Cisco Application Visibility and Control

Installation and Troubleshooting Guide

Release 1.1 – March 2012
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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

<table>
<thead>
<tr>
<th>Cisco Service Center Release</th>
<th>Part Number</th>
<th>Publication Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 1.1</td>
<td>OL-26679-01</td>
<td>March 30, 2012</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Convention</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>bold</strong> font</td>
<td>Commands and keywords and user-entered text appear in <strong>bold</strong> font.</td>
</tr>
<tr>
<td><em>italic</em> font</td>
<td>Document titles, new or emphasized terms, and arguments for which you supply values are in <em>italic</em> font.</td>
</tr>
</tbody>
</table>
Conventions

<table>
<thead>
<tr>
<th>Convention</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>Elements in square brackets are optional.</td>
</tr>
<tr>
<td>{x</td>
<td>y</td>
</tr>
<tr>
<td>[ x</td>
<td>y</td>
</tr>
<tr>
<td>String</td>
<td>A non-quoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.</td>
</tr>
<tr>
<td>courier font</td>
<td>Terminal sessions and information the system displays appear in courier font.</td>
</tr>
<tr>
<td>&lt; &gt;</td>
<td>Nonprinting characters such as passwords are in angle brackets.</td>
</tr>
<tr>
<td>[ ]</td>
<td>Default responses to system prompts are in square brackets.</td>
</tr>
<tr>
<td>!, #</td>
<td>An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.</td>
</tr>
</tbody>
</table>

Note: **Means reader take note.**

Tip: **Means the following information will help you solve a problem.**

Caution: **Means reader be careful. In this situation, you might perform an action that could result in equipment damage or loss of data.**

Timesaver: **Means the described action saves time. You can save time by performing the action described in the paragraph.**

Warning: **Means reader be warned. 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:


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).

```text
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
```

Legend:

- Normal - XE 3.4.0S and above
- italics+Bold* – XE 3.5.0S Configuration
- Bold** – XE 3.5.0S Configuration for IPv6 configuration
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 sysuptime first
   collect timestamp sysuptime 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 sysuptime first
   collect timestamp sysuptime 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 exp1
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
!
!
flow monitor my-input-usage-monitor
   exporter exp1
   cache timeout inactive 300
   cache timeout active 300
   cache entries 10000*
   record my-input-usage-monitor-record
!
!
flow monitor my-output-usage-monitor
   exporter exp1
   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 exp1
   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 exp1
   cache type normal
   cache entries 100*
   cache timeout active 300
   cache timeout inactive 300

[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-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

<table>
<thead>
<tr>
<th>Components</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>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</td>
</tr>
<tr>
<td>RAM</td>
<td>4 GB or greater</td>
</tr>
<tr>
<td>Free disk space</td>
<td>10 GB for the operating system + free space for data retention. Recommended size is greater than 100 GB</td>
</tr>
<tr>
<td>Network interface</td>
<td>Single 100BASE-T Ethernet or greater</td>
</tr>
</tbody>
</table>

If you have any questions, you can contact Cisco Support to get an estimate of the required CPU power, RAM capacity, and disk storage.
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>
<thead>
<tr>
<th>Operating System</th>
<th>Version</th>
<th>Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat Enterprise Linux or CentOS 5.x</td>
<td>5.x</td>
<td>Intel 32/64 bit</td>
</tr>
<tr>
<td>Solaris</td>
<td>9 or 10</td>
<td>Intel 32/64 bit, SPARC 32/64 bit</td>
</tr>
</tbody>
</table>

**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 5.1 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 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.
Installing Cisco Insight Reporter

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

<table>
<thead>
<tr>
<th>OS Name</th>
<th>File Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat Enterprise Linux 5 - 32 bit</td>
<td>InsightReporter-&lt;version no.&gt;_rhel5-x86-32bit.zip</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5 – 64 bit</td>
<td>InsightReporter-&lt;version no.&gt;_rhel5-x86-64bit.zip</td>
</tr>
<tr>
<td>Solaris 10 - SPARC 32 bit</td>
<td>InsightReporter--&lt;version no.&gt;_solaris10-sparc-32bit.zip</td>
</tr>
<tr>
<td>Solaris 10 - SPARC 64 bit</td>
<td>InsightReporter--&lt;version no.&gt;_solaris10-sparc-64bit.zip</td>
</tr>
<tr>
<td>Solaris 10 - Intel x86 32 bit</td>
<td>InsightReporter--&lt;version no.&gt;_solaris10-x86-32bit.zip</td>
</tr>
<tr>
<td>Solaris 10 - Intel x86 64 bit</td>
<td>InsightReporter--&lt;version no.&gt;_solaris10-x86-64bit.zip</td>
</tr>
<tr>
<td>Solaris 9 - SPARC 32 bit</td>
<td>InsightReporter--&lt;version no.&gt;_solaris9-sparc-32bit.zip</td>
</tr>
<tr>
<td>Solaris 9 - SPARC 64 bit</td>
<td>InsightReporter--&lt;version no.&gt;_solaris9-sparc-64bit.zip</td>
</tr>
<tr>
<td>Solaris 9 - Intel x86 32 bit</td>
<td>InsightReporter--&lt;version no.&gt;_solaris9-x86-32bit.zip</td>
</tr>
</tbody>
</table>

**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 appears 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...

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
Installing Cisco Insight Reporter

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
Password test
Proceeding to configuration

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)

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

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.

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:
Installing Cisco Insight Reporter

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.
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.
### 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>
<thead>
<tr>
<th>System</th>
<th>SUNWbash</th>
<th>GNU Bourne-Again shell (bash)</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>SUNWgzip</td>
<td>The GNU Zip (gzip) compression utility</td>
</tr>
<tr>
<td>System</td>
<td>SUNWzip</td>
<td>The Info-Zip (zip) compression utility</td>
</tr>
<tr>
<td>System</td>
<td>SUNWlibC</td>
<td>Sun Workshop Compilers Bundled libC</td>
</tr>
<tr>
<td>System</td>
<td>SUNWlibCx</td>
<td>Sun WorkShop Bundled 64-bit libC</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>System</th>
<th>SUNWipc</th>
<th>Interprocess Communication</th>
</tr>
</thead>
</table>

(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

<table>
<thead>
<tr>
<th>System</th>
<th>SUNWadmap</th>
<th>System administration applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>SUNWadmc</td>
<td>System administration core libraries</td>
</tr>
</tbody>
</table>

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:

```bash
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**
- 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_shmmmax.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.
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.
Configuring Cisco Insight Reporter

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.

### Step 3

Extract the complete package into a temporary directory.

For example:

```bash
# 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:

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

**Step 2**

Create the *avocado* database schema:

```bash
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:

```bash
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 CMDIR` select 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 a `scmscm` user and a `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:
~scmcm/cm/bin/updateNetflowMap.sh--nf=NF IP address
--file=~scmcm/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 scmcm

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:

```bash
~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**

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

```bash
~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:

```bash
~scmscm/cm/bin/cm restart_nf
```
Configuring Cisco Collection Manager

### Table 6  On-boot.sh Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>--cm={}</td>
<td>Activate or do not activate the Cisco Collection Manager at startup.</td>
</tr>
<tr>
<td>--sybase={}</td>
<td>Activate or do not activate the Sybase server at startup.</td>
</tr>
</tbody>
</table>

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

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

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.

```bash
#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:

```bash
~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:

```bash
~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 CSV file 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:
Configuring Cisco Insight Reporter

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 Configuration](#)

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.

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:

![New ASR1K Configuration](image)

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:

![Network Wizard screenshot](image)

**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:

![Create Network](image)

**Figure 7: Create Network**

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

Step 4 Click the Devices tab.

![Devices tab](image)

**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:

![Account Management page](image)

**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](image)

**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.

Note

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.
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:

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

<table>
<thead>
<tr>
<th>TIME_STAMP</th>
<th>NF_IP</th>
<th>VALUE_TYPE</th>
<th>VALUE_KEY</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/15/2011 7:22:16 PM</td>
<td>10.78.246.19</td>
<td>101</td>
<td>Gi0/0/3</td>
<td>4</td>
</tr>
<tr>
<td>12/15/2011 7:22:16 PM</td>
<td>10.78.246.19</td>
<td>102</td>
<td>GigabitEthernet0/0/3</td>
<td>4</td>
</tr>
<tr>
<td>12/15/2011 5:25:33 PM</td>
<td>10.78.246.19</td>
<td>114</td>
<td>net-admin</td>
<td>50331825</td>
</tr>
<tr>
<td>12/15/2011 5:25:33 PM</td>
<td>10.78.246.19</td>
<td>115</td>
<td>remote-access-terminal</td>
<td>50331825</td>
</tr>
<tr>
<td>12/15/2011 5:25:33 PM</td>
<td>10.78.246.19</td>
<td>116</td>
<td>other</td>
<td>50331825</td>
</tr>
<tr>
<td>12/15/2011 5:25:33 PM</td>
<td>10.78.246.19</td>
<td>117</td>
<td>No</td>
<td>50331825</td>
</tr>
</tbody>
</table>
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"

<table>
<thead>
<tr>
<th>TIME_STAMP</th>
<th>NF_IP</th>
<th>VALUE_TYPE</th>
<th>VALUE_KEY</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12-15 21:47:26.0</td>
<td>10.78.246.19</td>
<td>101</td>
<td>Gi0/0/0</td>
<td>1</td>
</tr>
<tr>
<td>2011-12-15 21:47:26.0</td>
<td>10.78.246.19</td>
<td>102</td>
<td>GigabitEthernet0/0/0</td>
<td>1</td>
</tr>
<tr>
<td>2011-12-15 21:47:26.0</td>
<td>10.78.246.19</td>
<td>101</td>
<td>Gi0/0/1</td>
<td>2</td>
</tr>
<tr>
<td>2011-12-15 21:47:26.0</td>
<td>10.78.246.19</td>
<td>102</td>
<td>GigabitEthernet0/0/1</td>
<td>2</td>
</tr>
</tbody>
</table>
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
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" />

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”
Troubleshooting

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:

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Error Message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>Subscriber Manager: General Failure</td>
<td>Unable to connect to subscriber manager</td>
</tr>
<tr>
<td>1902</td>
<td>Subscriber Manager: Invalid SM Address</td>
<td>Subscriber manager ip address in not correct</td>
</tr>
<tr>
<td>1903</td>
<td>Subscriber Manager: Invalid Subscriber Record</td>
<td>Subscriber manager with invalid records</td>
</tr>
<tr>
<td>1904</td>
<td>Subscriber Manager: Missing Subscriber Record</td>
<td>Subscriber Manager with missing records</td>
</tr>
<tr>
<td>1801</td>
<td>The service you have requested is not available,</td>
<td>Generic error when got exception while interacting with BE</td>
</tr>
<tr>
<td></td>
<td>Please contact System Administrator or try later</td>
<td></td>
</tr>
<tr>
<td>1802</td>
<td>Missing request parameter</td>
<td>Error when exception during JSON validation</td>
</tr>
<tr>
<td>1803</td>
<td>Missing Auth String in request</td>
<td>Error display when user session expire</td>
</tr>
<tr>
<td>1804</td>
<td>Session Expired. Please re-login</td>
<td>Error display when authtoken of user session not found</td>
</tr>
<tr>
<td>1805</td>
<td>Auth Token found in header is either expired or</td>
<td>Error display when authtoken of user session expire</td>
</tr>
<tr>
<td></td>
<td>invalid</td>
<td></td>
</tr>
<tr>
<td>1806</td>
<td>Non Parsable Input Json</td>
<td>Error during parsing of JSON from GUI to BE</td>
</tr>
<tr>
<td>1807</td>
<td>Invalid Input Json</td>
<td>Error during validation of JSON from GUI to BE</td>
</tr>
<tr>
<td>1808</td>
<td>IO Error while processing json</td>
<td>Error during processing of JSON from GUI to BE</td>
</tr>
<tr>
<td>1600</td>
<td>This account name already exists, please select</td>
<td>Error during creating account with existing name</td>
</tr>
<tr>
<td></td>
<td>another name</td>
<td></td>
</tr>
<tr>
<td>1601</td>
<td>Deletion denied. ? has accounts under it</td>
<td>Error during deletion of account group if accounts under them</td>
</tr>
<tr>
<td>1604</td>
<td>Accounts under account group cannot be saved</td>
<td>Got exception during saving of accounts for account group</td>
</tr>
<tr>
<td>1605</td>
<td>Account Group not found</td>
<td>Error when account group not found</td>
</tr>
<tr>
<td>1606</td>
<td>Account not found</td>
<td>Error when account not found</td>
</tr>
<tr>
<td>1607</td>
<td>Account Details cannot be saved</td>
<td>Got exception during the saving of Account group</td>
</tr>
<tr>
<td>1608</td>
<td>Account Group Details cannot be saved</td>
<td>Got exception during the saving of Account group details</td>
</tr>
<tr>
<td>1616</td>
<td>Error while saving Role details.</td>
<td>Error during saving Role</td>
</tr>
<tr>
<td>1610</td>
<td>Account Group cannot be removed</td>
<td>Got exception during the removing of Account group</td>
</tr>
<tr>
<td>Error Code</td>
<td>Description</td>
<td>Error Message</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>1611</td>
<td>Account details cannot be updated</td>
<td>Got exception during the updating and saving of Account group</td>
</tr>
<tr>
<td>1612</td>
<td>Account Group details cannot be updated</td>
<td>Got exception during the updating and saving of Account group details</td>
</tr>
<tr>
<td>1613</td>
<td>Account cannot be removed</td>
<td>Got exception during the removing of Account</td>
</tr>
<tr>
<td>1614</td>
<td>Role cannot be removed</td>
<td>Got exception during the removing of Role</td>
</tr>
<tr>
<td>1615</td>
<td>Role not found</td>
<td>Got exception during the retrieval of Role</td>
</tr>
<tr>
<td>1617</td>
<td>Default superuser account cannot be deleted</td>
<td>Try to delete super use account.</td>
</tr>
<tr>
<td>1618</td>
<td>Account cannot be deleted, first delete its child accounts/roles/account groups</td>
<td>Error message when deleting of account when child accounts/roles/account group exists</td>
</tr>
<tr>
<td>1619</td>
<td>Visibility cannot be created since no topics found for the network</td>
<td>Error during creating Visibility when no topics found for network</td>
</tr>
<tr>
<td>1620</td>
<td>Visibility cannot be removed</td>
<td>Error during deleting of Visibility</td>
</tr>
<tr>
<td>1621</td>
<td>Visibility not found</td>
<td>Error during retrieval of Visibility</td>
</tr>
<tr>
<td>1622</td>
<td>Default Super user Role cannot be deleted</td>
<td>Error during deleting the default super user</td>
</tr>
<tr>
<td>1623</td>
<td>Some accounts cannot be added since those already exist under the account group</td>
<td>Error during the addition of existing account in account group</td>
</tr>
<tr>
<td>1624</td>
<td>Some accounts cannot be deleted since those already exist under account group</td>
<td>Error during the deletion of account which already have account group</td>
</tr>
<tr>
<td>1625</td>
<td>Report cannot be published as public. User of this account group does not have the report sharing capability</td>
<td>Account group is not authorize to share reports</td>
</tr>
<tr>
<td>1626</td>
<td>Default Super User role cannot be updated</td>
<td>Error during updating Super user Role</td>
</tr>
<tr>
<td>1627</td>
<td>Account group name already exists, please give some other name</td>
<td>Error during the creating Account group with existing name</td>
</tr>
<tr>
<td>1628</td>
<td>Role name already exists, please give some other name</td>
<td>Error during creating Role with existing name</td>
</tr>
<tr>
<td>1629</td>
<td>Visibility name already exists, please give some other name</td>
<td>Error during creating Visibility with existing name</td>
</tr>
<tr>
<td>1630</td>
<td>Deletion denied. This visibility has accounts under it</td>
<td>Error during deleting the Visibility with existing account</td>
</tr>
<tr>
<td>1631</td>
<td>Deletion denied. This account group has accounts under it</td>
<td>Error during deleting Account group which has already account</td>
</tr>
<tr>
<td>1632</td>
<td>Deletion denied. This role has accounts under it</td>
<td>Error during deleting the Role which has account</td>
</tr>
<tr>
<td>1633</td>
<td>Data Grid cannot be published as an image</td>
<td>Error during publishing the data grid as image.</td>
</tr>
<tr>
<td>1301</td>
<td>Invalid username or password</td>
<td>Error during login with invalid user name / password</td>
</tr>
<tr>
<td>1303</td>
<td>User does not exist</td>
<td>Login with user that does not exist</td>
</tr>
<tr>
<td>1302</td>
<td>Authentication Token is either invalid or expired</td>
<td>Auth token for user sessions has been expire or invalid</td>
</tr>
<tr>
<td>1304</td>
<td>Access denied - No more sessions allowed for this role.</td>
<td>Accessing with more session for user which are not configured</td>
</tr>
<tr>
<td>1410</td>
<td>Definition not found for this report</td>
<td>Got exception while retrieving report definition</td>
</tr>
<tr>
<td>1411</td>
<td>Duration filter details not found for this report</td>
<td>Got exception while retrieving Duration filter</td>
</tr>
<tr>
<td>1412</td>
<td>View filter details not found for this report</td>
<td>Got exception while retrieving view filter</td>
</tr>
<tr>
<td>1428</td>
<td>Charting Custom Parameter value not found!</td>
<td>Got exception while retrieving Custom parameter</td>
</tr>
<tr>
<td>Error Code</td>
<td>Error Description</td>
<td>Exception Message</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1429</td>
<td>Error during deletion of ReportDefinition</td>
<td>Got exception during deletion of reports definition</td>
</tr>
<tr>
<td>1424</td>
<td>Error while setting report Axis Information</td>
<td>Got exception during saving x-axis report information</td>
</tr>
<tr>
<td>1425</td>
<td>Network Details not found.</td>
<td>Got exception during retrieving network details</td>
</tr>
<tr>
<td>1426</td>
<td>Error while retrieving Report Custom Parameters</td>
<td>Got exception during retrieving Report custom parameters</td>
</tr>
<tr>
<td>1427</td>
<td>Error while generating the summary table</td>
<td>Got exception during processing of Summary table details</td>
</tr>
<tr>
<td>1402</td>
<td>Service Tree for the network does not exist.</td>
<td>Exception during service retrieval</td>
</tr>
<tr>
<td>1420</td>
<td>Error during report cancellation request.</td>
<td>Got exception when cancelling the report run</td>
</tr>
<tr>
<td>1400</td>
<td>Error during report execution process.</td>
<td>Got exception while report run</td>
</tr>
<tr>
<td>1401</td>
<td>Error during the report series generation process.</td>
<td>Got exception while series generation process</td>
</tr>
<tr>
<td>1416</td>
<td>Topic not found for this network</td>
<td>Error while loading topics for selected network</td>
</tr>
<tr>
<td>1417</td>
<td>Unable to create a report definition.</td>
<td>Got exception during save report</td>
</tr>
<tr>
<td>1434</td>
<td>Virtual Link not found exception.</td>
<td>got exception when VLINK not found</td>
</tr>
<tr>
<td>1435</td>
<td>Invalid report parameter selection</td>
<td>Error during invalid selection of parameter</td>
</tr>
<tr>
<td>1443</td>
<td>Error during drill down report execution</td>
<td>Got exception during drill down report run</td>
</tr>
<tr>
<td>1444</td>
<td>Report Information not found for the selected report</td>
<td>Got exception during the retrieval of report</td>
</tr>
<tr>
<td>1432</td>
<td>Error during related report run process</td>
<td>Got exception during related report run</td>
</tr>
<tr>
<td>1447</td>
<td>No data found for the report selections</td>
<td>No data retrieve for selected parameter during report run</td>
</tr>
<tr>
<td>1448</td>
<td>Subscriber validation failed</td>
<td>when user has no visibility rights on given subscriber id</td>
</tr>
<tr>
<td>1449</td>
<td>Unable to send the E-mail</td>
<td>Got exception while sending email during publish</td>
</tr>
<tr>
<td>1450</td>
<td>Unable to delete Subscriber Data</td>
<td>Got exception while deleting subscriber</td>
</tr>
<tr>
<td>1430</td>
<td>Error during exporting the report</td>
<td>Got exception during report run</td>
</tr>
<tr>
<td>1431</td>
<td>Export Data Not found!</td>
<td>Gallery path incorrect in setting</td>
</tr>
<tr>
<td>1440</td>
<td>Merge Report Data Not found!</td>
<td>No data found from while merging the reports</td>
</tr>
<tr>
<td>1475</td>
<td>Report Dashboard not found</td>
<td>Got exception while dashboard processing</td>
</tr>
<tr>
<td>1476</td>
<td>Report Dashboard Data not found</td>
<td>When no data found in dashboard widgets</td>
</tr>
<tr>
<td>1477</td>
<td>Unable to delete report dashboard widget</td>
<td>Got exception during the deletion of dashboard widget</td>
</tr>
<tr>
<td>1478</td>
<td>Unable to save report dashboard widget</td>
<td>Got exception during save on dashboard</td>
</tr>
<tr>
<td>1479</td>
<td>Dashboard already contains the maximum number of widgets ? To add other reports on</td>
<td>Got message during save a report on dashboard once maximum limit of report addition is reached on dashboard.</td>
</tr>
<tr>
<td></td>
<td>the Dashboard or pause any Scheduled Reports with Dashboard destination activated</td>
<td></td>
</tr>
<tr>
<td>1455</td>
<td>Reports not owned by the user cannot be deleted.</td>
<td>Error during deleting report which is owned by other user</td>
</tr>
<tr>
<td>1456</td>
<td>Error while opening a report.</td>
<td>Got exception during the opening of reports</td>
</tr>
<tr>
<td>1457</td>
<td>Error while merging report.</td>
<td>Got exception during merging of two reports</td>
</tr>
<tr>
<td>1458</td>
<td>Report cannot be deleted.</td>
<td>Got exception during the deleting of Report</td>
</tr>
<tr>
<td>1459</td>
<td>Reports not owned by the user cannot be shared.</td>
<td>Error during the sharing of report which is owned by other user</td>
</tr>
<tr>
<td>1460</td>
<td>Reports not owned by the user cannot be unshared.</td>
<td>Error during the unsharing of report which is owned by other user</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Error Message</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1461</td>
<td>User doesn’t have the capability to share or publish a public report.</td>
<td>User does not have rights to share or publish a public report</td>
</tr>
<tr>
<td>1462</td>
<td>Error while adding a report in gallery.</td>
<td>Got exception during the adding report to report gallery</td>
</tr>
<tr>
<td>1467</td>
<td>Error while saving report definition.</td>
<td>Got exception during the saving reports</td>
</tr>
<tr>
<td>1468</td>
<td>Error while creating leading inputs</td>
<td>Got exception during the creation of leading inputs</td>
</tr>
<tr>
<td>1481</td>
<td>Favorite Report Not Found!.</td>
<td>Got exception during retrieval of list of reports in MF</td>
</tr>
<tr>
<td>1482</td>
<td>Favorite Report cannot be deleted.</td>
<td>Error during the favorite report deletion</td>
</tr>
<tr>
<td>1483</td>
<td>Favorite Report cannot be added.</td>
<td>Error during the favorite report addition</td>
</tr>
<tr>
<td>1484</td>
<td>Favorite Report cannot be shared.</td>
<td>Got exception during sharing of reports</td>
</tr>
<tr>
<td>1485</td>
<td>Favorite Report cannot be duplicated.</td>
<td>Got exception during duplicate reports process</td>
</tr>
<tr>
<td>1486</td>
<td>Favorite Reports Accounts cannot be Found.</td>
<td>Error when account in MF not found</td>
</tr>
<tr>
<td>1491</td>
<td>Scheduled Report cannot be pause.</td>
<td>Error while pause of Schedule reports</td>
</tr>
<tr>
<td>1492</td>
<td>Scheduled Report cannot be resumed.</td>
<td>Error while resume of Schedule reports</td>
</tr>
<tr>
<td>1493</td>
<td>Scheduled Report cannot be executed.</td>
<td>Error while execution of Schedule reports</td>
</tr>
<tr>
<td>1494</td>
<td>Scheduled Report cannot be added.</td>
<td>Error while adding Schedule reports</td>
</tr>
<tr>
<td>1495</td>
<td>Scheduled Report cannot be deleted.</td>
<td>Error while deleting Schedule reports</td>
</tr>
<tr>
<td>1496</td>
<td>Scheduled Report cannot be Found.</td>
<td>Error while retrieving Schedule reports</td>
</tr>
<tr>
<td>1497</td>
<td>Report cannot be Scheduled.</td>
<td>Error while Scheduling reports process</td>
</tr>
<tr>
<td>1498</td>
<td>Scheduled Report cannot be duplicated.</td>
<td>Error while duplicating Scheduling reports process</td>
</tr>
<tr>
<td>1499</td>
<td>Scheduled Report cannot be Updated.</td>
<td>Error while updating Scheduling reports process</td>
</tr>
<tr>
<td>1445</td>
<td>Unable to save a report in my favorite</td>
<td>Error to save a report in my favorite.</td>
</tr>
<tr>
<td>1200</td>
<td>Monitoring Exception</td>
<td>Got exception during monitoring of different parameter</td>
</tr>
<tr>
<td>1201</td>
<td>Operation not valid on this type of statistics.</td>
<td>Error when operation not allowed on set of parameter</td>
</tr>
<tr>
<td>1100</td>
<td>Logging Exception</td>
<td>Got exception during logging process</td>
</tr>
<tr>
<td>1101</td>
<td>Configuration Exception</td>
<td>Got exception during server startup due to not setting proper DB configuration</td>
</tr>
<tr>
<td>1102</td>
<td>Invalid Configuration!</td>
<td>Error when the server startup configuration is invalid</td>
</tr>
<tr>
<td>1103</td>
<td>Missing Configuration!</td>
<td>Error when the server startup configuration is missing</td>
</tr>
<tr>
<td>1104</td>
<td>Remote Database configuration is not valid.</td>
<td>Error when Remote DB wrong configuration</td>
</tr>
<tr>
<td>1105</td>
<td>Remote Database cannot be deleted.</td>
<td>Error when Remote DB cannot be deleted</td>
</tr>
<tr>
<td>1108</td>
<td>Remote Database not found.</td>
<td>Error while retrieving Remote DB information</td>
</tr>
<tr>
<td>1106</td>
<td>Remote Database cannot be saved.</td>
<td>Error while saving Remote DB information</td>
</tr>
<tr>
<td>1107</td>
<td>Unable to test Remote Database Connectivity.</td>
<td>Error while test of Remote DB configuration</td>
</tr>
<tr>
<td>1109</td>
<td>Unable to update remote database, some attributes are missing.</td>
<td>Updating Remote data base with missing attributes</td>
</tr>
<tr>
<td>1501</td>
<td>Service Tree not found.</td>
<td>Error when service tree not found during topic load</td>
</tr>
<tr>
<td>1503</td>
<td>Default Services not associated with device</td>
<td>Error when default service is not associated with device selection</td>
</tr>
<tr>
<td>1505</td>
<td>Package not found.</td>
<td>Package not found during network creation</td>
</tr>
<tr>
<td>1510</td>
<td>Network not found.</td>
<td>Got exception while network retrieval</td>
</tr>
<tr>
<td>1511</td>
<td>Device not found.</td>
<td>No device found in the process of auto discovery</td>
</tr>
<tr>
<td>1512</td>
<td>Topology not found.</td>
<td>Got exception while topology retrieval</td>
</tr>
</tbody>
</table>

Cisco Application Visibility and Control

OL-26679-01
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<th>Code</th>
<th>Description</th>
<th>Error Message</th>
</tr>
</thead>
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<tr>
<td>1515</td>
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<td>Got exception while network saving</td>
</tr>
<tr>
<td>1520</td>
<td>Zone not found</td>
<td>Zone not found during network creation</td>
</tr>
<tr>
<td>1521</td>
<td>Device cannot be deleted</td>
<td>Used as Master device</td>
</tr>
<tr>
<td>1525</td>
<td>Device cannot be saved</td>
<td>Got exception during saving of devices</td>
</tr>
<tr>
<td>1526</td>
<td>Device cannot be updated</td>
<td>Got exception during updating and saving of devices</td>
</tr>
<tr>
<td>1527</td>
<td>CMTS cannot be fetched</td>
<td>Got exception reading CMTS information from Remote DB</td>
</tr>
<tr>
<td>1528</td>
<td>? Network already exist, Please give some other name.</td>
<td>Creating network with existing name</td>
</tr>
<tr>
<td>1529</td>
<td>No Services exists for Master Device ?, Please select other device as Master.</td>
<td>Setting master device if there is no service exists</td>
</tr>
<tr>
<td>1530</td>
<td>No Services exist For Master Device?, Network cannot be saved.</td>
<td>Setting master device if there is no service exists</td>
</tr>
<tr>
<td>1531</td>
<td>Report Filter not found</td>
<td>If report filter is not assigned in visibility filter</td>
</tr>
<tr>
<td>1533</td>
<td>Network cannot be updated</td>
<td>Got exception during updating and saving of network</td>
</tr>
<tr>
<td>1534</td>
<td>Network cannot be saved since selected Remote Database is not in CMTS aware mode.</td>
<td>conflict on CMTS aware database</td>
</tr>
<tr>
<td>1535</td>
<td>Network cannot be updated since selected Remote Database is not in CMTS aware mode.</td>
<td>conflict on CMTS aware database</td>
</tr>
<tr>
<td>1537</td>
<td>Subscriber Manager cannot be connected</td>
<td>Subscriber Manager Cannot be Connected.</td>
</tr>
<tr>
<td>1538</td>
<td>No Service Tree found for this network</td>
<td>Service tree not found for configured network</td>
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<tr>
<td>1539</td>
<td>Network Device details cannot be updated</td>
<td>Got Exception during Network Device Details updating</td>
</tr>
<tr>
<td>1700</td>
<td>Remote Database cannot be connected.</td>
<td>Error during connecting Remote Database</td>
</tr>
<tr>
<td>1701</td>
<td>Report protocol entity not found.</td>
<td>Error during retrieving report protocol</td>
</tr>
<tr>
<td>1702</td>
<td>Record doesn't exist in configuration (?) table</td>
<td>Error during remote database test connection</td>
</tr>
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<td>Configuration (?) table doesn't exist</td>
<td>Error during remote database test connection</td>
</tr>
<tr>
<td>1110</td>
<td>Device Update failed. Master device cannot be unmanaged.</td>
<td>It appears if user unmanage a device which is acting as master device in any network.</td>
</tr>
<tr>
<td>1134</td>
<td>Remote database cannot be deleted, Network(s) are configured on this remote database.</td>
<td>Remote Database cannot be deleted if at least one network is created against same Remote Database.</td>
</tr>
<tr>
<td>1135</td>
<td>Device cannot be deleted, This device is configured as master device in network(s).</td>
<td>Master Device cannot be deleted.</td>
</tr>
<tr>
<td>1138</td>
<td>The IP Address of the device you have provided already exists. IP Address should be unique among devices of a Remote Database.</td>
<td>IP Address of the devices cannot be duplicate while discovering devices.</td>
</tr>
<tr>
<td>2107</td>
<td>Maximum limit of authentication server has reached</td>
<td>Finite number of AAA server can be configured under each mode (by default, number of AAA server is 5).</td>
</tr>
<tr>
<td>2108</td>
<td>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</td>
<td>AAA Mode cannot be disabled if any account is created under same AAA mode.</td>
</tr>
<tr>
<td>2109</td>
<td>No active server available under this mode</td>
<td>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.</td>
</tr>
<tr>
<td>Error Code</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>2110</td>
<td>The authentication service is down, Please contact System Administrator or try later.</td>
<td></td>
</tr>
<tr>
<td>2111</td>
<td>There are ? user(s) which are using this server. In order to delete this server, either these users need to be deleted or migrated.</td>
<td></td>
</tr>
<tr>
<td>2111</td>
<td>Error during while login if all AAA servers of assigned mode are down.</td>
<td></td>
</tr>
<tr>
<td>1413</td>
<td>No report definition found for current selection. Please select other options.</td>
<td></td>
</tr>
<tr>
<td>1413</td>
<td>Selection of various parameters available on report wizard does not match with any defined reports.</td>
<td></td>
</tr>
<tr>
<td>1502</td>
<td>Device discover failed, remote database cannot be connected.</td>
<td></td>
</tr>
<tr>
<td>1502</td>
<td>Device discover operation get failed if in case remote device is not connectable.</td>
<td></td>
</tr>
<tr>
<td>1560</td>
<td>No applications exist for master device ?, Please select other device as master.</td>
<td></td>
</tr>
<tr>
<td>1560</td>
<td>If selected master device does not have any application.</td>
<td></td>
</tr>
<tr>
<td>1562</td>
<td>Interface sync job is already running for this network.</td>
<td></td>
</tr>
<tr>
<td>1562</td>
<td>This message appears if in case user tries to sync the interfaces but sync operation is already running behind.</td>
<td></td>
</tr>
<tr>
<td>1565</td>
<td>No applications exist for master device ?, network cannot be saved.</td>
<td></td>
</tr>
<tr>
<td>1565</td>
<td>Network cannot be saved if master device does not have any application.</td>
<td></td>
</tr>
</tbody>
</table>
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.

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

You see code similar to following on your screen:

```shell
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:

```plaintext
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
lsf -i tcp: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:

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]

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 -R 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:

```bash
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/mysqldadmin -u root -h [HOSTNAME] password 'password'
/opt/mysql/mysql/bin/mysqldadmin -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
```
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 -storepass
insight -keystore insight.bin
```

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.

    <!-- 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 -p password 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.

```
mysql 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.

Note

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

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Log in as the root user.</td>
</tr>
<tr>
<td>Step 2</td>
<td>Uninstall the Cisco Collection Manager software. Change the directory to install-scripts under the distribution kit root directory, and enter: ./uninstall.sh --cm</td>
</tr>
</tbody>
</table>

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
```
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

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.
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