

IBM Industry Customer Intelligence Solutions
Version 1.0.0

*Customer Experience Analytics for
Communication Service Providers
Solution Guide*



Note

Before using this information and the product it supports, read the information in "Notices" on page 35.

Product Information

This document applies to IBM Industry Customer Intelligence Solutions Version 1.0.0 and may also apply to subsequent releases.

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Introduction

The IBM Customer Experience Analytics for Communication Service Providers solution gives you the information and insight that you need to provide proactive service to your customers.

Audience

This guide is intended for administrators and users of the Customer Experience Analytics for Communication Service Providers solution. It provides information on installation, configuration, and use of the Customer Experience Analytics for Communication Service Providers solution.

Finding information

To find product documentation on the web, including all translated documentation, access IBM® Knowledge Center (<http://www.ibm.com/support/knowledgecenter>).

Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products. Some of the components included in the Customer Experience Analytics for Communication Service Providers have accessibility features. For more information, see Appendix A, “Accessibility features,” on page 25.

Customer Experience Analytics for Communication Service Providers HTML documentation has accessibility features. PDF documents are supplemental and, as such, include no added accessibility features.

Forward-looking statements

This documentation describes the current functionality of the product. References to items that are not currently available may be included. No implication of any future availability should be inferred. Any such references are not a commitment, promise, or legal obligation to deliver any material, code, or functionality. The development, release, and timing of features or functionality remain at the sole discretion of IBM.

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Chapter 1. Overview

IBM Customer Experience Analytics for Communication Service Providers is a prepackaged solution that works with IBM Predictive Customer Intelligence.

Important: Before you install the application, IBM Predictive Customer Intelligence must be installed on your system.

IBM Customer Experience Analytics for Communication Service Providers is a solution that helps measure and improve customer network experience. The solution uses advanced analytics capability to measure network activity across locations, devices, and applications.

The solution provides customer experience team members in the telecommunications industry a comprehensive customer experience analytics dashboard. The dashboard displays customer experience analytics across all services in one simple access view, including metrics such as:

- Unacceptable experience trends
- Dropped calls
- Video experience
- Web experience
- Device usage
- Application usage
- Overall customer experience scores

What need does the solution address?

Customer experience teams have many unanswered questions due to limited data and analytics. Some of these questions include:

- Why are my customers not satisfied or happy?
- How can we measure our overall customer experience score?
- What factors impact customer satisfaction and happiness?
- How can we drill down into specific factors, such as web, video, voice, and messaging services based on a customer usage profile?

What does the solution provide?

IBM Customer Experience Analytics for Communication Service Providers provides the following features:

- An overall customer experience score based on a weighted score for web, video, voice, and messaging services.
- The ability to discover key issues impacting overall customer experience scores, such as technologies, applications, devices, and locations.
- Processing of large volumes of raw usage data from network data sources such as voice or SMS CDRs, and Data Network Records XDRs.

Chapter 2. Installation and configuration

The IBM Customer Experience Analytics for Communication Service Providers solution is for use with IBM Predictive Customer Intelligence.

Customer Experience Analytics for Communication Service Providers consists of the following nodes:

- A Rapid Analytics node.
- A Mediation node.
- A Business Intelligence node.

Note: The IBM Predictive Customer Intelligence topology also includes a Predictive Analytics node, data node, and an Integration Bus node, which are not used in the Customer Experience Analytics for Communication Service Providers solution.

Prerequisites

Before you install the Customer Experience Analytics for Communication Service Providers solution, there are prerequisites that must be met.

Ensure that the following conditions are met before you install the solution:

- IBM Predictive Customer Intelligence is installed and configured and you have applied all known fix packs to it.

Important: If you are using Cognos Version 10.2.1, you must ensure that you have applied the latest fix pack.

- IBM InfoSphere® BigInsights® 3.0.2, or later, is installed and configured on the Rapid Analytics node.
- You have a Linux system that you can install to. The Solution Installer works only on Linux.
- You understand your existing environment so that you can determine where you want the various components of the solution to reside.
- You have administration rights and the ability to copy files between computers.

In the context of the Customer Experience Analytics for Communication Service Providers solution, the BigInsights master node is the Rapid Analytics node.

Contents of the solution package

The IBM Customer Experience Analytics for Communication Service Providers solution package contains several parts.

The following parts are included in the solution package:

- Solution Installer
- Rapid Analytics platform
- IBM Cognos® Business Intelligence (BI) reports and IBM Cognos Framework Manager models

Overview of the installation and configuration process

This is an overview of the general tasks that you must perform to install and configure the Customer Experience Analytics for Communication Service Providers solution.

Perform the following tasks:

1. Download the solution from IBM Passport Advantage®.
2. Plan where you want the various parts of the solution to reside. For example, you must decide which computers to use for the Rapid Analytics node and the Mediation node.
3. Run the Solution Installer to deploy the installation files to the nodes.
4. Set up the IBM Cognos Framework Manager model.
5. Install IBM Cognos reports.
6. Install and configure the Rapid Analytics node.
7. Install and configure the Mediation node.

Installing the solution installer

Before you can configure and deploy the nodes in your solution, you have to install the Solution Installer.

About this task

Here's a short video that shows you how to install the Solution Installer:

<https://youtu.be/9u6ZOk8iyt4>

Procedure

1. Log on to the computer where you downloaded the Customer Experience Analytics for Communication Service Providers solution package.
2. Decompress the solution package.
3. Go to the solution installer directory in the following location:
opt/IBM/IS_CSP_CustomerAnalytics_1.0/SolutionInstaller.
4. If you have a firewall enabled, enter the following command:
`./firewall.sh`

The ports that are used by the Solution Installer to transfer files to the target nodes are opened on the server.

5. Enter the following command:
`./setup.sh username first name last name email`

The web server is started and the URL for the Solution Installer displays in the command line window.

6. Copy and paste the URL into a web browser and bookmark it.

What to do next

Use the Solution Installer to deploy the installation files to the nodes in your solution.

Deploying the installation files on the nodes

You use the Solution Installer to deploy the installation files to the appropriate nodes in your solution.

Before you begin

Ensure that you know the URL for accessing the Solution Installer.

Ensure that you know the following information for each of the nodes in your solution:

- Host name or IP address
- A user ID and password that has write permissions to the /opt/ directory.

Each node must also meet the following requirements:

- Has a valid DNS name that is resolvable.
- Does not have Chef server or client software installed on it.

About this task

In this task, you create an installation configuration of your solution by dragging objects onto a canvas, adding components to the objects, and defining properties for the components. The configuration defines the following solution nodes:

- Rapid Analytics node.
- Business Intelligence node.

Procedure

1. In a web browser, go to the Solution Installer.
2. Read the license agreement and click **Accept**.
3. Click **New Configuration** and then click **OK**.
4. Define the Business Intelligence node:
 - a. Under **Mandatory Content List**, drag a **Node** object onto the canvas.
 - b. Under **Property Editor**, enter values for the properties of the object. Set the **Name** field to indicate that this object is the Business Intelligence node.
 - c. Drag **Cognos BI Content** onto the Business Intelligence node object. Do not change the values under **Property Editor**.
 - d. Drag the **Cognos BI Report Images** object onto **Cognos BI Content** object. Do not change the values under **Property Editor**.
5. Define the Rapid Analytics node:
 - a. Under **Mandatory Content List**, drag a **Node** object onto the canvas.
 - b. Under **Property Editor**, enter values for the properties of the object. Set the **Name** field to indicate that this object is the Rapid Analytics node.
 - c. Drag the **Rapid Analytics Framework** object onto the Rapid Analytics node object. Do not change the values under **Property Editor**.
6. If you want to save the configuration to use or refer to in the future, click **Save Configuration**.
7. Click **Validate**. The progress of the validation is displayed. If the validation fails, look at the log file to troubleshoot the problem.
8. Click **Run**. The scripts and files that are used to install and configure the solution are copied to the target nodes.

What to do next

Complete the installation of the solution on each of the nodes.

Deploying content on the Business Intelligence node

You must deploy the content files (report images and Framework Manager model) for the Customer Experience Analytics for Communication Service Providers solution.

Procedure

1. Log on to the BI node as the **root** user or as a user with **sudo** permissions.
2. Decompress the following files:
 - CSP_CustomerAnalytics_FMProject.zip
 - CSP_CustomerAnalytics_Images.zip
3. Copy the CSP_CustomerAnalytics_BIContent.zip folder to the *Cognos_Install_location/Deployment* folder on the BI node computer.
4. Copy the CSP_CustomerAnalytics_Images folder to the *Cognos_Install_location/webcontent/samples* folder on the BI node computer.

Setting up the Cognos Framework Manager model

Open the project file in IBM Cognos Framework Manager and save it.

Before you begin

The user ID that you log in with when you open Framework Manager must belong to the **db2admins** group.

Procedure

1. On the Business Intelligence node, open Cognos Framework Manager.
2. Click **Open a project**.
3. Select the *File_saved_location/CSP_CustomerAnalytics_FMModel/CSP_CustomerAnalytics_FMModel.cpf* file.
4. Click **OK**. The model opens and you can view the data model, sources, and package.
5. Publish the package.

Deploying the IBM Cognos BI reports

You use IBM Cognos Administration to deploy the reports.

Before you begin

Ensure that CSP_CustomerAnalytics_BIContent.zip is in the *Cognos_install_location/Deployment* folder on the Business Intelligence node.

Procedure

1. Open a web browser on the Business Intelligence node.
2. Go to the IBM Cognos BI portal URL. For example, go to <http://cognosnode/ibmcognos/>.
3. On the **Welcome** page, click **Administer IBM Cognos Content**.

4. Click the **Configuration** tab, and then click **Content Administration**.
5. On the toolbar, click **New Import**.
6. In the **Deployment Archive** pane, select deployment archive (CSP_CustomerAnalytics_BIContent.zip), and click **Next**.
7. In the **Specify a name and description** pane, accept the default or enter a new name, and click **Next**.
8. In the **Select the public folders and directory content** pane, select all of the packages in the table, leave the **Options** as default, ensure that the **Disable after import** option is unselected, and click **Next**.
9. In the **Specify the general options** pane, accept the defaults, and click **Next**.
10. On the **Review the summary** page, click **Next**.
11. On the **Select an action** page, select **Save and run once**, and click **Finish**.
12. On the **Run with options** page, accept the defaults, and click **Run**, and then click **OK**.
13. Select **View the details of this import after closing this window** and click **OK**.
14. In IBM Cognos Administration, click **Home**. The content is available in **Public Folders > CSP_CustomerAnalytics_BIContent_Model > CSP_CustomerAnalytics > CSP_CustomerAnalytics_Analysis_Report**.

The Rapid Analytics platform

The Rapid Analytics platform consists of the framework layer and the mediation layer.

In the Customer Experience Analytics for Communication Service Providers solution, the Rapid Analytics node contains the framework layer of the Rapid Analytics platform. The Mediation node contains the mediation layer of the Rapid Analytics platform.

The mediation layer uses a component called vedia to collect, process, and aggregate data. The data is stored in IBM InfoSphere BigInsights. The framework layer contains IBM InfoSphere BigInsights.

The Rapid Analytics platform components are in the following folders:

- rapidanalytics/build/ra-platform
- rapidanalytics/build/vedia_analytics
- rapidanalytics/build/vedia_gn
- rapidanalytics/build/vedia_lte
- rapidanalytics/build/vedia_voice

In the context of the Customer Experience Analytics for Communication Service Providers solution, the BigInsights master node is the Rapid Analytics node.

Installing the framework layer

You install the framework layer on the Rapid Analytics node.

About this task

In the context of the Customer Experience Analytics for Communication Service Providers solution, the BigInsights master node is the Rapid Analytics node.

Procedure

1. Log in to the Rapid Analytics node as the **root** or as a user with **sudo** permissions.
2. Copy the Rapid Analytics platform tarball to the `/opt/tnf/install` folder.
3. Decompress the tarball.
4. Change to the directory containing the platform rpm:
`cd /opt/tnf/install/rapidanalytics/build/ra-platform`
5. If a previous installation of Rapid Analytics platform exists, remove it. Type the following command:
`rpm -e bis-main`
6. Install the RPM file. Type the following command:
`rpm -i bis-main-2*.rpm`
7. Switch to a BigInsights administrator user. For example, type the following command:
`su - biadmin`
8. Go to main platform installation directory. Type the following command:
`cd /opt/tnf/apps/bis-main`
9. Verify that the hadoop, catalog, and bigsql components are running by typing the following commands:
`status.sh hadoop`
`status.sh catalog`
`status.sh bigsql`
10. If the components are not running, type the following command to start all of them:
`start.sh`
To start individual components, you can use the `start.sh` command with the components to start.

Configuring the Rapid Analytics node

You must configure the properties in the Rapid Analytics platform and the files in the platform.

About this task

There are three configuration files in the `apps/bis-main-var/bis-demon/cfg` folder on the Rapid Analytics node that you must review and if necessary, modify for your environment. Perform this procedure for each of the following files:

- `cfg.properties`
- `bigsql_connection.properties`
- `db2_connection.properties`

Refer to the following table for the properties to modify in the `cfg.properties` file:

Table 1. Properties in the `cfg.properties` file

Property	Description	Default value	Required?
<code>db.schema.name</code>	Hive schema name	TNF	Yes
<code>use_bigsql_for_aggregations</code>	Uses Big SQL for aggregation queries, otherwise Hive is be used.	false	No

Table 1. Properties in the `cfg.properties` file (continued)

Property	Description	Default value	Required?
<code>segments_by_imsi</code>	Number of segments by IMSI for TDRs and customer level aggregation tables. This must be same value that is in all vedia configurations.	10	Yes
<code>min_5_aggregation.keep.days</code>	Number of days the system keeps data of 5 minute aggregation tables.	8	Yes
<code>h_1_aggregation.keep.days</code>	Number of days the system keeps data of hourly aggregation tables.	40	Yes
<code>d_1_aggregation.keep.days</code>	Number of days the system keeps data of daily aggregation tables.	90	Yes
<code>tdr.tmp_min_10.keep.days</code>	Number of days the system keeps data of 10 minute temporary TDR tables.	1	Yes
<code>tdr.keep.day</code>	Number of days the system keeps data of TDR tables.	40	Yes

Refer to the following table for the properties to modify in the `bigsql_connection.properties` file:

Table 2. Properties in the `bigsql_connection.properties` file

Property	Description
<code>db.url</code>	JDBC URL connection string to the IBM InfoSphere BigInsights database. For example, <code>jdbc:db2://localhost:51000/bigsql</code> . Update the port number if your database uses a port that is different from the default.
<code>db.user</code>	Database user ID
<code>db.password</code>	Database user password

Refer to the following table for the properties to modify in the `db2_connection.properties` file:

Table 3. Properties in the `db2_connections.properties` file

Property	Description
<code>db.url</code>	JDBC URL connection string to the IBM DB2 database. For example, <code>jdbc:db2://localhost:50000/tnfbis</code> . Update the port number if your database uses a port that is different from the default.
<code>db.user</code>	Database user ID
<code>db.password</code>	Database user password

Procedure

1. Log on to the Rapid Analytics node as the `biadmin` user.
2. Open a configuration file, review the properties, and modify as required. Refer to the tables for information on the properties to update.

Configuring table groups

You can configure table groups before or after you start the Rapid Analytics platform server.

About this task

The tables are configured after you start the Rapid Analytics platform server so you may not see them immediately.

The tables in each table group are listed in the following table:

Table 4. Tables in each table group

Table group file name	Tables in the group
gn-subscribers-aggregation.tablegroup	gncontrolp_3_h_1 gncontrolp_3_min_5 gncontrolpst_3_h_1 gncontrolpst_3_min_5 gnuserp_st_2_h_1 gnuserp_st_2_min_5 gnuserplane_3_h_1 gnuserplane_3_min_5
gn-tdrs.tablegroup	tdr6013 tmp6013 tdr6021 tmp6021 tdr6022 tmp6022
lte-subscribers-aggregation.tablegroup	ltes11_3_h_1 ltes11_3_min_5 ltes11_st_3_h_1 ltes11_st_3_min_5 ltes1u_3_h_1 ltes1u_3_min_5 ltes1u_st_2_h_1 ltes1u_st_2_min_5

Table 4. Tables in each table group (continued)

Table group file name	Tables in the group
lte-tdrs.tablegroup	tdr7013 tmp7013 tdr7021 tmp7021 tdr7022 tmp7022
voice_sms-subscribers-aggregation.tablegroup	voice_sms_3_h_1 voice_sms_3_min_5 voice_sms_sc_3_h_1 voice_sms_sc_3_min_5
voice_sms-tdrs	tdr_voicesms tmp_voicesms

Procedure

1. Log in to the Rapid Analytics node and type the following command:

```
cd /opt/tnf/apps/bis-main/bis-dbconfig
```
2. Configure the table groups that are required for your environment. For example, to configure the **gn-subscribers-aggregation** table group, type the following command:

```
./install-db.sh gn-subscribers-aggregation
```

To get a complete list of available and configured table groups, type the following command: `./install-db.sh`

What to do next

Start the Rapid Analytics platform server.

Creating a data source connection to the BigInsights database

You must create a data source connection from the Business Intelligence node to the IBM BigInsights database that is on the Rapid Analytics node.

Procedure

1. Open a web browser on the BI node.
2. Go to the IBM Cognos BI portal URL. For example, go to `http://cognosnode/ibmcognos`.
3. On the **Welcome** page, click **Administer IBM Cognos Content**.
4. Click the **Configuration** tab, and then click **Data Source Connections**.
5. Click **New Data Source**.
6. In the **Name** field, type `BigDataDb2`, and then click **Next**.
7. From the **Type** list, select **IBM DB2**. Ensure that **Configure JDBC connection** is selected and click **Next**.

Note: The IBM DB2 driver is used for the connection to the BigInsights database.

8. Based on the connection information that is provided by your database administrator, enter the appropriate information. If applicable, select the authentication mode to be used. Configure the signon credentials if applicable, and click **Next**.
9. On the **Specify the DB2 (JDBC) connection string** page, specify the server name, port number, and database name.
10. Click **Test the connection**, then click **Test**. On the **View the results** page, the status of the connection tests for the dynamic query mode is **Succeeded**.
11. Click **Close**, click **Close** again, and then click **Finish**.

Starting the Rapid Analytics platform server

Start the daemon server in the framework layer.

Procedure

1. Log in to the Rapid Analytics node as the **biadmin** user.
2. Type the following commands:

```
cd /opt/tnf/apps/bis-main
./bis-main.sh start
```
3. Confirm that the server started successfully by looking at the following log file:
`/opt/tnf/apps/bis-main/bis-demon/log/demon.log`
4. Deploying datasets. Once the Rapid Analytics Server has been started, follow the instructions in the following documents found in the install directory `/opt/IBM/IS_CSP_CustomerAnalytics_1.1/rapidanalytics/build` or `/opt/IBM/IS_CSP_CustomerInsights_1.1/rapidanalytics/build`:
 - *Net-Promoter-Score Readme.pdf*
 - *Customer-Behaviors-Readme.pdf*
 - *Customer-Experience-Readme.pdf*
 - *Churn-Readme.pdf*
5. Follow the instructions in the document *CSP CustomerInsight DBLoader Setup document.pdf*.

Installing the SLM tagging functionality

You can deploy the slm tagging functionality on the rapid analytics node.

About this task

A RPM Package Manager (RPM) is contained in the `rapidanalytics/build/slm/ci-slm-deployment-1.0.0.rpm` folder. To install this RPM, follow these steps:

Procedure

1. Install the SLM via the RPM installer by typing the following command:

```
rpm -i bis-main-2*.rpm
```

The files will be copied to `/opt/tnf/apps/slm`.
2. Running SLM tagging:
 - A Cron job needs to be created that runs the SLM tagging command daily, just after midnight:

```
java -cp /opt/tnf/apps/slm/lib/log4j-1.2.16.jar:/opt/tnf/apps/slm/lib/* com.tnf.slm.SlmMain
```

- The SLM tagging process appends to a log file in the directory, with the extension `.slmtag: /opt/tnf/apps/slm/log/<log file>.slmtag`

This log file is used by IBM to ensure that the product is being used according to its license.

Installation and configuration of the Mediation node

Vedia is the component that processes the transaction data records (TDRs) on the Mediation node.

You install two versions of the vedia component on the Mediation node. Vedia analytics collects transaction data record (TDR) data, batches it, and loads it into flat files in IBM InfoSphere BigInsights. Vedia rapid calculates counters and metrics, groups the TDRs by key field values, and loads the aggregated data into IBM InfoSphere BigInsights.

Installing the mediation layer

Data collection is done by two versions of vedia mediation on the Mediation node.

Before you begin

The computer that is the Mediation node must:

- Have a `biadmin` UNIX account created on it.
- Have an `/opt/tnf` directory and the `biadmin` account must have write access to it.
- Have an `/var/opt/tnf` directory and the `biadmin` account must have write access to it.

About this task

In this task you install the vedia mediation, the Data Loader tool, and the IBM InfoSphere BigInsights client on the Mediation node. Perform this procedure on every instance of the Mediation node.

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Open the `/etc/security/limits.conf` file and add the following lines or modify existing settings to these values:

```
biadmin hard nofile 655365
biadmin soft nofile 65536
biadmin hard nproc 65536
biadmin soft nproc 65536
```

3. Open a web browser and open the BigInsights web console by typing the following address:

```
http://bi-master-hostname:8080
```

where `bi-master-hostname` is the IP address or hostname of the Rapid Analytics node.

Tip: If you see the message “Unable to connect” in your web browser, verify that the BigInsights web console is running on the Rapid Analytics node by

using the `status.sh` console command. If the BigInsights web console is not running, start it with the `start.sh` console command.

4. Log in as **biadmin**.
5. Under **Quick Links**, click **Download client library and development software**.
6. Click **Download** beside **InfoSphere BigInsights client libraries**.

Tip: If you do not see **InfoSphere BigInsights client libraries**, verify that the `rpm-build` package is installed on the Rapid Analytics node by typing the following command: `sudo yum install rpm-build`.

The `bi-client.rpm` file is downloaded to your computer.

7. Copy the `bi-client.rpm` file from your computer to the `/opt/tnf/install` directory on the Mediation node.
8. Type the following command:

```
rpm -i bis-client.rpm
```
9. Decompress the `CSP_CustomerInsight_RA.zip` file into `/opt/tnf/install`.
10. Type the following commands:

```
cd /opt/tnf/install/rapidanalytics/build/ra-platform
rpm -i bis-main-*.rpm
```

Installing the mediation components

You must install the vedia mediation components. There is one component for each network type.

About this task

The following table shows the distribution packages for each network type:

Table 5. Distribution packages for each network type

Vedia type	File name	Description
Rapid Gn	<code>install_vedia_rapid_1.0.0_gn.sh</code>	Install script
	<code>vedia_rapid_1.0.0_gn_config.tar.gz</code>	Configuration package
	<code>vedia_rapid_1.0.0_gn_bin.tar.gz</code>	Binaries package
Rapid Lte	<code>install_vedia_rapid_1.0.0_lte.sh</code>	Install script
	<code>vedia_rapid_1.0.0_lte_config.tar.gz</code>	Configuration package
	<code>vedia_rapid_1.0.0_lte_bin.tar.gz</code>	Binaries package
Rapid Voice and SMS	<code>install_vedia_rapid_1.0.0_voice.sh</code>	Install script
	<code>vedia_rapid_1.0.0_voice_config.tar.gz</code>	Configuration package
	<code>vedia_rapid_1.0.0_voice_bin.tar.gz</code>	Binaries package
Vedia Analytics (raw TDRs)	<code>install_vedia_rapid_8.2.1.sh</code>	Install script
	<code>vedia_rapid_8.2.1_config.tar.gz</code>	Configuration package
	<code>vedia_rapid_8.2.1_bin.tar.gz</code>	Binaries package

The following table shows the component and installation directories:

Table 6. Component and installation directories for each network type

Project	Component directory	Default installation directory (\$INSTALL_DIR)
Rapid Gn	rapidanalytics/build/vedia_gn	/opt/tnf/apps/rapid_gn
Rapid Lte	rapidanalytics/build/vedia_lte	/opt/tnf/apps/rapid_lte
Rapid Voice & SMS	rapidanalytics/build/vedia_voice	/opt/tnf/apps/rapid_voice
Analytics	rapidanalytics/build/vedia_analytics	/opt/tnf/analytics/vedia

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Decompress the distribution packages and installation script in the `/opt/tnf/install` directory.
3. Change to the relevant install directory for the media component that you are installing and run the corresponding shell script: For example, to install the vedia mediation component for the *Gn* network type, type the following commands:


```
cd /rapidanalytics/build/vedia_gn
sh install_vedia_rapid_1.0.0_gn.sh
```
4. Install all four vedia mediation components.

Configure the vedia mediation components

Vedia is the component that processes and aggregates the transaction data records (TDRs) on the Mediation node. You must configure the probe collectors, probe access, probe directories, and other settings in the configuration files in the `INSTALL_DIR/cfg` directory.

Configuring IMSI segments on the Mediation node

Configure the number of IMSI segments in the `const_db.xml` file to match the number in the `cfg.properties` file on the Rapid Analytics node.

About this task

For information about configuring the `cfg.properties` file, see “Configuring the Rapid Analytics node” on page 8.

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Open the `consts-db.xml` file.
3. Set the **value** parameter in the following line to the number of IMSI segments that are in your environment:


```
<const name="hadoop-segments" value="1" description="Hadoop segments"/>
```

 Set this value in the `consts-db.xml` file on all instances of the Mediation node.

Configuring the Gn and LTE probe collectors

About this task

Use the following information to configure the attributes in the VediaMain.xml file:

- Specify all collectors for the same probe within one application attribute.
- Specify unique values for each occurrence of the probe-no attribute in the file.
- The value of the probe-name attribute is used in the **Collector** dimension in the database tables.

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Open the VediaMain.xml file and if necessary, modify it for your environment.

In the following example, one probe **P1** has collector **ip1** and another probe **P2** has collectors **ip2** and **ip3**. **ip1**, **ip2**, and **ip3** are the IP addresses of the probes:

```
<vedia name="Main config">
  <hosts description="Main host and Collectors hosts">
    <host name="Collector" address="localhost" main="1"/>
  </hosts>

  <!-- One collector with name P1, define by probe-name="P1", it can have some probes with
        diff probe-no=".." -->
  <applications name="Collector1" host="Collector" probe-name="P1">
    <application name="Collection_1" config="Collection" probe-ip="ip1" probe-no="1"/>
  </applications>

  <!-- Next collector define with name P2 (probe-name="P2"),
        all probe-no=".." and name=".." should be different in this config -->
  <applications name="Collector2" host="Collector" probe-name="P2">
    <application name="Collection_2" config="Collection" probe-ip="ip2" probe-no="2"/>
    <application name="Collection_3" config="Collection" probe-ip="ip3" probe-no="3"/>
  </applications>
</vedia>
```

3. Configure the probe collection directories, user name, and password in /cfg/consts.xml.

The following example shows the configuration of the probe collection directories, user name, and password:

```
<const name="probe-user" value="tnf" description="Ftp user"/>
<const name="probe-password" value="tnf" description="Ftp password"/>
<const name="probe-dir" value="/apps/midas/bin/MANAGE/process/dacas/netrofeed/"
description="Ftp dir"/>
not expected to be changed <const name="probe-files_mask"
value="netro_{[0-9]{14}}\.log\.gz" description="Ftp files mask"/>
not expected to be changed <const name="probe-file-date-format"
value="yyyyMMddHHmmss" description="Ftp files mask"/>

<const name="probe-pb-on" value="no"
description="Enable/Disable page based records (yes/no)"/>
<const name="probe-pb_dir" value="/apps/midas/bin/MANAGE/process/dacas/pagebasedqoe/"
description="Ftp dir"/>
not expected to be changed <const name="probe-pb_files_mask"
value="pbqoe_{[0-9]{14}}\.log\.gz" description="Ftp files mask"/>
not expected to be changed <const name="probe-pb_file-date-format"
value="yyyyMMddHHmmss" description="Ftp files mask"/>

<const name="vedia-number" value="01"
description="Unique number for each instance of Vedia"/>
<!-- Probe constants -->
<!-- Roaming Type calculation
0 = "home" - to be used for Gn and LTE probes
```

```

    1 = "roamer" - to be used for Gp probes
    2 = "roam_home" - ideally should not happen -
will be used in case if records from different interfaces (Gn and Gp for instance)
are populated in a single feed.
-->
<const name="probe-traffic-type" value="0"
description="Probe traffic type (0 = home/1 = roamer/2 = roam_home)"/>
<const name="probe-mcc" value="272" description="Probe MCC"/>
<const name="probe-mnc" value="07" description="Probe MNC"/>

```

Configuring the rapid voice and SMS probe

If you installed the rapid voice and SMS project type, then you must configure the VediaMain.xml and consts.xml files.

About this task

Use the following information to configure the attributes in the VediaMain.xml file:

- Specify a user ID and password for the user that accesses the probe ftp or sftp server.
- Specify the directory that contains the probe data.

Use the following information to configure the attributes in the consts.xml file:

- Specify all collectors for the same probe within one application attribute.
- Specify unique values for each occurrence of the probe-no attribute in the file.
- The value of the probe-name attribute is used in the **Collector** dimension in the database tables.
- The probe-type attribute defines the type of interface on the probe. The valid values for it are **a** for an A interface and **iucs** for an IuCS interface.

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Open the VediaMain.xml file and if necessary, modify it for your environment.

In the following example there is one probe **P1** that has an A interface and another probe **P2** that has an IuCS interface:

```

<vedia name="Main config">
  <hosts>
    <host name="Collector" address="localhost" main="1"/>
  </hosts>

  <applications name="Collector1" host="Collector" probe-name="P1" probe-type="a">
    <application name="Collection_1" config="Collection" probe-ip="ip1" probe-no="1"/>
  </applications>

  <applications name="Collector2" host="Collector" probe-name="P2" probe-type="iucs">
    <application name="Collection_2" config="Collection" probe-ip="ip2" probe-no="2"/>
    <application name="Collection_3" config="Collection" probe-ip="ip3" probe-no="3"/>
  </applications>
</vedia>

```

3. Set the parameters for the two voice interface feeds in consts.xml. The following example shows the parameters:

```

<!-- Ftp loader for voice-sms A interface -->
<const name="probe-a-user" value="cinnara" description="Ftp user"/>
<const name="probe-a-password" value="cinnara" description="Ftp password"/>
<const name="probe-a-dir" value="/var/tmp/data/bin/a" description="Ftp dir"/>
<const name="probe-a-files_mask" value="Aif_ASN1_BER_[0-9]{1,3}\.[0-9]{1,3}\.
[0-9]{1,3}\.
[0-9]{1,3}_([0-9]{8})\.[0-9]{4,6})" description="Ftp files mask"/>

```

```

    <const name="probe-a-file-date-format" value="yyyyMMdd.HHmss"
description="Ftp files mask"/>
    <const name="probe-a-csv-dir" value="/var/tmp/data/csv/a"
description="Dir with decoded csv files"/>
    <const name="probe-a-csv-files_mask" value="Aif_([0-9]{8}\.[0-9]{6})_[0-9]{5}
\.csv\.gz"
description="Csv file mask"/>

    <!-- Ftp loader for voice-sms IuCS interface -->
    <const name="probe-iucs-user" value="cinnara" description="Ftp user"/>
    <const name="probe-iucs-password" value="cinnara" description="Ftp password"/>
    <const name="probe-iucs-dir" value="/var/tmp/data/bin/iucs" description="Ftp dir"/>
    <const name="probe-iucs-files_mask" value="IuCS_ASN1_BER_[0-9]{1,3}\.[0-9]{1,3}
\.[0-9]{1,3}\.
[0-9]{1,3}_([0-9]{8}\.[0-9]{4,6})" description="Ftp files mask"/>
    <const name="probe-iucs-file-date-format" value="yyyyMMdd.HHmss"
description="Ftp files mask"/>
    <const name="probe-iucs-csv-dir" value="/var/tmp/data/csv/iucs"
description="Dir with decoded csv files"/>
    <const name="probe-iucs-csv-files_mask" value="IuCS_([0-9]{8}\.[0-9]{6})_[0-9]{5}
\.csv\.gz"
description="Csv file mask"/>

```

Configuring the probe traffic type

The probe traffic type applies to only the Gn and LTE standards. The traffic type values are used to calculate roaming dimensions such as Home MCC and MNC, Visited MCC and MNC, and roaming type.

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Open the `consts.xml` file.
3. Update the values as shown in the following example:

```

<const name="probe-traffic-type" value="0" description="Probe traffic type
(0 = home/1 = roamer/2 = roam_home)"/>

<const name="probe-mcc" value=".." description="Probe MCC"/>
<const name="probe-mnc" value=".." description="Probe MNC"/>

```

where probe-traffic-type=0 – "home" - use for Gn and LTE probes,
probe-traffic-type=1 – "roamer" - use for Gp probes, probe-traffic-type=2 –
"roam_home" - should not happen. Use if records from different interfaces (Gn
and Gp for instance) are populated in a single feed, probe-mcc= – Default
probe MCC, probe-mnc= – Default probe MNC.

4. Open the `mcc-mnc.csv` file and modify it for your environment. For example:

```

#MCC|MNC|OPERATOR TYPE: 0 = international, 1 = home,
2 = probe|Country|Country Code|Network
289|88|0|Abkhazia|7|A-Mobile
289|68|0|Abkhazia|7|A-Mobile

```

Configuring a roamers filter

You configure a roamers filter in the `consts.xml` file.

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Open the `consts.xml` file.
3. Modify the values for the roamers as shown in the following example:


```

<!-- Roamers filter
subscriber - Roamers IN subscriber level - IMSI is used as aggregation key, MSISDN
and IMEI fields are populated
operator - Roamers IN operator level - MCC/MNC extracted from IMSI is used as an
aggregation key instead of IMSI. The rest of IMSI characters are replaced by zeros.
MSISDN and IMEI fields are not populated.
filter - Roamers IN are filtered out. TDRs generated by roamers in are filtered out and
not used for aggregations
-->
<const name="roamers-filter" value="subscriber" description="Roamers filter
(subscriber/operator/filter)"/>

```

where roamers-filter=subscriber is the default value. Roamers IN subscriber level - IMSI is used as aggregation key, MSISDN and IMEI fields are populated
roamers-filter=operator – Roamers IN operator level - MCC/MNC extracted from IMSI is used as an aggregation key instead of IMSI. The rest of IMSI characters are replaced by zeros. MSISDN and IMEI fields are not populated
roamers-filter=filter – TDRs where IMSI’s MCCMNC is not provisioned as local are filtered out and not used for aggregations.

Configuring a cells filter

You configure a cells filter in the consts.xml file.

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Open the consts.xml file.
3. Modify the values for the roamers as shown in the following example:

```

<!-- Check probe cells in cells.csv.
Only cell populated in the provisioning file should be taken into account and CI/LAC
fields be used for aggregations.
If cell is not provisioned in the file, then CI/LAC value should be replaced by zero
-->
<const name="check-probe-cells" value="no" description="Check probe cells in cells.csv
file (yes/no)"/>

```

where check-probe-cells=no means disable cells filter by default,
check-probe-cells=yes means enable cells filter. The cells specified in the
cfg/cells.csv file are accounted for and CI/LAC fields are used for
aggregations. Cells that re not provisioned are aggregated as **Uncategorized**.

Here is an example of the cfg/cells.csv file:

```

#CellLac|CellID
12295|10891
12295|10985
12295|14098
12295|14181

```

Configuring the Rapid Analytics platform for TDR processing

If you want the Customer Experience Analytics for Communication Service Providers solution to process raw transaction data records (TDRs) you must update some configuration files.

About this task

The configuration files for TDR processing are stored in \$INSTALL_DIR/cfg/.

The following table list the parameters in the consts.xml file that you must change or verify:

Parameter	Description
hadoop-segments	Number of IBM InfoSphere BigInsights segments. This value must match the number of segments configured in IBM InfoSphere BigInsights.
wait-min	Wait time before sending an hourly .csv file to IBM InfoSphere BigInsights.
vedia_col.host	Host name of the collector
vedia-number	Number that is appended to the file names uploaded to IBM InfoSphere BigInsights. This value must be different in each vedia that is processing TDRs for the same interface.

The following table list the probe properties that you must change or verify:

Parameter	Description
probe-user	User name of the probe FTP server.
probe-password	Password of the probe FTP server.
probe-file-date-format	Ftp files mask.
probe_type="NT"	Gn probe.
probe_type="LTE"	S1U-S11 probe.
probe_type="PB"	Gn page based (6013).
probe_type="LTE_PB"	LTE page based (7013).

The VediaMain.xml contains collection information for each probe. The following table shows the parameters for a probe:

Parameter	Description
name	Name of the probe.
config	Collection.
probe-type	NT for GN probe LTE for S1U-S11 probe PB for GN page-based probe LTE_PB for LTE page-based probe
probe-no	Probe number. This value must be different for each collector in the same blade.
description	Description of the probe.

Procedure

1. Log on to Mediation node as the **root** user or as a user with **sudo** permissions.
2. Open and verify or edit each file.

Chapter 3. Using Customer Experience Analytics for Communications Service Providers

This section describes a typical user case that shows how to use the Customer Experience Analytics for Communication Service Providers solution to understand customer experience trends.

Workflow and user roles

This workflow shows how the solution can be used to thoroughly provide a dashboard and key metrics to a communication service provider.

For this example, a customer experience team member is interested in understanding customer experience trends. This person has also been asked to investigate a specific customer complaint. A typical process workflow is described

Using the Customer Experience Dashboard

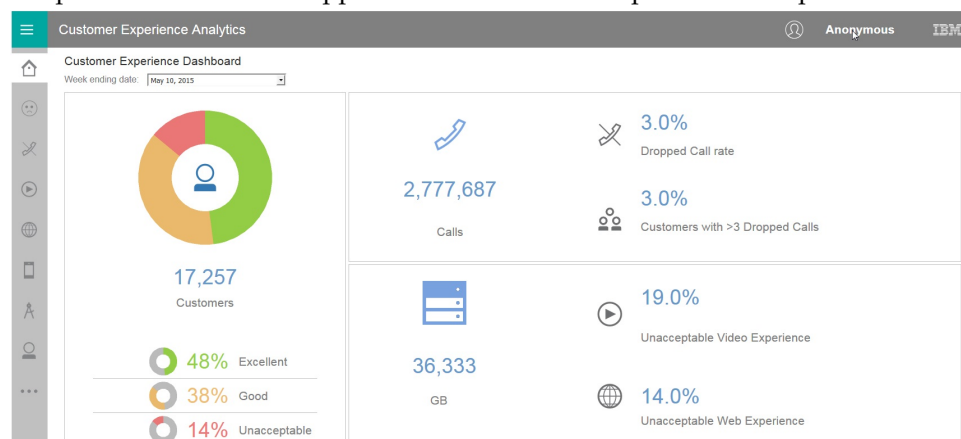
The Customer Experience Analytics for Communication Service Providers solution provides in-depth analytics to help communication service providers evaluate customer experience trends and metrics.


About this task

This task describes how a typical customer experience team member would use the dashboard to evaluate customer trends and metrics, as well as investigate a specific customer complaint. The screen shots shown are for example purposes and will vary depending on your particular implementation.

Procedure

1. Open the **Customer Experience Dashboard** for the past week. The metrics for the past week include dropped call rate and unacceptable web experience.

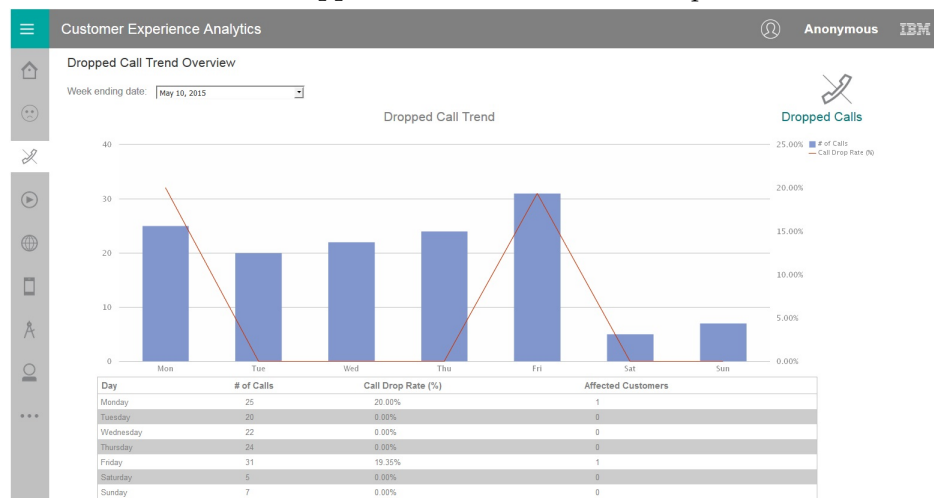


- Click  to view the **Unacceptable Experience Trend** report.



The communications service provider has an SLA of 4.5%. The customer experience team member investigates why the SLA went above that level on Monday and Friday. The team member looks at the reports in the menu on the left-hand side of the screen.

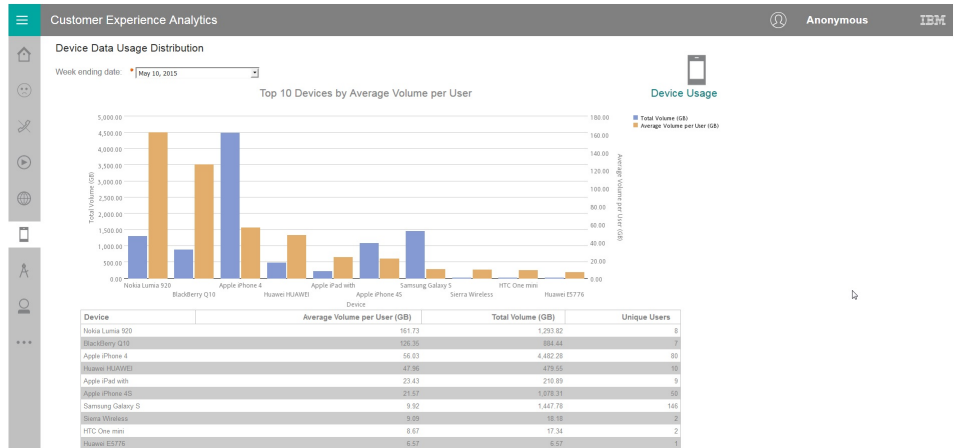
- Click  to view the **Dropped Calls Trend Overview** report.



The bar chart shows the number of dropped calls and the line chart shows a corresponding dropped call rate. The report below the chart includes the number of affected customers. The dropped call rate on Monday and Friday was particularly high and may warrant further investigation.

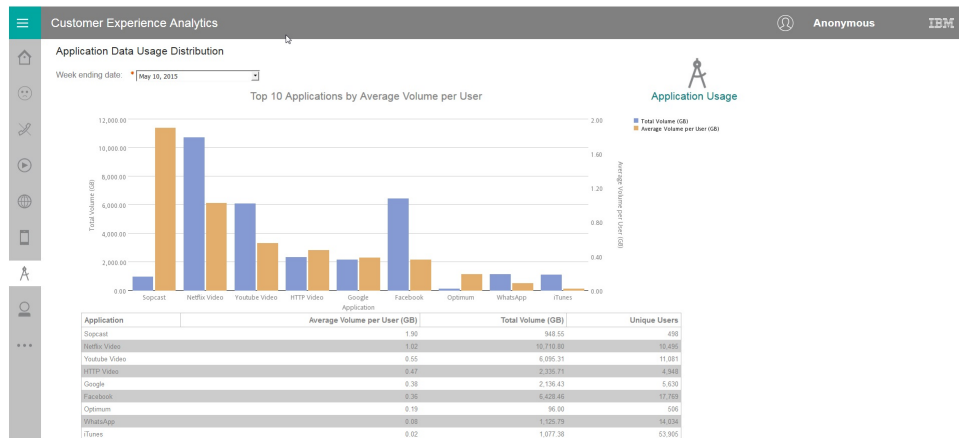
- Click through the  (**Video Experience**) and  (**Web Experience**) reports on the left-hand menu.

- Click  to view the **Device Data Usage Distribution** report.




The bar chart shows the total volume and average volume per user of the top ten devices by average volume per user. The report below the chart includes the number of unique users. The average volume per user of Nokia Lumia 920 and BlackBerry Q10 users is particularly high, and the total volume of Apple iPhone 4 users is much higher than any other device.

- Click  to view the **Application Data Usage Distribution** report.



The bar chart shows the total volume and average volume per user of the top ten applications by average volume per user. The report below the chart includes the number of unique users. The average volume per user of Sopcast is particularly high, and the total volume of Netflix Video users is higher than any other device.

- Click  to view the **Single Customer Experience Analysis** report.



The report provides a high level overview of a subscriber's activity.



The experience section of the report can be filtered to show only a specific type of experience, such as **Video Experience**.



The cells section of the report can show either **Top Cells by Call** (for voice) or **Top Cells by Volume** (for data).

Appendix A. Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products.

For information about the commitment that IBM has to accessibility, see the IBM Accessibility Center (www.ibm.com/able).

IBM Cognos HTML documentation has accessibility features. PDF documents are supplemental and, as such, include no added accessibility features.

Report output

In IBM Cognos Administration, you can enable system-wide settings to create accessible report output. For more information, see the *IBM Cognos Business Intelligence Administration and Security Guide*. In IBM Cognos Report Studio, you can enable settings to create accessible output for individual reports. For more information, see the *IBM Cognos Report Studio User Guide*. You can access the previously mentioned documents at IBM Knowledge Center (<http://www.ibm.com/support/knowledgecenter>).

Appendix B. The data provision tool

The data provision tool loads, deletes, and exports data from the provision tables. The provision tables contain customer relationship management data.

The data provision tool is installed in the `/opt/tnf/apps/bis-main-var/bis-provisioning-tool` folder and consists of the following parts:

load.sh

Loads and updates provision tables.

load-all.sh

Checks all the files in the `.csv` folder and loads them at the same time.

delete.sh

Reads records from input files and deletes records from IBM InfoSphere BigInsights by using key values.

export.sh

Exports records from IBM InfoSphere BigInsights to text files.

Usage

You must specify key values for all operations. The key field names are obtained by the provision tools from the table metadata. The primary key must be defined in table DDL. In the following examples the primary key field is **tac**:

```
create table device (  
tac varchar(32) primary key, model varchar(64),  
vendor varchar (64)  
);
```

The follow example contains two primary keys:

```
create table device (  
tac varchar(32),  
model varchar(64), vendor varchar (64), primary key (tac, model)  
);
```

To see the parameters for `load.sh` type, the script name with no parameters in a command-line window:

```
Usage: load.sh [options] Options:  
* --file, -f  
CSV file with data * --table, -t  
DB Table name
```

--file, -f

A list of input files that are separated by the pipe (`|`) character.

--table, -t

The table name. The table name can include a dot separated schema. For example, `load.sh -f device.csv -t device`.

`delete.sh` and `export.sh` take the same parameters.

The data provision tool reads table metadata and converts the input text file into an Apache Parquet or plain text formatted file and populates specified table with the data. It updates existing records and inserts new records.

Creating dictionary tables

Run the `/opt/tnf/apps/bis-main/bis-dbconfig/install-db.sh` script with table group name parameters. The script `/opt/tnf/apps/bis-main/bis-main.sh` creates a dictionary table in the database when it starts.

You cannot modify the data in IBM InfoSphere BigInsights directly. The data provision tool updates the database tables and exports them to IBM InfoSphere BigInsights. During the export stage, the data provision tool must know the storage format. Apache Parquet and plain text formats are supported. Update the storage format in the `/opt/tnf/apps/bis-main/bis-tools/bisprovisioning-tool/cfg/hive-storage.properties` file.

Input files

The data input format is a pipe (|) separated utf-8 encoded plain text file with headers. The header can start with a number sign (#). Header values must match the dictionary table case insensitive field names. For example,

```
TAC|MODEL|VENDOR
12345678|Zamyang|Ciaobao
```

Configuration files

The data provision tool IBM DB2 database configuration location is `/opt/tnf/apps/bis-main-var/bis-demon/cfg/db2_connection.properties`. For example,

```
db.url=jdbc:db2://localhost:50000/tnfbis
db.user=catalog
db.password=db2
```

where `db.url` is the JDBC URL string of the database, `db.user` is the database user ID, and `db.password` is the database password.

Appendix C. Troubleshooting

This section contains troubleshooting information for the Customer Experience Analytics for Communication Service Providers installation.

Troubleshooting a problem

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem.

Review the following table to help you or customer support resolve a problem.

Table 7. Troubleshooting actions and descriptions

Actions	Description
A product fix might be available to resolve your problem.	Apply all known fix packs, or service levels, or program temporary fixes (PTF).
Look up error messages by selecting the product from the IBM Support Portal, and then typing the error message code into the Search support box (http://www.ibm.com/support/entry/portal/).	Error messages give important information to help you identify the component that is causing the problem.
Reproduce the problem to ensure that it is not just a simple error.	If samples are available with the product, you might try to reproduce the problem by using the sample data.
Ensure that the installation successfully finished.	The installation location must contain the appropriate file structure and the file permissions. For example, if the product requires write access to log files, ensure that the directory has the correct permission.
Review all relevant documentation, including release notes, technotes, and proven practices documentation.	Search the IBM Knowledge Center to determine whether your problem is known, has a workaround, or if it is already resolved and documented.
Review recent changes in your computing environment.	Sometimes installing new software might cause compatibility issues.

If the items in the table did not guide you to a resolution, you might need to collect diagnostic data. This data is necessary for an IBM technical-support representative to effectively troubleshoot and assist you in resolving the problem. You can also collect diagnostic data and analyze it yourself.

Troubleshooting resources

Troubleshooting resources are sources of information that can help you resolve a problem that you are having with an IBM product.

Support Portal

The IBM Support Portal is a unified, centralized view of all technical support tools and information for all IBM systems, software, and services.

The IBM Support Portal lets you access all the IBM support resources from one place. You can tailor the pages to focus on the information and resources that you need for problem prevention and faster problem resolution. Familiarize yourself with the IBM Support Portal by viewing the demo videos (https://www.ibm.com/blogs/SPNA/entry/the_ibm_support_portal_videos).

Find the content that you need by selecting your products from the IBM Support Portal (<http://www.ibm.com/support/entry/portal>).

Before contacting IBM Support, you will need to collect diagnostic data (system information, symptoms, log files, traces, and so on) that is required to resolve a problem. Gathering this information will help to familiarize you with the troubleshooting process and save you time.

Service request

Service requests are also known as Problem Management Reports (PMRs). Several methods exist to submit diagnostic information to IBM Software Technical Support.

To open a PMR or to exchange information with technical support, view the IBM Software Support Exchanging information with Technical Support page (<http://www.ibm.com/software/support/exchangeinfo.html>).

Fix Central

Fix Central provides fixes and updates for your system's software, hardware, and operating system.

Use the pull-down menu to navigate to your product fixes on Fix Central (<http://www.ibm.com/systems/support/fixes/en/fixcentral/help/getstarted.html>). You may also want to view Fix Central help.

IBM developerWorks

IBM developerWorks[®] provides verified technical information in specific technology environments.

As a troubleshooting resource, developerWorks provides easy access to the most popular practices, in addition to videos and other information: developerWorks (<http://www.ibm.com/developerworks>).

IBM Redbooks

IBM Redbooks[®] are developed and published by the IBM International Technical Support Organization, the ITSO.

IBM Redbooks (<http://www.redbooks.ibm.com>) provide in-depth guidance about such topics as installation and configuration and solution implementation.

Software support and RSS feeds

IBM Software Support RSS feeds are a quick, easy, and lightweight format for monitoring new content added to websites.

After you download an RSS reader or browser plug-in, you can subscribe to IBM product feeds at IBM Software Support RSS feeds (<https://www.ibm.com/software/support/rss>).

Log files

Log files can help you troubleshoot problems by recording the activities that take place when you work with a product.

Error messages

The first indication of a problem is often an error message. Error messages contain information that can be helpful in determining the cause of a problem.

Troubleshooting the FTP collection of files in Rapid Analytics

There are solutions for known issues in the FTP collection of files in Rapid Analytics.

On Rapid Analytics mediation nodes, the function in Rapid Analytics that collects transaction data record (TDR) files for storage in Rapid Analytics is Vedia.

To verify that the collection of TDRs from the CSP probe or probes is working, note that each probe's collector will be defined in mediation. Use the secure shell (SSH) to connect to the correct collector. The allocation of collectors can be found in the file `Vediamain.cfg` at `/opt/tnf/apps/vedia/cfg/Vediamain.cfg`.

To check FileLoader logs, the format is `logs/Collection_1/FileLoader092708.log`.

When the application is running, messages would appear in the following format. For this example, Vedia is comparing TDRs in tmp against files on the probe:

```
[CFileListJob::GetNewFilesList] [TaskTest] Getting list of /var/opt/tnf/tdrs/ *.*
[CFileListJob::GetNewFilesList] [TaskTest] Files: 196, Match: 182, Old: 178
```

The files that are being collected correctly are shown in the following example:

```
[CFileDownloadJob::Process] Task - downloading midas/netrofeed/netro_20130918200012.log.gz
[CFileDownloadJob::Process] Task - download netro_20130918200012.log.gz (9600142)
[CProbe::Store] Save: /opt/tnf/apps/vedia/tmp/Collection_1_FileLoader.dat
[CFileListJob::Save] LastListTime: 20130918200012, Files: 664
[CFileListJob::GetNewFilesList] [Task] Getting list of midas/netrofeed/ *.*
[CFileListJob::GetNewFilesList] [Task] Files: 251, Match: 223, Old: 221
[CFileDownloadJob::Process] Task - downloading midas/netrofeed/netro_20130918200015.log.gz
[CFileDownloadJob::Process] Task - download netro_20130918200015.log.gz (9013063)
```

In contrast, the following is an example of a file that can no longer connect to a probe. Typically, if FTP is not working, the ports are not open, permissions are not set up correctly on the probe, the probe is down, or connectivity between the probe and mediation has dropped.

FTP not working

TO FIND example of ftp failing

Full queues represent full applications within the chain. The following is an example of a file that has full queues somewhere along the chain. If one application is full, then the preceding application cannot output to the queue, thus impacting the queues (creating a knock-on effect). The queues will need be examined for skipping.

```

1C8F - 19/09 11:00:55.200 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C8F - 19/09 11:01:00.242 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C91 - 19/09 11:01:00.461 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C8F - 19/09 11:01:05.402 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C8F - 19/09 11:01:10.431 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C8F - 19/09 11:01:15.482 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C8F - 19/09 11:01:20.642 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C8F - 19/09 11:01:25.838 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C91 - 19/09 11:01:30.525 - [CFileListJob::GetNewFilesList]
Skip getting of files list
1C8F - 19/09 11:01:31.063 - [CFileListJob::GetNewFilesList]
Skip getting of files list

```

If skipping is noticed in Vedia logs and does not stop, restart Vedia. Some skipping will occur on restart, but wait up to five minutes for it to clear. It typically takes one to five minutes for the skipping messages to clear from the logs.

Recommendations:

- When collecting files and **Match** is **0**, the regex in the FileLoader configuration is incorrect. Review and correct this in the configuration steps.
- If FileLoader understands the files from the network to be **Old**, contact the person responsible for the production of network files to correct the date and time of the files.
- Occasionally, FTP jobs will fail to collect a file, but FileLoader will retry. Investigate situations where there are many failures, causing files that fail to be collected. Check the configuration and verify that the mediation node can reach the host of the network files (probe). If there is a network problem, contact the person responsible for the network files.
- When the configuration is correct and network connectivity is confirmed, restart the Vedia processes and ensure there are no further reported exceptions.

Queues commonly will fill after a long outage period. Vedia will attempt to collect all files and process them immediately. The number of files is determined by a period of time and is set in `Collection.xml`. If the look back period is, for example, greater than 20 minutes and there are **Skip getting of files list** messages in the log, then reset the look back period. Carefully tune anything greater than 20. Do not simply increase to 300 minutes, as this can overload Vedia.

The following is configured in `Collection.xml`:

```

module name="FileLoader" id="FileLoader">
  <probe name="FileLoader" log-file="FileLoader" log--process="2">
    <files>
      <ftp id="Task" host="Data"
        url="ftp://{probe-ip}" port="21"
        user="{probe-user}" password="{probe-password}"
        remotedir="{probe-dir}" storagedir="tmp/data_{probe-no}"
        filename-regex="{probe-files_mask}"
        ftp-timeout="60" ftp-downloads="1" attempt-timeout="1"
        delete-processed="0" process-file-ignore-age="0"
        max-process-file-age="20" time-shift="-3600"
        compression_="GNUZIP"
        start-format="{probe-file-date-format}"
        detection-interval="60">

```

```
</ftp>
</files>
<output name="LoadedFiles"model="File"limit="50"/>
</probe>
</module>
```

`process-file-ignore-age` directs Vedia to load all the old files. Always set this to 0 in a production environment.

`max-process-file-age` defines, in minutes, how old the files on the probe can be before they will be rejected as being too old.

`detection-interval` indicates how often to check for files, in seconds.

`download-threads` indicates how many threads to download with. Note that, if this is set cumulatively across all collectors to be a higher value than the probe can process, this may impact the probe and it may reject files.

`max-try` indicates how many times to attempt to download a file.

After running the solution installer, Chef processes are still running after executing the `cleanup.sh` script

After running the `cleanup.sh` script on the solution installer node, all chef processes should be terminated. However, in some cases chef processes are still running.

If you try to run the solution installer `setup.sh` file again, you may receive a message indicating that required ports are in use, or creation of the chef user might fail.

The solution to this issue is to reboot the installation node after having run "`cleanup.sh`".

Note: This only applies to the solution installer node and not the client/target nodes.

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