Cisco Insight Reporter Installation Guide

Release 4.2.0

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Cisco Insight Reporter v 4.2.0 Installation Guide

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Preface

This preface describes the audience, organization and conventions of *Cisco Insight Reporter v4.2.0 Installation Guide* and provides information on how to obtain related documentation and technical assistance.

It contains the following sections:

1. Document Revision History
2. Audience
3. Organization
4. Related Documentation
5. Conventions
6. Obtaining Documentation and Submitting a Service Request

1. Document Revision History

Cisco Service Center Release	Publication Date
Release 4.2.0	August 26, 2014

2. Audience

The *Cisco Insight Reporter Installation Guide* is addressed to:

Technicians responsible for the installation/upgrade of the system.

Administrators responsible for setting up the system and making the initial provisioning.

Note This document assumes that the system administrator has basic familiarity with the Red Hat Enterprise Linux (RHEL) or CentOS and Solaris operating systems, MySQL Server, Apache Tomcat application server and network configuration.

3. Organization

The *Cisco Insight Reporter Installation Guide* is categorized into the following chapters:

Chapter	Title	Description
1	Preparing for Installation	Provides details about the hardware and software required to install the application. It describes the various scenarios under which the application can be used.
2	Installing Cisco Insight Reporter	Provides instructions on how to upgrade from earlier releases to Cisco Insight Reporter 4.2.0.
3	Post-Installation Procedures	Provides details about the steps and guidelines to configure the application and run the first reports
4	Troubleshooting	Provides troubleshooting details for the commonly encountered problems.

4. Related Documentation

Cisco Insight Reporter v4.2.0 Installation Guide should be used in conjunction with the following documentation:

- *Cisco Insight Reporter v4.2.0 User Guide*
- *Cisco Insight Reporter v4.2.0 Release Notes*

5. Conventions

The document uses the following conventions:

Conventions

Convention	**Indication**
bold font	Commands and keywords and user-entered text appear in **bold** font.
italic font	Document titles, new or emphasized terms, and arguments for which user supply values are in *italic* font.
[ ]	Elements in square brackets are optional.
{x | y | z }	Required alternative keywords are grouped in braces and separated by vertical bars.
[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
String	A non-quoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
`courier` font	Terminal sessions and information the system displays appear in `courier` font.
< >	Nonprinting characters such as passwords are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Note	Means *reader take note*.
Tip	Means *the following information will help user solve a problem*.
Caution	Means *reader be careful*. In this situation, user might perform an action that could result in equipment damage or loss of data.
Timesaver	Means *the described action saves time*. User can save time by performing the action described in the paragraph.
Warning	Means *reader be warned*. In this situation, user might perform an action that could result in bodily injury.

6. Obtaining Documentation and Submitting a Service Request

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

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

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

1. Preparing for Installation

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

This chapter contains the following sections:

- Hardware Requirements
- Software Requirements
- Service Control Software Components Requirements
- Deployment Scenarios

1.1. Hardware Requirements

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

Table 3. *Hardware Specifications*

Components	Specifications
CPU	Multi-core Intel x86/64 processor - 2.0 GHz or greater. 8 or more cores recommended.
RAM	4 GB or greater. At least 16 GB of RAM are recommended when using the bundled MySQL Enterprise Server to store traffic data.
Storage	The application requires at least 1 GB free in the /home partition. In case the embedded MySQL Enterprise database is NOT used to store traffic data: it is recommended to allocate at least 100 GB of storage. In case the embedded MySQL Enterprise database is ALSO used to store traffic data: the appropriate disk size depends mainly on the RDR settings of SCE devices and the desired data retention policies to apply. In this scenario it is recommended to allocate at least 1 TB of storage – please contact Cisco support for a more accurate sizing of the storage.
Network interface	At least 1 Fast Ethernet (100Mbps) or Gigabit Ethernet (1 Gbps) network interface is required.

Contact Cisco support for an estimate of the required CPU power, RAM capacity, and disk storage.

Note

The performance of Cisco Insight Reporter depends on the size of the Cisco SCE deployment and the number of users simultaneously running the reports. To get an optimal performance, the hardware may need to be scaled accordingly.
In particular, the above recommendations are only valid for Cisco Insight Reporter when running on a dedicated hardware.
If the server or virtual machine is also used to co-host other applications, the hardware needs to be upgraded accordingly in terms of RAM, CPU and storage.

1.2. Software Requirements

You can install Cisco Insight Reporter on any server with following software specifications:

Operating Systems

Cisco Insight Reporter 4.2.0 is compatible with the following operating systems:

Table 5 . *Supported Operating Systems*

Operating System	Version	Architecture
Red Hat Enterprise Linux or CentOS Linux	5.x 64bit	Intel x86 64 bit
	6.x 64bit	

Java Runtime Environment (JRE)

Cisco Insight Reporter 4.2.0 requires the Java Runtime Environment release 6.

If JRE6 is not found on the system, Cisco Insight Report will automatically install it.

Supported Browsers

Cisco Insight Reporter 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, install Flash Player v10.x or above 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 to use a minimum vertical resolution of 1024 pixels.

Note Resolution of 1024x768 is supported with vertical and horizontal scroll bars. On 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, set the browser to full-screen mode (F11 function key on most common internet browsers).

Working with Firewall

Before installing and using Cisco Insight Reporter, make sure the below TCP ports, required by the application, are not blocked by a firewall or port blocking service:

- Port for running the local MySQL Enterprise 5.6 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), if used
- Connections to external database servers storing Traffic Data being populated by Cisco Collection Manager(s), if used
- Connections to Cisco Service Control Subscriber Manager
- Connections to an external SMTP server, if used (email notification and report delivery)

Ensure that the following UDP ports, required by the application, are not blocked by a firewall or port blocking service.

- Port for connecting to RADIUS server

If the user is running an existing MySQL Enterprise instance, ensure that:

- MySQL Enterprise server is running
- Network connections to the server are enabled
- Network port specified in the firewall configuration is the one configured on the server

SELinux option

Cisco Insight Reporter does not support the SELinux feature. The installation wizard will abort if SELinux has been enabled.

Note

Cisco Insight Reporter does not work in if SELinux option has been enabled.

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 to Store Traffic Data

Cisco Insight Reporter can connect to external databases storing traffic information populated by Cisco Service Control Collection Managers.

The application supports the same database vendors and versions as Cisco Collection Manager software.

Cisco Insight Reporter also provides an embedded MySQL Enterprise 5.6 server required for its internal operations.

In case the target server or virtual machine hosting Cisco Insight Reporter is already running a MySQL Enterprise 5.6 database server, the application will integrate the existing database and not install the embedded MySQL packages.

The database schema containing traffic data collected from SCE devices (whose default name is 'apricot') is created and populated by one or more Cisco Collection Managers.

This database schema containing traffic data can be installed on an external database server, or on the embedded MySQL Enterprise shipped with Cisco Insight Reporter. In that case, some restrictions apply.

Note For legal reasons, starting from this release, end-users will no longer be able to connect to the application's embedded MySQL Enterprise server.
Customers that require connecting to the internal database to extract traffic information and feed 3rd party OSS systems are requested to deploy an external database server.

Cisco Insight Reporter application supports the same database technologies and versions as Cisco Collection Manager software. When configuring the solution to use an external database server (whose license is NOT provided by Cisco), the following vendors and versions can be used:

- Oracle 9.x or later
- Sybase ASE 12.x or later
- MySQL Enterprise 5.x or later

Note For legal reasons, the application installer only provides the JDBC driver to connect to traffic databases based on MySQL Enterprise technology.

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 Cisco Collection Manager and Cisco Insight Reporter are installed on the same machine, it is mandatory to use, as traffic database, the embedded MySQL Enterprise server shipped with Cisco Insight Reporter.

1.3. Service Control Software Components Requirements

Cisco Insight Reporter works with the other Cisco Service Control Management Suite components.

The following SCM component versions are compatible with this release:

Table 6. *SCM Component Version*

Component	Version
Cisco Service Control Subscriber Manager	from 3.5.0 to 4.2.0
Cisco Service Control Collection Manager	from 3.5.0 to 4.2.0
Cisco SCE	from 3.5.0 to 4.2.0 for SCE8000 models (older SCE models are also supported, with some restrictions)

Note

Cisco Insight Reporter 4.2.0 supports SCE deployments running Cisco SCOS up to version 4.2.0 and is backward compatible with earlier releases.

However, starting from release 4.0.0, the application supports only Cisco SCE devices and does no more support Cisco ASR1000 series routers running Application Visibility and Control (AVC) feature.
Cisco ASR1000 customers can check on http://www.cisco.com/go/avc for the availability of other reporting solution for AVC.

Note

Customers running Cisco Insight Reporter releases 3.x for deployments based on Cisco ASR1000 routers will need to remove the related Network configuration(s) before upgrading to Cisco Insight Reporter 4.2.0.
The upgrade procedure does not support the migration of Networks created for Cisco ASR1000 devices.

1.4. Deployment Scenarios

Cisco Insight Reporter can support different deployment scenarios to match different business requirements.

Note

Traffic databases are used to store metadata for Cisco SCE devices and traffic data (populated by Cisco Service Control Collection Manager software).

The embedded MySQL Enterprise database bundled with Cisco Insight Reporter is required for internal usage and data caching while generating reports.

For small Cisco SCE deployments (e.g. less than 10.000 subscribers), the internal database of Cisco Insight Reporter can also be used to store traffic data. In that case, Cisco Collection Managers need to be configured to work with the bundled MySQL Enterprise server shipped with the application.

For hardware configuration, please refer to Hardware Requirements.

These deployment scenarios are described in the following sections:

Virtual Machine Scenario

Cisco Insight Reporter can be installed on a any virtual machine compliant with the software/hardware prerequisites. The resources allocated to the virtual machine should be configured according to the target deployment scenario (number of Cisco SCEs, configuration of RDRs, data retention policies, and constraints due to additional running software that could be co-hosted on the same virtual machine).

Single Instance Scenario

In the single instance scenario, Cisco Insight Reporter is installed on a single appliance running one of the supported OS versions.

Table 7. *Single Appliance Scenarios*

Single Instance Scenario	Description
Reporter installed on a dedicated host	In this scenario, the server or virtual appliance is 100% dedicated to Cisco Insight Reporter. The Collection Manager(s) and the traffic database are installed on other hosts. This is the recommended configuration for large SCE deployments.

Reporter and traffic database installed on the same host	The server hosting Cisco Insight Reporter also contains the traffic database (populated by one or more external CMs). The traffic database needs to be MySQL Enterprise 5.6 (it can be the embedded database shipped with the solution OR it can be provided by the Customer). This scenario is used to set up small deployments with one or more external Collection Managers..
Reporter, traffic database and Collection Manager installed on the same host	This scenario is similar to the previous one, but it is used when only one Collection Manager is required. It is interesting for small Customers as it can be delivered as an all-in-one solution with all the Cisco Service Control components on board. For average and top level Customers, this is not a recommended scenario as Cisco SCM components are sharing the same hardware resources.

Multiple Instance Scenario

This scenario satisfies high availability of requirements. It is an extension of the previous scenario providing high-availability and redundancy functions by clustering the software and/or hardware layers.

This software provides high-availability and redundancy using solutions such as:

- Cold Failover—Two identical appliances can be deployed to provide a “cold” fail-over solution. No data is lost in case of failure of one of the appliances, but all pending operations with the clients are dropped and need to be restarted.

- Bundled MySQL Enterprise engine for internal operations—When configuring an active or standby cluster for this software, MySQL can be configured with table replication to provide data consistency and keep the tables of the clustered system in synchronized state.

Note The High-Availability configuration that can be setup for the Cisco Insight Reporter only applies to the reporting capability, not to traffic data collection and storage: the redundancy of the database layer should be manually set up (by the Collection Manager databases).

Multi-tenancy Scenarios

A single instance of this software can serve one or more customer organizations (single ISP or ISP with multiple enterprise customer networks).

Table 1. Multi-tenancy scenarios

Multi-tenancy Scenarios	Description
ISP with one or more networks	This is the most common scenario, where an ISP has one or more SCE networks sharing the same service configuration. For example, an ISP with a mobile network and a fixed network. In this case, administrators can create a single group of users, defining discrete visibility rights on networks, reports, packages, and subscribers. For example, some users can run reports only for the mobile network, others only for the fixed network, and some others can see both networks. Based on the ISP organization, an alternative can be creating a user group for each network, thus allowing network segmentation based on user groups. In this situation, sharing reports will be allowed only for users belonging to the same group.
ISP with hosted customer networks	In this scenario, the ISP has multiple customer networks and needs to provide a reporting service for each customer. In this case, customers can self-manage their users by adding, changing, or removing accounts and also create new custom roles (based on report capabilities). For example, customers can have their own SCEs, Collection Manager and database; centralized software can be connected to all these Traffic Databases to provide reporting services. The ISP can also create a user group with visibility over multiple customer networks. This can be useful when there is a partner in charge of monitoring the different customer networks using this software.
Internet Data Center with one network shared by multiple customers	In this scenario, the software supports SCEs positioned at the edge of a Data Center to monitor a Server Farm. The monitored subscribers or end-users are on the internal LAN and are typically the hosted or housed servers for end users. End users can access the Cisco Insight Reporter platform to run reports to monitor their own traffic. Usage of the server Multi-tenancy based on the network is not enough as segmentation for visibility, (Subscriber segmentation is required because Cisco Insight Reporter accounts can configured to have visibility only on specific subscribers [their owned servers]) An alternative requirement to provide subscriber visibility segmentation is to define filters for Subscriber Packages.

2. Installing Cisco Insight Reporter

Cisco Insight Reporter 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
- Un-installing Cisco Insight Reporter
- Installing MySQL for Cisco Insight Reporter on Solaris
- Setup and Installation for HA Scenario
- Enabling HTTPS

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

The installation package for each platform contains:

- Cisco Insight Reporter 4.2.0 software
- Java Run-time Environment (JRE) v6
- The Apache Tomcat web server v6
- MySQL Enterprise v5.6 database

2.1. Downloading the Installation Package

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

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

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

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

OS Name	File Name
Red Hat Enterprise Linux 5 - 64 bit	InsightReporter-<version no.>_rhel5-x86-64bit.zip
Red Hat Enterprise Linux 6 - 64 bit	InsightReporter-<version no.>_rhel6-x86-64bit.zip

Note SOLARIS and all 32-bit Operating Systems are no more supported.

Customers running a previous Insight Reporter release deployed on a no more supported OS will first need to migrate the hosting environment before installing or upgrading to Insight Reporter 4.2.0.

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-5.0-rhel6-x86-64bit.zip
```

2.2. Installing Cisco Insight Reporter

During the installation process, the script checks if all the required software components are available and compliant with the installation of Cisco Insight Reporter 4.2.0.

Depending on the availability of an existing MySQL Enterprise 5.6 database server or the presence of a previous Insight Reporter installation, the script will handle one of the following scenarios:

Full Installation - The target server is compliant with the hardware and software requirements, but is missing all components (clean installation).

Integration with an Existing MySQL Enterprise 5.6 Server - A MySQL Enterprise 5.6 database server has been previously installed (perhaps because of an earlier Insight Reporter installation). In that case the application can integrate the existing database. The Apache Tomcat web server and the Java Runtime Environment must not be present on the host.

Upgrade from earlier release - An earlier release of Cisco Insight Reporter has been previously installed and is being used to report on traffic populated by one or more Cisco Service Control Collection Managers that receive RDR from SCE devices. The scripts will uninstall the existing MySQL Enterprise 5.1, install the new MySQL Enterprise 5.6 and upgrade Cisco Insight Reporter to release 4.2.0.

Note

Customers running Cisco Insight Reporter releases 3.x for deployments based on Cisco ASR1000 routers will need to remove the related Network configuration(s) before upgrading to Cisco Insight Reporter 4.2.0.
The upgrade procedure does not support the migration of Networks created for Cisco ASR1000 devices.

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 Enterprise v5.6 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 4.2.0 schema. Eventually, it installs the JRE (if not already present) and the Insight Reporter web application.

If the script detects an existing installation of Insight Reporter, the third scenario is automatically chosen. It then starts the process for upgrading the existing database schema with the additional tables and Insight Reporter application to v4.2.0.

2.3. Full installation

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

Note During the installation phase of MySQL Enterprise Server 5.6 the following warning message will be displayed, several times:

Warning: Using a password on the command line interface can be insecure.

This is not an issue: the behavior is due to the standard scripts provided by MySQL and it is not impacting the installation process. Hence, these messages can be disregarded.

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
```

Code similar to following will appear on the screen:

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

Note To install Cisco Insight Reporter, the operator needs to log in as *root*.

Step 2 The script asks to install a new user for installation or upgrade an existing user from Cisco Insight Reporter to v4.2.0. It creates/updates a folder with that OS username and copies all the files into this folder. A question similar to the following appears on the screen:

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

If user enters a **non-existing OS user**, Cisco Insight Reporter v4.2.0 fresh installation starts.

If user enters an **existing OS user** used to install an earlier version of the application, the wizard will try to upgrade that instance to Cisco Insight Reporter v4.2.0 up-gradation starts (see related section).

Note On Red Hat Enterprise Linux and CentOS Linux, the default location to create the OS user for Insight Reporter is the /home partition.

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

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

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

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

Step 4 The script asks user to install the MySQL Enterprise database server. A question similar to the following appears on the screen:

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

If user presses **N**, as the installer script needs MySQL database server to install the application, it will abort the installation procedure and warn the user with a message.

If user presses **Enter**, it continues with Step 5.

Note For any issues in connecting to MySQL server, see section Troubleshooting "MySQL start-up/connectivity problem" in the chapter on troubleshooting.

Step 5 The script asks user to enter the MySQL data directory for the MySQL server. A question similar to the following appears on the screen:

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

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

If user enters /**opt/mysql-data** and presses **Enter**, the installer script installs MySQL and uses the given input as the data directory.

Note If user already has 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 the system.

Similar to the following will appear on the screen:

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

See the manual for more instructions.

Starting MySQL.[  OK  ]
Giving mysqld 2 seconds to start
Starting MySQL^[[60G[^[[0;32m  OK  ^[[0;39m]
echo "In order to remove completely MySQL server, you need to execute
the uninstall.sh script located under user home directory."
creating user [test]
Default password is same as the username
Please change the password for user test by giving below command
passwd test
Proceeding to configuration
Enter the Insight local database host name (default is local host)
Enter the Insight local database port (default is 3306)
CONGRATS!! Installation finished
To re-configure the application please execute config.sh in the [user
home directory]/Insight/bin
To uninstall the application please execute uninstall.sh in the [user
home directory]/Insight/bin
To bundle the logs please execute backup.sh in the [user home
directory]/Insight/bin
```

Note

For licensing reasons, in this release, it is no more possible to connect manually to the embedded MySQL Enterprise database.
The default root password for MySQL server is hard-coded in the application and not exposed to end-users.

To verify if port 3306 is open:

```
/>telnet localhost 3306
Trying 127.0.0.1...
      Connected to localhost.localdomain (127.0.0.1).
      Escape character is '^]'.
      ...
```

Note

The installation is done. After successful completion of the installation, ensure to checking the installation before using it.

Integration with an Existing MySQL Enterprise 5.6 Server

If the script detects an existing instance of MySQL Enterprise 5.6 Server on the local host, then the integration scenario is automatically chosen.

The process asks to install the Apache Tomcat web server and then connects to the existing MySQL database and creates the additional schemas required by the application. Eventually, the installer script installs the JRE and Cisco Insight Reporter software.

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

To install Cisco Insight Reporter 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 Cisco Insight Reporter, the operator needs to work on the shell as *root* user.

Step 2 The script prompts user to install a new user for installation or upgrade the existing user created for a previous application instance. 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 the screen:

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

If the operator enters a **non-existent OS user**, Cisco Insight Reporter 4.2.0 fresh installation starts.

If the operator enters an **existent OS user,** used to install an earlier release of the application, the scripts follows the upgrade procedure (see section, Upgrade Cisco Insight Reporter from earlier releases).

Note By default, OS users are created under the "/home" directory on Red Hat Enterprise Linux (RHEL) and CentOS Linux, and under the "/opt" directory on Solaris.

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

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

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

If the operator presses **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 prompts the operator to create a new path for the MySQL server. A question similar to the following appears on the screen:

```
INPUT : An existing v5.6 MySQL installation was found on your system.
Do you want to use it to install Cisco Insight Reporter? [Y/N]
(default Y):
```

If the operator presses **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 the operator presses **Enter**, a question similar to the following appears on the screen:

INPUT : Enter the root password for MySQL:

- If the operator does 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 the operator provides 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 the screen:

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

'insight' would be considered as default schema name, if the operator does not provide schema name.

If the operator provides 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 the operator provides 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 the operator provides a valid value and presses **Enter**, the installer script creates the schema and installs the application only if the operator has entered a correct password.

The scripts again prompts for the Mysql root password by displaying the below message in case the operator has left it blank in an earlier step.

```
Enter password:
```

The operator may face any of the following scenarios:

It would quit the installation by displaying relevant message if the operator entered a wrong Mysql root password.

If the operator provides a valid password and presses **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 the system.

Note

Installation is done. After successful completion of the installation, ensure to check the installation before using it.

Upgrade from earlier releases

If the script detects an existing OS user, used to install an earlier release of the application, the upgrade scenario is automatically chosen.

Note

Customers running Cisco Insight Reporter releases 3.x for deployments based on Cisco ASR1000 routers will need to remove the related Network configuration(s) before upgrading to Cisco Insight Reporter 4.2.0.
The upgrade procedure does not support the migration of Networks created for Cisco ASR1000 devices.

The process upgrades the application and the existing database schema and integrates this latter with additional tables required by the current software release.

To upgrade the application, perform the following steps:

Step 1 Locate and run the installer package.

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

Code similar to following will appear on the screen:

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

Note To install Insight Reporter, it is mandatory the operator connects as *root* to the target server.

Step 2 The script asks to enter a new OS username for installation or upgrade existing user from a previous Insight Reporter version. 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 the screen:

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

If the operator enters **a non-existent OS user**, fresh installation get processed.

If the operator enters **an existent OS user**, the upgrade workflow from version v2.x or v3.x to version 4.0.0 will be executed.

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 4.0.0. Eventually, following messages 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 make sure the Apache Tomcat web server is running and start using the application.

If the script detects an existing OS user created to install a previous Cisco Insight Reporter release, the procedure will use the same OS user to upgrade the system to the latest release.

The installation is done. After successful completion of the installation, ensure to check the installation before using it.

2.4. Check 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 the operator finds the error “Access Denied”. Run following command to change the permission:

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

For more information, see Troubleshooting section of this document.

Figure 1: Login Page

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

2.5. Uninstallation

Cisco Insight Reporter provides a script for uninstalling the software packages. When the operator uninstalls the application, the following packages are also removed:

Cisco Insight Reporter software

Apache Tomcat web server (if it is installed during installation)

MySQL Enterprise 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 *root*

Step 2 Navigate to the home directory of the newly created OS 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
```

The screen will display:

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

The screen will display:

```
Shell> cd /home/test/Insight/bin
Shell> ./uninstall.sh
INFO : This would remove the Cisco Insight Application and the
corresponding database. If you wish to take a backup of the
database schema, quit the un-installation and do so now."
INPUT : Do you want to continue? [Y/N] (default Y):
```

If N is entered, the wizard will not un-install the application and would quit the un-installation procedure

If Y is entered, then wizard will ask the root password for MySQL database:

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

If the password is not correct, the following message will be displayed:

```
MSG : Uninstallation was unable to connect to MySql server due
to one of the following reasons"
1. Firewall is enabled and not configured to allow access to
port 3306
2. SE Linux is enabled and blocking access to port 3306
3. Invalid MySql root password
```

If the password is correct, the following steps will be executed:

```
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
```

2.6. Setup and Installation for HA Scenario

In a high-availability scenario, a 1 + 1 redundant setup in Active Standby mode is supported.

Only one server is active at a time.

Only cold-failover is supported.

To set up and install the application in a high-availability scenario, perform the following steps:

Step 1 Set up both instances separately using the steps described in the section Install.

Configure an external Load Balancer (LB) to point only to the active instance. It is recommended to use a LB software such as Apache HTTP Server with the mod-jk connector.

Step 2 Set up MySQL Enterprise Replication. When the primary instance fails, the LB needs to be manually pointed to secondary instance. The slave instance of MySQL Enterprise has to be made as primary instance. When the master has recovered, set it again as primary instance.

2.7. Enabling HTTPS

Some customers require all web application deployed in their organization to support HTTPS for secure connections.

Cisco Insight Reporter supports HTTPS, though the application by default is configured to work in non-secure mode using HTTP.

The following steps explain how to enable HTTPS:

Note

If a Load Balancer is used in front of the Apache Tomcat server, it should support HTTPS.

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

```
cd /home/insight
```

Step 2 Go to the Apache Tomcat bin directory.

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

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

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

Output similar to the following appears on the screen:

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

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

Ensure that the keypass and storepass passwords are the same.

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

```
cd ../conf
```

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

The HTTPS connector will be similar to the following:

```
<!-- Define a SSL HTTP/1.1 Connector on port 443
This connector uses the JSSE configuration, when using APR, the
connector should be using the OpenSSL style configuration
described in the APR documentation -->
```

```
<!--
<Connector port="443" protocol="HTTP/1.1" SSLEnabled="true"
maxThreads="150" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS"
keystoreFile="${user.home}/Insight/apache-tomcat-
6.0.20/bin/insight.bin" keystorePass="insight"/>
-->
```

Note

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

After configuring 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.

3. Post-Installation Procedures

This chapter describes the procedures to execute after installing the application, in order to: discover SCE devices, customize global and user preferences, and run the first reports.

This chapter contains the following sections:

- Tuning the InnoDB engine parameters

Configure the Global Settings

Configure the Traffic Databases and Devices

Configure the Network Topology

Configure Accounts

Run the First Report

3.1. Tuning the InnoDB engine parameters

Note

In case traffic information is stored on the embedded MySQL Enterprise 5.6 database server, it is required to apply some tuning of the InnoDB engine parameters, in order to optimize the performance of the database so that reports execute faster.

InnoDB has become the default engine starting from MySQL Enterprise 5.6. Thus Cisco Collection Manager software will create traffic tables using the InnoDB engine.

The settings of the InnoDB engine can be changed by editing the my.cnf file located in the /use directory of the host running the embedded MySQL Enterprise server.

Note

Please note the same settings are also applicable to external MySQL database servers.

These are the proposed settings to optimize the InnoDB engine for storing and querying traffic information on the embedded MySQL Enterprise shipped with Cisco Insight Reporter.

```
innodb_buffer_pool_size=  <70% of total RAM>
innodb_flush_neighbors = 0
innodb_io_capacity = 2000
innodb_io_capacity_max = 6000
innodb_buffer_pool_instances = 8
innodb_read_io_threads=64
thread_cache = 64
max_connections = 500
```

Note

For better performance innodb_buffer_pool_size parameter should be set to 16GB(minimum) .

Note

The *innodb_buffer_pool_size* parameter should be set according to the quantity of installed RAM.

3.2. Configure 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 on Cisco Insight Reporter web application:

Step 1 Click the **Settings Management** icon from the **Module Launcher**. Once clicked, the following screen will appear:

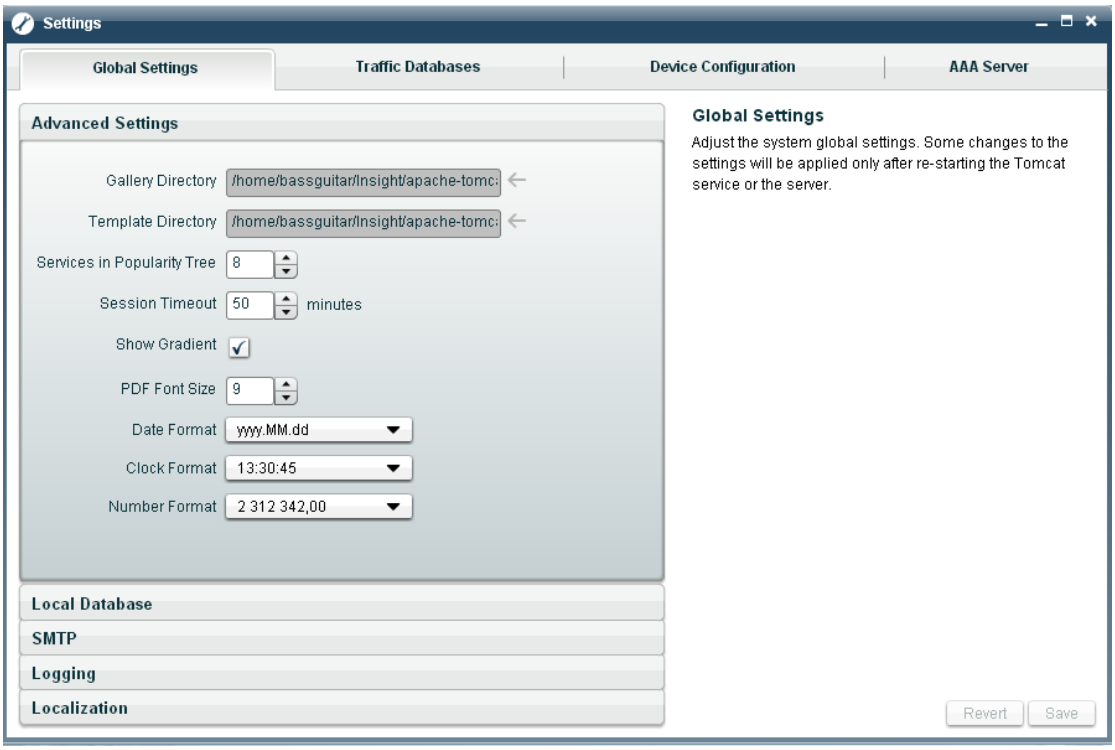

Figure 2: Settings Management

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

Step 3 Define **Advanced Settings**.

These should be by default configured with values set during the installation. Users 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). Users 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. Set **Available Locales** to **English (U.S.A)** under **Settings** menu **-> Global Settings** tab **-> Localization** pane.

3.3. Configure the Traffic Databases and Devices

The **Remote Database Configuration** tab enables user to configure a connection to a Traffic database. User can check the database connectivity, retrieve device information from the INI_VALUES table, 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**. A page similar to that in Figure 2 will appear on the screen.

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:

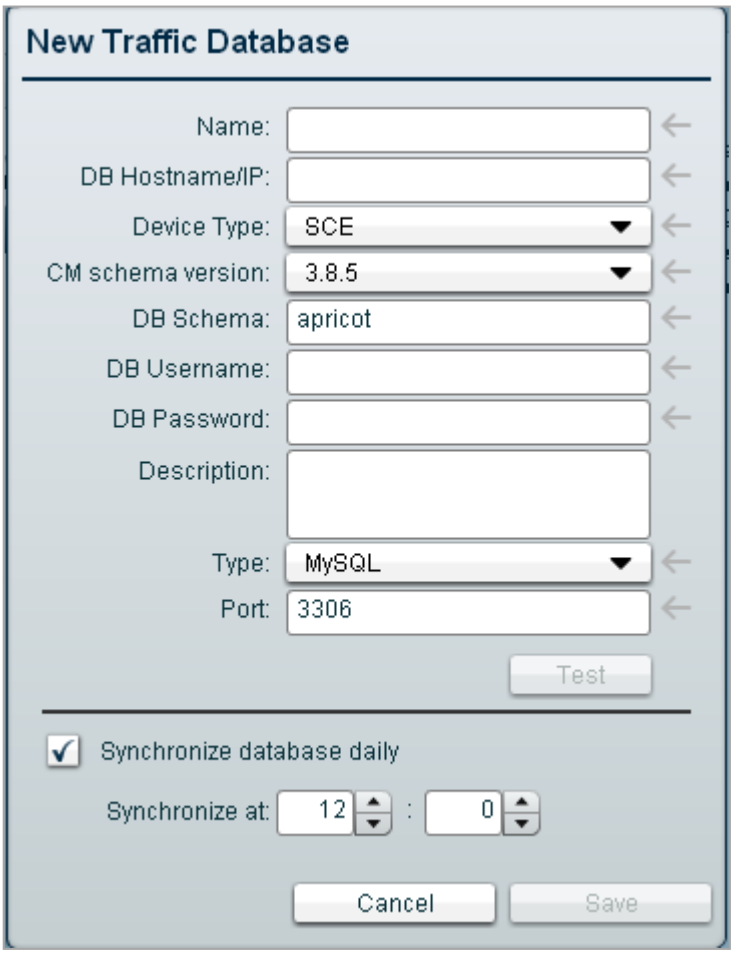

Figure 3: New Traffic Database Configuration

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 v4.2.0 User Guide.

Note

Cisco Insight Reporter may use up to 100 db connection of traffic database (MySQL/Oracle/Sybase) in case of peak load.

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

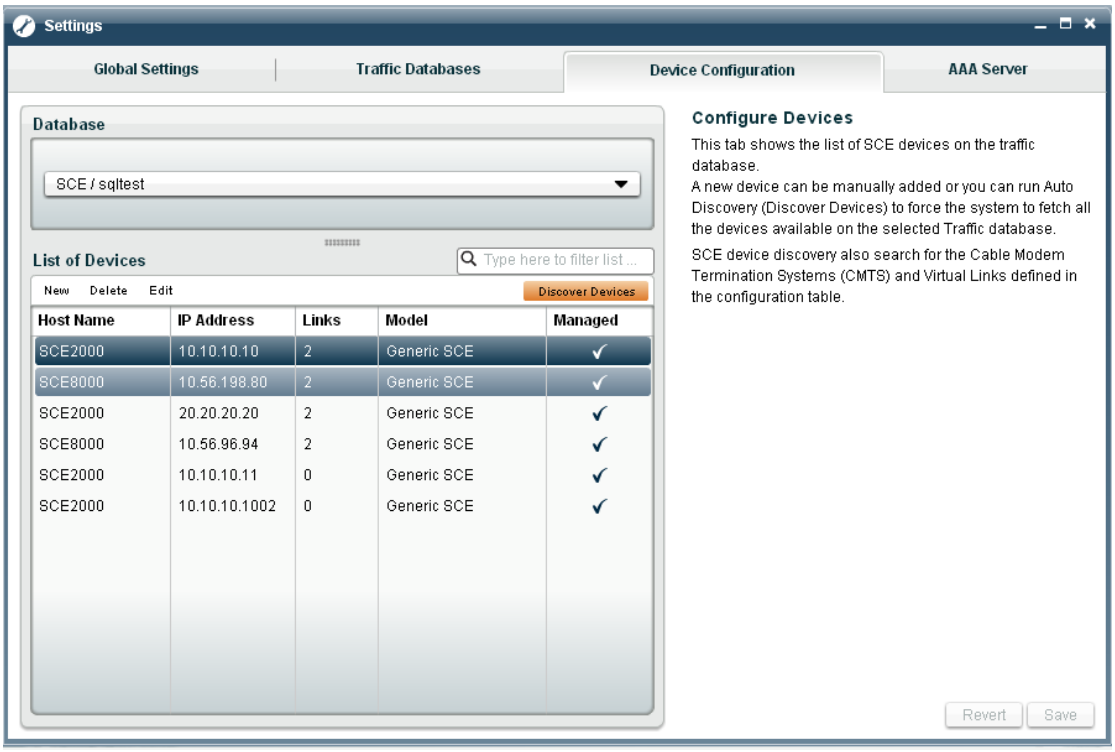

Figure 4: Device Configuration

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 Collection Manager database schema is *apricot* for SCE deployments

Note

On "Discover Devices", all the devices present in the 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:

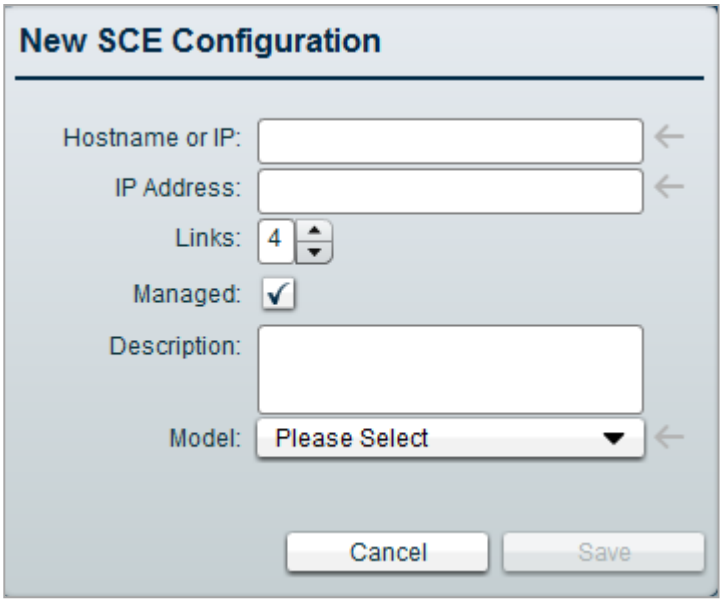

Figure 5: New SCE Configuration

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

3.4. Configure the Network Topology

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

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

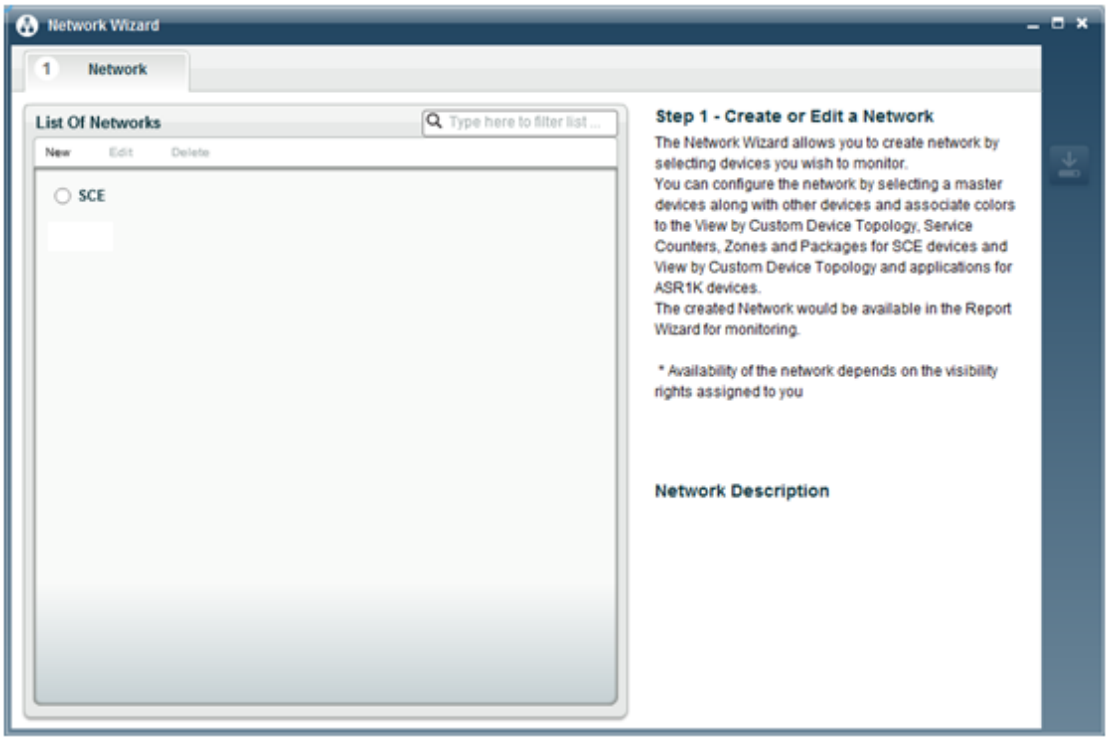

Figure 7: Network Wizard

Note

On selecting any network from the **Network List**, user 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** option, to create a new network. On clicking, following pop-up will appear:

Figure 8: Create Network

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

Step 4 Click the **Devices** tab.

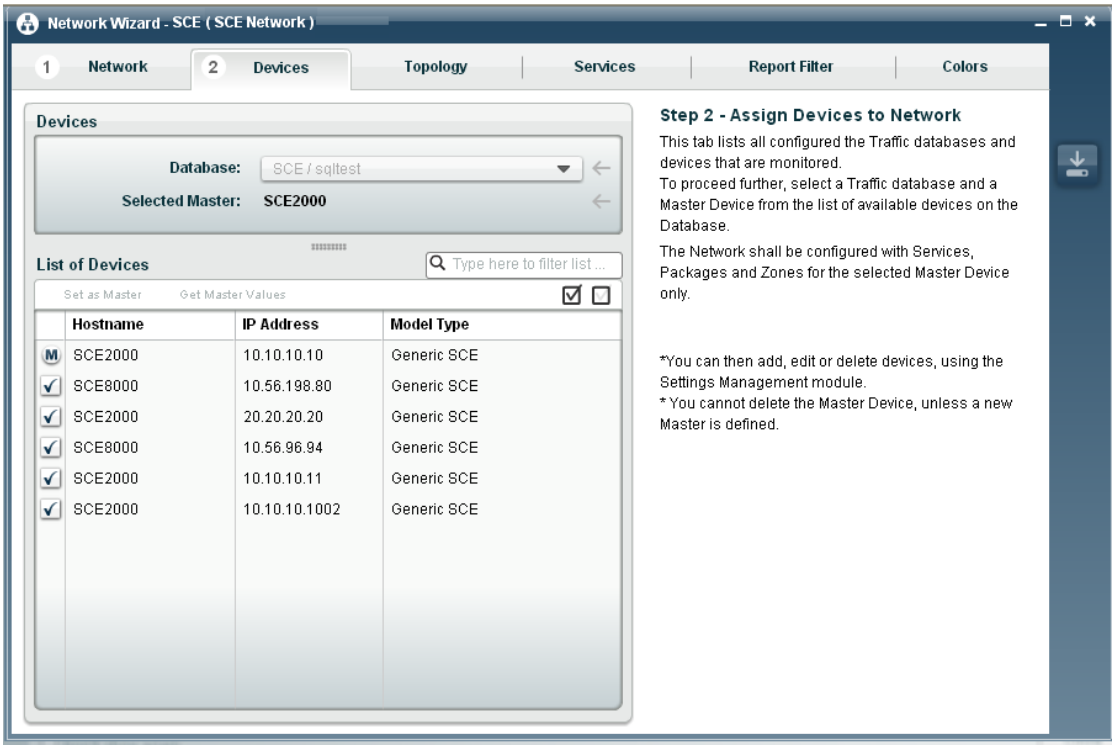

Figure 9: Devices tab

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 (SCE) 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 (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 user to arrange the devices under custom grouping.

Step 8 Go to the **Services** tab and define the **Custom Services Hierarchy**. This is an optional step which lets user to arrange the Services under custom grouping.

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

Note

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

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

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

3.5. Configure Accounts

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

Step 1 Log in into the application using the system defined **Super User** account.

Step 2 Open the **Account Management** module from the module launcher. On clicking, following page will appear:

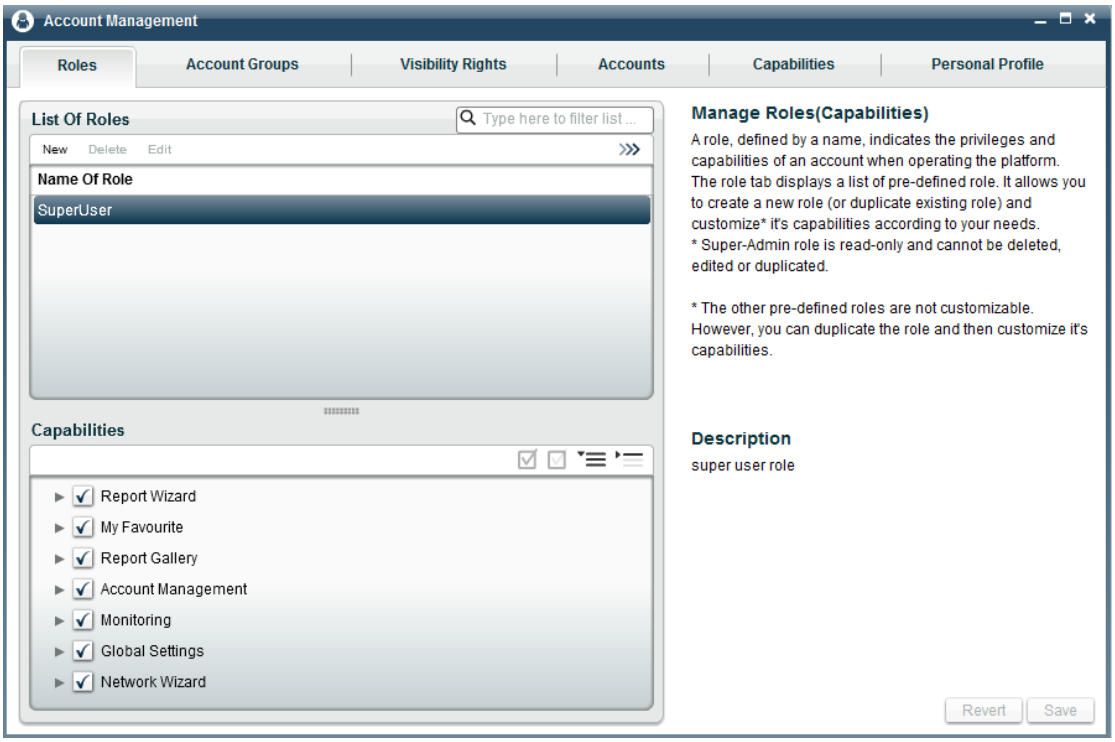

Figure 10: Account Management page

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

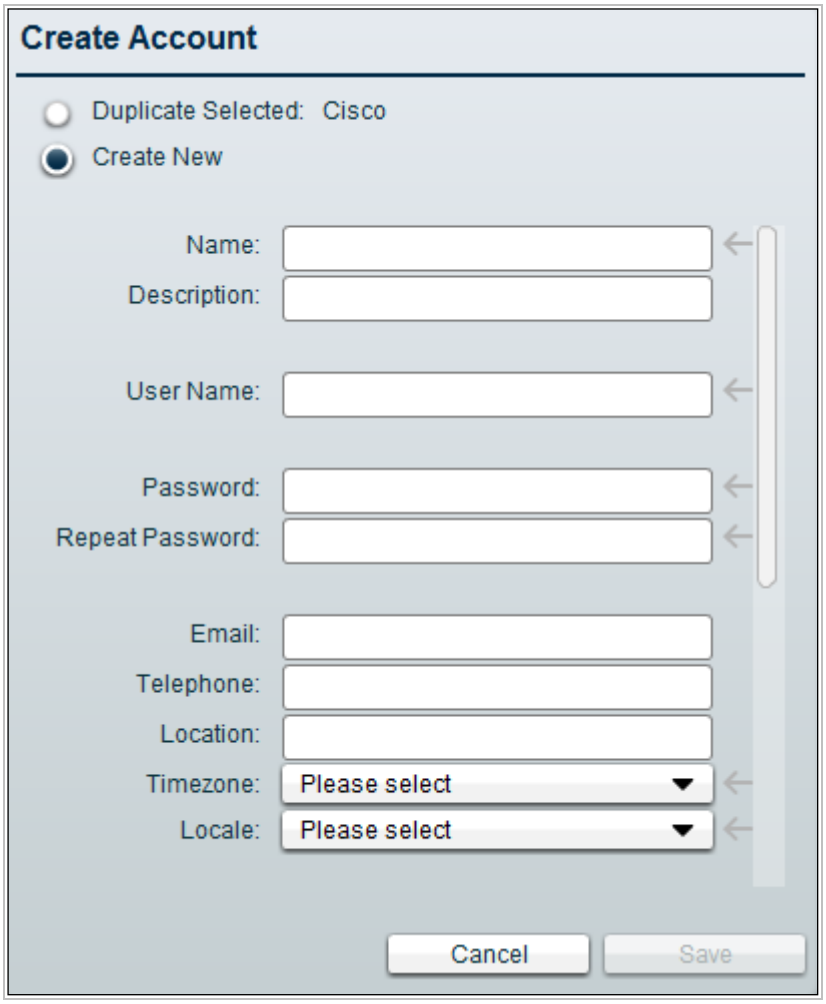

Figure 11: Create Account tab

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.

3.6. Run 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 desired topic configuration on the **Topic** tab and click on **Next**.

Note On selecting any report in **Topic** tab by clicking **Next** button, more tabs will appear.

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 services from the **Services** tab, in case of SCE network.

Step 7 Select additional parameters from the **Parameter** tab.

Step 8 Run the report. It will display the report.

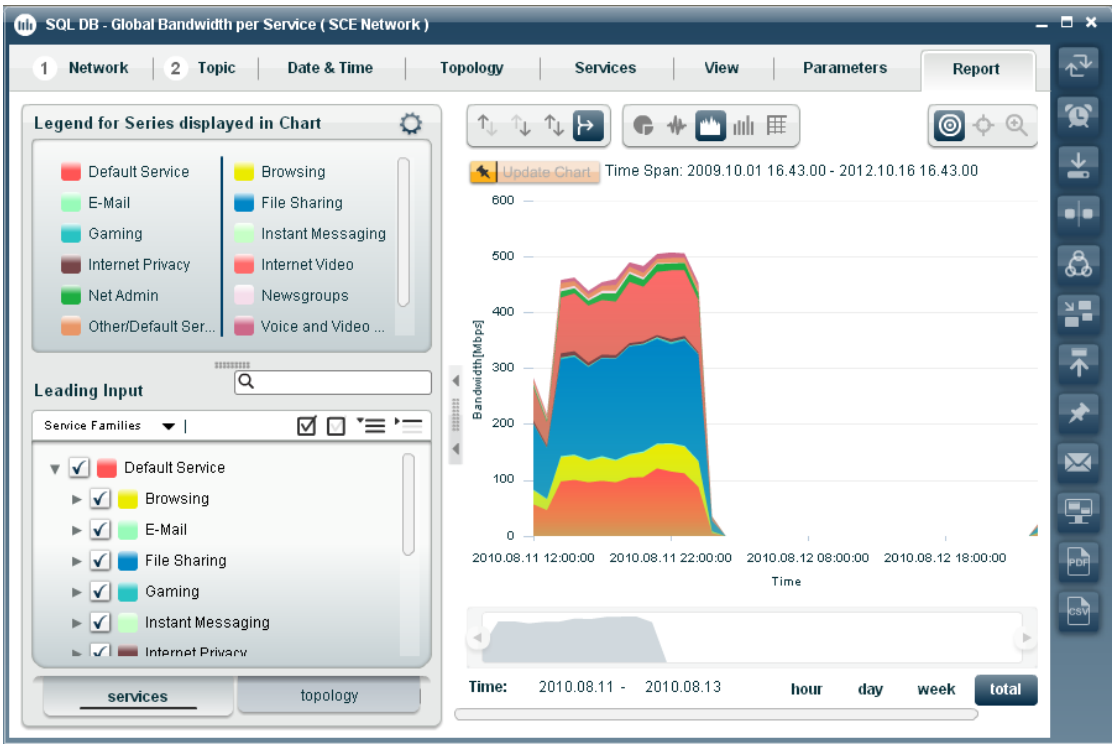

Figure 12: Sample Report

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.

4. Troubleshooting

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

4.1. Troubleshooting the health status of the 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 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 records from the persistent buffers.

4.2. Troubleshooting MySQL Compatibility Issues

The application is compatible with MySQL Enterprise 5.6. 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 5.6 or uninstall the existing MySQL and run again the installation procedure. Now exiting."

4.3. Troubleshooting "Tomcat not started" Issue

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>
```

4.4. Troubleshooting MySQL Start-up and Connectivity Problem

If the default port for running MySQL Enterprise (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 Enterprise server if user gets connectivity problem, please make sure that user has copied the supported JDBC connector JAR at following location:

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

5. On integrating with an existing MySQL Enterprise server if you get connectivity problem, please make sure you give valid password for MySQL root user.

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

For additional information about the MySQL connection issues, please refer http://dev.mysql.com/doc/refman/5.6/en/can-not-connect-to-server.html

4.5. 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

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 Collection Manager, is configured as expected. If necessary, change the settings according to the suggested data sizing.

4.6. 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.

4.7. 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.“
```

4.8. Troubleshooting Application Startup Problem

The application, while starting, runs the Apache Tomcat on the port 80. Insight Reporter will not start if there are other applications using port 80.
If you wish to configure Insight Reporter to run on a different port (say 8080), change the connector configurations in

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

To

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

Note

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

While starting tomcat if you see the following error on the screen
“PID file /home/{user}/tomcat.pid found. Is Tomcat still running? Start aborted”

Then perform the following steps:

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

4.9. 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.

4.10. Troubleshooting Issues when Setting a Master Device

Setting a device as “Master” for a network may fail due to any of the following reasons:

1. If the version of the deployed Collection Manager(s) matches the Insight Reporter version, then the INI_VALUES table, updated by the Collection Manager every time a new service configuration is applied on the SCA BB Console, shall contain entries for VALUE_TYPE 1 and 11 for the SE_IP that matches the Master SCE device of the Network. If this condition does not apply, the Set Master operation will fail.
2. If the version of deployed CM(s) is older then Insight Reporter, then the failure can also be due to a wrong CM schema version configured in the Traffic Database menu, under the Settings Management module.

4.11. Troubleshooting Connection Timeout from Traffic Database

Connections to traffic database servers may cause connection timeout exception in logs, if all available connections in the connection pool are 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 poolMaxSize has been extended to 500.

Please edit the `max_connection` attributes in the `my.cnf` file located in the `/usr` directory to change this setting.

4.12. 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** to **DEBUG**.
2. After saving, the logs.log file will start to be populated with DEBUG traces, that include the SQL queries executed on the traffic database.

4.13. 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)**.

4.14. Troubleshooting if Remote DB Connection Failed

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

1. MySQL database server is not running. Start it.
2. The INI_VALUES table does not exist in Traffic Database or it is empty.

4.15. Troubleshooting if Device Discovery Failed

If Device Discovery fails, there can be two reasons:

1. If you have restarted the DB server, all connections in the connection pool became invalid. To validate all the connections, restart the Tomcat server.
2. The INI_VALUES table does not have entries for VALUE_TYPE=5. This typically an issue related to the CM process trying to populate the INI_VALUES table after a new service configuration has been applied to SCE(s).

4.16. Troubleshooting if an Error is generated during Report Execution

In this case, Cisco TAC should be contacted.

4.17. Troubleshooting if User Login Fails

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

1. MySQL Enterprise server is not running.
2. The database schema called *mysql* on the embedded database became corrupted. That DB schema contains the list of users and roles. Cisco TAC assistance is required in this situation.
3. The number of concurrent user sessions for the specific user/role has been exceeded. In that case a restart of the Tomcat web server is required.

4.18. 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>, c**hange **Parameters -> Unit Metric/Unit Of Result** to **Kbps/Kbytes**

4.19. Troubleshooting if “Auth Token is not valid.” Message Appears

If this message appears, it means the Tomcat web server has been restarted. In that case, just refresh your browser page.

4.20. Troubleshooting when Bar charts are working but not Area and Line charts

If this situation occurs, it may be due single data points present in the traffic database. To plot Area chart and Line chart at least two data points are required. On the other hand, Bar charts can be generated even with a single data point.

4.21. Troubleshooting if Report is taking long time to Generate (Report Wizard)

If report is taking long time to generate (e.g. more than 10 minutes), check the system resources and load of the system. Try to reduce the system resource usage or load.

It may also be possible the database table on which the specific report is running became very large (more than 100 M records).

4.22. Trobleshooting if Report is taking long time to Generate and give HTTP timeout error on the browser.

Every browser has default HTTP timeout settings . If report execution time exceeds that default timeout period then browser generates HTTP timeout error on UI.

To overcome this situation, user needs to set the larger timeout period under browser settings.

To change this settings , please follow the below steps:

1) Open the browser
2) Type “about:config” in the address bar.
3) Filter the “network.http.keep-alive.timeout” field and set a larger value for this field.
4) This filed might be different for different browsers like “network.http.connection-timeout”.

4.23. Cisco Insight Reporter Error Codes

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

Error Code	Error Message	Description
1901	Subscriber Manager: General Failure	Unable to connect to subscriber manager
1902	Subscriber Manager: Invalid SM Address	Subscriber Manager IP address is not correct
1903	Subscriber Manager: Invalid Subscriber Record	Subscriber Manager with invalid records
1904	Subscriber Manager: Missing Subscriber Record	Subscriber Manager with missing records
1801	The service you have requested is not available, Please contact System Administrator or try later	Generic error when got exception while interacting with BE
1802	Missing request parameter	Error when exception during JSON validation
1803	Missing Auth String in request	Error display when user session expire
1804	Session Expired. Please relogin	Error display when authtoken of user session not found
1805	Auth Token found in header is either expired or invalid	Error display when authtoken of user session expire
1806	Non Parsable Input Json	Error during parsing of JSON from GUI to BE
1807	Invalid Input Json	Error during validation of JSON from GUI to BE
1808	IO Error while processing json	Error during processing of JSON from GUI to BE
1600	This account name already exists, please select another name	Error during creating account with existing name

Error Code	Error Message	Description
1601	Deletion denied. ? has accounts under it	Error during deletion of account group if accounts under them
1604	Accounts under account group cannot be saved	Got exception during saving of accounts for account group
1605	Account Group not found	Error when account group not found
1606	Account not found	Error when account not found
1607	Account Details cannot be saved	Got exception during the saving of Account group
1608	Account Group Details cannot be saved	Got exception during the saving of Account group details
1616	Error while saving Role details.	Error during saving Role
1610	Account Group cannot be removed	Got exception during the removing of Account group
1611	Account details cannot updated	Got exception during the updating and saving of Account group
1612	Account Group details cannot be updated	Got exception during the updating and saving of Account group details
1613	Account cannot be removed	Got exception during the removing of Account
1614	Role cannot be removed	Got exception during the removing of Role
1615	Role not found	Got exception during the retrieval of Role
1617	Default superuser account cannot be deleted	Try to delete super use account.
1618	Account cannot be deleted, first delete its child accounts/roles/account groups	Error message when deleting of account when child accounts/roles/account group exists
1619	Visibility cannot be created since no topics found for the network	Error during creating Visibility when no topics found for network
1620	Visibility cannot be removed	Error during deleting of Visibility
1621	Visibility not found	Error during retrieval of Visibility
1622	Default Super user Role cannot be deleted.	Error during deleting the default super user
1623	Some accounts cannot be added since those already exist under the account group	Error during the addition of existing account in account group
1624	Some accounts cannot be deleted since those already exist under account group	Error during the deletion of account which already have account group
1625	Report cannot be published as public. User of this account group does not have the report sharing capability	Account group is not authorize to share reports
1626	Default Super User role cannot be updated.	Error during updating Super user Role
1627	Account group name already exists, please give some other name	Error during the creating Account group with existing name
1628	Role name already exists, please give some other name	Error during creating Role with existing name
1629	Visibility name already exists, please give some other name	Error during creating Visibility with existing name
1630	Deletion denied. This visibility has accounts under it	Error during deleting the Visibility with existing account.
1631	Deletion denied. This account group has accounts under it	Error during deleting Account group which has already account
1632	Deletion denied. This role has accounts under it	Error during deleting the Role which has account.

Error Code	Error Message	Description
1633	Data Grid cannot be published as an image	Error during publishing the data grid as image.
1301	Invalid username or password	Error during login with invalid user name / password
1303	User does not exist	Login with user that does not exist
1302	Authentication Token is either invalid or expired	Auth token for user sessions has been expire or invalid
1304	Access denied - No more sessions allowed for this role.	Accessing with more session for user which are not configured
1410	Definition not found for this report	Got exception while retrieving report definition
1411	Duration filter details not found for this report	Got exception while retrieving Duration filter
1412	View filter details not found for this report	Got exception while retrieving view filter
1428	Charting Custom Parameter value not found!	Got exception while retrieving Custom parameter
1429	Error during deletion of ReportDefinition	Got exception during deletion of reports definition
1424	Error while setting report Axis Information	Got exception during saving x-axis report information
1425	Network Details not found.	Got exception during retrieving network details
1426	Error while retrieving Report Custom Parameters	Got exception during retrieving Report custom parameters
1427	Error while generating the summary table	Got exception during processing of Summary table details
1402	Service Tree for the network does not exist.	Exception during service retrieval
1420	Error during report cancellation request.	Got exception when cancelling the report run
1400	Error during report execution process.	Got exception while report run
1401	Error during the report series generation process.	Got exception while series generation process
1416	Topic not found for this network	Error while loading topics for selected network
1417	Unable to create a report definition.	Got exception during save report
1434	Virtual Link not found exception.	got exception when VLINK not found
1435	Invalid report parameter selection	Error during invalid selection of parameter
1443	Error during drill down report execution	Got exception during drill down report run
1444	Report Information not found for the selected report	Got exception during the retrieval of report
1432	Error during related report run process	Got exception during related report run
1447	No data found for the report selections	No data retrieve for selected parameter during report run
1448	Subscriber validation failed	when user has no visibility rights on given subscriber id
1449	Unable to send the E-mail	Got exception while sending email during publish
1450	Unable to delete Subscriber Data	Got exception while deleting subscriber
1430	Error during exporting the report	Got exception during report run
1431	Export Data Not found!	Gallery path incorrect in setting
1440	Merge Report Data Not found!	No data found from while merging the reports
1475	Report Dashboard not found	Got exception while dashboard processing
1476	Report Dashboard Data not found	When no data found in dashboard widgets

Error Code	Error Message	Description
1477	Unable to delete report dashboard widget	Got exception during the deletion of dashboard widget
1478	Unable to save report dashboard widget	Got exception during save on dashboard
1479	Dashboard already contains the maximum number of widgets ? To add this report to dashboard either delete other reports on the Dashboard or pause any Scheduled Reports with Dashboard destination activated.	Got message during save a report on dashboard once maximum limit of report addition is reached on dashboard.
1455	Reports not owned by the user cannot be deleted.	Error during deleting report which is owned by other user
1456	Error while opening a report.	Got exception during the opening of reports
1457	Error while merging report.	Got exception during merging of two reports
1458	Report cannot be deleted.	Got exception during the deleting of Report
1459	Reports not owned by the user cannot be shared.	Error during the sharing of report which is owned by other user
1460	Reports not owned by the user cannot be unshared.	Error during the unsharing of report which is owned by other user
1461	User doesn’t have the capability to share or publish a public report.	User does not have rights to share or publish a public
1462	Error while adding a report in gallery.	Got exception during the adding report to report gallery
1467	Error while saving report definition.	Got exception during the saving reports
1468	Error while creating leading inputs	Got exception during the creation of leading inputs
1481	Favorite Report Not Found!.	Got exception during retrieval of list of reports in MF
1482	Favorite Report cannot be deleted.	Error during the favorite report deletion
1483	Favorite Report cannot be added.	Error during the favorite report addition
1484	Favorite Report cannot be shared.	Got exception during sharing of reports
1485	Favorite Report cannot be duplicated.	Got exception during duplicate reports process
1486	Favorite Reports Accounts cannot be Found.	Error when account in MF not found
1491	Scheduled Report cannot be pause.	Error while pause of Schedule reports
1492	Scheduled Report cannot be resumed.	Error while resume of Schedule reports
1493	Scheduled Report cannot be executed.	Error while execution of Schedule reports
1494	Scheduled Report cannot be added.	Error while adding Schedule reports
1495	Scheduled Report cannot be deleted.	Error while deleting Schedule reports
1496	Scheduled Report cannot be Found.	Error while retrieving Schedule reports
1497	Report cannot be Scheduled.	Error while Scheduling reports process
1498	Scheduled Report cannot be duplicated.	Error while duplicating Scheduling reports process
1499	Scheduled Report cannot be Updated.	Error while updating Scheduling reports process
1445	Unable to save a report in my favorite	Error to save a report in my favorite.
1200	Monitoring Exception	Got exception during monitoring of different parameter
1201	Operation not valid on this type of statistics.	Error when operation not allowed on set of parameter
1100	Logging Exception	Got exception during logging process
1101	Configuration Exception	Got exception during server startup due to not setting proper DB configuration

Error Code	Error Message	Description
1102	Invalid Configuration!	Error when the server startup configuration is invalid
1103	Missing Configuration!	Error when the server startup configuration is missing
1104	Remote Database configuration is not valid.	Error when Remote DB wrong configuration
1105	Remote Database cannot be deleted.	Error when Remote DB cannot be deleted
1108	Remote Database not found.	Error while retrieving Remote DB information
1106	Remote Database cannot be saved.	Error while saving Remote DB information
1107	Unable to test Remote Database Connectivity.	Error while test of Remote DB configuration
1109	Unable to update remote database , some attributes are missing.	Updating Remote data base with missing attributes
1501	Service Tree not found.	Error when service tree not found during topic load
1503	Default Services not associated with device	Error when default service is not associated with device selection
1505	Package not found	Package not found during network creation
1510	Network not found	Got exception while network retrieval
1511	Device not found	No device found in the process of auto discovery
1512	Topology not found	Got exception while topology retrieval
1515	Network cannot be saved	Got exception while network saving
1520	Zone not found	Zone not found during network creation
1521	Device cannot be deleted	Used as Master device
1525	Device cannot be saved	Got exception during saving of devices
1526	Device cannot be updated	Got exception during updating and saving of devices
1527	CMTS cannot be fetched	Got exception reading CMTS information from Remote DB
1528	? Network already exist, Please give some other name.	Creating network with existing name
1529	No Services exists for Master Device ?, Please select other device as Master.	Setting master device if there is no service exists
1530	No Services exist For Master Device ?,Network cannot be saved.	Setting master device if there is no service exists
1531	Report Filter not found	If report filter is not assigned in visibility filter
1533	Network cannot be updated	Got exception during updating and saving of network
1534	Network cannot be saved since selected Remote Database is not in CMTS aware mode.	conflict on CMTS aware database
1535	Network cannot be updated since selected Remote Database is not in CMTS aware mode.	conflict on CMTS aware database
1537	Subscriber Manager cannot be connected	Subscriber Manager Cannot be Connected.
1538	No Service Tree found for this network	Service tree not found for configured network
1539	Network Device details cannot be updated	Got Exception during Network Device Details updating
1700	Remote Database cannot be connected.	Error during connecting Remote Database
1701	Report protocol entity not found.	Error during retrieving report protocol
1702	Record doesn't exist in configuration	Error during remote database test connection

Error Code	Error Message	Description
	(?) table	
1703	Configuration (?) table doesn't exist	Error during remote database test connection
1110	Device Update failed. Master device cannot be unmanaged.	It appears if user unmanage a device which is acting as master device in any network.
1134	Remote database cannot be deleted, Network(s) are configured on this remote database.	Remote Database cannot be deleted if at least one network is created against same Remote Database.
1135	Device cannot be deleted, This device is configured as master device in network(s).	Master Device cannot be deleted.
1138	The IP Address of the device you have provided already exists. IP Address should be unique among devices of a Remote Database.	IP Address of the devices cannot be duplicate while discovering devices.
2107	Maximum limit of authentication server has reached	Finite number of AAA server can be configured under each mode (by default, number of AAA server is 5).
2108	There are ? user(s) which are using this mode of authentication. In order to disable this mode, either these users need to be deleted or migrated	AAA Mode cannot be disabled if any account is created under same AAA mode.
2109	No active server available under this mode	AAA Server cannot be deleted under any AAA mode if only one server is active and at least one account is available under same mode.
2110	The authentication service is down, Please contact System Administrator or try later	Error during while login if all AAA servers of assigned mode are down.
2111	There are … user(s) which are using this server. In order to delete this server, either these users need to be deleted or migrated	AAA Server cannot be deleted if at least one account is created under same AAA mode and only same server is active out of the list of servers.
1413	No report definition found for current selection. Please select other options.	selection of various parameters available on report wizard does not match with any defined reports
1502	Device discover failed , remote database cannot be connected.	Device discover operation get failed if in case remote device is not connectable.
1560	No applications exist for master device… Please select other device as master.	If selected master device does not have any application.
1562	Interface sync job is already running for this network.	This message appears if in case user tries to sync the interfaces but sync operation is already running behind.
1565	No applications exist for master device… Network cannot be saved.	Network cannot be saved if master device does not have any application.