture].zip
```

For example:

```
InsightReporter-3.2.0-solaris10-x86-64bit.zip
InsightReporter-3.2.0-solaris9-sparc-32bit.zip
InsightReporter-3.2.0-rhel5-x86-64bit.zip
```

Installing Cisco Insight Reporter v3.2

During the installation process, the script checks if all the required software components are available and compliant with the installation of Cisco Insight Reporter v3.2.

Depending on the availability of an existing MySQL v5.1 database server or presence of a previous Insight Reporter installation, the script can handle any of the following scenarios:

Full Installation: The server is compliant with the hardware and software requirements, but it does not have all Cisco Insight Reporter software components- the MySQL database server, the Apache-Tomcat web server, and the Java Runtime Environment (JRE).

Integration with an Existing MySQL v5.1 Server: A MySQL 5.1 database server has been previously installed and is being populated by one or more Cisco SCMS Collection Managers that receive traffic data from SCE/ASR1K devices. The Apache Tomcat web server and the Java Runtime Environment must not be present on the host. The script will install the appropriate packages.

In the first scenario, a full installation is performed. The script installs all required packages and starts all the processes. If the script detects an existing installation of MySQL v5.1 server, the second scenario is automatically chosen.

In the second scenario, it prompts for the root access credentials to the database server and then creates the Insight Reporter v3.2 schema. Eventually, it installs the JRE (if not already present) and the Insight Reporter web application.

Full installation

The script checks the server requirements and installs Apache Tomcat web server, MySQL Database server, the JRE and the Cisco Insight Reporter v3.2 software.

To install the installation package, perform the following steps:

Step 1 Locate and run the installer package:

```
cd <directory where installer was extracted>
./install.sh
```

You see code similar to following on your screen:

```
Shell> cd /root/installer
Shell> ./install.sh
```



Note To install Insight Reporter, user should be root user only.

Step 2 The script asks you to install a new user for installation. It creates a folder with that OS username and copies all the files into this folder. A question similar to the following appears on your screen:

```
Enter the OS username that will be used to install/upgrade (root not allowed):
```

If you enter a **non-existing OS user**, Cisco Insight Reporter v3.2 fresh installation starts.

Step 3 The script asks you to install JRE6 only if it does not find JRE6 installed on the machine. A question similar to the following will appear on your screen:

```
Sun Java HotSpot(TM) JRE6 is required.
Do you want to install JRE6? [Y/N] (default Y):
```

If you press **N**, the installer script needs JRE6 to install the application and quits the installation procedure after giving a message.

If you press **Enter**, the installer script installs the JRE6. If it is not able to install JRE6 it exits the installation procedure.

Step 4 The script asks you to install the MySQL database server. A question similar to the following will appear on your screen:

```
Do you want to install MySQL server? [Y/N] (default Y):
```

If you press **N**, the installer script needs MySQL database server to install the application and quits the installation procedure after giving a message.

If you press **Enter**, it continues with Step 5.



Note

On Solaris, MySQL has to be separately installed and hence the installer skips the above step. To install MySQL on Solaris, follow the instructions mentioned in the section on **“Error! Reference source not found.”**

In case, system already has MySQL database server then the above question does not appear on your screen and you need to follow the instructions mentioned in Integration with an Existing MySQL v5.1 Server.



Note

For any issues in connecting to MySQL server, see section [Troubleshooting “MySQL start-up/connectivity problem”](#) in the chapter on troubleshooting.

Step 5 This script asks you to enter the MySQL data directory for the MySQL server. It installs MySQL & uses the given location as data directory. A question similar to the following appears on your screen:

```
Enter MySQL data directory applicable for your installation (example
/opt/mysql-data):
```

If you do not provide any value and press **Enter**, the installer script keep asking same question and does not proceeds further until a valid input is entered.

If you enter /opt/mysql-data and press **Enter**, the installer script installs MySQL and uses the given input as the data directory.



Note

If you already have MySQL libraries, please remove those before installing the embedded MySQL otherwise system will give “Library conflict is happening” error.

Step 6 The script starts the installation of JRE6 and MySQL database server on your system.

Similar to the following will appear on your screen:

```
Unpacking...
Checksumming...
Extracting...
UnZipSFX 5.50 of 17 February 2002, by Info-ZIP (Zip-
Bugs@lists.wku.edu).
  inflating: jre-6u22-linux-i586.rpm
Preparing...
#####
jre
#####
Unpacking JAR files...
  rt.jar...
  jsse.jar...
  charsets.jar...
  localedata.jar...
  plugin.jar...
  javaws.jar...
  deploy.jar...

Done.
Preparing...
MySQL-client-advanced
#####
Preparing...
#####
MySQL-server-advanced
#####

PLEASE REMEMBER TO SET A PASSWORD FOR THE MySQL root USER !
To do so, start the server, then issue the following commands:

/usr/bin/mysqladmin -u root password 'new-password'
/usr/bin/mysqladmin -u root -h cisco password 'new-password'

Alternatively you can run:
/usr/bin/mysql_secure_installation
```

this will also give you the option of removing the test databases and anonymous user created by default. This is strongly recommended for production servers.

See the manual for more instructions.

```
Starting MySQL.[ OK ]
Giving mysql 2 seconds to start
Starting MySQL OK
echo "In order to remove completely MySQL server, you need to execute
the uninstall.sh script located under user home directory."
creating user [test]
Default password is same as the username
Please change the password for user test by giving below command
passwd test
Proceeding to configuration
```

**Note**

Press **Enter** to proceed with default values.

Enter the Insight local database host name (default is local host)

Enter the Insight local database port (default is 3306)

**Note**

Press **Enter** to proceed with default values.

```
CONGRATS!! Installation finished
To re-configure the application please execute config.sh in the [user
home directory]/Insight/bin
To uninstall the application please execute uninstall.sh in the [user
home directory]/Insight/bin
To bundle the logs please execute backup.sh in the [user home
directory]/Insight/bin
```

**Note**

The default password of MySQL root user is set to 'password'. Ignore the password changing instructions printed out by the MySQL RPM installation. To change the default password of MySQL root user follow Step 7.

**Note**

Your installation is done. After successful completion of the installation, ensure to [checking the installation](#) before using it.

Integration with an Existing MySQL v5.1 Server

If the script detects an existing installation of MySQL v5.1 server, the second scenario is automatically chosen. The process asks to install Apache Tomcat and then creates the additional schemas required by the application on the existing database engine. Eventually, the installer script installs the JRE and the Cisco Insight Reporter v3.2 software.

As the MySQL database is already installed, the script needs to know the password of the root account.

To install the Cisco Insight Reporter v3.2 software, perform the following steps:

Step 1 Locate and run the installer package

```
cd <directory where installer was extracted>
./install.sh
```

Example:

```
Shell> cd /root/installer
Shell> ./install.sh
```



Note To install Insight Reporter, user should be root user only.

Step 2 The script asks you to install a new user for installation or upgrade existing user from Insight Reporter v3.1 to v3.2. It creates/updates the folder with that OS username and copies all the files into this folder. A question similar to the following appears on your screen:

```
Enter the OS username that will be used to install/upgrade (root not
allowed):
```

If you enter a **non-existent OS user**, Cisco Insight Reporter v3.2 fresh installation starts.

Step 3 The script asks you to install the JRE6 only if it does not find it on the host. A question similar to the following appears on your screen:

```
Sun Java HotSpot(TM) JRE6 is required.
Do you want to install JRE6? [Y/N] (default Y):
```

If you press **Enter**, the installer script installs the JRE6. If it is not able to install JRE6, it exits the installation procedure.

If you press **N**, as the installer script needs the JRE6 to install the application, it quits the installation procedure after prompting a message.

Step 4 The script asks you to create a new path for the MySQL server. A question similar to the following appears on your screen:

```
INPUT : An existing v5.1 MySQL installation was found on your system.
Do you want to use it to install Cisco Insight v3.2.0? [Y/N] (default
Y):
```

If you press **N**, the installer script quits the installation procedure after showing the following message.

MSG : MySQL is required to complete the installation of Cisco Insight Reporter. Please refer to the Installation guide for further details. Now exiting.

If you press **Enter**, a question similar to the following appears on your screen:

```
INPUT : Enter the root password for MySQL:
```

- If you do not provide any value and press Enter, the installer asks for a schema name. (after entering the schema name, again it will ask for the MySQL root password).
- If you provide a valid input and press Enter, the installer script proceeds to next step

Note: Characters are not being visible while typing the password.

A question similar to following appears on your screen:

```
INPUT : Enter schema name for insight local database(default is
insight):
```

'insight' would be considered as default schema name If you do not provide schema name.

If you provide a database schema name which already exists and press Enter, the installer again asks the schema name after displaying a below message.

MSG : schema [<schema name>] already exists.

If you provide a database schema name whose length is greater than 16 characters, the installer again asks the schema name after displaying a below message.

MSG: Database schema name length should be less than or equal to 16 characters.

If you provide a valid value and press Enter, the installer script creates the schema and installs the application only if you have entered a correct password.

The scripts again ask the Mysql root password by displaying the below message in case you have left it blank in an earlier step.

```
Enter password:
```

You may face any of the following scenarios:

- It would quit the installation by displaying relevant message if you entered a wrong Mysql root password.
- If you provide a valid password and press Enter, the installer script creates the schema and proceeds with the installation of the application.

While creating a schema and installing the application, the script displays the below information:

```
INFO : Cisco Insight schema created successfully
INFO : creating user [<username>]
Changing password for user <username>.
passwd: all authentication tokens updated successfully.
INFO : Default password is same as the username
INFO : Please change the password for user [<username>] by giving
command 'passwd <OS user name>'
INFO : Proceeding to configuration
```

Step 5 The script starts the installation process on your system.



Note

Your installation is done. After successful completion of the installation, ensure to [Checking the installation](#) before using it.

Checking the Installation

After installing the application on the server, the administrator should verify the connectivity to the application.

To check if the application is working fine, perform following steps:

Step 1 Start the application:

- i. To start tomcat, invoke following shell script:


```
/etc/init.d/tomcat-[user] start
or
service tomcat-[user] start
```



Note At the time of Starting Tomcat, if you will find the error “Access Denied”. Run following command to change the permission:

```
Chmod 777 <startup.sh>
```

For more information, see [Troubleshooting](#) section of this document.

Error! Reference source not found.



Figure 1: Login Page

Step 2 The account created after the initial set-up has the privileges of the Super Admin role. The administrator can login the application by entering the username and password as *cisco / cisco*.



CHAPTER 5. Requirement for Cisco Collection Manager Installation

Introduction

This chapter gives the information required for a basic installation of the Cisco Collection Manager. It also provides software & hardware requirement of Collection Manager. References are given throughout for additional and more complex configurations of the Cisco Collection Manager software and features.

[Checking System Prerequisites](#)
[System Requirements](#)

Checking System Prerequisites

The Cisco Collection Manager distribution contains a script, **check_prerequisites.sh**, located in the **install_scripts** directory. The script helps to determine if a system meets the requirements for installing a Cisco Collection Manager or the bundled Sybase database*. The script checks overall readiness of the system for a Cisco Collection Manager or Sybase installation*.

The main prerequisites checked are:

- CPU speed
- Amount of RAM
- Operating System version (Solaris 9 or 10, Red Hat Enterprise Linux 4 or 5)
- MySQL 5.X
- Additional required and optional packages
- Free space for Cisco Collection Manager
- Names for all network interface cards (NICs)
- Sybase kernel parameters*
- Locale and time zone formats

```
check_prerequisites.sh [ --sybhome=SYBHOME ]* [ --cmhome=CMHOME ] [ -  
-datadir=DATADIR ]
```

***If you are installing with bundled Sybase database.**

Table 5. check_prerequisites.sh Script options

--sybhome=SYBHOME*	Intended home directory for Sybase installation
--datadir=DATADIR*	Intended data directory for Sybase data files (for the Datadir installation method)
--cmhome=CMHOME	Intended home directory for Cisco Collection Manager installation

System Requirements

The Cisco Collection Manager and its database are software components that run on a server platform.

You can install the Cisco Collection Manager on any of the following platforms:

Sun SPARC machine (64 bit) running 64-bit versions of Solaris 9 or Solaris 10.

Intel machine (32 or 64 bit) running 32-bit versions of Red Hat Enterprise Linux 4.0 or Red Hat Enterprise Linux 5.0 or 64-bit versions of Red Hat Enterprise Linux 5.0.

Intel machine (32 or 64 bit) running 32-bit or 64-bit versions of CentOS 5.x

Intel machine (32 or 64 bit) running VMware Server or VMware ESX VMware-VMvisor-Installer-4.0.0-164009.x86_64.iso.

Cisco Unified Computing System (UCS) server model R210-2121605 with a Intel(R) Xeon(R) X5570 2.93-GHz CPU with eight Cores (minimum memory 4 GB).

All configurations use a 32-bit Java Virtual Machine (JVM).



Caution

For best performance, the Cisco Collection Manager should run on a dedicated server. This server can also host the database storing traffic data.

[Solaris Requirements](#)

[Red Hat Linux Requirements](#)

[CentOS Linux Requirements](#)

[Distribution Content](#)

[Default Configuration Settings](#)

***If you are installing with bundled Sybase database.**

Solaris Requirements

You can install Cisco Collection Manager Release 3.7.0 or later on any Sun SPARC Machine running Solaris that conforms to the requirements listed in the following sections:

Hardware

Software and Environment
Setting the Locale and Time Zone

Hardware

Minimum 500-MHz CPU

Minimum 1-GB RAM per CPU

Hard disk:

- One hard disk, at least 18 GB
- For bundled installations, a second hard disk of at least 30 GB is recommended to store Sybase data.*

100BASE-T network interface

Software and Environment

Solaris Version 5.9 64-bit build 04/01 or later (currently only Solaris Version 5.9 and 5.10 are supported)

- Solaris 9—Patch level 9 is recommended
- Solaris 10—Patch level 10 is recommended

Solaris Core Installation

Install the additional packages as shown in [Table 6](#).

Table 6. Additional Packages

System	SUNWbash	GNU Bourne-Again shell (bash)
System	SUNWgzip	The GNU Zip (gzip) compression utility
System	SUNWzip	The Info-Zip (zip) compression utility
System	SUNWlibC	Sun Workshop Compilers Bundled libC
System	SUNWlibCx	Sun WorkShop Bundled 64-bit libC

If you are installing the Cisco Collection Manager in bundled mode with the Sybase database, install the package shown in [Table 7](#).

Table 7. SUNWipc Package*

System	SUNWipc	Interprocess Communication
--------	---------	----------------------------

(Optional) You can install the packages listed in [Table 8](#) (for sysadmin applications such as sys-unconfig).

***If you are installing with bundled Sybase database.**

Table 8. Optional Packages

System	SUNWadmap	System administration applications
System	SUNWadmc	System administration core libraries

You can download these packages from: <http://sunfreeware.com/>
The root (/) partition must have at least 104 MB of free space to install these packages.

Apply the latest recommended patches from Sun:

- For Solaris 9, go to:
<http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/xos-9&nav=pub-patches>
- For Solaris 10, go to:
<http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/xos-10&nav=pub-patches>
- For Java, go to: <http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/J2SE>

If you are using Sybase, install the current Solaris patches recommended by Sybase.*

At least 8 GB free on the partition where you intend to install the Cisco Collection Manager. (This memory is used for CSV storage and persistent buffers.)

At least 3 GB free on one partition for the Sybase home directory (for installations with bundled Sybase).*

Free space on one partition to hold the desired size of the Sybase data and logs (for installations with bundled Sybase). You can configure memory size during installation.*

An FTP server must listen on port 21 so that the SCA Reporter can authenticate it (for installations with bundled Sybase that use the legacy (pre-3.0) Cisco Service Control Application Suite (SCAS) Reporter).*

Before installation, verify that all IP addresses that are configured for the machine NICs have hostnames associated with them in `/etc/hosts` or in another active naming service (for installations with bundled Sybase). (This action is required due to a limitation of Sybase Adaptive Server Enterprise).*

Use the `set_shmmax.sh` script (located under `install-scripts/`) to configure the kernel memory (for installations with bundled Sybase).*

Additionally, at startup you must load the IPC module by inserting the following lines in the file `/etc/system`:

```
forceload: sys/shmsys
```

If you are using database periodic delete, enable the `scmscm` user to schedule and run cron jobs.

***If you are installing with bundled Sybase database.**

Setting the Locale and Time Zone

For correct Cisco Collection Manager operation, use the locale U.S. English. To set the locale, put the following line in the `/etc/TIMEZONE` configuration file (to enable a change to this configuration to take effect, you must restart the Cisco Collection Manager):

```
LANG=en_US
```

To use the U.S. English locale, the Cisco Collection Manager must be running on the Solaris operating system. Verify that the locale is installed by ensuring that the directory `/usr/lib/locale/en_US` exists. If the directory does not exist, install the locale files from the Solaris CDs.

Setting the OS time zone as an offset from GMT in POSIX format is not recommended, and can lead to problems. Set the time zone in the `/etc/TIMEZONE` configuration file by country (supported) name, as in the following example.

```
TZ=Japan
```

Verify that the country name is supported as a time zone setting by ensuring that it is listed in the directory `/usr/share/lib/zoneinfo`.

If you must use GMT offset, use the zoneinfo format by prepending the prefix `:etc/`, as in the following example:

```
TZ=:Etc/GMT+5
```

Red Hat Linux Requirements

You can install Cisco Collection Manager Version 3.1.0 or later on any i386 running Red Hat Linux that conforms to the requirements listed in the following sections:

[Hardware](#)

[Software and Environment](#)

[Setting the Locale and Time Zone](#)

Hardware

Minimum 800-MHz CPU

Minimum 1-GB RAM per CPU

Hard Disk

- One hard disk, at least 18 GB
- For bundled installations, a second hard disk of at least 30 GB is recommended to store Sybase data.*

100BASE-T network interface

Software & Environment

Red Hat Linux 4.0:

- kernel-2.6.9-5
- glibc-2.3.4-2
- compat-libstdc++-33-3.2.3-47.3
- Minimum patch level required—Update 7

Red Hat Linux 5.0:

- kernel-2.6.18-8.el5
- glibc-2.5-12
- compat-libstdc++-33-3.2-61
- Minimum patch level required—Update 5.3

Red Hat Enterprise “Base” Installation

Apply the latest recommended patches from Red Hat.

Reserve at least 8 GB on the partition where you want to install the Cisco Collection Manager. The Cisco Collection Manager uses this disk space for CSV storage and persistent buffers.

If you are using database periodic delete, enable the **scmscm** user to schedule and run cron jobs.

For installations with bundled Sybase:*

- Also install the compat-libstdc++ package. This package is available on the Red Hat installation CD.
- Install the current patches recommended by Sybase.
- Reserve at least 1 GB on some partition for the Sybase home directory.
- If you intend to use the legacy Cisco Service Control Application Suite (SCAS) Reporter (before Version 3.0), an FTP server listens on port 21 so that the SCA Reporter can authenticate it.
- Before you start the installation, verify that all the IP addresses that are configured for the machine NICs have hostnames associated with them in /etc/hosts or in another active naming service. (This action is required due to a limitation of Sybase Adaptive Server Enterprise.)
- Use the set_shmmax.sh script (located under install-scripts/) to configure the kernel memory.

Setting the Locale and Time Zone

For correct Cisco Collection Manager, use the locale U.S. English (en_US).

CentOS Linux Requirements

You can install the Cisco Collection Manager Version 3.6.5 or later on an i386 that runs CentOS Linux. It must conform to the following requirements:

***If you are installing with bundled Sybase database.**

Hardware

Minimum 800-MHz CPU

Minimum 1-GB RAM per CPU

Hard disk:

- One hard disk, at least 18 GB
- For bundled installations, a second hard disk of at least 30 GB is recommended to store Sybase data.*

100BASE-T network interface

Software & Environment

CentOS Linux 5.x:

- kernel-2.6.18-8.el5
- glibc-2.5-12
- compat-libstdc++-33-3.2.3-61

Distribution Content

The Cisco Collection Manager Installation kit contains scripts for installing the Cisco Collection Manager. It also contains:

- Scripts to support file gathering
- Scripts for periodic Sybase maintenance

Default Configuration Settings

Configure settings for the Cisco Collection Manager during installation. These settings include the adapters to enable and their locations, Priority Queue parameters, the target adapters, and various logging policies. Permit only qualified personnel to change these settings.

***If you are installing with bundled Sybase database.**



CHAPTER 6. Installing Cisco Collection Manager

Introduction

The Cisco Collection Manager v3.7.5 software requires installation on appropriate hardware selected. Installation steps required to install the software and connect to a MySQL database are captured in this chapter. It also gives the procedures for uninstalling the Cisco Collection Manager software and upgrading the Cisco Collection Manager software version.

This chapter contains the following sections:

- [Downloading the Installation Package](#)
- [Installing Cisco Collection Manager](#)
- [Starting the Cisco Collection Manager](#)
- [Setting the Time Zone](#)
- [Router Configuration](#)

Downloading the Installation Package

Step 1 Log in to Cisco CCO <http://www.cisco.com/cgi-bin/tablebuild.pl/sccm>.
Enter your Cisco CCO password when prompted.

Step 2 Download the unbundled installation package for Linux/Solaris:
i.e.: *scms-cm-v37X-bXYZ-unbundled-solaris-linux.tar*



Note

This guide only covers the installation of the Cisco Collection Manager to work with the Insight Reporter's bundled MySQL server (or with an external MySQL server), as this is the recommended scenario for the AVC solution.

The installation of the Cisco Collection Manager with the bundled Sybase database is also a supported scenario, but it is not described in this document.

Step 3 Extract the complete package into a temporary directory.

For example:

```
# mkdir /usr/tmp/cm_install_temp
# cd /usr/tmp/cm_install_temp
# tar xvf ../cm_full_package.tar
```

Creating the default MySQL schema and user for CM access

Before installing the Cisco Collection Manager application, it is required to create a dedicated MySQL user as well as the target database schema that will host the traffic tables for ASR1K data.



Note

The CM application is configured to connect to the database using a default user *pqb_admin* (same password).

The default database schema name for ASR1K traffic is *avocado*.

Both DB user and schema shall exist before invoking the CM installation script.

The DB user shall also have full privileges on the DB schema.

Proceed with the following steps to create the MySQL user and DB schema:

Step 1 Connect to MySQL command line interface:

```
mysql -u root -ppassword
```

Step 2 Create the *avocado* database schema:

```
mysql> create database avocado;
```

Step 3 Enter the following statements to create the *pqb_admin* user and assign it full privileges on the *avocado* schema:

```
mysql> grant all privileges on avocado.* to
      'pqb_admin'@'localhost' identified by 'pqb_admin' with
      grant option;
```

```
mysql> grant all privileges on avocado.* to 'pqb_admin'@'%'
      identified by 'pqb_admin' with grant option;
```

```
mysql> flush privileges;
```

```
mysql> exit;
```



Note

This procedure grants full privileges on the *avocado* schema to the *pqb_admin* user.

After downloading the Cisco Collection Manager, [Check the System Prerequisites](#).

Installing Cisco Collection Manager

This section describes how to install the Cisco Collection Manager.

Install-cm.sh Script

To install the Cisco Collection Manager server, use the **install-cm.sh** script.

install-cm.sh Options

The usage message for the install-cm.sh script is:

```
Usage: install-cm.sh [-h] (-d CMDIR | -o)
```

```
Options: -d CMDIRselect directory for ~scmscm
          (must not exist and must be on 8 GB free partition)
          -o upgrade the existing installation
             while preserving the current configuration
             (can't be used with -d)
          -h print this help and exit
```

Description of the options:

-d CMDIR

Used to designate the directory of the newly created scmscm user's home. Should be the name of a non-existing directory, whose parent resides on a partition where at least 8 GB is free. As an alternate to this option, you can specify -o :

-o

Use this option when you wish to upgrade the existing installation while preserving the current configuration. can't be used with -d)

Actions Performed by install-cm.sh

The **install-cm.sh** script performs the following actions:

If needed, creates an scmscm user and an scmscm group

Optionally, creates the home for this user

Populates the home of scmscm with Cisco Collection Manager files and scripts

Installs the extra component private JRE in **~scmscm/cm/lib**

Creates boot script symbolic links for the sybase and scmscm users in **/etc/init.d** and **/etc/rcX.d**

Step 1 Change directory to install-scripts under the distribution kit root.

Step 2 Run the `install-cm.sh` script.

After running the script, a user-driven configuration manager presents the user with options for the basic configuration of the Cisco Collection Manager.

Step 3 Choose one of the options provided by the configuration manager:

```
Please select one of the following options:
1 - Install CM:RDR
2 - Install CM:Netflow
3 - Install CM:RDR-and-CM:Netflow
4 - Exit
```

Option 1 is chosen when the Cisco Collection Manager will operate with the Cisco SCE Service Control Engine.

Option 2 is chosen when the Cisco Collection Manager will operate with the Cisco ASR 1000 Series router.

Option 3 is chosen when the Cisco Collection Manager will operate with both the Cisco SCE Service Control Engine and the Cisco ASR Series Aggregation Services Routers.

Step 4 Choose option 2, the NetFlow installation, when working with the Cisco ASR 1000 Series router:

a. Choose to set up the database.

```
Would you like to configure the database?: yes
```

b. Select the number corresponding to the relational database management system of the connecting database.

You will see the following text:

```
Configuring CM:Netflow Database...
Enter the DB type:
1 - Oracle
2 - MySQL
3 - Sybase
Enter your choice:
```

Select 2 for MySQL and press ENTER. After pressing the Enter key, Login as root user in **MySql** server:

c. Enter the following server information or press enter to leave at the default shown.

```
Enter MySQL server host (current is localhost) :
Enter MySQL server listening port (current is 3306) :
Enter MySQL server instance id (current is avocado) :
```

```
Enter CM schema user name (current is pqb_admin) :  
Enter CM schema user password (current is pqb_admin) :  
Do you want to test the DB connection? (yes/no): yes
```

It will check for DB connection. If successful, you will see the following text:

```
PASS:db is up  
DB connection succeeded.
```



Note

This document only covers the scenario with MySQL database. To install the Cisco Collection Manager with the bundled Sybase database, refer to the *Cisco Collection Manager User Guide*.



Note

After the user configures the requested database options, the nf-dbinfo.vm file get updated for the NetFlow database configuration details.



Note

In case of XE 3.4, execute the following script before starting the Cisco Collection Manager:
`~scmscm/cm/bin/updateNetflowMap.sh--nf=NF IP address`
`--file=~scmscm/cm/config/AttributesTable.csv` This loads the default INI values for NetFlow in the database.

Step 5 (Optional) Set a password for the user.
Run the following command to set the password for the user:
passwd scmscm



Note

Be sure to record the password that you choose.

Step 6 (Optional) Install and activate the periodic delete procedures for the database tables .



Note

If reports are sent to the database and you do not install and activate the periodic delete procedures, the second disk can overflow.

a. Install the periodic delete procedures.

Log on as the **scmscm** user, start the Cisco Collection Manager, wait 1 - 2 minutes for the creation of the database tables, and then run the script:

```
~scmscm/db_maint/create_periodic_del_procs.sh --nf
```

b. Activate the automatic invocation of the periodic delete procedures.

Run the following command:

```
~scmscm/scripts/dbperiodic.sh --nf --load
```

c. Start the Cisco Collection Manager by running the `~scmscm/cm/bin/cm start` command.

The script performs the following actions:

- Starts all the adapters enabled in the Cisco Collection Manager.

- Updates the **CONF_TZ_OFFSET_NF** table with the timezone offset.

Starting the Cisco Collection Manager

To start the Cisco Collection Manager:

Step 1 As the `scmscm` user, run the `cm start` command.

```
$ ~scmscm/cm/bin/cm start
```

Step 2 Wait for 1 to 2 minutes to ensure that all the database tables have been created. You can check that all the data tables were created by running the following command:

```
$ ~scmscm/scripts/dbtables.sh --nf  
..
```

Setting the Time Zone

It is necessary to set the time zone for the Cisco Collection Manager to the same the time zone as the Cisco ASR 1000 Series router.

To set the time zone:

Step 1 Use the `jselect-sce-tz.sh` script to set the Cisco Collection Manager time zone. For example, if the Cisco ASR 1000 Series router is located in GMT+2, run the following command as the `scmscm` user:

```
$ ~scmscm/cm/bin/jselect-sce-tz.sh --nf --offset=120
```

Router Configuration

To generate reports from the Cisco Collection Manager database, it is necessary to configure the Cisco ASR 1000 Series router to send NetFlow data records to the Cisco Collection Manager. For configuring a router, refer section [2.1 Router Configuration](#).



CHAPTER 7. **Configuring Cisco Collection Manager**

Use the following scripts to configure the Cisco Collection Manager:

```
~scmscm/setup/on-boot.sh  
~scmscm/scripts/nf-adapterconf.sh  
~scmscm/scripts/dbconf.sh
```

Use the following files to configure the Cisco Collection Manager:

nf.conf—**General** configuration of the Cisco Collection Manager, including the adapters to turn on when the Cisco Collection Manager starts.

nf-queue.conf—Configuration of the adapter queues, including the tags that are associated with a specific adapter.

[Activating Servers](#)

[Controlling Adapters](#)

[Enabling Adapters](#)

[Managing NF_INI_VALUES table for NetFlow](#)

Activating Servers

To specify the servers (Collection Manager or Sybase) that are activated at startup, use the **on-boot.sh** script:

```
~scmscm/setup/on-boot.sh --cm=flag --sybase=flag
```

Changes take effect the next time the system restarts.



Note

To view the current startup status of each component, run the script with no parameters

To restart the Cisco Collection Manager, run the following script as the scmscm user:

```
~scmscm/cm/bin/cm restart_nf
```

Table 6 *On -boot.sh Options*

<code>--cm={ on off }</code>	Activate or do not activate the Cisco Collection Manager at startup.
<code>--sybase={ on off }*</code>	Activate or do not activate the Sybase server at startup.

The following example shows how to set the Cisco Collection Manager and Sybase servers to run at startup.*

(This setting is the default setting of the script.)

```
>~scmscm/setup/on-boot.sh --cm=on --sybase=on
```

Controlling Adapters

To shut down or activate a configured adapter, use the `adapterconf.sh` script. You can use the `adapterconf.sh` script to list the Cisco Collection Manager adapters that are currently running:

```
~scmscm/scripts/nf-adapterconf.sh --op=action [ -- adapter=adapter name ]
```

Table 7 *adapterconf.sh Options*

<code>--op=start</code>	Activate the adapter specified by the adapter parameter.
<code>--op=stop</code>	Shut down the adapter specified by the adapter parameter
<code>--op=list</code>	List the Cisco Collection Manager adapters that are currently running.
<code>adapter=adapter name</code>	Identify the adapter you want to control. Use only with the start and stop options.
<code>--help</code>	Display these options.

To shut down an adapter, as the `scmscm` user, run the following script:

```
~scmscm/scripts/nf-adapterconf.sh --op=stop --adapter=adapter name
```

To activate an adapter, as the `scmscm` user, run the following script:

```
~scmscm/scripts/nf-adapterconf.sh --op=start --adapter=adapter name
```

***If you are installing with bundled Sybase database.**

Enabling Adapters

To configure an adapter to turn on when the Cisco Collection Manager starts, remove the remark character at the start of the appropriate line in the `cm/config/cm.conf` file.

The following example shows how to configure the CSV adapter to remain off when the Cisco Collection Manager starts.

```
#adapter.2 = com.cisco.scmscm.netflow.adapters.CSVAdapter
```



Note

The value of the `adapter.<number>` must match the `adapter_id` parameter value configured in the `queue.conf` file for the corresponding adapter.

Managing NF_INI_VALUES table for Netflow

The Cisco Collection Manager automatically updates the `NF_INI_VALUES` for a specific Cisco ASR 1000 Series Router with the option template values received from that Cisco ASR 1000 Series Router. A script is included in the Cisco Collection Manager distribution that enables you to manage `NF_INI_VALUES` for a specific Cisco ASR 1000 Series Router.

To show or update `NF_INI_VALUES` manually with the default values for Cisco ASR 1000 Series Routers running Cisco IOS 15.1(3)S (XE 3.4.0S), run the following command:

```
~scmscm/cm/bin/updateNetFlowMap.sh
```



Note

Before a device can be added to the network topology in Insight Reporter, the below command is required to correctly populate `NF_INI_VALUES` table with the appropriate set of attributes. This only applies to Cisco ASR 1000 Series Routers running Cisco IOS 15.1(3)S (XE 3.4.0S).

To update the `NF_INI_VALUES` details manually, as the `scmscm` user, run the following command:

```
~scmscm/cm/bin/updateNetFlowMap.sh --nf=<ASR1K IP> --  
file=~scmscm/cm/config/AttributesTable.csv
```

The CSV file format is:

```
ApplicationTag,Category,Sub-Category,Application-Group,p2p      technology,      Tunnel,  
Encrypted.
```

The script performs following validation steps on the file:

- The file exists.
- There are no duplicate values for Application ID.
- Validate if the Application ID is empty.

After the file is successfully validated, the script performs the following actions:

Step 1 The input CSVfile must contain seven data fields
(APPLICATIONTAG,CATEGORY,SUB-CATEGORY,APPLICATION-GROUP,P2P-TECHNOLOGY,TUNNEL,ENCRYPTED)

Step 2 All entries in the table that match the NF_IP_Address and the APPLICATION_ID are deleted from the table.

Step 3 The script will add Timestamp and NetFlow IP for each record in the database.

Step 4 The script parses the CSV file and each line in the CSV file will be converted as six record entries in the NF_INI_VALUES table.



CHAPTER 8. **Configuring Cisco Insight Reporter**

This chapter describes the procedure to reconfigure the Cisco Insight Reporter v3.2 software and to generate the first report.

This chapter contains the following sections:

[Setting the Global Settings](#)

[Configure Traffic Databases and Devices](#)

[Configure Network Topology](#)

[Configure Accounts](#)

[Running the First Report](#)

Setting the Global Settings

These settings are configured, by default at the time of system Installation. To change the configuration of the global settings, perform the following steps:

Step 1 Click the **Settings Management**  icon from the **Module Launcher**. On click following screen will appear:

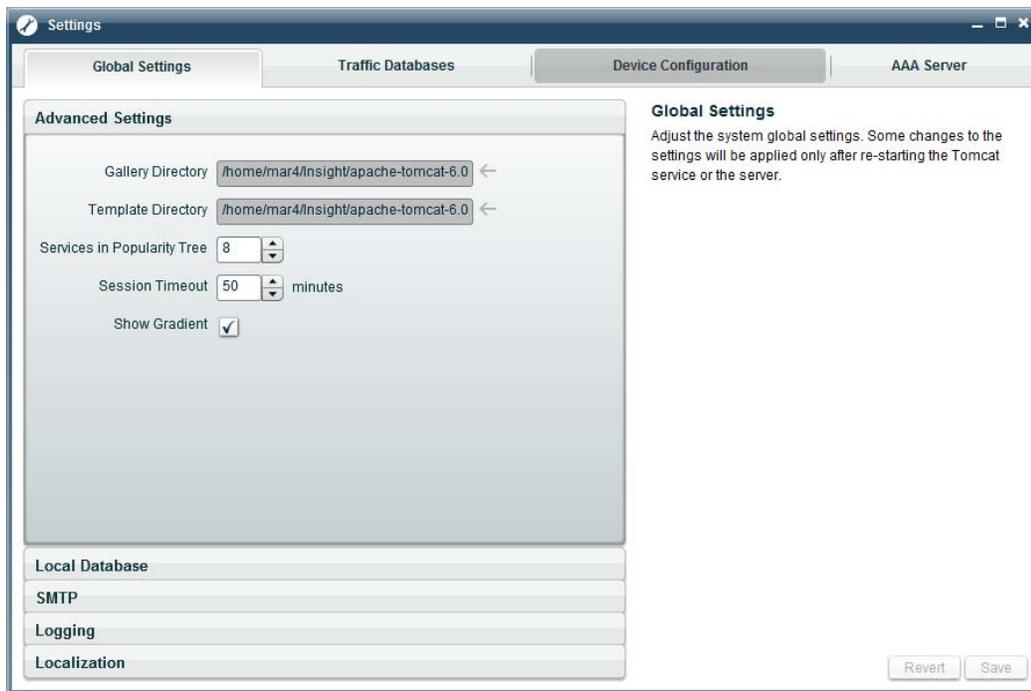


Figure 2: Settings Management

Step 2 Select the **Global Settings** tab.

Step 3 Define **General Settings**.

These should be by default configured with values given during the installation. You can modify these to change the configuration.

Step 4 Define the **Local Database** settings.

These should be by default configured with values given during the installation (by running the *config.sh* script). You can modify these to change the configuration.

Step 5 Define **SMTP** server settings.

These are not set by default and are used by the application for sending E-Mail.

Step 6 Define Logging and monitoring Settings.

These are set by default and can be modified to specify the settings for logging and log expiration.

Step 7 Define **Localization** settings.

These are set by default and can be modified to specify the application.

Configuring Traffic Databases and Devices

The **Remote Database Configuration** tab enables you to configure a connection to a Traffic database. You can check the database connectivity, retrieve device information from the NF_INI_VALUES tables, and set the frequency of the polling process.

To set up the traffic database connectivity parameters and Device configurations, perform the following steps:

- Step 1** Click the **Settings Management**  icon from the **Module Launcher**. You see a similar page to that in [Figure 2](#).
- Step 2** Go to the **Traffic Database** tab.
- Step 3** Create a new remote database by clicking the **New** button
- Step 4** On clicking, following pop-up will appear:

New Traffic Database

Name: ←

DB Hostname/IP: ←

Device Type: SCE ▼ ←

CM schema version: 3.7.5 ▼ ←

DB Schema: apricot ←

DB Username: ←

DB Password: ←

Description:

Type: MySQL ▼ ←

Port: 3306 ←

Synchronize database daily

Synchronize at: :

Figure 3: New Traffic Database Configuration

Step 5 Enter new traffic database configurations.

Step 6 Click **Save** button to save the configurations.



Note

For more information on how to configure new traffic database, please refer Cisco Insight Reporter v3.2 User Guide.

Step 7 Go to **Device Configuration** tab.

Configure Devices

This tab shows the list of ASR1K devices on the CM database. A new device can be manually added or you can run Auto Discovery (Discover Devices) to force the system to fetch all the devices available on the selected CM database. ASR1K device discovery will also search for the interfaces defined in the traffic database as well as the Virtual Private Network (VPN) routing/forwarding (VRF) instance information.

Synchronize Interfaces - Allows you to synchronize the interfaces of the selected traffic database. This is an asynchronous call where user will be prompted with the time at which interfaces were last synchronized. During the synchronization, the configuration table(NF_INI_VALUES) is searched for the interfaces and usage table(RPT_USAGE_NF) are scanned to check if the traffic information is available.

Host Name	IP Address	Model	Agg. Int...	Managed
10.10.10.111	10.10.10.111	Generic ASR1K	635	✓
10.10.10.112	10.10.10.112	Generic ASR1K	0	✓

Figure 4: Device Configuration

Step 8 Select the traffic database created in step 2 to 4 and click on either **Discover Devices** button or click on **New** to create a new device.



Note

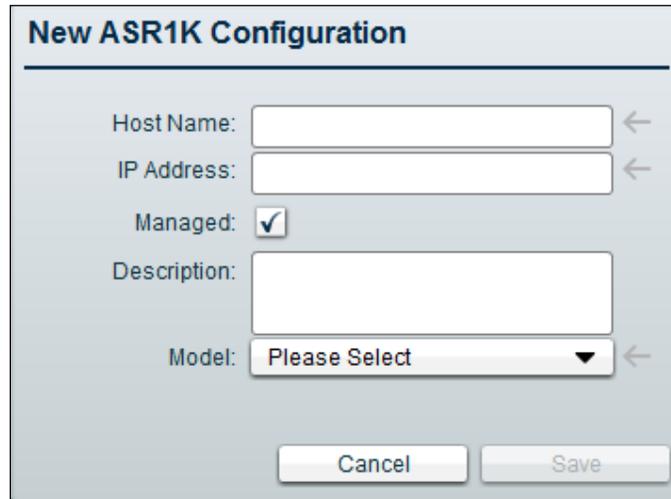
The default name for the Cisco Collection Manager database schema is avocado(for ASR1K deployments)



Note

On “Discover Devices”, all the devices present in the NF_INI_VALUES table of the selected traffic database would be fetched and stored locally in Cisco Insight Reporter. These devices can then be edited (to complete the information that was not populated by the Auto Discovery Process)

Step 9 On clicking the **New**, following pop-up will appear:



The image shows a dialog box titled "New ASR1K Configuration". It contains the following fields and controls:

- Host Name: ←
- IP Address: ←
- Managed:
- Description:
- Model: ▼ ←

At the bottom of the dialog box, there are two buttons: "Cancel" and "Save".

Figure 5: New ASR1K Configuration

Step 10 Enter new ASR configuration. Click **Save** button to save the configuration.

Configuring Network Topology

To configure the network topology on the Cisco Insight Reporter v3.2, perform the following steps:

Step 1 Click the **Network Wizard**  icon from the **Module Launcher**. On clicking, following page will appear:

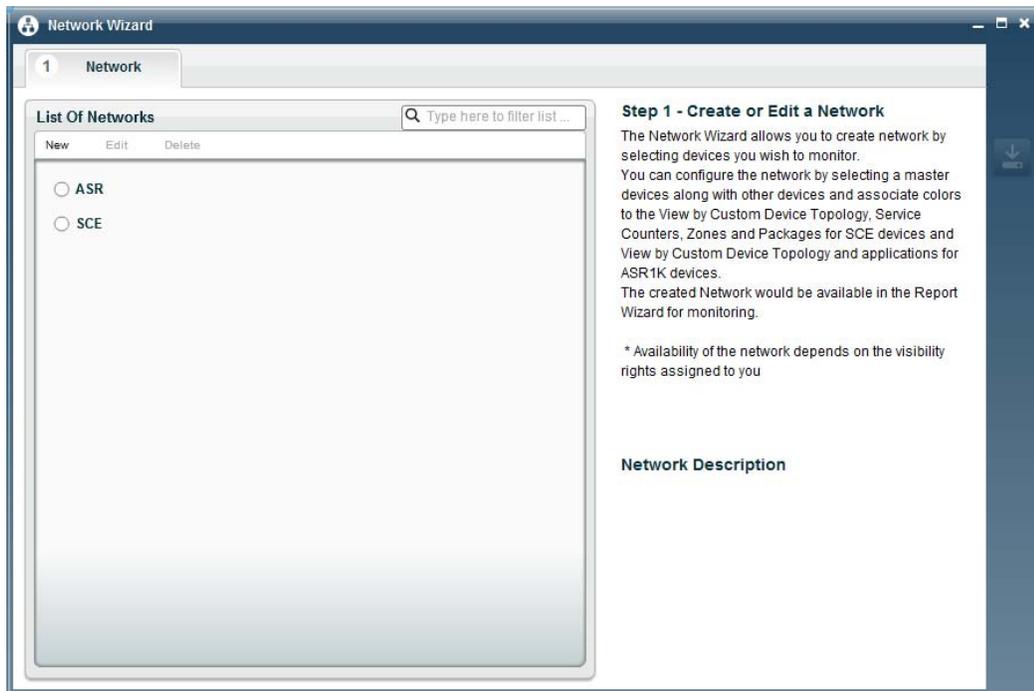


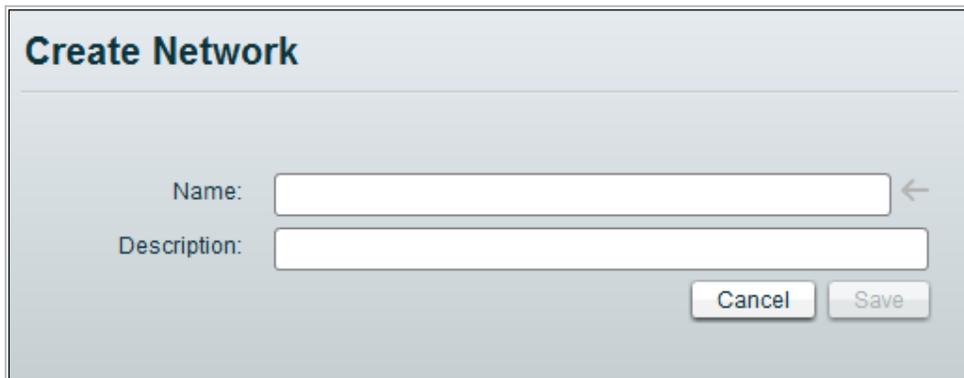
Figure 6: Network Wizard



Note

On selecting any network from the **Network List**, you will be able to view **Device** tab. On clicking the **Device** tab, other tab will also appear on **Network Wizard** page.

Step 2 Click on the **New** button, to create a new network. On clicking, following pop-up will appear:

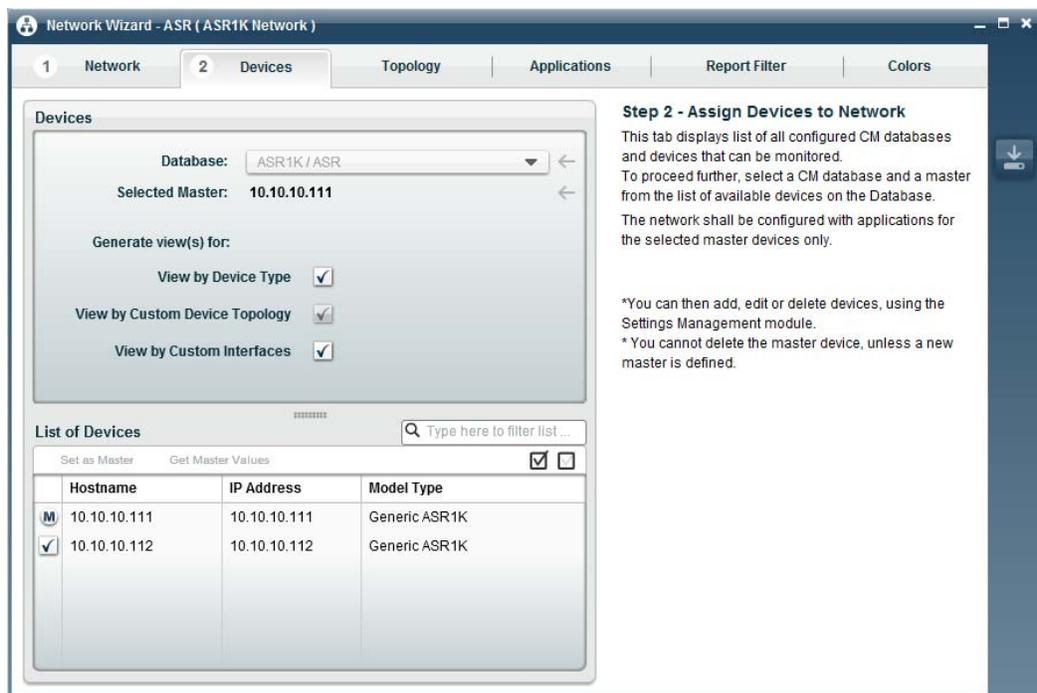


The image shows a 'Create Network' dialog box with a title bar. It contains two text input fields: 'Name:' and 'Description:'. To the right of the 'Name:' field is a left-pointing arrow. Below the input fields are two buttons: 'Cancel' and 'Save'.

Figure 7: Create Network

Step 3 Enter the network name and description and click **Save** button.

Step 4 Click the **Devices** tab.



The image shows the 'Network Wizard - ASR (ASR1K Network)' window with the 'Devices' tab selected. The window has a tabbed interface with 'Network', 'Devices', 'Topology', 'Applications', 'Report Filter', and 'Colors'. The 'Devices' tab contains the following elements:

- Database:** A dropdown menu showing 'ASR1K/ASR'.
- Selected Master:** A text field showing '10.10.10.111'.
- Generate view(s) for:** Three checkboxes: 'View by Device Type' (checked), 'View by Custom Device Topology' (checked), and 'View by Custom Interfaces' (checked).
- List of Devices:** A table with columns 'Hostname', 'IP Address', and 'Model Type'. It contains two rows:

	Hostname	IP Address	Model Type
<input checked="" type="checkbox"/>	10.10.10.111	10.10.10.111	Generic ASR1K
<input type="checkbox"/>	10.10.10.112	10.10.10.112	Generic ASR1K

On the right side of the 'Devices' tab, there is a section titled 'Step 2 - Assign Devices to Network' with explanatory text and two asterisked notes.

Figure 8: Devices tab

Step 5 Select a traffic database on the **Devices** tab.

Step 6 Select devices that will be part of the same network and define the Master device by clicking the **Set as Master** button.

**Note**

On Cisco Insight Reporter, a network is a group of DPI devices of the same type (ASR1K) sharing the same configuration.

This means all devices belonging to the same network shall have the same configured services/applications, packages, protocols, counters, etc.

**Note**

When a device is “Set As Master”, the device configuration table (NF_INI_VALUES) on the traffic database is queried for the configuration information. All the other devices in this network shall have the same configuration as the Master device.

Step 7 Go to the **Topology** tab and define the custom topology. This is an optional step which lets you arrange the devices under custom grouping.

Step 8 Go to the **Applications** tab to view applications grouped under different categories and sub categories.

Step 9 Go to the **Report Filter** tab and select the type of traffic records generated by the devices that you have selected for this network.

**Note**

The reports that you can run from Report Wizard depends on the filters selected here. So ensure that you choose only those filters for which the Cisco Collection Manager populates the traffic tables.

Step 10 Go to the **Colors** tab and to associate custom colors to Custom Topology, Applications for ASR.

Step 11 Click on the **Save** button to save the network.

Configuring Accounts

By default, one account (super user) is configured. To create a new user account, perform the following steps:

- Step 1** Log in into the application using the system defined **Super User** account.
- Step 2** Open the **Account Management** module from the module launcher. On clicking, following page will appear:

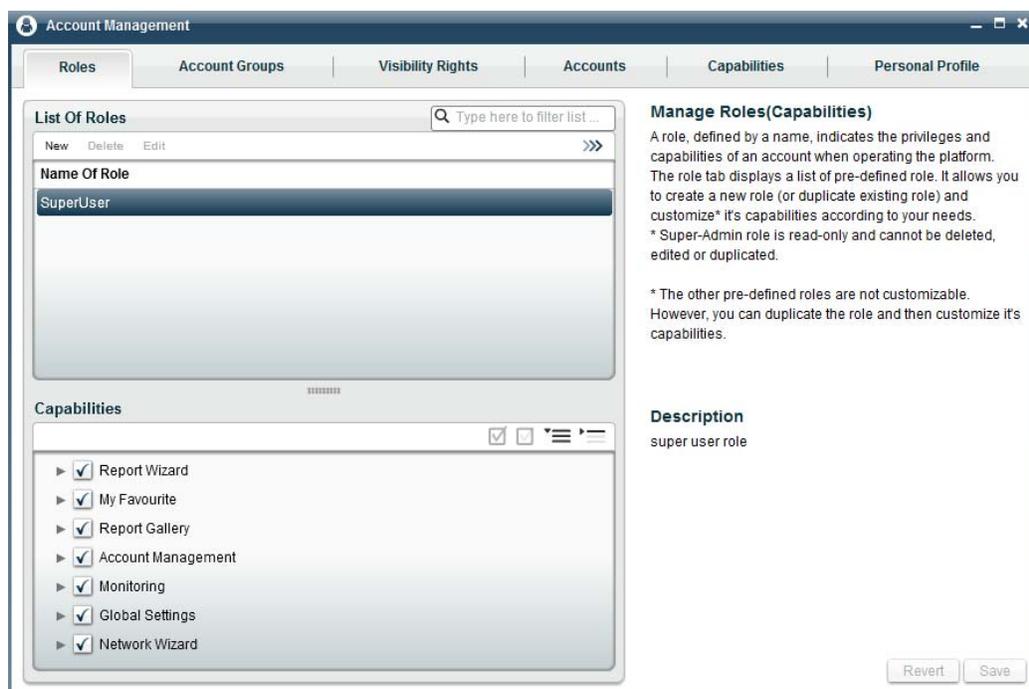
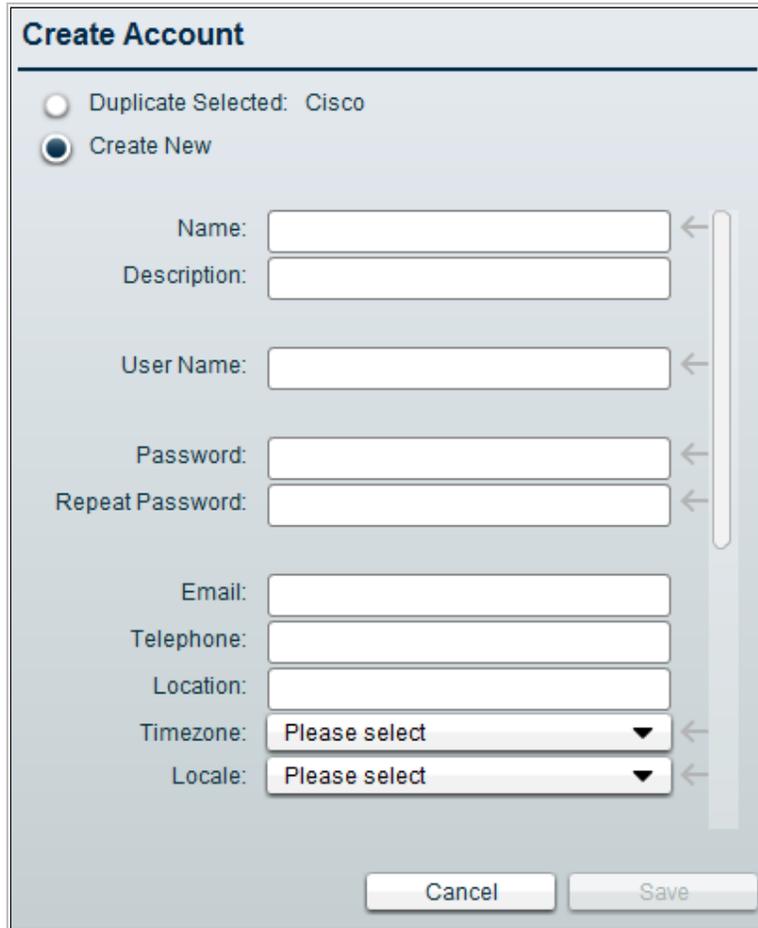


Figure 9: Account Management page

Step 3 Go to the **Accounts** tab, click the **New** button. On clicking, following pop-up will appear:



Create Account

Duplicate Selected: Cisco

Create New

Name:

Description:

User Name:

Password:

Repeat Password:

Email:

Telephone:

Location:

Timezone:

Locale:

Figure 8: Create Account tab

Step 4 Enter all the details about the user. Assign appropriate role, account group, visibility rights, and the report groups.

Step 5 Click the **Save** button.

Step 6 To authenticate the creation of the newly created account, do log out from the application and login back in to the application using the new user's credentials.

Running the First Report

To run the first report, perform the following steps:

-
- Step 1** Open the **Report Wizard**.
 - Step 2** Select the network from the **Network** tab.
 - Step 3** Select the appropriate topic from the **Topic** tab.
 - Step 4** Configure a time interval on the **Date & Time** tab.
 - Step 5** Select the appropriate devices from the **Topology** tab.
 - Step 6** Select the applications from the **Applications** tab, in case of ASR1K network.
 - Step 7** Select additional parameters from the **Parameter** tab.
 - Step 8** Run the report. The report will display.



The Cisco Insight Reporter User Guide provides further information about the report template and the topics available in the Report Wizard. Please refer to it for a better description of reports.



CHAPTER 9. **Troubleshooting**

This chapter describes how to troubleshoot commonly encountered problems. This chapter contains the following sections:

- [Troubleshooting NF_INI_VALUES table data](#)
- [Troubleshooting NF_INI_VALUES not getting updated](#)
- [Troubleshooting the Cisco Collection Manager](#)
- [Troubleshooting MySQL compatibility issue](#)
- [Troubleshooting MySQL start-up and connectivity problem](#)
- [Troubleshooting the “No Data Found” message when running reports](#)
- [Troubleshooting no interface showing any associated traffic](#)
- [Troubleshooting “No More Session Allowed”](#)
- [Troubleshooting Subscribers Flows Report that is not working](#)
- [Troubleshooting Authentication Failure](#)
- [user interface that is not loading correctly](#)
- [Troubleshooting user interface that is not loading correctly](#)
- [Troubleshooting application startup problem](#)
- [Troubleshooting connectivity with Traffic Database](#)
- [Troubleshooting issues when setting Master Device](#)
- [Troubleshooting Connection Timeout from Traffic Database](#)
- [Troubleshooting if User is not able to view full DB Query in Logs](#)
- [Troubleshooting if User wants to view aggregation interval in case of non aggregation](#)
- [Troubleshooting if Remote DB Connection failed](#)
- [Troubleshooting if Device Discovery failed](#)
- [Troubleshooting if error comes during Report Execution](#)
- [Troubleshooting if User Login fails](#)
- [Troubleshooting no data is displayed in report after successful execution \(report wizard\)](#)
- [Troubleshooting if “Auth Token is not valid.” Message appears](#)
- [Troubleshooting reports are showing data in Bar chart however area and line charts are not working fine](#)
- [Troubleshooting if report is taking long time to generate\(Report Wizard\)](#)

Cisco Insight Reporter error codes

Troubleshooting NF_INI_VALUES Table Data

Database table NF_INI_VALUES is updated whenever the Cisco Collection Manager receives Option Template from ASR1K. This table contains, for each Source IP address (ASR1K), mappings between numeric identifiers and textual representation for interfaces, applications and other components. The Reporter uses the mappings contained in this table while generating reports.

Schema Details:

Below table lists the columns for NF_INI_VALUES table:

Columns for Table NF_INI_VALUES		
Field Name	Type	Description
TIME_STAMP	Date_Time	
NF_IP	String	Identification of the ASR platform where these values were applied.
VALUE_TYPE	Number	Key Name/Value family type. The possible values are: 5 –Source address 32-bit / dotted notation 101 – Input interface ID / Input Interface Name 102 – Input interface ID / Input Interface Description 111 –Application ID / Application Name 112 –Application ID / Application Description 114 – Application ID / Category Name 115 – Application ID / Sub - Category Name 116 – Application ID / Application Group 117 – Application ID / Attribute: p2p-technology 118 – Application ID / Attribute: tunnel 119- Application ID / Attribute: encrypted 131 – Sampler ID / Sampler Name

		132 - Sampler ID / Sampler Algorithm Export 133 - Sampler ID / Sampler Interval 151 - VRF ID / VRF Desc
VALUE_KEY	String	Key name. For example: Gold, Silver
VALUE	Number	Numeric reference.

NF_INI_VALUES Table Support over different CM Versions:

CM 3.7.0:

In CM 3.7.0, the following VALUE_TYPE such as **5,101,102,111,112,131,132,133** will be supported, for the remaining VALUE_TYPE the user has to manually execute the `"~scmscm/cm/bin/ updateNetFlowMap.sh - file=~scmscm/cm/config/AttributesTable.csv "` for updating the table. It is mandatory for the user to execute the updateNetFlowMap.sh script once you completed your CM fresh Installation or upgrading CM from 3.6.x.

CM 3.7.1:

In CM 3.7.1, all the VALUE_TYPES will be processed by Collection Manager. The user no needs to run the updateNetFlowMap.sh script for manually updating the table.

General Note: For the Cisco Collection Manager to update the NF_INI_VALUES table, the corresponding Option Templates need to be configured in ASR1K.

Sample Content for the NF_INI_VALUES table:

TIME_STAMP	NF_IP	VALUE_TYPE	VALUE_KEY	VALUE
12/15/2011 7:22:16 PM	10.78.246.19	101	Gi0/0/3	4
12/15/2011 7:22:16 PM	10.78.246.19	102	GigabitEthernet0 /0/3	4
12/15/2011 7:22:25 PM	10.78.246.19	111	xmcp	50331825
12/15/2011 7:22:25 PM	10.78.246.19	112	X Display Manager Control Protocol	50331825
12/15/2011 5:25:33 PM	10.78.246.19	114	net-admin	50331825
12/15/2011 5:25:33 PM	10.78.246.19	115	remote-access- terminal	50331825
12/15/2011 5:25:33 PM	10.78.246.19	116	other	50331825
12/15/2011 5:25:33 PM	10.78.246.19	117	No	50331825

12/15/2011 5:25:33 PM	10.78.246.19	118	No	50331825
12/15/2011 5:25:33 PM	10.78.246.19	119	No	50331825
12/15/2011 7:22:59 PM	10.78.246.19	131	Trial	5
12/15/2011 7:22:59 PM	10.78.246.19	132	2	5
12/15/2011 7:22:59 PM	10.78.246.19	133	1	5
12/15/2011 7:18:41 PM	10.78.246.19	151	Mgmt-intf	1

Query to Check the Data in NF_INI_VALUES Table:

Already a CLU is available in Collection Manager to execute user specific queries. The user can use the CLU as mentioned below:

Syntax: `~scmscm/cm/bin/cm invoke com.cisco.scmscm.netflow.adapters.jdbc.JDBCAdapter - executeQuery "<<user specific query>>"`

Example: `- ~scmscm/cm/bin/cm invoke com.cisco.scmscm.netflow.adapters.jdbc.JDBCAdapter - executeQuery "select * from NF_INI_VALUES LIMIT 4"`

TIME_STAMP	NF_IP	VALUE_TYPE	VALUE_KEY	VALUE
2011-12-15 21:47:26.0	10.78.246.19	101	Gi0/0/0	1
2011-12-15 21:47:26.0	10.78.246.19	102	GigabitEthernet0/0/0	1
2011-12-15 21:47:26.0	10.78.246.19	101	Gi0/0/1	2
2011-12-15 21:47:26.0	10.78.246.19	102	GigabitEthernet0/0/1	2

Troubleshooting NF_INI_VALUES not Getting Updated

If the NF_INI_VALUES not getting updated, please ensure the following configuration is done properly in ASR1K side.

1. Use the below command to check the flow exporter configuration in ASR1K for the option templates that are enabled for the corresponding exporter.
 - a. **show flow exporter <<exporter name>>**
 The user has to find the below details from the flow exporter configuration for generating Option Template
interface-table (timeout 600 seconds) - generating Input Interface Id/Desc details
sampler-table (timeout 600 seconds) - generating Sampler details
application-table (timeout 600 seconds) - generating Application ID/Name Details

In Collection Manager 3.7.1, two new option template configurations need to be added to process the Application attributes and VRF details.

- application-attributes (timeout 300 seconds)**
- vrf-table (timeout 300 seconds)**

Troubleshooting the Cisco Collection Manager

Use the `~scmscm/setup/alive.sh` script to check the currently running CM processes.

Use the `~scmscm/cm/bin/cm dbversion` script to check the configured DB in CM.

Use the `ps -ef | grep scmscm` command to check the CM server and enabled adapter processes.

To check the RDR/NF records processing, monitor the file counts in each adapter's persistent directories.

Verify the ERROR/WARN messages in the log files, if CM not processing the RDR/NF records from the persistent buffers.

Troubleshooting MySQL Compatibility Issue

The application is compatible with MySQL version 5.1. If a non-compatible version is found installed on the server, the installation will abort and will show the following message:

“An existing MySQL installation is detected on your system which is not compatible with Cisco Insight Reporter. Please use MySQL version 5.1 or uninstall the existing MySQL and rerun the Insight installation. Now exiting.”

Troubleshooting Tomcat Not Started

1) Sometimes at the time of starting the Tomcat server, it gives “*Port bind*” exception.

To resolve this issue, please shut down the application that is using port 80.

2) Sometimes at the time of starting the Tomcat server, it gives “*Access Denied*” message.

To resolve this issue, change the access permission using following command:

```
Chmod 777 <startup.sh>
```

Troubleshooting MySQL Start-up and Connectivity Problem

If the default port for running MySQL (3306) is blocked or denied access on firewall, it could lead to installation or application start-up issue. This can occur due to one of the following reasons:

1. SELinux is enabled and blocking access to port 3306: Disable the SELinux and unblock access to port 3306.
2. Firewall is enabled and not configured to allow access to port 3306: check section [Working with Firewall](#).
3. Socket is already in use: Find the application running on that socket. Close that application.
4. On integrating with an existing MySQL server if you get connectivity problem, please make sure you give valid password for MySQL root user.



Note

All the installation logs are created under the logs directory present under the directory where installer was unzipped.

For additional information about the MySQL connection issues, please refer <http://dev.mysql.com/doc/refman/5.1/en/can-not-connect-to-server.html>

Troubleshooting the “No Data Found” Message when Running Reports

If the output of a report gives a “No Data Found” message, you should check several conditions.

One of the reasons could be that the database tables have not been populated. You should check the following:

Ensure that the database configuration on Cisco Collection Manager is correct

Ensure that the ASR generated the type of NF records that you are trying to report on.

If you think the database tables are being populated, you should check the following:

- Ensure that the selected time span matches some data in the database tables.
- Ensure that you have properly selected the report parameters so that the report query matches some information on the database.
- Ensure that the data aging mechanism, configured on the Cisco Collection Manager, is configured as expected. If necessary, change the settings according to the suggested data sizing.

Troubleshooting No Interface Showing any Associated Traffic

If in the Network Wizard no interface displays in green (having associated traffic with it), the following checks should be made.

Ensure that the RPT_USAGE_NF table is not empty.

Ensure that the interfaces present in the RPT_USAGE_NF do not have data which is more than 99 days old

In case data present in RPT_USAGE_NF is not older than 99 days, verify the sync duration set while creating a remote database.

Troubleshooting “NO more Sessions Allowed”

The login to Insight Reporter is limited by the number of simultaneous logins allowed for a particular role, (limited to “2” for the default Super User). Hence refreshing the browser window without logging out will result in reaching this threshold and further login would result in authentication failure until the session is timed out. Hence usage of browser “Refresh or F5” should be avoided.

We can change con-current session in database in config_system_param table.

Troubleshooting User Interface that is not Loading Correctly

To successfully run/launch the User Interface, Insight requires the browser with Flash Player Plug-in 10.x or above. In case a compatible version is not found on the browser, you may get an empty screen or the following message:

“To view this page ensure that Adobe Flash Player version 10.0.0 or greater is installed.”

Troubleshooting Application Startup Problem

The application, while starting, runs the Apache Tomcat on the port 80. Insight Reporter will not start if there are other applications using port 80.

If you wish to configure Insight Reporter to run on a different port (say 8080), change the connector configurations in:

```
<[user home directory]/Insight/apache-tomcat-6.0.20/conf/server.xml
```

To

```
<Connector port="8080" protocol="HTTP/1.1"
  connectionTimeout="20000"
  redirectPort="443" />
```



Note

Please ensure all the ports(including AJP 1.3 connector port) used by tomcat (as mentioned in the server.xml) are free and not being used by any other application

While starting tomcat if you see the following error on your screen

“PID file /home/{user}/tomcat.pid found. Is Tomcat still running? Start aborted”

Then perform the following steps

```
Change to the users home directory using
  cd /home/{user}
remove the PID file using
  rm -f tomcat.pid
Restart Tomcat using:
  /etc/init.d/tomcat-{user} start
  or
  service tomcat-{user} start
```

Troubleshooting Connectivity with Traffic Database

In some environments, Cisco Insight Reporter may not be able to connect to the Cisco Service Control Management Suite Collection Manager traffic database.

Edit the `catalina.policy` file inside the "conf" folder of tomcat (i.e. `<tomcat-dir>/conf/catalina.policy`) and add the following lines:

```
grant {
    permission java.net.SocketPermission "<CM DB IP ADDRESS>:<CM
DB PORT>", "connect", "resolve";
};
```

Where CM DB IP ADDRESS corresponds to the traffic database IP address and CM DB PORT the corresponding port (MySQL: 3600 - Oracle: 1521 - Sybase: 4100).



Note

Please ensure restart the tomcat service after editing `catalina.policy`.

Troubleshooting Issues when Setting a Master Device

Setting a device as "Master" for a network may fail due to anyone of following reasons:

1. If CM version 3.4 or greater is running, in `NF_INI_VALUES` table, Value Type must be 111,112,114,115,116,117,118 & 119 for this device.
2. For remaining versions, there can be possibility that right template is not configured..

Troubleshooting Connection Timeout from Traffic Database

Connections to traffic database servers may cause connection time out exception in logs, if all available connections in the connection pool already acquired. The maximum connection in connection pool can be changed from `config_system_param` table by changing value for field `poolMaxSize`. Try to increase maximum number of connections in the ranges of 10, if this issue occurs.

The default value for pool `MaxSize` is 100.

Troubleshooting if User is Not Able to View Full DB Query in Logs

If the user is not able to view the full DB Query, do following settings:

1. In **Settings Management->Global Settings->Logging** column, set value of **Application Logging Threshold** as **DEBUG**.
2. Now view `Logs.log` file for complete logs of the application.

Troubleshooting if User wants to View Aggregation Interval in case of Non-Aggregation

If the user wants to view aggregation interval:

1. In **Settings Management->Device Configuration** tab, view value of column **Agg. Interval(Sec.)**.

Troubleshooting if Remote DB Connection Failed

If Remote DB connection failed, there can be two reasons:

1. MySQL is not up. Start your MySQL.
2. `NF_INI_VALUES` table is not exist in Traffic Database or this table is empty.

Troubleshooting if Device Discovery Failed

If Device discovery fails, there can be two reasons:

1. If you have restarted DB Server, all connection in connection pool became invalid. To validate all the connection, restart the Tomcat server.
2. `NF_INI_VALUES` table does not have value corresponds to `VALUE_TYPE=5`. Check either CM or ASR configuration for pushing value type 5.

Troubleshooting if Error Comes during Report Execution

In this case, send an email to Insight Reporter support team.

Troubleshooting if User Login Fails

If user is not able to login, there can be two reasons:

1. MySQL is not up.
2. Mysql.user table does not have user details because mysql.proc table get corrupted. To upgrade the table, following is the command:

```
Mysql_upgrade -u root-ppassword
```

Troubleshooting No Data is Displayed in Report after Successful Execution Report Wizard)

If no data is available in report after successful execution, it can be the case that data available is too small to display because by default Insight Reporter displays data in mbps/mbytes and up to two decimal places only.

To solve this problem, in **Report Wizard -> Topic -> <any report>**, change **Parameters -> Unit Metric/Unit Of Result** to **Kbps/Kbytes**

Troubleshooting if “Auth Token is Not Valid.” Message appears

If this message appears, it means Tomcat has been restarted. Refresh your browser page.

Troubleshooting Reports are Showing Data in Bar Chart However Area and Line Charts are Not Working Fine

To plot Area chart and Line chart at least two data points are required, however in Bar chart only one data point is required.

Troubleshooting if Report is Taking Long Time to Generate (Report Wizard)

If report is taking long time to generate, check system resources & load of the system, reduce system resource usage or load.

Database table on which this report is running is very large (more than 100 M records).

Cisco Insight Reporter Error Codes

This section lists the error messages seen on the application and their respective meaning:

Error Code	Error Message	Description
1901	Subscriber Manager: General Failure	Unable to connect to subscriber manager
1902	Subscriber Manager: Invalid SM Address	Subscriber manager ip address in not correct
1903	Subscriber Manager: Invalid Subscriber Record	Subscriber manager with invalid records
1904	Subscriber Manager: Missing Subscriber Record	Subscriber Manager with missing records
1801	The service you have requested is not available, Please contact System Administrator or try later	Generic error when got exception while interacting with BE
1802	Missing request parameter	Error when exception during JSON validation
1803	Missing Auth String in request	Error display when user session expire
1804	Session Expired. Please re-login	Error display when authtoken of user session not found
1805	Auth Token found in header is either expired or invalid	Error display when authtoken of user session expire
1806	Non Parsable Input Json	Error during parsing of JSON from GUI to BE
1807	Invalid Input Json	Error during validation of JSON from GUI to BE
1808	IO Error while processing json	Error during processing of JSON from GUI to BE
1600	This account name already exists, please select another name	Error during creating account with existing name
1601	Deletion denied. ? has accounts under it	Error during deletion of account group if accounts under them
1604	Accounts under account group cannot be saved	Got exception during saving of accounts for account group
1605	Account Group not found	Error when account group not found
1606	Account not found	Error when account not found
1607	Account Details cannot be saved	Got exception during the saving of Account group
1608	Account Group Details cannot be saved	Got exception during the saving of Account group details
1616	Error while saving Role details.	Error during saving Role
1610	Account Group cannot be removed	Got exception during the removing of Account group

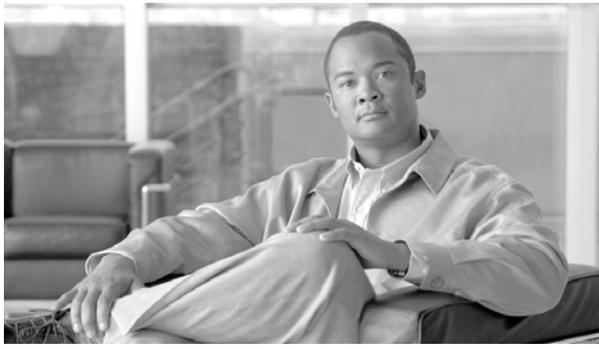
1611	Account details cannot updated	Got exception during the updating and saving of Account group
1612	Account Group details cannot be updated	Got exception during the updating and saving of Account group details
1613	Account cannot be removed	Got exception during the removing of Account
1614	Role cannot be removed	Got exception during the removing of Role
1615	Role not found	Got exception during the retrieval of Role
1617	Default superuser account cannot be deleted	Try to delete super use account.
1618	Account cannot be deleted, first delete its child accounts/roles/account groups	Error message when deleting of account when child accounts/roles/account group exists
1619	Visibility cannot be created since no topics found for the network	Error during creating Visibility when no topics found for network
1620	Visibility cannot be removed	Error during deleting of Visibility
1621	Visibility not found	Error during retrieval of Visibility
1622	Default Super user Role cannot be deleted.	Error during deleting the default super user
1623	Some accounts cannot be added since those already exist under the account group	Error during the addition of existing account in account group
1624	Some accounts cannot be deleted since those already exist under account group	Error during the deletion of account which already have account group
1625	Report cannot be published as public. User of this account group does not have the report sharing capability	Account group is not authorize to share reports
1626	Default Super User role cannot be updated.	Error during updating Super user Role
1627	Account group name already exists, please give some other name	Error during the creating Account group with existing name
1628	Role name already exists, please give some other name	Error during creating Role with existing name
1629	Visibility name already exists, please give some other name	Error during creating Visibility with existing name
1630	Deletion denied. This visibility has accounts under it	Error during deleting the Visibility with existing account.
1631	Deletion denied. This account group has accounts under it	Error during deleting Account group which has already account
1632	Deletion denied. This role has accounts under it	Error during deleting the Role which has account.
1633	Data Grid cannot be published as an image	Error during publishing the data grid as image.
1301	Invalid username or password	Error during login with invalid user name / password
1303	User does not exist	Login with user that does not exist
1302	Authentication Token is either invalid or expired	Auth token for user sessions has been expire or invalid
1304	Access denied - No more sessions allowed for this role.	Accessing with more session for user which are not configured
1410	Definition not found for this report	Got exception while retrieving report definition
1411	Duration filter details not found for this report	Got exception while retrieving Duration filter
1412	View filter details not found for this report	Got exception while retrieving view filter
1428	Charting Custom Parameter value not found!	Got exception while retrieving Custom parameter

1429	Error during deletion of ReportDefinition	Got exception during deletion of reports definition
1424	Error while setting report Axis Information	Got exception during saving x-axis report information
1425	Network Details not found.	Got exception during retrieving network details
1426	Error while retrieving Report Custom Parameters	Got exception during retrieving Report custom parameters
1427	Error while generating the summary table	Got exception during processing of Summary table details
1402	Service Tree for the network does not exist.	Exception during service retrieval
1420	Error during report cancellation request.	Got exception when cancelling the report run
1400	Error during report execution process.	Got exception while report run
1401	Error during the report series generation process.	Got exception while series generation process
1416	Topic not found for this network	Error while loading topics for selected network
1417	Unable to create a report definition.	Got exception during save report
1434	Virtual Link not found exception.	got exception when VLINK not found
1435	Invalid report parameter selection	Error during invalid selection of parameter
1443	Error during drill down report execution	Got exception during drill down report run
1444	Report Information not found for the selected report	Got exception during the retrieval of report
1432	Error during related report run process	Got exception during related report run
1447	No data found for the report selections	No data retrieve for selected parameter during report run
1448	Subscriber validation failed	when user has no visibility rights on given subscriber id
1449	Unable to send the E-mail	Got exception while sending email during publish
1450	Unable to delete Subscriber Data	Got exception while deleting subscriber
1430	Error during exporting the report	Got exception during report run
1431	Export Data Not found!	Gallery path incorrect in setting
1440	Merge Report Data Not found!	No data found from while merging the reports
1475	Report Dashboard not found	Got exception while dashboard processing
1476	Report Dashboard Data not found	When no data found in dashboard widgets
1477	Unable to delete report dashboard widget	Got exception during the deletion of dashboard widget
1478	Unable to save report dashboard widget	Got exception during save on dashboard
1479	Dashboard already contains the maximum number of widgets ? To add this report to dashboard either delete other reports on the Dashboard or pause any Scheduled Reports with Dashboard destination activated.	Got message during save a report on dashboard once maximum limit of report addition is reached on dashboard.
1455	Reports not owned by the user cannot be deleted.	Error during deleting report which is owned by other user
1456	Error while opening a report.	Got exception during the opening of reports
1457	Error while merging report.	Got exception during merging of two reports
1458	Report cannot be deleted.	Got exception during the deleting of Report
1459	Reports not owned by the user cannot be shared.	Error during the sharing of report which is owned by other user
1460	Reports not owned by the user cannot be unshared.	Error during the unsharing of report which is owned by other user

1461	User doesn't have the capability to share or publish a public report.	User does not have rights to share or publish a public
1462	Error while adding a report in gallery.	Got exception during the adding report to report gallery
1467	Error while saving report definition.	Got exception during the saving reports
1468	Error while creating leading inputs	Got exception during the creation of leading inputs
1481	Favorite Report Not Found!.	Got exception during retrieval of list of reports in MF
1482	Favorite Report cannot be deleted.	Error during the favorite report deletion
1483	Favorite Report cannot be added.	Error during the favorite report addition
1484	Favorite Report cannot be shared.	Got exception during sharing of reports
1485	Favorite Report cannot be duplicated.	Got exception during duplicate reports process
1486	Favorite Reports Accounts cannot be Found.	Error when account in MF not found
1491	Scheduled Report cannot be pause.	Error while pause of Schedule reports
1492	Scheduled Report cannot be resumed.	Error while resume of Schedule reports
1493	Scheduled Report cannot be executed.	Error while execution of Schedule reports
1494	Scheduled Report cannot be added.	Error while adding Schedule reports
1495	Scheduled Report cannot be deleted.	Error while deleting Schedule reports
1496	Scheduled Report cannot be Found.	Error while retrieving Schedule reports
1497	Report cannot be Scheduled.	Error while Scheduling reports process
1498	Scheduled Report cannot be duplicated.	Error while duplicating Scheduling reports process
1499	Scheduled Report cannot be Updated.	Error while updating Scheduling reports process
1445	Unable to save a report in my favorite	Error to save a report in my favorite.
1200	Monitoring Exception	Got exception during monitoring of different parameter
1201	Operation not valid on this type of statistics.	Error when operation not allowed on set of parameter
1100	Logging Exception	Got exception during logging process
1101	Configuration Exception	Got exception during server startup due to not setting proper DB configuration
1102	Invalid Configuration!	Error when the server startup configuration is invalid
1103	Missing Configuration!	Error when the server startup configuration is missing
1104	Remote Database configuration is not valid.	Error when Remote DB wrong configuration
1105	Remote Database cannot be deleted.	Error when Remote DB cannot be deleted
1108	Remote Database not found.	Error while retrieving Remote DB information
1106	Remote Database cannot be saved.	Error while saving Remote DB information
1107	Unable to test Remote Database Connectivity.	Error while test of Remote DB configuration
1109	Unable to update remote database , some attributes are missing.	Updating Remote data base with missing attributes
1501	Service Tree not found.	Error when service tree not found during topic load
1503	Default Services not associated with device	Error when default service is not associated with device selection
1505	Package not found	Package not found during network creation
1510	Network not found	Got exception while network retrieval
1511	Device not found	No device found in the process of auto discovery
1512	Topology not found	Got exception while topology retrieval

1515	Network cannot be saved	Got exception while network saving
1520	Zone not found	Zone not found during network creation
1521	Device cannot be deleted	Used as Master device
1525	Device cannot be saved	Got exception during saving of devices
1526	Device cannot be updated	Got exception during updating and saving of devices
1527	CMTS cannot be fetched	Got exception reading CMTS information from Remote DB
1528	? Network already exist, Please give some other name.	Creating network with existing name
1529	No Services exists for Master Device ?, Please select other device as Master.	Setting master device if there is no service exists
1530	No Services exist For Master Device ?,Network cannot be saved.	Setting master device if there is no service exists
1531	Report Filter not found	If report filter is not assigned in visibility filter
1533	Network cannot be updated	Got exception during updating and saving of network
1534	Network cannot be saved since selected Remote Database is not in CMTS aware mode.	conflict on CMTS aware database
1535	Network cannot be updated since selected Remote Database is not in CMTS aware mode.	conflict on CMTS aware database
1537	Subscriber Manager cannot be connected	Subscriber Manager Cannot be Connected.
1538	No Service Tree found for this network	Service tree not found for configured network
1539	Network Device details cannot be updated	Got Exception during Network Device Details updating
1700	Remote Database cannot be connected.	Error during connecting Remote Database
1701	Report protocol entity not found.	Error during retrieving report protocol
1702	Record doesn't exist in configuration (?) table	Error during remote database test connection
1703	Configuration (?) table doesn't exist	Error during remote database test connection
1110	Device Update failed. Master device cannot be unmanaged.	It appears if user unmanage a device which is acting as master device in any network.
1134	Remote database cannot be deleted, Network(s) are configured on this remote database.	Remote Database cannot be deleted if at least one network is created against same Remote Database.
1135	Device cannot be deleted, This device is configured as master device in network(s).	Master Device cannot be deleted.
1138	The IP Address of the device you have provided already exists. IP Address should be unique among devices of a Remote Database.	IP Address of the devices cannot be duplicate while discovering devices.
2107	Maximum limit of authentication server has reached	Finite number of AAA server can be configured under each mode (by default, number of AAA server is 5).
2108	There are ? user(s) which are using this mode of authentication. In order to disable this mode, either these users need to be deleted or migrated	AAA Mode cannot be disabled if any account is created under same AAA mode.
2109	No active server available under this mode	AAA Server cannot be deleted under any AAA mode if only one server is active and at least one account is available under same mode.

2110	The authentication service is down, Please contact System Administrator or try later	Error during while login if all AAA servers of assigned mode are down.
2111	There are ? user(s) which are using this server. In order to delete this server, either these users need to be deleted or migrated	AAA Server cannot be deleted if at least one account is created under same AAA mode and only same server is active out of the list of servers.
1413	No report definition found for current selection. Please select other options.	selection of various parameters available on report wizard does not match with any defined reports
1502	Device discover failed , remote database cannot be connected.	Device discover operation get failed if in case remote device is not connectable.
1560	No applications exist for master device ?, Please select other device as master.	If selected master device does not have any application.
1562	Interface sync job is already running for this network.	This message appears if in case user tries to sync the interfaces but sync operation is already running behind.
1565	No applications exist for master device ?,network cannot be saved.	Network cannot be saved if master device does not have any application.



Alternative Scenarios and Options

Upgrading Cisco Collection Manager

To upgrade the Cisco Collection Manager version, perform the following steps:

Step 1 Stop the Cisco Collection Manager.

Step 2 Install the new Cisco Collection Manager using the `install-cm.sh` script.

When you upgrade, use the `-o` option to preserve the existing configuration.

Use the `scmscm` user.

After the upgrade, when the Cisco Collection Manager comes up for the first time, the new database tables are automatically created.

**Note**

Cisco Collection Manager Version 3.7.0 is the earliest version that supports the Cisco ASR 1000 Series router.

Upgrading Cisco Insight Reporter from v2.0/3.0 /3.1

If the script detects an existing user with Cisco Insight Reporter v2.0/3.0/3.1 installed, the third scenario is automatically chosen.

The process upgrades the application and the existing database schema and integrates this latter with additional tables required by the new v3.2 release.

To upgrade the application, perform the following steps:

Step 1 Locate and run the installer package.

```
cd <directory where installer was extracted>
./install.sh
```

You see code similar to following on your screen:

```
Shell> cd /root/installer
Shell> ./install.sh
```



Note

To install Insight Reporter, user should be root user only.

Step 2 The script asks you to install a new user for installation or upgrade existing user from Insight Reporter v2.0/3.0/3.1 to v3.2. It creates/updates the folder with that OS user name and copies all the files into this folder. A question similar to the following appears on your screen:

```
INPUT : Enter the OS username that will be used to install/upgrade
(root not allowed):
```

If you enter a **non-existent** user, fresh installation get processed.

If you enter an **existent user**, the upgrade workflow from version 3.1 to version 3.2 will be executed.



Note

This existing user of Insight Reporter can be distinguished under “/home” directory for Red Hat Enterprise Linux (RHEL) or CentOS and “/opt” directory of Solaris operating systems,

Before upgrading, the script will stop the Apache Tomcat server in case it was already running. Then it will upgrade the Cisco Insight Reporter application and the existing database schema with additional tables required by version 3.2. Eventually, the messages below will be displayed:

```
INFO : Please start the Apache Tomcat server to start the Cisco
Insight Reporter application up.
INFO : CONGRATS!! Upgrade successfully completed
```



Note

After the upgrade procedure has completed, there is no need to execute the script for configuring the application. Just start the Apache Tomcat server and start using the application.

If the script detects an existing user with Cisco Insight Reporter v2.0/3.0/3.1, scripts of Cisco Insight Reporter v3.2 upgrade the existing system to v3.2.

Your installation is done. After successful completion of the installation, ensure to [checking the installation](#) before using it.

Installing Cisco Insight Reporter on Solaris

The installation of Cisco Insight Reporter v3.2 on Solaris is similar to the installation on a Linux-based system. The only difference is that **the MySQL engine has to be manually installed before running the installation procedure.**

These are the steps required to install the Cisco Insight Reporter application on Solaris from scratch:

Step 1 Pre-requisite:

Ensure no MySQL instance is running and the MySQL engine is installed under “/opt/mysql” directory. To stop the running instance, use the following command:

```
/etc/init.d/mysql stop
```

Also kill any process connected on port 3306

```
netstat -an | fgrep 3306
```

If there is any output of above command, find out the PID of the process which is connected to port 3306, use the command as:

```
lsof -i tcp:3306
```

Kill the PID given by output of the above command by giving following command

```
kill -9 [PID]
```

Step 2 Installation procedure:

Go to the directory where you have extracted the installer and give the following command (the example shows the package for Solaris 9 for SPARC 64-bit architecture, but is valid for the other supported Solaris versions)

```
gzip -d .pkgrpm/mysql-advanced-5.1.51-solaris9-sparc-64bit.pkg.gz
```

Create the system user for MySQL using the following command:

```
groupadd mysql
useradd -g mysql mysql
```

Execute following command

```
pkgadd -d .pkgrpm/mysql-advanced-5.1.51-solaris9-sparc-64bit.pkg
```

A question similar to the following appears on your screen:

- The following packages are available:

1	mysql	MySQL Advanced Server (Commercial)
		(sun4u) 5.1.51

Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]:

- The selected base directory </opt/mysql> must exist before installation is attempted.

Do you want this directory created now [y,n,?,q]

**Note**

This option is omitted if the directory **/opt/mysql** already exists.

- This package contains scripts that will be executed with super-user privileges during the process of installing this package.

Do you want to continue with the installation of <mysql> [y,n,?]

After the MySQL installation has completed, execute the following commands:

```
chown -Rh root:mysql /opt/mysql
chgrp -Rh mysql /opt/mysql
```

Go to directory where you have unzipped the Cisco Insight Reporter v3.2 installer
cd /root/installer

and execute the following commands:

```
cp -f .pkgrpm/my_solaris.cnf /etc/mytemp.cnf
mv -f /etc/mytemp.cnf /etc/my.cnf
cp -f .pkgrpm/mysql /opt/mysql/mysql/scripts
cp -f .pkgrpm/mysql /etc/init.d/mysql
/opt/mysql/mysql/scripts/mysql_install_db --user=mysql --basedir=/opt/mysql/mysql -
-datadir=/opt/mysql/mysql/data --defaults-file=/etc/my.cnf
chown -Rh root:mysql /opt/mysql
chown -Rh mysql:root /opt/mysql/mysql/data
cp /opt/mysql/mysql/bin/my_print_defaults /usr/bin/
chown root:root /etc/init.d/mysql
chmod 775 /etc/init.d/mysql
/etc/init.d/mysql start
/opt/mysql/mysql/bin/mysqladmin -u root -h [HOSTNAME] password 'password'
/opt/mysql/mysql/bin/mysqladmin -u root -h localhost password 'password'
```

where HOSTNAME is the host on which mysql is running

Go to directory where you have unzipped the Cisco Insight Reporter v3 installer and execute the **install.sh** script:

```
cd /root/installer
./install.sh
```

A question similar to the following appears on your screen:

Sun Java HotSpot(TM) JRE6 is required.

Do you want to install JRE6? [Y/N] (default Y):

Do you want to create a new system user for installation? [Y/N]
 (default Y):

After the installation has finished, go to <user home directory>/Insight/bin and execute the config.sh script

```
cd /opt/test/Insight/bin
./config.sh
```

To start/stop the tomcat service, use the following command:

```
/etc/init.d/tomcat-{user-created} start
/etc/init.d/tomcat-{user-created} stop
```

**Note**

During uninstallation, to manually uninstall the MySQL engine, remove the mysql package and the related directories using the following commands:

```
/etc/init.d/mysql stop

pkgrm mysql

rm -f /etc/init.d/mysql

rm -rf /opt/mysql

rm -rf /var/run/mysqld/

rm -rf /var/lib/mysql/

rm -f /var/log/mysqld.log

rm -f /etc/my.cnf

userdel mysql

groupdel mysql
```

Enabling HTTPS for Cisco Insight Reporter

Step 1 Go to the home directory of the user. Assume that the OS user created at the time of installation is *insight*.

```
cd /home/insight
```

Step 2 Go to the Apache Tomcat bin directory.

```
cd /Insight/apache-tomcat-6.0.20/bin
```

Step 3 Create a certificate keystore by executing the following command:

```
$JAVA_HOME/bin/keytool -genkey -alias insight -keypass
insight -keystore insight.bin -storepass insight
```

Output similar to the following appears on your screen:

```
What is your first and last name?
[Unknown]: Your Name
What is the name of your organizational unit?
[Unknown]: Your BU
What is the name of your organization?
[Unknown]: Your Organization
What is the name of your City or Locality?
[Unknown]: Your City
```

```

What is the name of your State or Province?
[Unknown]: Your State
What is the two-letter country code for this unit?
[Unknown]: Your Country
Is CN=Your Name, OU=Your BU, O=Your Organization, L=Your City,
ST=Your State, C=Your Country correct?
[no]: yes

```

This generates a keystore file named *insight.bin* in the Tomcat bin directory

Ensure that the keypass and storepass passwords are the same.

Step 4 Go to the conf directory inside the Apache Tomcat directory:

```
cd ../conf
```

Step 5 Open the *server.xml* file inside the conf directory. Find the HTTPS connector, uncomment it and save the file.

The HTTPS connector will be similar to the following:

```

<!-- Define a SSL HTTP/1.1 Connector on port 443
This connector uses the JSSE configuration, when using APR, the
connector should be using the OpenSSL style configuration
described in the APR documentation -->
<!--
<Connector port="443" protocol="HTTP/1.1" SSLEnabled="true"
maxThreads="150" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS"
keystoreFile="${user.home}/Insight/apache-tomcat-
6.0.20/bin/insight.bin" keystorePass="insight"/>
-->

```



Note

This is an optional step only required if you wish to run Cisco Insight Reporter in a secure mode.

After you configure SSL on Apache Tomcat, enter the following URL in the browser:

```
https://<server IP>:443/
```

Add the exception and accept the certificate the first time.

Changing the MySQL Server Password

Since the Insight Reporter's installation script sets a very basic password for the MySQL root user (default is *password*), it may be required to change it.

This is an optional procedure and can be executed by following the steps below.

Open a *ssh* shell and type the following:

```
/usr/bin/mysqladmin -u root -ppassword password new-password
```

where *password* is the original password

new-password is the new password, provided by the user.

To verify the new password, user can try

```
/usr/bin/mysqladmin -u root -h localhost -p ping
```

Enter password:

Enter the new password.

```
mysqld is alive
```

To verify the port 3306 is open or not, user can try:

```
/>telnet localhost 3306
```

```
Trying 127.0.0.1...
```

```
Connected to localhost.localdomain (127.0.0.1).
```

```
Escape character is '^]'.
```

```
Connection closed by foreign host.
```

Using Cisco Collection Manager with Bundled Sybase Database

To install the Sybase, perform following steps:



Note

The maximum database size supported by the bundled Sybase database is 50GB. For database support larger than 50GB, use an external database use an external database.



Note

Installing the Sybase database can require as many as 3 hours.

**Note**

According to the Sybase license, you can install the Cisco Collection Manager with the bundled Sybase database on a server with a maximum of four CPU cores.

During installation, if you want to reverse the Sybase installation actions (for example, if an installation is interrupted because of a power failure), do the following:

1. Log in as the root user.
2. Run the `/install-scripts/uninstall.sh --sybase` script.

Actions Performed by `installsyb.sh`

The `installsyb.sh` script installs the Sybase database. The script performs the following actions:

- Verifies the `shmem` setting for Sybase in `/etc/system` (for Solaris) or `/etc/sysctl.conf` (for Red Hat Linux). If the setting is not there, the script inserts it and reboots (after prompting you).
- Adds a user `sybase` and group `sybase`.
- Runs the Sybase installer for your platform.
- Builds a Sybase server including Sybase users and passwords.
- Starts Sybase.
- Runs SQL scripts to create the Cisco Collection Manager database structure. This process is lengthy and requires restarting Sybase several times.

Log in as the root user and make the distribution kit contents available on your system or local network.

Step 1 Change directory to `sybase` in the distribution kit root.

Step 2 Run the script `installsyb.sh`. Enter the script as follows:

```
installsyb.sh --sybhome=SYBHOME {-datadir=DATADIR} {--y|-n}
```

`SYBHOME` is the home directory of the Sybase user (have 1 GB free)

Select one of the following data location options:

- Specify `--datadir=DATADIR`, where `DATADIR` is a directory in which to store all Sybase data. An empty `DATADIR` directory is required for a clean installation of the Sybase database. Use a location in a partition in which at least 30 GB is free.

If you specify a `DATADIR`, all Sybase data is stored as normal files in that directory, with default sizes of 20 GB for data, 6 GB for logs, and 2 GB for Sybase temporary storage. During installation, ownership of the directory changes to the Sybase user.

You can customize the Sybase installation during the installation sequence for RDR and NetFlow by selecting yes/no during the Sybase installation.

Maximum size for the NetFlow will be the remaining size left after the RDR size was specified. Reserve some space in the DATADIR if you are also creating a schema for NetFlow.

During the Sybase installation process, you need to enter the size of the Sybase database. Following message is displayed to enter the database size:

```
Please enter SIZE in 2K blocks of file to be used for the
"data[maximum is 102657160;
minimum is 5242798]" device.
NOTE - the actual size required will include a 1.05
overhead on the amount you specify.SIZE in 2K blocks:
```

To start the bundled Sybase database:

Step 1 As the root user, run the sybase start command.

```
# ~scmscm/setup/sybase start
```

Step 2 Wait for several minutes and run the alive.sh script.

```
# ~scmscm/setup/alive.sh
```



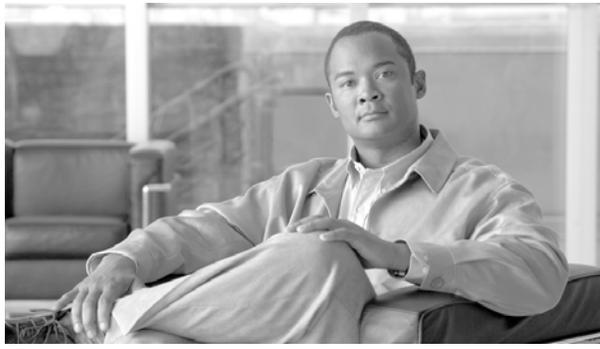
Note

Make sure that the output does not contain the phrase Sybase not functioning.



Note

If you are using an external database, start it according to the instructions supplied by the database vendor.



Uninstalling the Software

Uninstalling Cisco Collection Manager

The following sections describe how to uninstall the Cisco Collection Manager:

To uninstall the Cisco Collection Manager software, perform the following steps:

Step 1 Log in as the root user.

Step 2 Uninstall the Cisco Collection Manager software.
Change the directory to install-scripts under the distribution kit root directory, and enter:
`./uninstall.sh --cm`

Uninstalling Cisco Insight Reporter v3.2

The Cisco Insight Reporter v3.2 provides a script for uninstalling the software packages. When you uninstall the application, the following packages are also removed:

- Cisco Insight Reporter v3.2 software
- Apache Tomcat web server (if it is installed during installation)
- MySQL server (if it is installed during installation)
- JRE6 (if it is installed during installation)

To uninstall the application, perform the following steps:

-
- Step 1** Log in as the root user
 - Step 2** Navigate to the home directory of the newly created user and run the uninstall script.
 - Step 3** Assume that the time of installation the new user created is test.

```
cd /home/test/Insight/bin
./uninstall.sh
```

You will get output similar to the following on your screen:

```
Shell> cd /home/test/Insight/bin
Shell> ./uninstall.sh
This would remove the Cisco Insight Reporter Application and
the corresponding database. If you wish to take a backup of the
database schema, quit the un-installation and do so now.
Do you want to continue with un-installation? [Y/N] (default
Y):
If user enters N the wizard won't un-install the application
and would quit the un-installation procedure
If user enters Y then wizard would stop the tomcat, delete the
user home directory and the database schema

Stopping Tomcat
Using CATALINA_BASE:   /home/test/Insight/apache-tomcat-6.0.20
Using CATALINA_HOME:   /home/test/Insight/apache-tomcat-6.0.20
Using CATALINA_TMPDIR: /home/test/Insight/apache-tomcat-
6.0.20/temp
Using JRE_HOME:        /usr
Killing: 3107
deleting user test
```

**Note**

Running the `uninstall.sh` without any parameters will only uninstall the Cisco Insight Reporter application but will NOT remove the MySQL engine and the Java Runtime Environment.

To uninstall the application but also the MySQL engine and the JRE installed during the installation procedure, run the “`uninstall.sh`” script with the following parameters:

```
./uninstall.sh java mysql
```

In case MySQL (as for the Solaris installation scenario) or the JRE are not installed by the Cisco Insight Reporter v3.2 installer, they will NOT be removed, EVEN using the mentioned parameters.

To uninstall the application under Solaris, run the `uninstall.sh` script from outside the user home directory

Example:

```
/opt/test/Insight/bin/uninstall.sh
```

In case the tomcat service has already been stopped (either manually or because it was terminated for some reason) then the result of the `uninstall.sh` script would be similar to the following:

Stopping Tomcat

```
Using CATALINA_BASE: /home/test/Insight/apache-tomcat-6.0.20
```

```
Using CATALINA_HOME: /home/test/Insight/apache-tomcat-6.0.20
```

```
Using CATALINA_TMPDIR: /home/test/Insight/apache-tomcat-6.0.20/temp
```

```
Using JRE_HOME: /usr
```

```
Nov 22, 2010 5:11:43 PM org.apache.catalina.startup.Catalina stopServer
```

```
SEVERE: Catalina.stop:
```

```
java.net.ConnectException: Connection refused
```

```
  at java.net.PlainSocketImpl.socketConnect(Native Method)
```

```
  at java.net.PlainSocketImpl.doConnect(Unknown Source)
```

```
  at java.net.PlainSocketImpl.connectToAddress(Unknown Source)
```

```
  at java.net.PlainSocketImpl.connect(Unknown Source)
```

```
  at java.net.SocksSocketImpl.connect(Unknown Source)
```

```
  at java.net.Socket.connect(Unknown Source)
```

```
  at java.net.Socket.connect(Unknown Source)
```

```
  at java.net.Socket.<init>(Unknown Source)
```

```
  at java.net.Socket.<init>(Unknown Source)
```

```
  at org.apache.catalina.startup.Catalina.stopServer(Catalina.java:422)
```

```
  at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
```

```
  at sun.reflect.NativeMethodAccessorImpl.invoke(Unknown Source)
```

```
  at sun.reflect.DelegatingMethodAccessorImpl.invoke(Unknown Source)
```

```
  at java.lang.reflect.Method.invoke(Unknown Source)
```

```
  at org.apache.catalina.startup.Bootstrap.stopServer(Bootstrap.java:337)
```

```
  at org.apache.catalina.startup.Bootstrap.main(Bootstrap.java:415)
```

```
Killing: 3107
```

```
/home/test/Insight/apache-tomcat-6.0.20/bin/catalina.sh: line 342: kill: (3107) - No such process
```

```
deleting user test
```

As wizard was trying to stop the tomcat which was not running, it prompted these lines. So, please ignore these lines.



Index

- about Cisco Insight reporter, 5-2
- Activating Servers, iii, 7-1
- Alternative scenarios and options, v, 18
- CentOS Linux Requirements, ii, 5-2, 5-7
- Checking System Prerequisites, ii, 5-1
- Checking the Installation, ii, 4-1, 4-9
- Cisco Collection Manager & Cisco Insight Reporter are on different machines with MySQL as database, i, 1-3
- Cisco Collection Manager, Cisco Insight Reporter are on single machine with MySQL as database, i, 1-3
- Cisco Insight Reporter error codes, v, 9-2, 9-12
- Configuring Accounts, iii, 8-8
- Configuring Network Topology, iii, 8-5
- Configuring Traffic Databases and Devices, iii, 8-3
- connecting to Cisco Insight, 4-1
- Controlling Adapters, iii, 7-1, 7-2
- Conventions, i, iii
- conventions, document, iii
- Creating the default MySQL schema and user for CM access, iii, 6-2
- Default Configuration Settings, ii, 5-2, 5-8
- Deployment Scenarios, i, 1-3, 3-1
- Distribution Content, ii, 5-2, 5-8
- document organization, i
- document revision history, i
- Document Revision History, i
- documentation and service request, iv
- Downloading the Installation Package, ii, iii, 4-1, 6-1
- Enabling Adapters, iii, 7-1, 7-3
- Enabling HTTPS for Cisco Insight Reporter, v, 23
- features overview, 3-2, 5-7
- Full installation, ii, 4-3
- general overview, 3-1, 4-1, 6-1
- Hardware, i, ii, 1-3, 3-1, 5-3, 5-6, 5-7
- Hardware Requirements, i, 3-1
- Installation, 1, 2, i, ii, i, ii, iii, 1-4, 3-1, 4-1, 4-3, 4-6, 4-8, 5-1, 5-3, 5-6, 5-8, 6-1, 8-1, 9-4, 20
- Installing Cisco Collection Manager, iii, 6-1, 6-2
- Installing Cisco Insight Reporter on Solaris, v, 20
- Installing Cisco Insight Reporter v, ii, 4-1, 4-3
- Introduction, i, ii, iii, ii, 1-1, 5-1, 6-1
- Java Runtime Environment (JRE), i, 3-2, 4-3
- login, Cisco Insight, 4-1
- logout, Cisco Insight, 4-3, 6-1, 6-2, 27
- Managing NF_INI_VALUES table for Netflow, iii, 7-3
- Obtaining Documentation and Submitting a Service Request, i, iv
- Operating System, i, 3-2, 5-1
- Organization, i, ii, 23
- preface, i
- Red Hat Linux Requirements, ii, 5-2, 5-6
- related documentation, iii
- Related Documentation, i, iii
- reporting, 7-1
- Router Configuration, i, iii, 2-1, 6-1, 6-6
- Running the First Report, iii, 8-1, 8-9
- Screen Resolution, i, 3-3
- Setting the Global Settings, iii, 8-1
- Setting the Locale and Time Zone, ii, 5-3, 5-5, 5-6, 5-7
- Setting the Time Zone, iii, 6-1, 6-6
- Software & Environment, ii, 5-6, 5-7
- Software and Environment, ii, 5-3, 5-6
- Software Requirements, i, 3-1, 3-2
- Solaris Requirements, ii, 5-2, 5-3
- Starting the Cisco Collection Manager, iii, 6-1, 6-6
- Supported Browsers, i, 3-2
- Supported Databases, ii, 3-4
- System Requirements, ii, 5-1, 5-2
- Troubleshooting, iv, 9-8
- Troubleshooting application startup problem, iv, 9-1, 9-9
- Troubleshooting Connection Timeout from Traffic Database, iv, 9-1, 9-10
- Troubleshooting connectivity with Traffic Database, iv, 9-1, 9-9
- Troubleshooting if Device discovery failed, iv, 9-11

- Troubleshooting if error comes during Report Execution, iv, 9-2, 9-11
- Troubleshooting if Remote DB Connection failed, iv, 9-2, 9-11
- Troubleshooting if report is taking long time to generate (Report Wizard), v, 9-12
- Troubleshooting if User is not able to view full DB Query in logs, iv, 9-10
- Troubleshooting if User Login fails, iv, 9-2, 9-11
- Troubleshooting if User wants to view aggregation interval in case of non aggregation, iv, 9-1, 9-10
- Troubleshooting issues when setting a Master Device, iv, 9-10
- Troubleshooting MySQL compatibility issue, iv, 9-1, 9-6
- Troubleshooting NF_INI_VALUES not getting updated, iii, 9-1, 9-5
- Troubleshooting NF_INI_VALUES table Data, iii, 9-3
- Troubleshooting no data is displayed in report after successful execution (report wizard), iv, 9-2, 9-11
- Troubleshooting no interface showing any associated traffic, iv, 9-1, 9-8
- Troubleshooting reports are showing data in Bar chart however area and line charts are not working fine, v, 9-2, 9-12
- Troubleshooting the, iv, 9-1, 9-7
- Troubleshooting the Cisco Collection Manager, iii, 9-1, 9-6
- Troubleshooting Tomcat not started, iv, 9-6
- Troubleshooting user interface that is not loading correctly, iv, 9-1, 9-8
- Uninstalling Cisco Collection Manager, v, 27
- Uninstalling Cisco Insight Reporter, v, 27
- Uninstalling the software, v, 27
- Upgrading Cisco Collection Manager, v, 18
- Upgrading Cisco Insight Reporter, v, 18
- Using Cisco Collection Manager with bundled Sybase Database, v, 24
- Working with Firewall, ii, 3-3, 9-7