cxConnect for Data Analysis
Administration Manual

Contents

IBM Tealeaf cxConnect Data Analysis Administration Manual..... 1
cxConnect for Data Analysis overview..... 1
Features and benefits.....1
How it works..... 1
Installation..... 2
Installing cxConnect.....2
Configuring events for cxConnect..... 4
Configuration for the data files option..... 4
Initial cxConnect configuration..... 6
Upgrading cxConnect..... 9
cxConnect for Data Analysis.....10
cxConnect configuring tasks..... 10
Configured Tasks window..... 10
Editing tasks or creating new tasks..... 11
Time values in cxConnect..... 23
Data file integration example.....24
cxConnect scheduling tasks.....27
Scheduled Tasks window.....28
Context menu..... 28
Task execution.....29
Tealeaf Event Bus.....29
IBM Tealeaf documentation and help.....45
cxConnect Data File Schema..... 47

Index..... 56

IBM Tealeaf cxConnect Data Analysis Administration Manual

Use this manual to analyze and report on data captured by Tealeaf.

cxConnect for Data Analysis overview

IBM® Tealeaf® cxConnect for Data Analysis provides you with the ability to analyze and report on data captured by Tealeaf within various third-party solutions, including custom reporting tools and databases, warehouses, business intelligence environments, and web analytics products. Additionally, IBM Tealeaf cxConnect for Data Analysis enables the creation of a persistent store of session data from your web applications.

Features and benefits

A list of the main features that are used for extraction in IBM Tealeaf cxConnect for Data Analysis.

- Graphical user interface for managing extraction tasks
- Extraction to either data file or log file (W3C format)
- Complete logging and audit trail of all extraction activities
- Automated batch-load extraction of archived session data that is recorded by IBM Tealeaf CX for database destinations
- Scheduling of extraction tasks for future execution or at regular intervals (Daily or Hourly)
- Flexible controls for defining the exact data set to be extracted
- Constraint-based extraction to limit the sessions that are extracted
- Variable extraction to limit the data that is extracted from within sessions
- Ability to extract data from multiple IBM Tealeaf CX servers
- Ability to extend packaged extraction capabilities with an extensible API

How it works

IBM Tealeaf cxConnect for Data Analysis consists of a user interface, a service that schedules and extracts selected customer session data, and packaged APIs.

The extractor runs on a server that is maintained by Tealeaf, which can be either a dedicated server or the same machine that hosts the database server. IBM Tealeaf cxConnect for Data Analysis tasks are able to run on an ad hoc basis or according to a pre-set daily or hourly basis.

Note: You can have only one IBM Tealeaf cxConnect for Data Analysis server running at any time.

Scheduling tasks

You can use the Tealeaf Portal to track and schedule tasks within IBM Tealeaf cxConnect for Data Analysis.

Through the Tealeaf Portal, you can access IBM Tealeaf cxConnect for Data Analysis, where you can define tasks to extract Tealeaf session data using specific time periods or other criteria for forwarding to other systems. These tasks can be scheduled to occur hourly, daily, or according to another defined schedule, so that external systems are regularly updated with Tealeaf data.

Scheduled tasks can be monitored through the Tealeaf Portal, where you can track the initiation, progress, and completion of each IBM Tealeaf cxConnect for Data Analysis task. If needed, scheduled tasks can be stopped or manually re-executed through the Portal.

Executing tasks
IBM Tealeaf cxConnect for Data Analysis tasks complete the following tasks:

Procedure

1. Queries the Tealeaf Processing Server to return a list of matching sessions, according to the search strings that are applied as part of the task definition
2. Queries the Tealeaf Processing Server to return the XML session document for each matching session
3. Extracts name-value data from the returned XML, such as URL field name and URL field value
4. Exports the data to one of the defined destinations:
   - A set of data files, each corresponding to an individual type of session data
   - A flat log file in W3C-compliant format

Handling exceptions
If the data extraction process receives a socket exception while communicating with the Tealeaf Processing Server, it performs the following retry logic:

Procedure

1. Tries to ping the IBM Tealeaf CX Server. If the server is not reachable for some configurable period, it stops processing and logs an error. If there is more than one IBM Tealeaf CX Server, it attempts to connect to the next IBM Tealeaf CX Server.
2. If the IBM Tealeaf CX Server machine is reachable, it tries to contact the Tealeaf Search Server service by performing a simple command to retrieve the event list. If the Tealeaf Search Server service is not responding for some configurable period, it stops processing and logs an error. If there are multiple IBM Tealeaf CX Servers, the extractor process attempts to connect to the next IBM Tealeaf CX Server.

Installation

This section contains preparation information and the required steps to install IBM Tealeaf cxConnect for Data Analysis on an existing IBM Tealeaf CX system.

Note: Before you install software for IBM Tealeaf cxConnect for Data Analysis, you must install IBM Tealeaf CX first. See "CX Installation and Setup" in the *IBM Tealeaf CX Installation Manual*.

- For more information about upgrades, see “Upgrading cxConnect” on page 9.
- For more information on downloading IBM Tealeaf, see IBM Passport Advantage Online.

Installing cxConnect

To install cxConnect, complete the following steps.

About this task

Note: Depending on the destination database location and type, more configuration might be required.

Procedure

1. Install cxConnect

   cxConnect is a Tealeaf add-on module that enables IBM Tealeaf cxConnect for Data Analysis. The Installer enables the product and installs software on the server.

   Note: Before you install IBM Tealeaf cxConnect for Data Analysis, you must install the IBM Tealeaf CX product, which installs the Portal web application. See "CX Installation and Setup" in the *IBM Tealeaf CX Installation Manual*.
2. Restart TMS

If IBM Tealeaf cxConnect for Data Analysis was installed on a pre-existing server, such as the Portal Server, then the Tealeaf Management Server must be restarted from within TMS to complete the IBM Tealeaf cxConnect for Data Analysis installation.

3. Create cxConnect server

   To enable communications between the Tealeaf Portal and IBM Tealeaf cxConnect for Data Analysis, you must create an instance of the IBM Tealeaf cxConnect for Data Analysis Server in the **Portal Management** page.

4. Configure data files

   If you are using the data files option, configure the two SQL scripts in `<Tealeaf_install_directory>\dataextractor\scripts` to define the database and tables.

5. Run test extract

   Before you begin configuring large extract jobs that involve a high number of sessions, configure a test extract of no more than three sessions.

6. Configure permissions

   If you modified the `ADMIN` group and are deploying this product to an existing Tealeaf solution, you must update menu permissions manually for that group. For all other users and groups, you must configure the appropriate permissions.

Deployment options

Instructions for running the installer for IBM Tealeaf cxConnect for Data Analysis based on the following Tealeaf deployments: All-in-One, Multi-Server installing on the Portal Server, or Multi-Server installing on a dedicated server.

Depending on your Tealeaf deployment, you must run the Installer for IBM Tealeaf cxConnect for Data Analysis according to the following options:

- **All-in-One:** If your Tealeaf solution is an All-in-One server, run the Installer once on the server.
- **Multi-Server, installing on the Portal Server:** If you are installing IBM Tealeaf cxConnect for Data Analysis on the Portal Server, run the Installer once on the Portal Server.

  Note: Tealeaf recommends avoiding installation of IBM Tealeaf cxConnect for Data Analysis on a server with other Tealeaf components. If possible, IBM Tealeaf cxConnect for Data Analysis should be installed on a dedicated server.

  – IBM Tealeaf cxConnect for Data Analysis can be installed on a server that already contains IBM Tealeaf cxVerify.

- **Multi-Server, installing on a dedicated IBM Tealeaf cxConnect for Data Analysis Server:** Run the Installer once on the Portal Server. Then, run the Installer once on the IBM Tealeaf cxConnect for Data Analysis Server.

  Note: This deployment model requires more steps.

Running the cxConnect for Data Analysis installer

The Installer must be run on the Portal Server and any server where IBM Tealeaf cxConnect for Data Analysis software must be installed.

Procedure

1. In the software distribution, go to the folder `Enablers\cxConnectDA` and run `setup.exe` to start the installation.
2. Select the language that you want to use for the installation screens and click **OK**.
3. From the **Welcome** screen, click **Next** to continue.
4. From the **License** screen, review the license terms and click **I accept the terms**; then, click **Next** to continue.
5. From the **Install Location** screen, accept the default settings and click **Next**.
6. When you are ready to install, click **Install** to start the installation process.

7. When the **Installation Complete** screen appears, click **Finish**.

Preparing a directory for log or data file extraction
IBM Tealeaf cxConnect for Data Analysis allows you to select a destination directory for extracted log files or data files. If you want to segment a specific area of the local machine or a remote connected machine, you can create these directories for later use.

Configuring events for cxConnect

In order for events and their data to be made available for export through IBM Tealeaf cxConnect for Data Analysis, the `Searchable and Reportable` check box must be selected in the event definition in the Event Manager. This setting must be selected for each event that you want to export through IBM Tealeaf cxConnect for Data Analysis.

- See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.

Configuration for the data files option

To use the data files options, you must customize a set of provided scripts to create a set of database tables to receive the outputted database files and to insert data into the databases.

As part of the software distribution, sample scripts are provided on the server where IBM Tealeaf cxConnect for Data Analysis is installed in the following directory:

```
<TL_install_directory>\DataExtractor\Scripts
```

You can customize these scripts to upload a batch ETL to any staging or master integration database.

- Uploading operations must be scheduled on an interval such that the number of concurrent log files in the export directory does not exceed the value that is defined for the `Concurrent Logs` setting.

Creating the database
In the directory, the two SQL files, `CreateDB.sql` and `CreateSchema.sql` are used to create the database.

Procedure

1. Edit `CreateDB.sql` to set the database file location.
2. Run `CreateDB.sql` to create the DB data files.
3. Run `CreateSchema.sql` to create the schema.
4. The database is created.
5. You must now configure the insert scripts. See “Configuring the insert scripts” on page 4.

Configuring the insert scripts
Eight provided batch files load data files into the database.

In the above directory, you must edit `bcp_load_data_files.bat` and set the following variables if needed:

```
set BULKDIR=C:\TeaLeaf\DataExtractor\DataFiles
set SCRIPTDIR=C:\TeaLeaf\DataExtractor\Scripts
set DBSERVER=localhost
set DATABASE=TLWEB.dbo
```

Variable
Description

`BULKDIR`
The directory on the local server where the generated data files are outputted.

SCRIPTDIR
The directory where the scripts are located. If the script files were not moved, this value should be set to the `DataExtractor\Scripts` folder inside the Tealeaf installation directory.

DBSERVER
The host name of the server where the database is stored.

DATABASE
The name of the database.

Configuring load scripts to use SQL authentication

To use SQL authentication with the BCP load scripts, you must set the `BCPOPTIONS` variable for several script files.

For example, if the `set BCPOPTIONS` declaration is the following in your script files:

```
set BCPOPTIONS=-F 2 -b 250000 -m 50 -a 32000 -T
```

It must be changed to the following:

```
set BCPOPTIONS=-F 2 -b 250000 -m 50 -a 32000 -U login_id -P password
```

Where:

Parameter
Description

`-U login_id`
Login ID used to connect to SQL Server.

Note: When the bcp utility is connecting to SQL Server with a trusted connection using integrated security, use the `-T` option (trusted connection) instead of the user name and password combination.

`-P password`
Password for the login ID.

- If this option is not used, the bcp command prompts for a password.
- If this option is used at the end of the command prompt without a password, bcp uses the default password (NULL).

In the `<Tealeaf_install_directory>\dataextractor\scripts` directory, the following files must be updated with the above command:

```
bcp_bulkappdate.bat
bcp_bulkattribute.bat
bcp_bulkcookie.bat
bcp_bulkevent.bat
bcp_bulkhit.bat
bcp_bulksesn.bat
bcp_bulkurlfield.bat
```

Running the data insertion

Running data insertion for the data files option.

- After a Data Files job completes, run `bcp_load_data_files.bat` to load the data.
- The `bcp_load_data_files.bat` scripts loops through the data files available in the `BULKDIR` directory and calls the appropriate `bcp_bulk*.bat` file to load the data into the appropriate table.
  - The `bcp_load_data_files.bat` can be called as a Post Command after successful execution of a IBM Tealeaf cxConnect for Data Analysis job.

Initial cxConnect configuration

It is necessary to perform configurations of your IBM Tealeaf CX deployment. Depending on your Tealeaf solution deployment, more configuration might be necessary.

Note: This section provides a framework for performing the initial configuration of one component of the IBM Tealeaf CX system in a simplified deployment model. Depending on your Tealeaf solution's deployment, more configuration may be required. If you have questions about configuration, contact http://support.tealeaf.com.

Tealeaf IBM Tealeaf cxConnect for Data Analysis provides you with the ability to analyze and report on data that is captured by Tealeaf-captured data within various third-party solutions, including custom reporting tools and databases, warehouses, business intelligence environments, and web analytics products. Additionally, IBM Tealeaf cxConnect for Data Analysis enables the creation of a persistent store of session data from your web applications.

Note: IBM Tealeaf cxConnect for Data Analysis is a separately licensable component of the IBM Tealeaf CX system. for more information, please contact your IBM Tealeaf representative.

This page describes how to perform the initial configuration of IBM Tealeaf cxConnect for Data Analysis.

- For more information about IBM Tealeaf cxConnect for Data Analysis, see "cxConnect for Data Analysis Administration Manual" in the *IBM Tealeaf cxConnect for Data Analysis Administration Manual*.

Prerequisites

Certain prerequisites are required to perform the initial configuration of IBM Tealeaf cxConnect.

- It is assumed that all Tealeaf software was installed on Windows and Linux servers. Before you begin, complete all software installation first. See "CX Installation" in the *IBM Tealeaf CX Installation Manual*.
- Additionally, you should already perform the initial configuration steps for the IBM Tealeaf cxImpact product components. See "Overview of CX Configuration" in the *IBM Tealeaf CX Configuration Manual*.

Adding cxConnect server

IBM Tealeaf cxConnect for Data Analysis requires its own Tealeaf server to manage extraction and data output.

About this task

Procedure

1. Log in to the Tealeaf Portal as an administrator.
2. From the **Portal** menu, select **Tealeaf** > **Portal Management**.
3. The **Portal Management** page appears.
4. In the left navigation pane, click **Tealeaf Servers**.
5. Click the **Manage Servers** link. The list of currently available Tealeaf servers is displayed.
6. If a IBM Tealeaf cxConnect for Data Analysis server does not exist, click **New**. Select **CxConnect Server** from the drop-down menu.

   If a IBM Tealeaf cxConnect for Data Analysis server exists, select it and click **Edit**.
7. Edit the IBM Tealeaf cxConnect for Data Analysis Server properties.
   a) Click the **Active** check box.
   b) Enter the display name for the server. The default value `cxConnect Server` is recommended.
   c) From the drop-down, select the server that is hosting the IBM Tealeaf cxConnect for Data Analysis Server.
   d) Enter the port number to use. The default value for IBM Tealeaf cxConnect for Data Analysis is `19000`.
   e) Click **Save**.
8. The server is added to the list.

See "Managing Tealeaf Servers" in the *IBM Tealeaf cxImpact Administration Manual*.

Adding a configured task

Now that the IBM Tealeaf cxConnect for Data Analysis software was installed and the IBM Tealeaf cxConnect for Data Analysis server was configured, you can create your first IBM Tealeaf cxConnect for Data Analysis task.

About this task

- For more information about configuring IBM Tealeaf cxConnect for Data Analysis tasks, see "cxConnect Configuring Tasks" in the *IBM Tealeaf cxConnect for Data Analysis Administration Manual*.

The steps below outline how to create a simple IBM Tealeaf cxConnect for Data Analysis Data Files task. The Data Files method of export extracts selected Tealeaf sessions into a flat-file text format. These sessions can then be inserted into your enterprise system of choice.

Note: The Data Files method of export is the recommended Tealeaf integration method.

Procedure

1. Log in to the Tealeaf Portal as an administrator.
2. From the **Portal** menu, select **Tealeaf** > **IBM Tealeaf cxConnect for Data Analysis**.
3. The IBM Tealeaf cxConnect for Data Analysis page is displayed. The list of scheduled tasks is displayed.
4. In the left navigation pane, click **Configured Tasks**.
5. Then, click the + sign.
6. The following sections describe the properties in each tab of the configured task that must be populated.

General tab

You can review session data by selecting a time period between Extract From and Extract To values to define a time period of session data that you would like to review.

Procedure

1. Click the **General** tab.
2. Enter a value for the task Name. For example, `test_task`.
3. For Scheduling, click **Run Now**.
4. For the Extract parameters, enter a time period when you know that session data was generated.
   - For testing purposes, limit yourself to a one-hour period. Do not overlap dates for this test.
   - To specify a date, click in one of the date fields. Use the calendar tool to select a date.
   - To specify a time value, click in one of the time fields. Use the arrow keys or enter the value from the keyboard. To set the time value, click **Set**.
   - Verify that your Extract From and Extract To values define a one-hour period that occurs some time in the past when session data is likely to be captured.
5. Select the **Active** check box.

CX Servers tab

Procedure

1. Click the **IBM Tealeaf CX Servers** tab.
2. Click the check box next to the server from which you want to extract sessions.
   - If multiple servers are listed, select only a single server.

Data Set tab

For this test, skip the **Data Set** tab.

Data Filters tab

For this test, skip the **Data Filters** tab.

Destination tab

Procedure

1. Click the **Destination** tab.
2. Select the **Data Files** option. The following options appear.
   a) Select the **Active** check box.
   b) If needed, specify the Exported Data Directory value. This directory should be accessible to you on the IBM Tealeaf cxConnect for Data Analysis Server.
   c) For this test, set the Number of Concurrent Exports to 1.

Notification tab

Procedure

1. Click the **Notification** tab.
2. Click **To**.
3. Enter your email address in the space provided.

Save task

After you completed the above steps in each IBM Tealeaf cxConnect for Data Analysis tab, click **Save**. The task is saved.

Checking task status

Since the task was specified to run immediately, IBM Tealeaf cxConnect for Data Analysis begins processing it as soon as possible. You can complete the following steps to verify task status.

About this task

Note: Since you configured the task to notify your email address, you can wait for the email to be delivered to you. However, if there is a configuration issue with the mail settings, use IBM Tealeaf cxConnect for Data Analysis to monitor job status this time.

Procedure

1. In the IBM Tealeaf cxConnect for Data Analysis left navigation pane, click **Scheduled Tasks**.
2. The job is displayed in the list of scheduled tasks. Look for the friendly Name you specified in the General tab in the list.
3. In the **Information** column, you can monitor the progress of the task completion.
   - To refresh the display that includes the **Information** column, click **Refresh**.
   - When the **Information** column field value concludes with `Processed`, IBM Tealeaf cxConnect for Data Analysis completed the task.
4. The notification email arrives shortly. It contains the extraction log for the task, which can be useful in resolving issues.

Verify output in destination directory

After the task was processed, you can verify that the output files were generated in the destination directory on the IBM Tealeaf cxConnect for Data Analysis server.

In the specified output directory, files similar to the following should be generated:

```
BulkAppData.20090925_120000_20090925_115959.test_task_30_1253917972.9480_1.dat
BulkAttrb.20090925_120000_20090925_115959.test_task_30_1253917972.9480_1.dat
BulkEvent.20090925_120000_20090925_115959.test_task_30_1253917972.9480_1.dat
BulkHit.20090925_100000_20090925_105959.test-spo_40_1253918431.9528_1.dat
BulkSesn.20090925_120000_20090925_115959.test_task_30_1253917972.9480_1.dat
BulkUrlField.20090925_120000_20090925_115959.test_task_30_1253917972.9480_1.dat
```

For more information about the schema of these files, see "cxConnect Configuring Tasks" in the *IBM Tealeaf cxConnect for Data Analysis Administration Manual*.

Integration with enterprise databases

These files are ready for integration with the destination enterprise database. Tealeaf provides a set of sample scripts that can be modified to complete this integration step. See "cxConnect Configuring Tasks" in the *IBM Tealeaf cxConnect for Data Analysis Administration Manual*.

Other configuration options

In addition to the Data Files method of output, IBM Tealeaf cxConnect for Data Analysis provides the following output options:

- **Log files** - Extract sessions into W3C-compliant log files. See "cxConnect Configuring Tasks" in the *IBM Tealeaf cxConnect for Data Analysis Administration Manual*.

Upgrading cxConnect

Instructions for upgrading cxConnect from release 7.x or later, and from release 6.x or earlier.

Upgrading from Release 7.x or later

Steps for upgrading IBM Tealeaf cxConnect for Data Analysis from Release 7.x or later.

If you are upgrading IBM Tealeaf cxConnect for Data Analysis from Release 7.x or later, run the IBM Tealeaf CX Upgrade provided with the software distribution on the server that hosts IBM Tealeaf cxConnect for Data Analysis.

- See "Upgrading Tealeaf Software on a Server" in the *IBM Tealeaf CX Upgrade Manual*.

Upgrading from Release 6.x or earlier

If you are upgrading IBM Tealeaf cxConnect for Data Analysis from Release 6.x or earlier, more steps are required.

About this task

Procedure

1. Before you upgrade, acquire your IBM Tealeaf cxConnect for Data Analysis job definitions file from your current installation. This file is in the following location:

   ```
   <Tealeaf_install_directory>\DataExtractor\JobListCfg.xml
   ```

2. Save this file into a location outside of the Tealeaf installation directory.
3. Uninstall all IBM Tealeaf cxConnect for Data Analysis software from the server. To uninstall:
   a) Log in to the server where IBM Tealeaf cxConnect for Data Analysis is installed.
   b) From the **Windows Start** menu, open the Control Panel.
   c) Select **Add/Remove Programs**.
   d) Uninstall IBM Tealeaf cxConnect for Data Analysis from the Add/Remove Programs control panel.
4. If performing an upgrade of IBM Tealeaf cxImpact at the same time, upgrade IBM Tealeaf cxImpact.
   - See "Tealeaf CX Release 8 Upgrade Manual" in the *IBM Tealeaf CX Upgrade Manual*.

5. Verify that IBM Tealeaf cxImpact is properly functioning.
6. Reinstall IBM Tealeaf cxConnect for Data Analysis from the software distribution from which you upgraded IBM Tealeaf cxImpact.
   - See "Installing cxConnect" on page 2.
7. Verify that IBM Tealeaf cxConnect for Data Analysis is accessible from the Tealeaf Portal.
8. Re-create your IBM Tealeaf cxConnect for Data Analysis jobs using the job specifications in `JobListCfg.xml` as your source content.

   Note: Do not overwrite `JobsListCfg.xml` into the new installation. The format changed, and the file does not work.

   - See "cxConnect configuring tasks" on page 10.
9. Verify that your IBM Tealeaf cxConnect for Data Analysis jobs are working properly in the upgraded Portal.

cxConnect for Data Analysis

IBM Tealeaf cxConnect for Data Analysis enables flexible export and fluid integration of Tealeaf session data to any external business application to create multi-channel perspectives of your visitors' experience.

Feeding online customer experience data into your enterprise business intelligence suite empowers business analysts to expand data analysis and testing, from cross-channel effectiveness to marketing campaigns to fraud detection, using the reporting tools with which your analysts are already familiar.

Features:

- Transfer data from your IBM Tealeaf CX datastore to external reporting environments.
- Deliver data in real time to external systems such as event processing systems
- Data extraction jobs can be run on a scheduled or ad hoc basis.
- Supports extraction into log or data files, which can be used to insert data into the database of your choice
- Flexible filters and controls can be used to include or exclude any sessions or parts of sessions.

cxConnect configuring tasks

Through the Tealeaf Portal, you can configure tasks to be run according to schedule by IBM Tealeaf cxConnect for Data Analysis.

- To open IBM Tealeaf cxConnect for Data Analysis, select **Tealeaf** > **IBM Tealeaf cxConnect for Data Analysis** in the Tealeaf Portal. To see the list of configured tasks, click **Configured Tasks** in the left pane.

  Note: Accessing IBM Tealeaf cxConnect for Data Analysis requires administrator privileges in your Tealeaf Portal account. If you cannot see the **Tealeaf** menu in the Portal, you do not have administrator privileges.

  Note: IBM Tealeaf cxConnect for Data Analysis is a separately licensable component of the IBM Tealeaf CX solution and might not be available in your solution. For more information, contact your Tealeaf administrator.

Configured Tasks window

Using the Configured Tasks window you can review, edit, create, and delete configured tasks.

In the **Configured Tasks** window, you can review the set of currently configured tasks. For each task, you can review its start time and frequency (Task Type column), as well as whether it is enabled.
The ID column contains the internal Tealeaf identifier for the task. Identifiers may be used by IBM Tealeaf cxConnect for Data Analysis tasks, hidden internal tasks, and IBM Tealeaf cxVerify tasks, if it is installed.

- Some Tealeaf internal tasks are not displayed, which may result in gaps in the ID sequence.
- With unique internal identifiers, you can have multiple tasks with the same name, but this practice is not recommended.

Figure 1. Configured Tasks Window

Through the **Configured Tasks** window, you can run the following actions:

- **Edit** - To edit an existing task, select the task and click the **Pencil** icon.
- **New** - To create task, click the + icon.

  Note: If you receive an error message when attempting to create a task when no tasks were created, verify that the IBM Tealeaf cxConnect for Data Analysis software was installed on the server that is specified for IBM Tealeaf cxConnect for Data Analysis in the **Portal Management** page.

  – See "Managing Tealeaf Servers" in the *IBM Tealeaf cxImpact Administration Manual*.
  – See “Installation” on page 2.
- **Delete** - To delete a task, select the task and click the - icon.

Configured tasks context menu
You can right-click any configured task to reveal the following options in the context menu:

- **Edit Task** - Edit the selected task.
- **Add Task** - Add a task. See “Editing tasks or creating new tasks” on page 11.
- **Remove Task** - Delete the selected task.

Editing tasks or creating new tasks

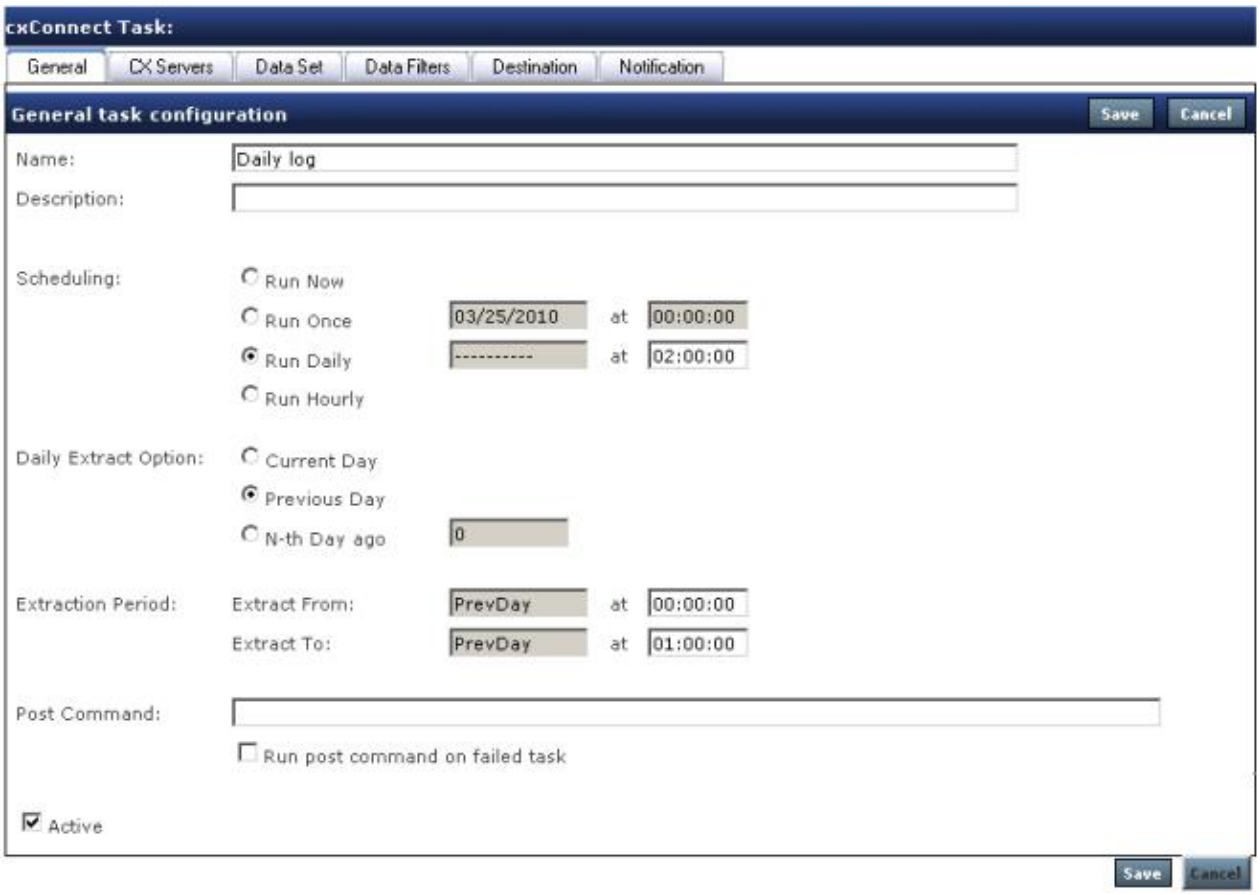
When you choose to edit or create a task, you must provide name, schedule, source, and destination information, as well as any content filtering or notification options.

A task is configured by providing information in each of the following tabs:

- To save a configured task, click **Save** in the upper-right corner. If the button is red, the task cannot be saved without providing additional information.
- To cancel changes to a configured task, click **Cancel**.

General tab

Using the **General** tab, you can configure several elements of a task, including the name, description, scheduling information, daily extraction option, and post command.



- **Name** - user-friendly name for the task, which appears in the Configured Tasks and Scheduled Tasks windows
  - Invalid characters are removed from the Name when the task is saved.
- **Description** - a user-friendly description for the task
- **Scheduling** - select when the task is to run: Now or Once, Hourly, or Daily at the scheduled time. See "Scheduling" on page 13.

  Note: To account for the processes of indexing sessions and canister session timeout settings, it is recommended that any daily tasks be scheduled after 02:00:00 each night. See "SQL Server 2005 requires Active Directory Delegation when configured for NT Authentication" on page 54.
- **Daily Extract Option** - If you scheduled a Daily extract task, you can choose to extract from the current day, the previous day, or some day in the past, as specified by the number of days that are entered in the textbox. Any selections made here auto-populate the Extraction Period settings. See "Daily extractions" on page 13.
- **Extraction Period** - select the time period from which to extract Tealeaf session data. These fields are constrained based on the Scheduling selection.
  - You can apply additional filters to the data through the Data Filters tab.
  - Some session data can be excluded as part of the data extract through the **Data Set** tab.
- **Post Command** - runs the specified batch command file after the task completed. The default directory for the command is `<Tealeaf_install_directory>\DataExtractor`.

  Note: Post commands run as separate tasks after the current task. These tasks can be tracked as scheduled tasks. See "cxConnect scheduling tasks" on page 27.

- **Run post command on failed task** - allows the batch command file to run on successful or failed tasks.

- **Active** - Select the Active check box to enable the task run according to schedule.

Scheduling

The following scheduling options can be applied to your configured task.

Scheduling Option
Description

`Run Now`
As soon as the task is configured, run it immediately.

`Run Once`
Run the task at the scheduled time and then do not run it again.

`Run Daily`
Run the task at the scheduled time each day. See "Daily extractions" on page 13.

`Run Hourly`
Run the task every hour of every day.

Note: The sessions to include in an extraction are defined by the session time for each session. The timestamp of a session is the timestamp of the last hit in a session. For example, if you configure an extract for sessions between 1:00 and 2:00, a session that begins at 1:50 and contains a final hit that is recorded at 2:10 is not included.

Depending on the type of extraction, IBM Tealeaf cxConnect for Data Analysis waits the following time periods:

- For repeated tasks such as Daily or Hourly task, IBM Tealeaf cxConnect for Data Analysis verifies that the session indexes were updated at least 1 hour after the end of the configured extract time.
  - If an hourly job is unable to complete in the allotted number of tries, it is skipped and is not reattempted. The next hour, the job is run to collect that hour's data.
- For ad hoc tasks, IBM Tealeaf cxConnect for Data Analysis does not attempt an extraction until 30 minutes past the end of the extract time.
- Run Now tasks do not check the indexes.

Daily extractions

Daily extraction tasks can be configured to extract sessions from today, yesterday, or a specific day further in the past.

About this task

These extractions enable you to select a daily slice of sessions for archiving purposes, which can be used to significantly reduce the cost of storage.

To perform a daily extraction:

Procedure

1. Select the `Run Daily` Scheduling option.
2. Select the Daily Extract Option:

   Daily Extract Option
   Description

   `Current Day`
   Extracts sessions from today's date.

   Note: To acquire the full day's sessions, the extraction task should be scheduled for just before midnight.

Previous Day
Extracts sessions from yesterday's date.

N-th Day ago
Extracts sessions N days before the current date, whenever the task runs. Specify a value in the textbox for N between 1 and the maximum age of sessions in the queried canisters.

3. Review the Extraction period to verify that you are extracting from the appropriate date.
4. Specify the remaining configuration options for the task in the other tabs.
5. Click **Save**.

CX Servers tab

In the IBM Tealeaf CX Servers tab, you can specify the IBM Tealeaf CX Servers from which to extract data. The list of available servers identifies all servers managing Long-Term Canisters in the environment.

Note: Only IBM Tealeaf CX servers that are currently active are available for selection. For more information on enabling or disabling IBM Tealeaf CX servers, see "Managing Tealeaf Servers" in the *IBM Tealeaf cxImpact Administration Manual*.

- To extract data from a server, select the box next to the server's name.

Data Set tab

In the **Data Set** tab, you can specify search criteria to apply to the available session data for the selected time period. Additionally, you can specify custom commands to extract the data and to run after the task was completed.

- **Exclude Single Hit Sessions** - Select this option to exclude sessions that are composed of a single request and a single response. These sessions are not interesting to Tealeaf users.
- **Enable Custom Extract String** - In the Portal or the IBM Tealeaf CX RealiTea Viewer, you can search for specific sessions. For example, you can search for specific values in fields in the session data.

Note: If it is installed, you can use RTV to specify the search criteria that are needed for the custom search string for the IBM Tealeaf cxConnect for Data Analysis job. In the RTV search page, specify the search. Then, click **Copy to Advanced Page...**. On the Advanced tab, you can copy the specified search criteria and use it for your IBM Tealeaf cxConnect for Data Analysis job.

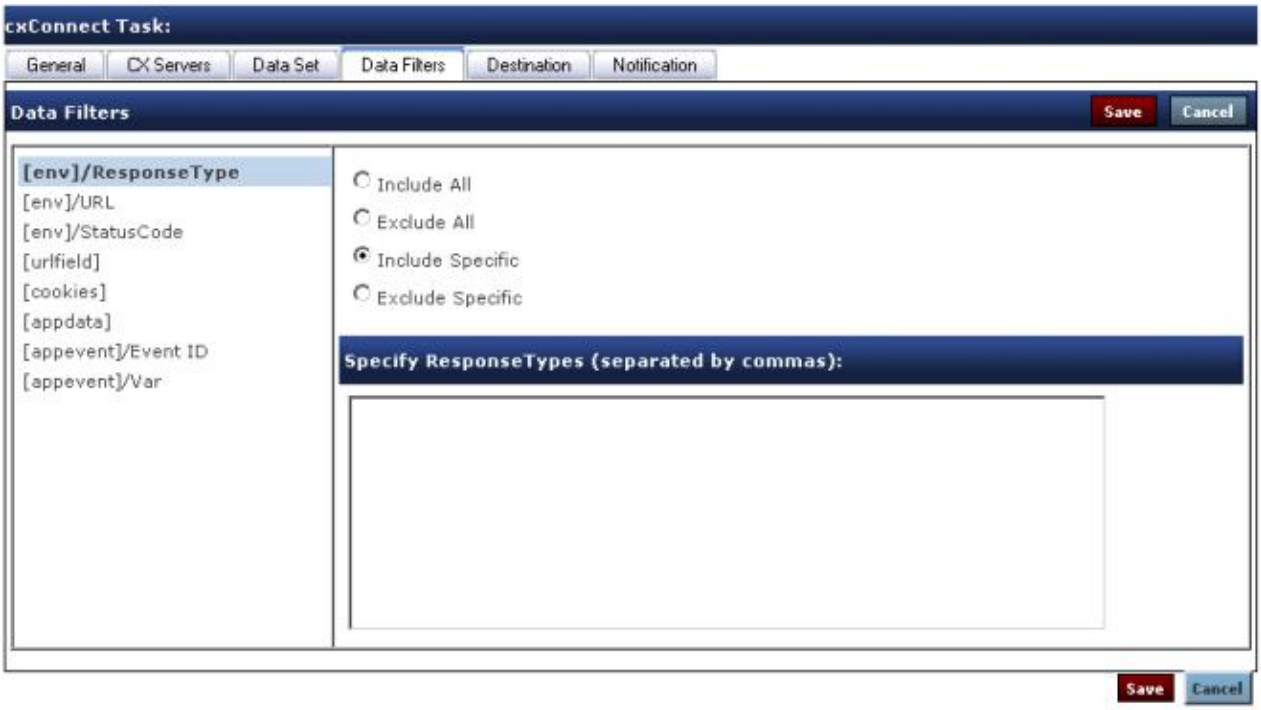
- **Custom Search String appears on same page** - When enabled, matches of the custom search string and matches of the other search parameters for the task must appear on the same page to be displayed in the results.
  - Searches configured using this option are limited to retrieving and extracting a maximum of 16,384 sessions.

For more information about search syntax, see "RealiTea Viewer - Search Syntax" in the *IBM Tealeaf RealiTea Viewer User Manual*.

Data Filters tab

Through the **Data Filters** tab, you can specify whether to include or exclude types of data that is part of the Tealeaf session dataset.

Before the extractor writes to the database or log file, the data is filtered based on the criteria you specify in this tab.



Types of Filters:

- **Include All** - Include all data specified for this type of data from the extract.
- **Exclude All** - Exclude all data specified for this type of data from the extract.
- **Include Specific** - Include specific session data matching the comma-separated criteria you specify in the textbox below.
- **Exclude Specific** - Exclude specific session data matching the comma-separated criteria you specify in the textbox below.

Types of Filtered Data

- **URLs** - Hits can be filtered by URL.
- **HTTP status code** - Hits can be filtered by the status code returned by the server.
- **URL Fields** - URL Fields can be filtered by the URL Field name.

- **cookies** - Cookies can be filtered by the cookie name.
- **appdata** - App Data can be filters by their name.
- **Event ID** - Events can be filtered by the Event ID.
- **Client Side Events** - Events captured and submitted by Tealeaf IBM Tealeaf CX UI Capture for AJAX. See "UI Capture FAQ" in the *IBM Tealeaf UI Capture for AJAX FAQ*.
- **Mobile Events** - Events captured and submitted by one of the client frameworks and split into individual hits in the Windows pipeline. See "JSON Mobile Parser Session Agent" in the *IBM Tealeaf CX Configuration Manual*.

  Note: Mobile events cannot be captured from step-based events.

Note: Event information is recorded in the session when it is passed through the Canister. You cannot apply filters for events that were created after the session was evaluated in the Canister.

Data filters example:

About this task

To exclude all cookies with name `_VIEW`:

Procedure

1. Select **Cookies** data filter.
2. Choose the **Exclude Specific** radio button.
3. Add `_VIEW`.

Results

As each hit of the extracted sessions is processed, all cookies with the name `_VIEW` are skipped and are not sent to the destination. The other parts of the hit are not affected.

Destination tab

In the **Destination** tab, you can select and specify the connection information of the destination for the extract.

Note: Tealeaf recommends using the data files option for session export, which simplifies the process and increases the throughput performance.

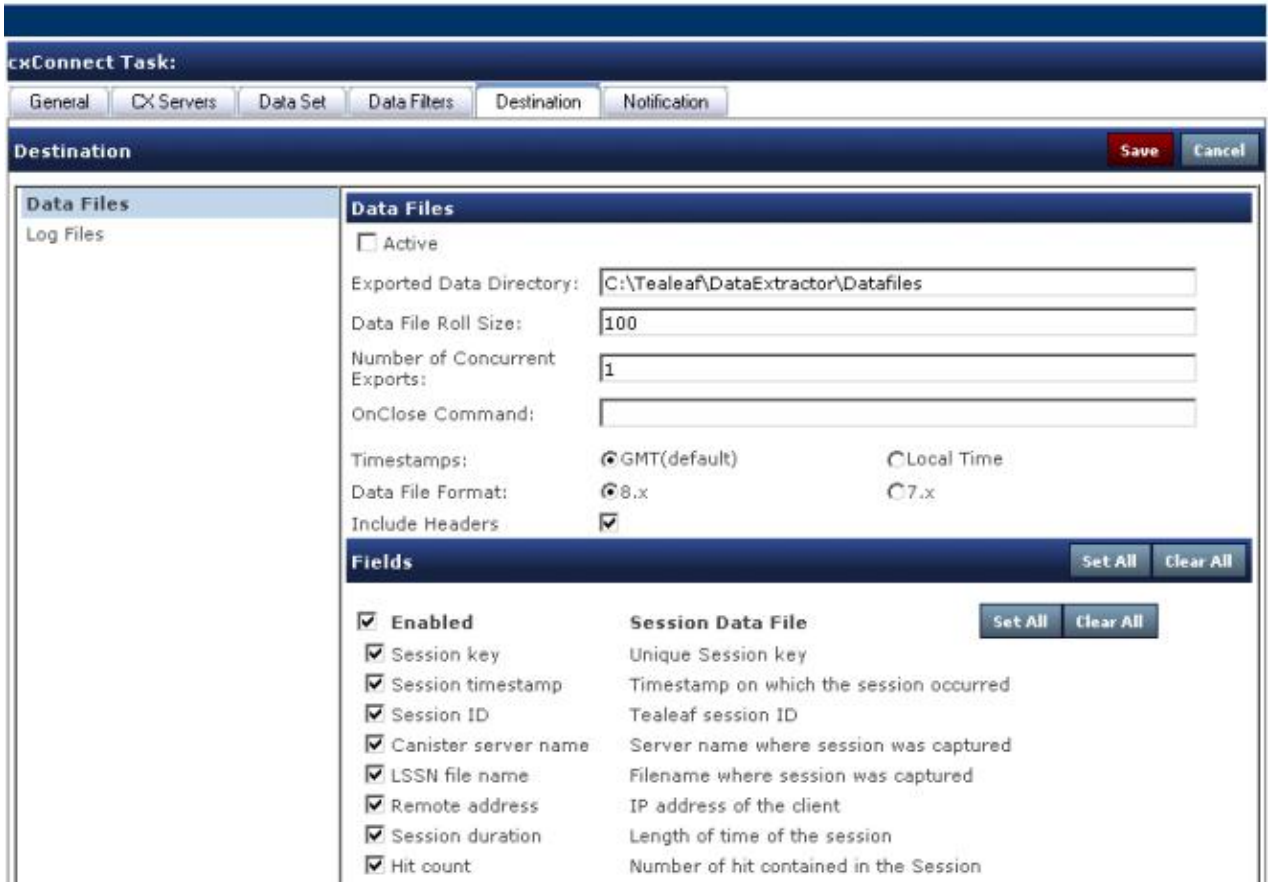
Note: For any task, only one connection type can be active at any time.

Data Files options

IBM Tealeaf cxConnect for Data Analysis enables you to export the configured session data to a series of data files, which can be inserted into database tables of your own configuration.

Note: After IBM Tealeaf cxConnect for Data Analysis exports the data files to the IBM Tealeaf cxConnect for Data Analysis server, you must move them to their final destination, which requires more configuration and external script execution. See “Installation” on page 2.

For schema information about these data files, see cxConnect Schema.



- **Active** - Select the Active check box to enable the task to be run according to schedule.
- **Exported Data Directory** - Enter the full path to the directory on the IBM Tealeaf cxConnect for Data Analysis server where the exported data files are to be stored. Local and network paths are accepted.
  - You might need to prepare this directory in advance of exporting the data. See "Installation" on page 2.
- **Data File Roll Size** - The maximum size of each data file in megabytes (MB). If this file size is exceeded, the file is closed, and a new log file is opened.
- **Number of Concurrent Exports** - The maximum number of data files that can be concurrently written.
- **OnClose Command** - Use this field to call a batch file, passing the data file that was closed as an argument. See "OnClose commands" on page 18.
- **Timestamps** - Define timestamps in output to be set to GMT time or the local time of the IBM Tealeaf cxConnect for Data Analysis server.
- **Data File Format** - Select the export format of the event data in the extracted sessions. These settings correspond to different tables in the Data Files schema. See cxConnect Schema.
  - 8.x - Select this option to export event data into the Release 8 or later format, which includes the event value and any associated dimensional values.
  - 7.x - Select this option to export event data in the Release 7.2 or earlier event format. Use this option if you upgraded from a pre-Release 8.0 version of Tealeaf and do not want to change the structure of your output files.
- **Include Headers** - Select this option to include a header line in each data file.

You may select the fields that you want to include in the export.

- To select all, click **Set All** at the top of the panel. To clear all fields, click **Clear All**.
- You may also select and clear all fields in individual sections.

For an example data files configuration, see "Data file integration example" on page 24.

OnClose commands

Using the OnClose text box, you can specify a batch file command that is applied to every data file after it was written and closed. The closed file is passed to the batch file as an argument.

For example, Hadoop functions well with files compressed using the LZO algorithm. Below is a batch file that compresses the closed data file using LZO.

```
echo off
echo file: %1

:: call lzop to compress file
lzop %1
if errorlevel 0 (
  delete %1
  goto all_is_good
)

exit /b 1
:all_is_good

exit /b 0
```

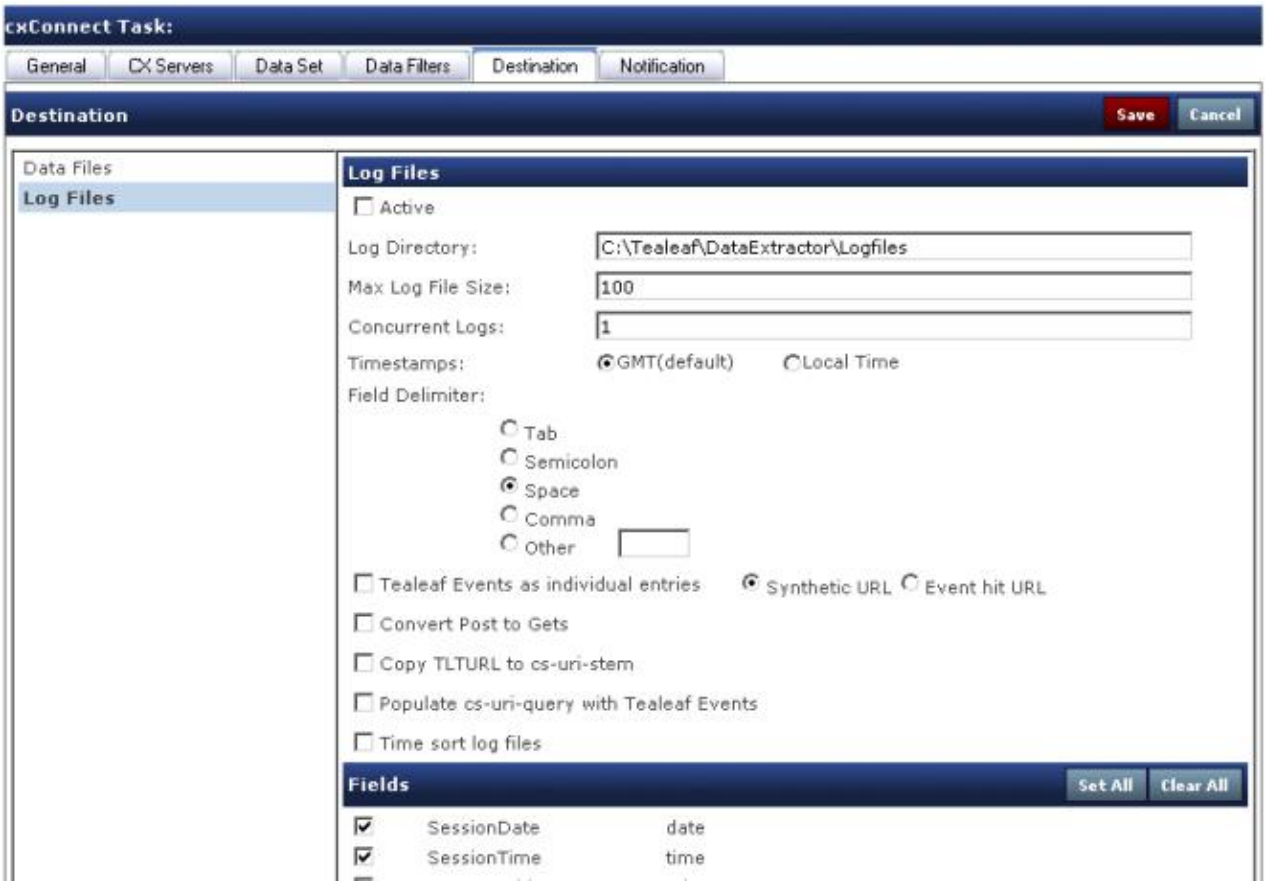
Data file schema information

IBM Tealeaf cxConnect for Data Analysis exports session data into a set of denormalized flat data files, which can be searched easily and rapidly bulk-loaded into the destination database.

- For more information about the data file schema, see cxConnect Schema.
- For more information about bulk loading, see “Installation” on page 2.

Log Files options

To extract Tealeaf session data to W3C-compliant log files, click **Log Files**



- **Active** - If this destination is the active one for this task, click the Active box.
- **Log Directory** - On the host machine, specify the destination directory for the log files.
  - You may need to prepare this directory in advance of exporting the data. See "Installation" on page 2 page.
- **Max Log File Size** - The maximum size of each data file in megabytes (MB). If this file size is exceeded, the file is closed, and a new log file is opened.
- **Concurrent Logs** - The maximum number of log files that can be concurrently written.
- **Timestamps** - Define timestamps in output to be set to GMT time or the local time of the IBM Tealeaf cxConnect for Data Analysis server.
- **Field Delimiter** - In the exported log files, you can specify the separator string that is inserted between extracted fields. By default, this string is a space.
- **Tealeaf Events as individual log entries** - A single Tealeaf hit may generate multiple events. Select this option if you want each Tealeaf event in a hit to be written as a separate log entry.
  - **Synthetic URL** - For each Tealeaf event, generate a synthetic URL in the log file.
  - **Event hit URL** - For each Tealeaf event, use the URL in the hit containing the event in the log file.
- **Convert Post to Gets** - Some destination systems, such as Web Trends, are unable to use POST data in Tealeaf sessions. Select this option to convert this data to GET data.
- **Copy TLTURL to cs-uri-stem** - If needed, you can convert Tealeaf URL field (TLTURL) to cs-uri-stem format, which is a W3C standard. The following is an example of cs-uri-stem:

```
/resources/rss/default.xml enum%2B-
%2Bstatuscode=304&Status%2BCode%2BDistribution=304&Status%2BCodes%2B-
%2BNumeric=304&Distance%2BEvent%2B-
%2BHome%2BPage%2B(/)=/&enum%2BConnType=Dialup&ConnType%2BEvent=Di
alup&ResponseSize%2BEvent=263
```

- **Populate cs-uri-query with Tealeaf Events** - If needed, you can append all Tealeaf events to the URI query string. Through this method, all Tealeaf events are specified as a part of a URI query string.
- **Time sort log files** - By default, Tealeaf writes log files in hit-by-hit order, which may not be in a time-based order. Select this option to write log files in order according to the timestamps of entries.
- **Fields** - Select the fields that you would like to include in the log files. The preselected ones represent a good cross-section of session data.
  - To select all, click **Set All** at the top of the panel. To clear all fields, click **Clear All**.

Log file fields

The following fields are available for export to log files:

Log File field
Canister field

SessionDate
date

SessionTime
time

RemoteAddr
c-ip

LoginID
cs-username

ServerName
s-computername

ServerAddr
s-ip

ServerPort
s-port

ReqMethod
cs-method

URL
cs-uri-stem

QueryString
cs-uri-query

StatusCode
sc-status

ResponseDataSize
sc-bytes

RequestDataSize
cs-bytes

TimeTaken
time-taken

Https
cs-version

Host
cs-host

UserAgent
cs(User-Agent)

cookies
cs(Cookie)

referrer
cs(Referer)

TltUrl
x(TltUrl)

TltServer
x(TltServer)

TltHostName
x(TltHostName)

TltApplName
x(TltApplName)

AppData
x(AppData)

TealeafReplay
x(Replay)

CanisterName
x(CanisterName)

SessionID
x(SessionID)

TLTSID
x(TLTSID)

TLTUID
x(TLTUID)

TLTHID
x(TLTHID)

ReqCancelled
x(ReqCancelled)

RequestHeaderSize
x(RequestHeaderSize)

ResponseHeaderSize
x(ResponseHeaderSize)

RequestTimeEx
x(ReqTimeEx)

RequestEndTimeEx
x(ReqEndTimeEx)

ResponseStartTimeEx
x(RspStartTimeEx)

ResponseTimeEx
x(RspTimeEx)

ResponseAckTimeEx
x(RspAckTimeEx)

WS_GEN
x(WS_GEN)

NT_GEN
x(NT_GEN)

RT_GEN
x(RT_GEN)

TTLB
x(TTLB)

TTLA
x(TTLA)

ConnSpeed
x(ConnSpeed)

EventID
x(EventID)

EventTitle
x(EventTitle)

EventTextFound
x(EventTextFound): Fact value

EventValueID
x(EventValueID)

EventValueDescription
x(EventValueDescription)

FirstHitTime
x(FirstHitTime)

LastHitTime
x(LastHitTime)

HitCount
x(HitCount)

TxtCount
x(TxtCount)

ImgCount
x(ImgCount)

MiscCount
x(MiscCount)

Log file example output

The following is an example log file entry with Tealeaf events in the cs-uri-query:

```
#Software: Tealeaf Technology Inc.
#Version: 6.2.0.6246
#Date: 06-18-2008 11:03:40
#Fields: date time c-ip s-ip cs-method cs-uri-stem cs-uri-query sc-status
cs-username cs(User-Agent) cs(Cookie) cs(Referer) cs-bytes sc-bytes
time-taken cs-versions-computername s-port cs-host x(Replay)
x(TltUrl) x(TltServer) x(TltHostName) x(AppData) x(NTTotal)
x(RTTotal)
x(TTFB) x(TTLB) x(TTLA) x(ConnSpeed) x(ReqTimeEx) x(ReqEndTimeEx)
x(RspStartTimeEx) x(RspTimeEx) x(RspAckTimeEx) x(CanisterName) x(SessionID)
x(ReqCancelled) x(TLTSID) x(TLTHID) x(TLTUID) x(EventID) x(EventTitle)
x(EventTextFound) x(EventValueID) x(EventValueDescription)
2008-06-17 15:00:02 155.70.39.45 63.194.158.200 GET /resources/rss/
default.xmlenum%2B-
%2Bstatuscode=304&Status%2BCode%2BDistribution=304&Status%2BCodes%2B-
%2BNumeric=304&Distance%2BEvent%2B-
%2BHome%2BPage%2B(/)=/&enum%2BConnType=
Dialup&ConnType%2BEvent=Dialup&Re
sponseSize%2BEvent=263 304 - Mozilla/5.0+(Windows;+U;+Windows+NT+5.1;+en-
US;+rv:1.8.1.14)+Gecko/20080404+Firefox/2.0.0.14 - - 968 263 1 HTTP
63.194.158.200 80
www.tealeaf.com
http://wasatch:19101/Session.tlx?canName=CANISTER.dbs\
LSSN_20080617_WASATCH.dat
&
sessionId=348746 others 63.194.158.200 www.tealeaf.com
Result_for_Rule5_=%2BFalse&TLT_OS=Windows_NT_Generic&TLT_APPLICATION_NAM
E=resources&TLT_BROWSER=Mozilla_All&TLT_HOST_NAME=www.tealeaf.com&Result_
for_Rule6_=%2BFalse&REMOTE_ADDR=155.70.39.45&Request_Method=GET&TLT_URL=
others&TLT_SERVER=63.194.158.200 65 66 1686 0 65010 32364
2008-06-17+15:00:02.995
2008-06-17+15:00:02.995 2008-06-17+15:00:02.997 2008-06-17+15:00:02.997
2008-06-
17+15:00:03.062 LSSN_20080617_WASATCH 348746 N
FF40E30E4E5BCB4FB255F2A1AC61A233 FF40E30E4E5BCB4FB255F2A1AC61A233
21769BC641CED5E16EF915BA703008BF - - - - - - - - -
2008-06-17 15:00:02 155.70.39.45 63.194.158.200 GET
/tlevents/hit_event.tle?eventid=37 - 200
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - LSSN_20080617_WASATCH
348746 -
FF40E30E4E5BCB4FB255F2A1AC61A233 FF40E30E4E5BCB4FB255F2A1AC61A233
21769BC641CED5E16EF915BA703008BF - - - - 37 enum
+-+statuscode 304 2002 300+
```

Notification tab

In the **Notification** tab, you can define specific email addresses to receive notification about the status of this task when it is completed, successful or not.

Job performance

Depending on the volume of sessions that are extracted in a job, the extraction process might take multiple hours to complete. You can try the following options to improve performance:

- If you are pulling sessions from multiple Canisters, you can configure individual jobs for each Canister.

- If you are pulling from multiple Canisters concurrently, you should configure the Extract Service to run concurrent jobs, up to 1 for each Canister from which you are pulling. See "Configuring the Extract Service" in the *IBM Tealeaf CX Configuration Manual*.

- For daily jobs, you can split the job into two jobs, scheduling them to fire before and after the workday.

Time values in cxConnect

Tealeaf records multiple time values, or timestamps, during the process of a visitor making a request, the web server evaluating it and returning a response, and the response being rendered in the client browser.

Every hit in Tealeaf has a request that contains a `[timestamp]` section containing the following measurements during the above process. A sample request:

```
[timestamp]
RequestTimeEx=      2008-06-05T21:49:43.099484
RequestEndTimeEx=      2008-06-05T21:49:43.099484
ResponseStartTimeEx=    2008-06-05T21:49:43.107374
ResponseTimeEx=     2008-06-05T21:49:43.297154
ResponseAckTimeEx=     2008-06-05T21:49:43.333742
```

These various points are timestamps from the network packets that are exchanged between the client browser and web server.

Tealeaf measurements:

Tealeaf measurement
Description

`RequestTimeEx`
First packet of the request

`RequestEndTimeEx`
Last packet of the request

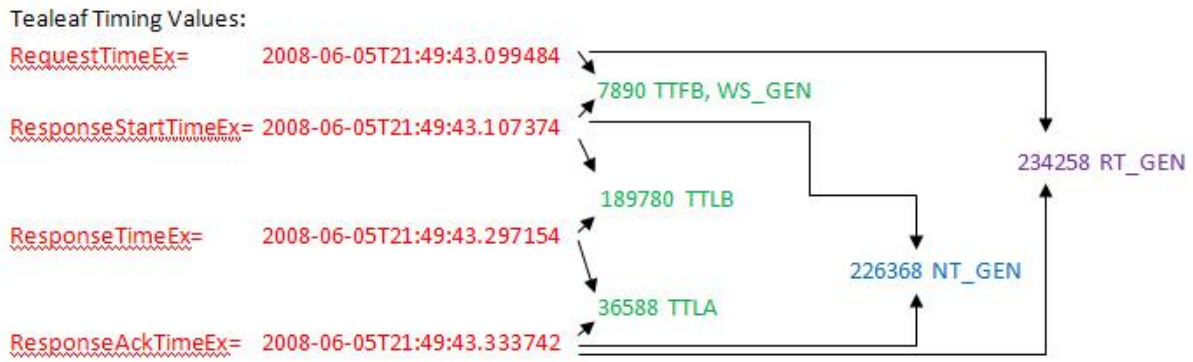
`ResponseStartTimeEx`
First packet of the response

`ResponseTimeEx`
Last packet of the response

`ResponseAckTimeEx`
Back from browser for the response

Note: All values are recorded in microseconds.

These measurements are then used to calculate elapsed time for various activities in the request/response process, as indicated in the following diagram:



Tealeaf Timing Metric
Description

WS_GEN
Web server generation time

RT_GEN
Round trip generation time

TTLB
Time to last byte

NT_GEN
Network time

TTLA
Time to last Ack

TTFB
Time to First Byte (same value as WS_GEN)

Calculated Timing Values (microseconds)

- `TTFB=7890`
- `TTLB=189780`
- `TTLA=36588`
- `WS_Gen=7890`
- `NT_GEN=226368`
- `RT_GEN=234258`

See "Analyzing Performance" in the *IBM Tealeaf Reporting Guide*.

Data file integration example

This example uses the data files integration method of IBM Tealeaf cxConnect for Data Analysis to extract specific URLs, URL Fields, and Cookies and import this data into the Data Files temporary database.

Creating the database

The database is created using SQL files that are in the `Tealeaf\DataExtractor\Scripts` directory. The two SQL files are `CreateDB.sql` and `CreateSchema.sql`.

- `CreateDB.sql` - creates the databases FileGroups.
  - The default database name is `TLWEB`.
  - The default location is `D:\DB`.

    Note: To change the database location, edit `CreateDB.sql` and change all occurrences of `D:\DB` to the preferred location.

Default `CreateDB.sql` script

```
USE master;

if exists (select 1 from dbo.sysdatabases where name='TLWEB')
DROP DATABASE [TLWEB];

CREATE DATABASE [TLWEB]
ON PRIMARY(            NAME = TLDATA_PRIMARY,
FILENAME = 'D:\DB\TLWEB_primary.mdf', SIZE = 20,   FILEGROWTH = 5%  ),
FILEGROUP TLDATA_SESN( NAME = TLDATA_SESN,
FILENAME = 'D:\DB\TLWEB_SESN.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_HIT(  NAME = TLDATA_HIT,
FILENAME = 'D:\DB\TLWEB_HIT.mdf',     SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_APPD( NAME = TLDATA_APPD,
FILENAME = 'D:\DB\TLWEB_APPD.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_FACT( NAME = TLDATA_FACT,
FILENAME = 'D:\DB\TLWEB_FACT.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_COOK( NAME = TLDATA_COOK,
FILENAME = 'D:\DB\TLWEB_COOK.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_EVNT( NAME = TLDATA_EVNT,
```

```
FILENAME = 'D:\DB\TLWEB_EVNT.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_ATTR( NAME = TLDATA_ATTR,
FILENAME = 'C:\DB\TLWEB_ATTR.mdf',    SIZE = 50,   FILEGROWTH = 20% ),

FILEGROUP TLIDX_SESN(  NAME = TLIDX_SESN,
FILENAME = 'D:\DB\TLIDX_SESN.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_HIT(   NAME = TLIDX_HIT,
FILENAME = 'D:\DB\TLIDX_HIT.mdf',     SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_APPD(  NAME = TLIDX_APPD,
FILENAME = 'D:\DB\TLIDX_APPD.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_FACT(  NAME = TLIDX_FACT,
FILENAME = 'D:\DB\TLIDX_FACT.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_COOK(  NAME = TLIDX_COOK,
FILENAME = 'D:\DB\TLIDX_COOK.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_EVNT(  NAME = TLIDX_EVNT,
FILENAME = 'D:\DB\TLIDX_EVNT.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_ATTR(  NAME = TLIDX_ATTR,
FILENAME = 'C:\DB\TLIDX_ATTR.mdf',    SIZE = 50,   FILEGROWTH = 20% )

LOG ON(                NAME = 'TLDATA_LOG',
FILENAME = 'D:\DB\TLWEB_log.ldf',     SIZE = 5,    FILEGROWTH = 5 );
ALTER DATABASE [TLWEB] SET RECOVERY SIMPLE;
```

Changing the database name from TLWEB to TLWEB_TEST

The following is an example of how to change a database name.

`CreateDB.sql`:

```
USE master;

if exists (select 1 from dbo.sysdatabases where name='TLWEB_TEST')
DROP DATABASE [TLWEB_TEST];

CREATE DATABASE [TLWEB_TEST]
ON PRIMARY(            NAME = TLDATA_PRIMIRY,
FILENAME = 'D:\DB\TLWEB_TEST_primary.mdf', SIZE = 20,   FILEGROWTH = 5%  ),
FILEGROUP TLDATA_SESN( NAME = TLDATA_SESN,
FILENAME = 'D:\DB\TLWEB_TEST_SESN.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_HIT(  NAME = TLDATA_HIT,
FILENAME = 'D:\DB\TLWEB_TEST_HIT.mdf',     SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_APPD( NAME = TLDATA_APPD,
FILENAME = 'D:\DB\TLWEB_TEST_APPD.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_FACT( NAME = TLDATA_FACT,
FILENAME = 'D:\DB\TLWEB_TEST_FACT.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_COOK( NAME = TLDATA_COOK,
FILENAME = 'D:\DB\TLWEB_TEST_COOK.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_EVNT( NAME = TLDATA_EVNT,
FILENAME = 'D:\DB\TLWEB_TEST_EVNT.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLDATA_ATTR( NAME = TLDATA_ATTR,
FILENAME = 'C:\DB\TLWEB_ATTR.mdf',    SIZE = 50,   FILEGROWTH = 20% ),

FILEGROUP TLIDX_SESN(  NAME = TLIDX_SESN,
FILENAME = 'D:\DB\TLIDX_TEST_SESN.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_HIT(   NAME = TLIDX_HIT,
FILENAME = 'D:\DB\TLIDX_TEST_HIT.mdf',     SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_APPD(  NAME = TLIDX_APPD,
FILENAME = 'D:\DB\TLIDX_TEST_APPD.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_FACT(  NAME = TLIDX_FACT,
FILENAME = 'D:\DB\TLIDX_TEST_FACT.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_COOK(  NAME = TLIDX_COOK,
FILENAME = 'D:\DB\TLIDX_TEST_COOK.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_EVNT(  NAME = TLIDX_EVNT,
FILENAME = 'D:\DB\TLIDX_TEST_EVNT.mdf',    SIZE = 50,   FILEGROWTH = 20% ),
FILEGROUP TLIDX_ATTR(  NAME = TLIDX_ATTR,
FILENAME = 'C:\DB\TLIDX_ATTR.mdf',    SIZE = 50,   FILEGROWTH = 20% )

LOG ON(                NAME = 'TLDATA_LOG',
FILENAME = 'D:\DB\TLWEB_TEST_log.ldf',     SIZE = 5,    FILEGROWTH = 5 );
ALTER DATABASE [TLWEB_TEST] SET RECOVERY SIMPLE;
```

`CreateSchema.sql`:

```
:
```

```
USE [TLWEB_TEST]
...
```

Modifying sample load script

Complete the following steps to modify a sample load script.

Procedure

1. Edit `bcp_load_data_files.bat` to update the following variables as needed.

   Variable Name
   Description

   DBSERVER
   SQL server name

   DATABASE
   Database name.

   PARALLELLOAD
   Set as TRUE or FALSE. Session extract tasks containing more than 250,000 sessions should have this set to TRUE.

   JOBNAME
   Typically, this setting does not need to be modified.

   CLEARSCHEMA
   To empty an existing schema before loading it with data, set this value to TRUE.

   STOPONERROR
   When this value is set to TRUE, the Data Extractor stops processing the job if an error is encountered by BCP.

   OVERWRITELOGS
   To overwrite existing bcp log files, set this value to TRUE.

   BULKDIR
   Location of data files.

   SCRIPTDIR
   Location of `TeaLeaf\DataExtractor\scripts` directory.

2. For this example, set the following values:

```
set DBSERVER=localhost
set DATABASE=TLWEB
set PARALLELLOAD=FALSE
set JOBNAME=*
set CLEARSCHEMA=TRUE
set STOPONERROR=TRUE
set OVERWRITELOGS=FALSE
set BULKDIR=C:\TeaLeaf\DataExtractor\DataFiles
set SCRIPTDIR=C:\TeaLeaf\DataExtractor\scripts
```

3. Save the file.

Creating cxConnect task

Use the following steps to create the extract task.

About this task

This task exports three data files: `BulkCookie*`, `BulkHit*`, and `BulkSesn*`.

Procedure

1. In the **Tealeaf Portal** menu select **Tealeaf** > **IBM Tealeaf cxConnect for Data Analysis**.
2. Select the Configure Task link.
3. Configure the task:

a) General Tab

1) **Name:** `Single URL`
2) **Post Command:** `C:\Tealeaf\DataExtractor\Scripts\LoadData_SingleUrl.bat`

   Note: This script is a modified copy of `bcp_data_files.bat` with appropriate variable settings.

b) **Data Set** Tab

1) **Enable Custom Search String:** `true`
2) **Search String:** `url contains alliance-partnership.asp`

c) Data Filters Tab

1) **Response Type:** `Include All`
2) **URL:** Include the actual URL relative path in request
3) **Status Code:** `Include All`
4) **Urlfield:** `Include All`
5) **Cookie:** `Include All` (This value is not a default value.)
6) **AppData:** `Exclude All`
7) **Event ID:** `Exclude All`
8) **Var:** `Exclude All` (This area applies only to the earlier SQL Server database method of export.)

d) Destination Tab

1) **Data Files:** `Active`
2) **Number of concurrent exports** Set this value to 1 for proof of concept.

cxConnect scheduling tasks

Through the Portal, you can monitor your scheduled IBM Tealeaf cxConnect for Data Analysis tasks.

- To open IBM Tealeaf cxConnect for Data Analysis, select **Tealeaf** > **IBM Tealeaf cxConnect for Data Analysis** in the Tealeaf Portal. To see the scheduled tasks, click **Scheduled Tasks** in the left pane.

  Note: Accessing IBM Tealeaf cxConnect for Data Analysis requires administrator privileges in your Tealeaf Portal account. If you cannot see the **Tealeaf** menu in the Portal, you do not have administrator privileges.

  Note: IBM Tealeaf cxConnect for Data Analysis is a separately licensable component of the IBM Tealeaf CX solution and might not be available in your solution. For more information, contact your Tealeaf administrator.

Scheduled Tasks window

In the **Scheduled Tasks** window, you can review the tasks that were scheduled to run, initiated, or completed.

- **ID** - contains the internal Tealeaf identifier for the task. Identifiers might be used by IBM Tealeaf cxConnect for Data Analysis tasks, hidden internal tasks, and IBM Tealeaf cxVerify tasks, if it is installed.
- **Name** - the user-friendly name for the task
- **Status** - the status of the task. To refresh the status of all tasks in the window, click **Refresh**.
  - **Waiting to Run** - the task waiting to be scheduled.
  - **Scheduled** - the task was scheduled to run.
  - **Completed** - the scheduled task completed successfully. To run a task again, select the task and click **Run Again**.
  - **Failed** - the scheduled task failed to complete. To find out why, select the task and click **View Log**.
  - **Stopped** - the scheduled task was stopped by a user. To stop any task, select it and click **Stop Task**.
  - **Running** - the scheduled task is running. To stop any task, select it and click **Stop Task**.
- **Start Time** - the date and time for the next time the task is scheduled to run. Time is based on a 24-hour clock.
  - Timestamps for when the task started are labeled with an asterisk (*).
- **Information** - a short message indicating the results of the task. For more detailed information, see the log for the task.

Context menu

When you right-click on a task in the task list, the following context menu items are available:

- **View Log** - View the log associated with the task.
- **Extended Log** - View the extended log for the task.

  Note: Extended logs are available for the following destinations: Data Files, Log Files, Select Archive, Trim Archive, Session Files, and Image Files. The Extended logging can be configured in the Tealeaf Extractor Service configuration in TMS. See "Tealeaf Management System" in the *IBM Tealeaf cxImpact Administration Manual*.
- **Run Task Again** - Run the task immediately. A copy of the task is created and run. Subsequent executions occur according to the schedule.
- **Stop Task** - Stop a task in execution.
- **Disable Task** - Disable the task from subsequent executions.

Note: Disable task only applies to scheduled tasks or waiting to be scheduled.

Task execution

At the scheduled time, IBM Tealeaf cxConnect for Data Analysis runs the specified task. At the time of execution, IBM Tealeaf cxConnect for Data Analysis requires that basic IBM Tealeaf CX services, such as Search Server be available. Additionally, the Tealeaf Extractor Service must be operational.

Note: For IBM Tealeaf cxConnect for Data Analysis Data Files method of extraction, if the Post Command is used to load the data into a destination database, the Tealeaf Extractor Service must run under an account that has permission to place the data into the database. Typically, tasks fail when there are network interruptions or when the Tealeaf Extractor Service is unable to connect to a canister. When a task fails, IBM Tealeaf cxConnect for Data Analysis might reattempt to complete the task a predefined number of times.

- Errors are reported in the Tealeaf Extractor log and the IBM Tealeaf cxConnect for Data Analysis Tasks log.
- The number of repeat attempts can be configured through the Tealeaf Extractor Service configuration in TMS. See "Tealeaf Management System" in the *IBM Tealeaf cxImpact Administration Manual*.

If the number of failures reached the limit, then the task is resumed at the next scheduled time.

Note: When a rescheduled task is resumed, the extraction resumes where it left off. For example, if the extraction was midway through the second of three canisters, the sessions in the first canister and the first half of the second canister are not re-extracted.

Tealeaf Event Bus

The Event Bus streams Tealeaf event data from the Short Term Canister, the in-memory database, to a Tealeaf pipeline. The pipeline can then deliver the event data to any system configured to receive it. The ability to send the event data as a stream in real time makes the event bus useful for integrating with real-time systems.

- The Event Bus runs out-of-band and does not affect the core Tealeaf processes.

Note: The Tealeaf Event Bus is a component of IBM Tealeaf cxConnect for Data Analysis, a separately licensable component of the IBM Tealeaf CX platform. for more information, please contact your IBM Tealeaf representative.

Complex Event Processing (CEP) engines can receive the Tealeaf event bus data as a stream and run computations on the data to observe patterns and sequences on the data outside of the current Tealeaf event infrastructure. The event bus data can be correlated against other enterprise data to create new and insightful correlations.

Note: The Tealeaf Event Bus is a high-performance pipeline and should be limited to only session agents required to complete processing. Typically, these pipeline configurations are limited to either of the following:

- `DecoupleEx session agent > Complex Event Processing engine`
- `DecoupleEx session agent > Socket session agent`

  If more processing is required on the Event Bus data, it should be forwarded to another pipeline, which by definition runs out-of-band of the Tealeaf Event Bus.

Event Bus pipeline

The default Event Bus pipeline has the following active session agents:

- DecoupleEx
- Null

The Null session agent ends delivery of event data. Nothing happens until an appropriate destination is enabled in the pipeline.

The configuration file is `TeaLeafEventBus.cfg` and is in the Tealeaf installation directory (`<Installed drive>\TeaLeaf`). You can modify this file as needed to send the event bus data to the appropriate session agent for further processing and transmission of the data to a receiving system.

Note: The preferred method of configuring the Event Bus is through the Tealeaf Management System.

Workflow
To deliver Tealeaf events to an external complex event processing engine, complete the following steps:

Procedure

1. Verify installation of the required components.
2. Enable the pipeline.
3. Configure the pipeline.
4. Test the pipeline locally.
5. If the Event Bus pipeline is working properly, you can stop the pipeline with the appropriate session agent and location.

Installation
The Tealeaf Event Bus is a separately configurable component of IBM Tealeaf cxConnect for Data Analysis.

About this task

To install the Tealeaf Event Bus:

Procedure

1. In your Tealeaf software distribution, navigate to the following directory:

```
cxConnect\Event Bus
```

2. Copy all files in this directory to the Tealeaf installation directory on the server where IBM Tealeaf cxConnect for Data Analysis is installed. These files include the following:
   - `CEPCustomFields.cfg` - configuration file for custom Event Bus fields. See "Tealeaf Event Bus" on page 29.
   - `TeaLeaf.Pipeline.CEP.dll` - core Event Bus processing
   - `Tealeaf EventBus.doc` - documentation for Event Bus
   - `TeaLeafEventBus.cfg` - configuration file for core Event Bus

Results

If any of these fields is missing from the Tealeaf installation directory where IBM Tealeaf cxConnect for Data Analysis was installed, check the software distribution. For more information, contact Tealeaf http://support.tealeaf.com.

Enabling the Event Bus

About this task

To enable the pipeline, edit the Canister configuration by using Tealeaf Management System (TMS):

Procedure

1. Log in to the Portal as an admin user.
2. From the **Portal** menu, select **Tealeaf** > **TMS**.
3. In the Servers view, select the wanted server to drill down to components.

4. Open the Canister node to display the configurations.
5. Click the **Canister configuration**.
6. In the Config Actions pane, click **View/Edit**.
7. In the Services Perform tab, select the **Enable Event Bus** check box.
8. Click **Save**.
9. The Canister automatically recognizes the change in configuration and creates the Event Bus pipeline.

View current status of the Event Bus pipeline
After you enabled the Event Bus, you can review the status of the Event Bus pipeline to verify that hits are being delivered to it.

To view the status of the Event Bus pipeline, use the Tealeaf Capture Status utility on the host server or the Pipeline Status tab in TMS.

Configuring Event bus
You can edit details of the Event bus configuration by using the Pipeline Editor.

Procedure

1. In TMS, open the Canister node to display the configurations.
2. Click **Event bus configuration**.
3. In the Config Actions pane, click **View/Edit**.
4. The Event Bus configuration is displayed in the Pipeline Editor.
5. In the left pane, select the topmost node: Event Bus configuration. Then, click **Edit**.
6. The Event Bus configuration is displayed:

Setting
Description

`Application Name`
For the Event Bus, set this value to `TeaLeafEventBus`.

`VM Free Disable Threshold`
The threshold percentage of free virtual memory below which the pipeline automatically shuts down. To disable this check, set this value to `0`.

`VM Free Enable Threshold`
After a shutdown, the pipeline restarts when the percentage of free virtual memory exceeds this value. This value should be greater than the value set for `VM Free Disable Threshold`, even if that value is set to `0`.

`Restart Interval`
The interval in seconds at which the pipeline checks to see if a restart is necessary.

`Restart Reset Interval`
The period in seconds over which the pipeline can attempt restarts.

Changing timestamps
If necessary, you can change the timestamp format that is recorded for requests in the events sent to the Event Bus, by using the Tealeaf Portal.

About this task

By default, time values in the request are written into the `[timestamp]` section of the request in a familiar format. For example:

```
[timestamp]
RequestTimeEx=2011-06-28T04:20:35.074529Z
RequestEndTimeEx=2011-06-28T04:20:35.074529Z
```

If needed, you can change the timestamp format that is recorded for requests in the events sent to the Event Bus to use UNIX ticks.

Note: This timestamp format change applies only to HTTP output for CEP.

Note: The change applies only to the `RequestTimeEx` timestamp in the hit request, if it is included in the `[HTTPFields]` section in the `CustomFields.cfg` file.

Complete the following steps to enable this configuration change.

- The `[CEP]` section of the request has a DateTime name-value pair that is in seconds since 1970 format at a resolution of one second. This event timing entry is not affected by this configuration change.

Note: This change must be applied to each Canister sending events to the Event Bus.

Procedure

1. Log in to the Portal.
2. From the **Portal** menu, select **Tealeaf** > **TMS**.
3. Click the **WorldView** tab.
4. From the View drop-down, select `Servers`.
5. For each server that hosts a Canister:
   a) Select the server.
   b) Click the **Canister** node.
   c) Click **Event Bus configuration**.
   d) Click **View/Edit Raw**.
   e) Search the configuration for `"[CEP]"`. This section contains the raw version of the configuration for the Event Bus on the selected Canister.
   f) Search the `[CEP]` section for `HTTP_PageTimeFormat`.
   g) If the entry does not exist, add the following:

      ```
      HTTP_PageTimeFormat=unix
      ```

      - If the entry is not present, the default Tealeaf time formatting is applied. To switch back to the default, either delete or comment out the line. Or, you can change the `unix` value to `tealeaf`.

   h) Click **Save**.
   i) Add the job to a task. Do not submit.
6. Repeat the above steps to the other Canisters hosting the Event Bus.
7. Submit the task to make the change at the same time for all Event Bus instances.
8. If you did not do so already, insert the `RequestTimeEx` field in the `[HTTPFields]` section in the `CustomFields.cfg` file.

Sending events to the Event Bus

In order for event data to be delivered to the event bus, you must select the `Send to Event Bus` check box in the More Options Step of the event definition in the Tealeaf Event Manager. This check box must be selected for each event that you want to send to the Event Bus.

Testing the Event Bus

To test, you can direct the Event Bus to deliver `.TLA` files to an archive directory.

About this task

Procedure

1. In TMS, open the Canister node to display the configurations.

2. Click **Event bus configuration**.
3. In the Config Actions pane, click **View/Edit**.
4. The Event Bus configuration is displayed in the Pipeline Editor.
5. In the left pane, review the session agents in the Event Bus pipeline. In the default configuration, the terminating session agent is the Null session agent. The terminating session agent defines where pipeline data is delivered after processing by the pipeline. In this case, it is not delivered.
6. From the Available Session Agents pane on the right side of the screen, click and drag the Archive session agent into the pipeline. Drop it just in front of the Null session agent.
7. Drag the Null session agent back to the Available Session Agents pane.
8. The Event Bus pipeline is now terminated at the Archive session agent.
9. Select the **Archive session** agent and click **Edit**.
10. Review the settings.
    - In particular, verify the setting for Archive Directory, which identifies the folder in which the `.TLA` files are delivered from the Event Bus pipeline. This directory is typically the following:

      ```
      C:\TeaLeaf\Archives
      ```
11. Click **OK**.
12. In the Pipeline Editor, click **Save**.
13. In the Update Servers dialog, accept all options and click **Add Tasks and Submit**.
14. The job is submitted to TMS for immediate processing. The job includes a restart of the affected Canister(s).

    You can monitor the progress of the job in the Jobs tab.
15. When the job is completed, sessions containing Event Bus data are delivered in Tealeaf archives to the designated directory. Check the directory for the presence of these files.
16. Select one `.TLA` file and open it in RTV.
17. Open one of the enclosed sessions.

    Note: If you did not include the response in the data sent to the Event Bus, replay view does not display properly.
18. In the RTV toolbar, click the **Request** button. The request of the first page is displayed.
19. Scroll down the request view until you see the `[CEP]` section.
20. If the data is present, then the Event Bus is working properly.
21. You may now configure the Event Bus to deliver hits to the appropriate destination.

Disabling the Event Bus

The Event Bus does not run in the same process space as the Tealeaf Transport Service.

Note: When the Canister Services are shut down for the selected Processing Server, the Event Bus pipeline is ended.

Event Bus data

The Event Bus receives the request data from each page. If a page has multiple events, then the Event Bus receives a single hit.

- The event data is sent to the event bus only if the `Send to Event Bus` option is enabled for an event. See "TEM Events Tab" in the *IBM Tealeaf Event Manager Manual*.
- In addition to the existing request data, an extra section is added to the request.

The response data is available to the Event Bus pipeline.

Note: Because of the unstructured nature of the response data, none of the integration pipeline agents to external systems use the response data.

Event Bus packets
Event Bus packets are sent to the destination system on the following event triggers or conditions:

- Start of Session
  - Contains: hit-based facts
- After Every Hit
  - Contains: hit-based facts
- End of Session
  - Contains:
    1. Fact and event data that is derived from last hit of session
    2. Facts that are marked for reporting on last instance in the session
    3. End of Session trigger evaluation

       Note: Events that are configured to close a session are automatically sent to the Event Bus when it is enabled. The request data in these packets is provided from the last hit of the session.

At the end of a session, an "end of session" signal event is sent to the Event Bus pipeline. The UniqueID of the hit is `-1`.

Additional event bus configuration information
Additional information on configuring the event bus.

Sample Event Bus request
The following request text is a sample output from the Canister to the Event Bus pipeline:

```
[iamie]
TLTSID=EE67713899435C0572EA592C29F3EFF3
TLTHID=34A9A04D49347BA3DC01B016652A296A
TLTUID=342821467A0B03D336BB8127E6019019
LOADGEN_DATA=TRUE
CaptureSource=TeaLeafPassiveCapture2
CaptureType=1
CaptureVersion=3305

[env]
REMOTE_ADDR=63.194.158.183
REMOTE_PORT=1639
LOCAL_ADDR=63.194.158.210
LOCAL_PORT=80
SERVER_NAME=63.194.158.210
SERVER_PORT=80
HTTPS=off
CONNECTION_ID=11730
PCA_NAME=jupiter
PCA_ADDR=127.0.0.1
PCA_UNAME_RELEASE=2.6.9-55.EL
PCA_UNAME_SYSNAME=Linux
REQ_BUFFER_ENCODING=UTF-8
REQ_BUFFER_ORIG_ENCODING=ISO-8859-1
REQUEST_METHOD=GET
URL=/store/index.php/foresee
SERVER_PROTOCOL=HTTP/1.1
ResponseType=text/html; charset=UTF-8
StatusCode=200
StatusCodeText=OK
RequestHeaderSize=801
RequestDataSize=0
RequestSize=801
ResponseHeaderSize=428
ResponseDataSize=18404
ResponseSize=18832
RESP_BODY_ENCODING=utf-8
ReqCancelled=False
ReqDiscarded=False
StreamingHit=False
StreamingHitType=0
HTTP_ACCEPT=*/*
HTTP_ACCEPT_LANGUAGE=en-us
```

```
HTTP_UA_CPU=x86
HTTP_ACCEPT_ENCODING=gzip, deflate
HTTP_USER_AGENT=Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1;
                .NET CLR 1.1.4322; .NET CLR 2.0.50727; MS-RTC LM 8)
HTTP_HOST=www.straussandplesser.com
HTTP_CONNECTION=Keep-Alive
HTTP_COOKIE=magento=furtlzy7tijjvxcn1pccoc64hs3ew5rk;
   frontend=j5m4cegl15ucj2rrerc4ep8u10;
   TLTHID=8E6A041C52741052026CF311152600F5;
   TLTSID=3B9E220E52741052026485ECEFD4F08A;
   TLTUID=3B9E220E52741052026485ECEFD4F08A;
   __utma=131544653.2442909905711142000.1216148505.1216148505.1216148505.1;
   __utmb=131544653.2.10.1216148505;
   __utmc=131544653;
   __utmz=131544653.1216148505.1.1.utmcsr=(direct)|utmccn=(direct)|
          utmcmd=(none);
   __utmv=131544653.TLTSID%2F3B9E220E52741052026485ECEFD4F08A;
   s_cc=true;
   s_sq=%5B%5BB%5D%5D
HTTP_SET_COOKIE=TLTHID=DC459D6A5277105200D780232AB9484E; Path=/;
                        Domain=.straussandplesser.com
TRANSFER_ENCODING=chunked

[TimeBlock]
WEEK=35
MONTH=8
QUARTER=3
YEAR=2010
HOUR_OF_DAY=10
DAY_OF_WEEK=1
DAY_OF_MONTH=23
DAY_OF_YEAR=235


[timestamp]
RequestTimeEx=2010-08-23T17:27:34.000Z
ResponseStartTimeEx=2010-08-23T17:27:34.019Z
ResponseTimeEx=2010-08-23T17:27:34.019Z
ResponseAckTimeEx=2008-07-15T19:27:44.087781Z
TLapiArrivalTimeEx=2008-07-15T19:27:44.088415Z
ReqTTLB=0
RspTTFB=576964
RspTTLB=17197
RspTTLA=260
ConnSpeed=8630119
ConnType=T1
WS_Generation=576964
WS_Grade=NormalWS
WS_GradeEx=1
NT_Total=17457
NT_Grade=ExcellentNT
NT_GradeEx=0
RT_Total=594421
RT_Grade=NormalRT
RT_GradeEx=1


[urlfield]

[cookies]
TLTHID=DC459D6A5277105200D780232AB9484E
magento=furtlzy7tijjvxcn1pccoc64hs3ew5rk
frontend=j5m4cegl15ucj2rrerc4ep8u10
TLTHID=8E6A041C52741052026CF311152600F5
TLTSID=3B9E220E52741052026485ECEFD4F08A
TLTUID=3B9E220E52741052026485ECEFD4F08A
__utma=131544653.2442909905711142000.1216148505.1216148505.1216148505.1
__utmb=131544653.2.10.1216148505
__utmc=131544653
__utmz=131544653.1216148505.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none)
__utmv=131544653.TLTSID/3B9E220E52741052026485ECEFD4F08A
s_cc=true
s_sq=[[B]]
TLT_NumCookies=13



[appdata]
REMOTE_ADDR=63.194.158.183
Request_Method=GET

TLT_URL=/store/index.php/foresee
```

```
TLT_SERVER=63.194.158.210
TLT_HOST_NAME=www.straussandplesser.com
TLT_APPLICATION_NAME=store


[ExtendedUserAgent]
TLT_BROWSER=IE
TLT_BROWSER_VERSION=IE7.0
TLT_BROWSER_PLATFORM=WinXP
TLT_TRAFFIC_TYPE=BROWSER
TLT_BROWSER_JAVASCRIPT=true
TLT_BROWSER_COOKIES=true

[TLFID_283]
TLFID=283
TLEventID=57
TLFactValue=EE67713899435C0572EA592C29F3EFF3
TLFactNumericValue=0.0
TLDimGroupID=1
TLDim1=TLT$NULL
TLDim2=TLT$NULL
TLDim3=TLT$NULL
TLDim4=TLT$NULL

[TLFID_284]
TLFID=284
TLEventID=57
TLFactValue=EE67713899435C0572EA592C29F3EFF3
TLFactNumericValue=0.0
TLDimGroupID=3
TLDim1=BROWSER
TLDim2=TLT$NULL
TLDim3=TLT$NULL
TLDim4=TLT$NULL

[TLFID_285]
TLFID=285
TLEventID=57
TLFactValue=EE67713899435C0572EA592C29F3EFF3
TLFactNumericValue=0.0
TLDimGroupID=5
TLDim1=/store/index.php/foresee
TLDim2=www.straussandplesser.com
TLDim3=store
TLDim4=63.194.158.210

[CEP]
EventBusFormat=8.0
Canister=SIERRA4
SesnIdx=943874
HitNumber=6
DateTime=1282584454
CustomVar1=63.194.158.183
DiscardedSession=false
```

Event Bus request variables

In the previous request, the Canister inserts the `[CEP]` section when the Event Bus is enabled. The `[CEP]` request variables are described below:

- The fact data included in the request contains the event and dimension data usable by the destination system.

Variable
Description

`EventBusFormat`
Output format of the Event Bus.

Note: The Event Bus format number is independent of the Tealeaf Release or build number. The Event Bus version can be incremented at any time.

`Canister`
The name of the Canister that generated the Event Bus information

`SesnIdx`
The Canister session index identifier

HitNumber
The hit number for the session

DateTime
The timestamp in seconds in UNIX time (GMT, number of seconds since 1970)

CustomVarX
If one or more session attributes were specified for the session, they and their values are listed in this section.

DiscardedSession
If this value is set to `true`, the session `SesnIdx` in `Canister` was marked for discarding.

- This property is used by the IBM Tealeaf cxReveal database, which is populated by `[CEP]` data to maintain session attribute and session state information.

CEP session agent schema

The CEP session agent uses a schema to deliver messages to the receiving systems for FILE, TCP (Delimited and XML format), and Coral8 output.

The receiving systems require the data to be organized in a format that can be consumed easily. The raw request text data is in name/value format and needs to be converted into a record format.

Schema output considerations

The schema for delivering messages for TCP (SWA - SAS Web Analytics format) output is different. The schema has only Page level information and no Events. For example:

```
IP
<blank>
<blank>
PageTimeStamp
RequestLine
StatusCode
ResponseType
Referrer
UserAgent
Cookies
<blank>
ServerIP
<blank>
RequestMethod
ServerPort
ConnectionID
<blank>
QueryString
WSGenerationTime
<blank>
TLTSID
TLTUID
RequestSize
```

Finally, HTTP output uses the configurable schema in the `CEPCustomFields.cfg` file under the `[HTTPFields]` section.

The following table presents the schema is used by the CEP session agent to deliver messages to receiving systems. There are 33 fixed values and 100 custom fields.

Table 1. Default Event Bus data schema

POS	Name	Tealeaf REQ Field	Type	Length	Description
1	`Canister`	`Canister`	String	64	Name of server for the session
2	`TLTSID`	`TLTSID`	String	32	Sessionization string used by TeaLeaf (typically a 32 character GUID)

Table 1. Default Event Bus data schema (continued)					
POS	**Name**	**Tealeaf REQ Field**	**Type**	**Length**	**Description**
3	`TLTHID`	`TLTHID`	String	32	Hit ID (32 Character GUID)
4	`TLTUID`	`TLTUID`	String	32	User ID (usually a cookie)
5	`SessionID`	`SesnIdx`	Long		Number assigned to session for the in memory database (64 bit integer)
6	`HitNumber`	`HitNumber`	Long		The page number in the session as observed by TeaLeaf
7	`EventID`	`TLEventID`	Integer		Event ID
8	`FactID`	`TLFID`	Integer		Fact ID
9	`ReportGroupID`	`TLDimGroupID`	Integer		Report Group ID (Dimension Group ID)
10	`FactValue`	`TLFactValue`	String	256	Fact Value (text found)
11	`FactNumericValue`	`TLFactNumericValue`	Num		Numeric value of fact value (if applicable, 0.0 default value)
12	`DimValue1`	`TLDim1`	String	256	Dimension value 1 text (TLT $NULL if empty)
13	`DimValue2`	`TLDim2`	String	256	Dimension value 2 text (TLT $NULL if empty)
14	`DimValue3`	`TLDim3`	String	256	Dimension value 4 text (TLT $NULL if empty)
15	`DimValue4`	`TLDim4`	String	256	Dimension value 4 text (TLT $NULL if empty)
16	`PageTimeTicks`	`RequestTimeEx`	Long		Time of page in milliseconds in unix time (GMT, number of milliseconds since 1970)
17	`IP`	`REMOTE_ADDR`	String	16	The IP address for the session
18	`IPNumber`		Long		IP address (`REMOTE_ADDR`) that is translated and converted to an integer (for easy lookup against GEO IP database). For example, if the IP address is `w.x.y.z`, then the IP Number is translated as: `16777216*w + 65536*x + 256*y + z`.

Table 1. Default Event Bus data schema (continued)					
POS	**Name**	**Tealeaf REQ Field**	**Type**	**Length**	**Description**
19	`URL`	`URL`	String	256	URL for page excluding the query string
20	`TLT_URL`	`TLT_URL`	String	256	The normalized TeaLeaf URL for reporting
21	`QueryString`	`HTTP_QUERY`	String	1024	The query string for the URL
22	`Referrer`	`HTTP_REFERER`	String	1024	The referrer for the page
23	`UserAgent`	`HTTP_USER_AGENT`	String	256	The browser for the page
24	`RequestMethod`	`REQUEST_METHOD`	String	16	The Request Method (GET/POST)
25	`StatusCode`	`StatusCode`	Integer		HTTP Status Code for page
26	`ReqCancelled`	`ReqCancelled`	Boolean		Request Cancelled flag from client or server (True/False)
27	`ReqDiscarded`	`ReqDiscarded`	Boolean		Request Discarded flag from client or server (True/False)
28	`RequestSize`	`RequestSize`	Long		Size in bytes of the HTTP Request
29	`ResponseSize`	`ResponseSize`	Long		Size in bytes of the HTTP Response
30	`WSGenerationTime`	`WS_Generation`	Long		Generation time for the page on the server in microseconds
31	`NTTotalTime`	`NT_Total`	Long		Network time for the page in microseconds (last ACK by client)
32	`RTTotalTime`	`RT_Total`	Long		Total time for page in microseconds
33	`ConnSpeed`	`ConnSpeed`	Long		Connection speed in bits/second
34/53	`CustomField0`	`Custom Field`	String	256	The custom fields can be set using `CEPCustomFields.cfg`. See Custom fields for a description of the configuration sections in `CEPCustomFields.cfg`.

Event IDs are listed in the tooltip for an event in the Tealeaf Event Manager. See the *IBM Tealeaf CX Event Manager Manual* for information on working in the **TEM Events Tab**.

Fact data, including dimension values, is available only through the request, which can be viewed through BBR or RTV. For information on Browser Based Replay, see the *IBM Tealeaf cxImpact User Manual* and the *IBM Tealeaf cxImpact Administration Manual*. For information about the RTV request view, see the *IBM Tealeaf CX RealiTea User Manual*.

Custom fields

The custom fields are populated with the configuration in the `CEPCustomFields.cfg` file, which is located in the Tealeaf installation directory.

Note: The `CEPCustomFields.cfg` file should be installed in the Tealeaf install directory on the server where cxConnect for Data Analysis is installed.

The CEP session agent looks for changes in `CEPCustomFields.cfg` and automatically updates the rules for processing the events without requiring a restart of the pipeline.

Note: The changes may take up to one minute to update in the CEP session agent.

There are 100 custom fields in each record. The custom fields can be populated with any value from the request.

The custom fields cannot be populated with data from the response during the event processing. If you require data from the response, you must create custom request variables in the main pipeline with the RTA or PrivacyEx session agent(s).

The `CEPCustomFields.cfg` file is used for the following configuration:

- Event Include
- Event Omit
- Default Event Custom Fields
- Specific Event Custom Fields
- HTTP Message Configuration

The following table provides a description of each section.

Table 2. Sections in CEPCustomFields.cfg

Configuration file section	Description
`[EventInclude]`	This section can be used to only send events with the correct `EventID` (UniqueID in the CEP section). This value overrides any event ID's set in the `[EventOmit]` section.
`[EventOmit]`	This section is used to remove events from the event bus data stream. Any event in the `EventID` list will not be sent to the downstream system.
`[DefaultEvent]`	Every event bus hit that does not have a specific event entry in the configuration file inherits the custom field settings and status code filters specified in this section.
`[EventX]` (where X is a sequential number)	Each section contains specific custom field configuration for a specific event ID, which is helpful when sending data in form fields only present under certain conditions (i.e. new account sign up form).
`[DefaultPage]`	Every hit that does not have a specific page entry in the configuration file inherits the custom field settings and status code filters specified in this section.

Table 2. Sections in CEPCustomFields.cfg (continued)	
Configuration file section	**Description**
`[PageX]` (where X s a sequential number)	Each section contains specific custom field configuration for a specific page identifier, as indicated by the `reqField` and `Filter` values.

Sample CEP output

The following is a sample of the CEP file output.

In order to fit the sample on the page, it has been broken into sections.

Note: The actual CEP output includes data only (it does not include headers). The headings are included in the samples for illustrative purposes only.

```
Canister         TLTSID                            TLTHID
ADMINIB-0MV8KCT  2A8F2E159C798E2868179C711F49BEC2  C5DC226E31C41031006BED4DEA3ED43
ADMINIB-0MV8KCT  2A8F2E159C798E2868179C711F49BEC2  C5DC226E31C41031006BED4DEA3ED43
ADMINIB-0MV8KCT  2A8F2E159C798E2868179C711F49BEC2  C5DC226E31C41031006BED4DEA3ED43
ADMINIB-0MV8KCT  2A8F2E159C798E2868179C711F49BEC2  C5DC226E31C41031006BED4DEA3ED43
ADMINIB-0MV8KCT  2A8F2E159C798E2868179C711F49BEC2  C5DC226E31C41031006BED4DEA3ED43
```

Figure 2. Sample data for Canister, TLTSID, and TLTHID output fields

See Table 1 on page 37 for a description of these fields.

```
TLTUID   SessionId   HitNumber   EventID   FactID   ReportGroupID   FactValue
               213          48         0      380               0   § %5Cn   CompXYZ.co.uk Sign In%5Cn
               213          48         0      415               0   § %5Cn   CompXYZ.co.uk Sign In%5Cn
               213          48         0      416               0   § %5Cn   CompXYZ.co.uk Sign In%5Cn
               213          48         0      552               0   Hans-Jⁿrgen
               213          48         0      580               0   /ap/signin
```

Figure 3. Sample data for TLTUID, SessionId, HitNumber, EventID, FactID, ReportGroupID, and FactValue output fields

See Table 1 on page 37 for a description of these fields.

```
FactNumericValue   DimValue1    DimValue2    DimValue3    DimValue4    PageTimeStamp
               0   TLT$NULL     TLT$NULL     TLT$NULL     TLT$NULL     1410898825023
               0   BROWSER      TLT$NULL     TLT$NULL     TLT$NULL     1410898825023
               0   BROWSER      TLT$NULL     TLT$NULL     TLT$NULL     1410898825023
               0   TLT$NULL     TLT$NULL     TLT$NULL     TLT$NULL     1410898825023
               0   TLT$NULL     TLT$NULL     TLT$NULL     TLT$NULL     1410898825023
```

Figure 4. Sample data for FactNumericValue, DimValue1, DimValue2, DimValue3, DimValue4, and PageTimeStamp output fields

See Table 1 on page 37 for a description of these fields.

```
IP               IPNumber      URL           TLT_URL
192.168.76.102   3232255078    /ap/signin    /ap/signin
192.168.76.102   3232255078    /ap/signin    /ap/signin
192.168.76.102   3232255078    /ap/signin    /ap/signin
192.168.76.102   3232255078    /ap/signin    /ap/signin
192.168.76.102   3232255078    /ap/signin    /ap/signin
```

Figure 5. Sample data for IP, IPNumber, URL,and TLT_URL output fields

See Table 1 on page 37 for a description of these fields.

Note: Because of its length, the sample includes forced line-breaks.

```
QueryString
 _encoding=XXXX&openid.assoc_handle=XXXXXXXXXXXXXXXXXX&openid.claimed_
id=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.identity=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.mode=XXXXXXXXXXXXX&openid.ns=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.ns.pape=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.pape.max_auth_age=X&openid.return_
to=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&pageId=XXXXXXXXXXXXXXXXXX
&showRmrMe=X&siteState=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

 _encoding=XXXX&openid.assoc_handle=XXXXXXXXXXXXXXXXXX&openid.claimed_
id=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.identity=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.mode=XXXXXXXXXXXXX&openid.ns=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.ns.pape=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.pape.max_auth_age=X&openid.return_
to=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&pageId=XXXXXXXXXXXXXXXXXX
&showRmrMe=X&siteState=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

 _encoding=XXXX&openid.assoc_handle=XXXXXXXXXXXXXXXXXX&openid.claimed_
id=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.identity=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.mode=XXXXXXXXXXXXX&openid.ns=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.ns.pape=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.pape.max_auth_age=X&openid.return_
to=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&pageId=XXXXXXXXXXXXXXXXXX
&showRmrMe=X&siteState=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

 _encoding=XXXX&openid.assoc_handle=XXXXXXXXXXXXXXXXXX&openid.claimed_
id=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.identity=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.mode=XXXXXXXXXXXXX&openid.ns=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.ns.pape=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.pape.max_auth_age=X&openid.return_
to=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&pageId=XXXXXXXXXXXXXXXXXX
&showRmrMe=X&siteState=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

 _encoding=XXXX&openid.assoc_handle=XXXXXXXXXXXXXXXXXX&openid.claimed_
id=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.identity=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.mode=XXXXXXXXXXXXX&openid.ns=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.ns.pape=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&
openid.pape.max_auth_age=X&openid.return_
to=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX&pageId=XXXXXXXXXXXXXXXXXX
&showRmrMe=X&siteState=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

Figure 6. Sample data for QueryString output field

See Table 1 on page 37 for a description of this field.

```
Referrer
http://www.CompXYZ.co.uk/gp/huc/view.html?ie=XXXX&newItems=XXXXXXXXXXXXXXXXXX
http://www.CompXYZ.co.uk/gp/huc/view.html?ie=XXXX&newItems=XXXXXXXXXXXXXXXXXX
http://www.CompXYZ.co.uk/gp/huc/view.html?ie=XXXX&newItems=XXXXXXXXXXXXXXXXXX
http://www.CompXYZ.co.uk/gp/huc/view.html?ie=XXXX&newItems=XXXXXXXXXXXXXXXXXX
http://www.CompXYZ.co.uk/gp/huc/view.html?ie=XXXX&newItems=XXXXXXXXXXXXXXXXXX
```

Figure 7. Sample data for Referrer output field

See Table 1 on page 37 for a description of this field.

```
UserAgent
Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.31 (KHTML, like Gecko) Chrome/36.0.1985.143 Safari/537.36
Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/36.0.1985.143 Safari/537.36
Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/36.0.1985.143 Safari/537.36
Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/36.0.1985.143 Safari/537.36
Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/36.0.1985.143 Safari/537.36
```

Figure 8. Sample data for UserAgent output field

See Table 1 on page 37 for a description of this field.

```
RequestMethod    StatusCode    ReqCancelled    ReqDiscarded    RequestSize    ResponseSize
GET                     200    false           false                  1710           30885
GET                     200    false           false                  1710           30885
GET                     200    false           false                  1710           30885
GET                     200    false           false                  1710           30885
GET                     200    false           false                  1710           30885
```

Figure 9. Sample data for RequestMethod, StatusCode, ReqCancelled, ReqDiscarded, RequestSize, and ResponseSize output fields

See Table 1 on page 37 for a description of these fields.

```
WSGenerationTime       NTTotalTime      RTTotalTime      ConnSpeed
          177873               260           178133       331323076
          177873               260           178133       331323076
          177873               260           178133       331323076
          177873               260           178133       331323076
          177873               260           178133       331323076
```

Figure 10. Sample data for WSGenerationTime, NTTotalTime, RTTotalTime, ConnSpeed, and CustomField0 output fields

See Table 1 on page 37 for a description of these fields.

```
CustomField0                     CustomField1    CustomField2    CustomField3
A8F2E159C798E2868179C711F49BEC2                  Win7            BROWSER
A8F2E159C798E2868179C711F49BEC2                  Win7            BROWSER
A8F2E159C798E2868179C711F49BEC2                  Win7            BROWSER
A8F2E159C798E2868179C711F49BEC2                  Win7            BROWSER
A8F2E159C798E2868179C711F49BEC2                  Win7            BROWSER
```

Figure 11. Sample data for CustomField1,CustomField2, and CustomField3 output fields

See Table 1 on page 37 for a description of custom fields.

Coral8 Server

To use the Coral8 Server with the Event Bus, you must do the following installation and configuration steps:

Procedure

1. Install the Coral8 Server product on a server. It is recommended that this server is a different one from the Tealeaf server.
2. Copy the `Coral8.dll` from the `\Coral8\Server\Sdk\Net` directory on the Coral8 server to the Tealeaf installation directory on the Tealeaf server.
3. Install the Coral8 Studio and load the Tealeaf project file. The project should be initially installed in the Default workspace.
4. Copy the `TeaLeaf.Pipeline.CEP.dll` to the Tealeaf installation directory.
5. Modify the `TeaLeafEventBus.cfg` file. Change the `[DecoupleEx]` DownStreamConfigSection to `CEP`.
6. In the `[CEP]` section, modify the URI value to the correct server address. In most cases, you can change the value `localhost` to the correct server name or IP address.

7. Modify the `CEPCustomFields.cfg` file, if necessary. This modification can be done after the system is running.
8. Through TMS, enable the Event Bus in Canister configuration.
9. Use the Capture Status utility to see the status of the Event Bus.
10. Check the NT Event log for any errors.

Results

The `TeaLeaf.Pipeline.CEP.dll` session agent creates the following log files:

- `SA_CEP_C8_CANISTER_EVENT_YYYYMMDD.log` - This log file outputs all the connection status information. Use this file to diagnose connection problems.
- `SA_CEP_C8_CANISTER_EVENT_STATS_YYYYMMDD.log` - This log file only outputs processing statistics and does not contain any error information.

Coral8 Studio should be used to view the incoming stream data.

TCP connector with delimited message
The TCP connector sends a delimited message to a receiver for each event bus hit. The message is formatted with a delimiter and an optional end-of-record indicator.

- If the text in the message contains the delimiter, then the character is URL-encoded in the string. For example, the comma character (`,`) would be encoded as `%2C`.

The end-of-record indicator can be one of the following values:

- Blank - no value
- `LF` - line feed (`\n`)
- `CRLF` - carriage return with line feed (`\r\n`)

The following is an example of the configuration in the `TeaLeafEventBus.cfg` file:

```
TCP=ON
TCP_Server=localhost
TCP_Port=1971
TCP_Delim=,
# Record Terminator values (CRLF, LF, or blank)
TCP_RecTerminator=LF
```

TCP file schema

The TCP connector uses the default schema.

Log File Connector with delimited data
The Log File Connector sends a delimited message to a log file for each event bus hit. The message is formatted with a delimiter as specified by the configuration.

- If the text in the message contains the delimiter, then the character is URL encoded in the string. For example, the comma character (`,`) would be encoded as `%2C`.
- The line length limit is 10,000 characters, including the delimiters.

  Note: This output connector should be implemented only on a dedicated file server with a Tealeaf pipeline. This connector allows several input sources to write to the same log file at one time and frees up disk I/O from the main Tealeaf system.

Below the `FILE_Directory`, a new directory is created for each day of data with a directory name in YYYYMMDD format. The log file names have the following format:

```
TL_EB_0_YYYYMMDD_mmmm.log
```

Where:

- YYYY - year
- MM - month
- DD - day
- mmmm - Number of minutes past midnight for current day: 0000 - 1439

These files are structured in the following manner:

```
OutputType=FILE
File Delim: any character or TAB (note: not CSV compliant)
FILE_Delim=|
FILE_Directory=c:\tealeaf\logfiles
Row Time in minutes - log will be rolled every N minutes
FILE_RollTime=5
```

Log File schema

The Log connector uses the default schema.

IBM Tealeaf documentation and help

IBM Tealeaf provides documentation and help for users, developers, and administrators.

Viewing product documentation

All IBM Tealeaf product documentation is available at the following website:

Tealeaf Customer Experience Support

Use the information in the following table to view the product documentation for IBM Tealeaf:

Table 3. Getting help

To view...	Do this...
Product documentation	On the IBM Tealeaf portal, go to **?** > **Product Documentation**.
IBM Tealeaf Knowledge Center	On the IBM Tealeaf portal, go to **?** > **Product Documentation** and select *IBM Tealeaf Customer Experience in the ExperienceOne Knowledge Center*.
Help for a page on the IBM Tealeaf Portal	On the IBM Tealeaf portal, go to **?** > **Help for This Page**.
Help for IBM Tealeaf CX PCA	On the IBM Tealeaf CX PCA web interface, select **Guide** to access the *IBM Tealeaf CX PCA Manual*.

Available documents for IBM Tealeaf products

The following table is a list of available documents for all IBM Tealeaf products:

Table 4. Available documentation for IBM Tealeaf products	
IBM Tealeaf products	**Available documents**
IBM Tealeaf CX	• *IBM Tealeaf Customer Experience Overview Guide* • *IBM Tealeaf CX Client Framework Data Integration Guide* • *IBM Tealeaf CX Configuration Manual* • *IBM Tealeaf CX Cookie Injector Manual* • *IBM Tealeaf CX Databases Guide* • *IBM Tealeaf CX Event Manager Manual* • *IBM Tealeaf CX Glossary* • *IBM Tealeaf CX Installation Manual* • *IBM Tealeaf CX PCA Manual* • *IBM Tealeaf CX PCA Release Notes*
IBM Tealeaf CX	• *IBM Tealeaf CX RealiTea Viewer Client Side Capture Manual* • *IBM Tealeaf CX RealiTea Viewer User Manual* • *IBM Tealeaf CX Release Notes* • *IBM Tealeaf CX Release Upgrade Manual* • *IBM Tealeaf CX Support Troubleshooting FAQ* • *IBM Tealeaf CX Troubleshooting Guide* • *IBM Tealeaf CX UI Capture j2 Guide* • *IBM Tealeaf CX UI Capture j2 Release Notes*
IBM Tealeaf cxImpact	• *IBM Tealeaf cxImpact Administration Manual* • *IBM Tealeaf cxImpact User Manual* • *IBM Tealeaf cxImpact Reporting Guide*
IBM Tealeaf cxConnect	• *IBM Tealeaf cxConnect for Data Analysis Administration Manual* • *IBM Tealeaf cxConnect for Voice of Customer Administration Manual* • *IBM Tealeaf cxConnect for Web Analytics Administration Manual*
IBM Tealeaf cxOverstat	*IBM Tealeaf cxOverstat User Manual*
IBM Tealeaf cxReveal	• *IBM Tealeaf cxReveal Administration Manual* • *IBM Tealeaf cxReveal API Guide* • *IBM Tealeaf cxReveal User Manual*
IBM Tealeaf cxVerify	• *IBM Tealeaf cxVerify Installation Guide* • *IBM Tealeaf cxVerify User's Guide*
IBM Tealeaf cxView	*IBM Tealeaf cxView User's Guide*

Table 4. Available documentation for IBM Tealeaf products (continued)	
IBM Tealeaf products	**Available documents**
IBM Tealeaf CX Mobile	• *IBM Tealeaf CX Mobile Android Logging Framework Guide* • *IBM Tealeaf Android Logging Framework Release Notes* • *IBM Tealeaf CX Mobile Administration Manual* • *IBM Tealeaf CX Mobile User Manual* • *IBM Tealeaf CX Mobile iOS Logging Framework Guide* • *IBM Tealeaf iOS Logging Framework Release Notes*

cxConnect Data File Schema

The IBM Tealeaf cxConnect for Data Analysis data file export provides a streamlined method of integration. IBM Tealeaf cxConnect for Data Analysis delivers session data to a series of flat data files in text format. These flat data files can then be bulk-loaded into the destination database of choice, using customized versions of scripts provided by Tealeaf.

- Data files that are generated in Release 8 or later format include 8x in the filename.
- Content in individual files can be filtered based on filters you specify in the task. See "cxConnect configuring tasks" on page 10.

Note: For the Data File schema, all timestamps are in Greenwich Mean Time or the local time of the IBM Tealeaf cxConnect for Data Analysis server. See "cxConnect configuring tasks" on page 10.

To improve performance, this method uses a much more simplified schema. For session data, IBM Tealeaf cxConnect for Data Analysis exports to seven different data files, each file containing a flat list of records for one database table. Each of the following session data types is exported to a separate data file.

- "Session Data File" on page 47
- "Hit Data File" on page 48
- "Application Data File" on page 50
- "Cookie Data File" on page 51
- "URL Field Data File" on page 51
- "Event Data File for Release 8" on page 51
- "Event Data File for Release 7.2 and earlier" on page 52
- "Dimensions Data File" on page 52
- "Session Attribute Data File" on page 53

Typically, these data files are stored in individual database tables, which enable simple and insertion into the destination database. These flat data files can be easily inserted into the destination database of your choice, by customizing and using the bulk-load scripts that are provided in the following directory:

```
<TL_install_directory>\DataExtractor\Scripts
```

Session Data File

Session information is written to this file.

Table 5. Session Data File		
UI Field	**File Field**	**Description**
`Session key`	`SESSION_KEY`	32-character key unique to the session
`Session timestamp`	`SESSION_TIMESTAMP`	Session timedate stamp **Note:** If this field is included in the Session Data file, it is written as an extra field in each of the output files. This timestamp provides an easy means of clearing a external database of all related content based on this value.
`Session ID`	`CANISTER_SESSION_ID`	Canister Session ID
`Canister server name`	`CANISTER_SERVER`	Canister server name
`LSSN file name`	`CANISTER_LSSN`	Canister file where session was extracted
`Remote address`	`REMOTE_ADDRESS`	Remote IP address
`Session duration`	`SESSION_DURATION`	Session duration (in seconds)
`Hit count`	`HIT_COUNT`	Number of hits in this session
`HTTP user agent`	`HTTP_USER_AGENT`	Web browser
`TLTSID`	`TLTSID`	Tealeaf Session ID
`TLTUID`	`TLTUID`	Tealeaf User ID
`TLTVID`	`TLTVID`	Tealeaf Visitor ID
`Extract ID`	`EXTRACTID`	Identifier for the Extractor task
`Tealeaf replay link`	`TEALEAF_REPLAY`	Replay link

Hit Data File

Note: The following items have been added since Release 7.2:

- `session timestamp`
- `CUI Render`
- `CUI Dwell`

Hit information is written to this file.

Table 6. Hit Data File		
UI Field	**File Field**	**Description**
`Session key`	`SESSION_KEY`	32-character key unique to the session
`Hit key`	`HIT_KEY`	32-character key unique to the hit

Table 6. Hit Data File (continued)		
UI Field	**File Field**	**Description**
Hit Number	HIT_NUMBER	Sequence number of this hit within the session
TLTHID	TLTHID	Tealeaf hit ID
HTTP status	HTTP_STATUS	HTTP Status code
HTTP secure	HTTP_SECURE	Indicates whether this was a HTTPS hit (secure). Possible values are Y or N.
Hit duration	HIT_DURATION	Difference between the request and response time for a page view or hit (in milliseconds)
Request method	REQ_METHOD	GET, POST, etc.
URL	URL	URL string
Referer	REFERER	Previous page • If the hit is an application-instrumented event, this value is TeaEventsIIS.
Query string	QUERY_STRING	Hit query string
Host name	HOST_NAME	Web server host
Host IP	HOST_IP	Web server host IP
Request time	REQ_TIMESTAMP	Time Stamp of first request packet
Request end time	REQ_END_TIMESTAMP	Time Stamp of last request packetTime Stamp of last request packet
Response start time	RSP_START_TIMESTAMP	Time Stamp of first response packet
Response complete time	RSP_TIMESTAMP	Time Stamp of last response packet
Response ack time	RSP_ACK_TIMESTAMP	Time Stamp of last response packet acknowledged by the browser
Request size	REQ_SIZE	Size of the request (in bytes)
Response size	RSP_SIZE	Size of the response (in bytes)
Request cancel	REQ_CANCELLED	Possible values: • N - not cancelled • T - cancelled • C - cancelled by client • S - cancelled by server

Table 6. Hit Data File (continued)		
UI Field	**File Field**	**Description**
TTFB	RSP_TTFB	Time to First Byte
TTLB	RSP_TTLB	Time to Last Byte
TTLA	RSP_TTLA	Time to Last ACK
Connection Speed	CON_SPEED	Connection speed
Connection type	CON_TYPE	Connection speed text
WS_GEN	WS_GEN	Web server generation time (in microseconds)
NT_GEN	NT_GEN	Network generation time (in microseconds)
RT_GEN	RT_GEN	Round-trip generation time (in microseconds)
Response type	RSP_TYPE	Tealeaf response type
Accept language	ACCEPT_LANG	Web browser accept language
session timestamp	SESSION_TIMESTAMP	Session timedate stamp is inserted in the output file if the field is included in the Session Data file.
CUI Render	PAGE_RENDER	The render time for the page, as extracted from client user interface events. • Data in this field requires licensing and implementation of IBM Tealeaf CX UI Capture for AJAX. See "UI Capture FAQ" in the *IBM Tealeaf UI Capture for AJAX FAQ*.
CUI Dwell	PAGE_DWELL	The page dwell time, as extracted from client user interface events. • Data in this field requires licensing and implementation of IBM Tealeaf CX UI Capture for AJAX. See "UI Capture FAQ" in the *IBM Tealeaf UI Capture for AJAX FAQ*.

Application Data File

Note: The following items have been added since Release 7.2:

- session timestamp

Application data is written to this file.

Table 7. Application Data File		
UI Field	**File Field**	**Description**
Session key	SESSION_KEY	32-character key unique to the session

Table 7. Application Data File (continued)		
UI Field	**File Field**	**Description**
`Hit key`	`HIT_KEY`	32-character key unique to the hit
`Name`	`NAME`	Application field name
`Value`	`VALUE`	Application field value
`session timestamp`	`SESSION_TIMESTAMP`	Session timedate stamp is inserted in the output file if the field is included in the Session Data file.

Cookie Data File

Note: The following items have been added since Release 7.2:

- `session timestamp`

Cookie information is written to this file.

Table 8. Cookie Data File		
UI Field	**File Field**	**Description**
`Session key`	`SESSION_KEY`	32-character key unique to the session
`Hit key`	`HIT_KEY`	32-character key unique to the hit
`Name`	`NAME`	Cookie field name
`Value`	`VALUE`	Cookie field value
`session timestamp`	`SESSION_TIMESTAMP`	Session timedate stamp is inserted in the output file if the field is included in the Session Data file.

URL Field Data File

Note: The following items have been added since Release 7.2:

- `session timestamp`

URL field information is written to this file.

Table 9. URL Field Data File		
UI Field	**File Field**	**Description**
`Session key`	`SESSION_KEY`	32-character key unique to the session
`Hit key`	`HIT_KEY`	32-character key unique to the hit
`Name`	`NAME`	URL field name
`Value`	`VALUE`	URL field value
`session timestamp`	`SESSION_TIMESTAMP`	Session timedate stamp is inserted in the output file if the field is included in the Session Data file.

Event Data File for Release 8

Event data information is written to this file for Release 8.x or later.

Note: This table is generated only when writing event data to Release 8.x format.

Event information is written to this file.

Table 10. Event Data File for Release 8

UI Field	File Field	Description
Session key	SESSION_KEY	32-character key unique to the session
Hit key	HIT_KEY	32-character key unique to the hit
Event ID	EVENT_ID	Event ID
Event text found	TEXT_FOUND	Event Text Found
session timestamp	SESSION_TIMESTAMP	Session timedate stamp is inserted in the output file if the field is included in the Session Data file.

Event Data File for Release 7.2 and earlier

Event information is written to this file.

Note: This table is generated only when writing event data to Release 7.2 or earlier format.

Table 11. Event Data File for Release 7.2 and earlier

UI Field	File Field	Description
Session key	SESSION_KEY	32-character key unique to the session
Hit key	HIT_KEY	32-character key unique to the hit
Event name	EVENT_NAME	Event Name
Event ID	UNIQUE_ID	Event ID
Category ID	CATEGORY_ID	Category ID
Session event	SESSION_EVENT	Y if this event is a session level event, N otherwise
Group name	GROUP_NAME	Event group name
Event text found	TEXT_FOUND	Event Text Found
Enum ID	ENUM_ID	Event enum ID
session timestamp	SESSION_TIMESTAMP	Session timedate stamp is inserted in the output file if the field is included in the Session Data file.

Dimensions Data File

Data on exported dimensions is written to this file.

Note: This table is generated only when writing event data to Release 8.x format. Dimension values must be values other than Tealeaf constant values. See "TEM Dimensions Tab" in the *IBM Tealeaf Event Manager Manual*.

Table 12. Dimensions Data File		
UI Field	**File Field**	**Description**
Session key	SESSION_KEY	32-character key unique to the session
Hit key	HIT_KEY	32-character key unique to the hit
Event ID	EVENT_ID	Event ID
Group ID	DIM_GRP_ID	Internal identifier for the report group
Fact ID	FACT_ID	Internal identifier for the recorded instance of the event and its dimensions
Fact Value	FACT_VALUE	Event value that is recorded with the recorded instance of the event and its dimensions
Dimension #1	DIMENSION_1	Value of dimension #1, if available
Dimension #2	DIMENSION_2	Value of dimension #2, if available
Dimension #3	DIMENSION_3	Value of dimension #3, if available
Dimension #4	DIMENSION_4	Value of dimension #4, if available
Dimension #5	DIMENSION_5	Value of dimension #5, if available
Dimension #6	DIMENSION_6	Value of dimension #6, if available
Dimension #7	DIMENSION_7	Value of dimension #7, if available
Dimension #8	DIMENSION_8	Value of dimension #8, if available
session timestamp	SESSION_TIMESTAMP	Session timedate stamp is inserted in the output file if the field is included in the Session Data file.

Session Attribute Data File

Session Attribute data is written to this file.

Table 13. Session Attribute Data File		
UI Field	**File Field**	**Description**
Session key	SESSION_KEY	32-character key unique to the session
Name	NAME	Attribute name
Value	VALUE	Attribute value
ID	ID	Attribute ID

Table 13. Session Attribute Data File (continued)		
UI Field	**File Field**	**Description**
`session timestamp`	`SESSION_TIMESTAMP`	Session timedate stamp is inserted in the output file if the field is included in the Session Data file.

SQL Server 2005 requires Active Directory Delegation when configured for NT Authentication

About this task

IBM Tealeaf cxConnect for Data Analysis requires Active Directory Delegation to successfully import data into a remote SQL Server 2005 server when configured for NT Authentication.

Requirements

About this task

- SQL Service must be running under an Active Directory account.
- SQL Service account has sufficient rights on the SQL Server (Local Admin).
- SQL Service account has rights to the remote file where IBM Tealeaf cxConnect for Data Analysis bulk loads data files.
- User running the Tealeaf Extractor Service has rights to the remote Bulk directory.

To configure:

Procedure

1. A Service Principal Name must exist for the SQL Service user and server. To check for an existing SPN, you must install `setspn.exe#*` The `setspn.exe` utility is available in the Windows Resource Kit.
   - For more information, please visit http://www.microsoft.com/downloads/details.aspx?familyid=6EC50B78-8BE1-4E81-B3BE-4E7AC4F0912D&displaylang=en.
2. When `setspn.exe` is installed, run the following command:

```
setspn \-L serviceaccount
```

3. The results should look like the following:

```
Registered ServicePrincipalNames for
CN=SQLAccount,OU=Users,OU=Vancouver,DC=domain,DC=corp:
MSSQLSvc/sqlserver.domain.corp:1433
```

4. If the SPN does not exist add one:

```
Setspn \-A MSSQLSvc/sqlserver.domain.corp:1433 Domain\SQLAccount
```

5. The user for the SQL Service must be allowed to delegate in the Active Directory.
6. Select properties for the SQL Service user, and select **Trust this user for delegation to any service (Kerberos only)**.

Results

Changes to the Active directory can take up to 24 hours to propagate.

Daily tasks fail to start when scheduled

IBM Tealeaf cxConnect for Data Analysis delays the start of a daily task until all sessions to be extracted have been indexed into the Long Term Canister. IBM Tealeaf cxConnect for Data Analysis inserts an extra time margin to ensure that any idle sessions in the canister have expired.

Any IBM Tealeaf cxConnect for Data Analysis daily task has an end time of 24:00, and the task cannot begin until one hour after the last session has been indexed. This one-hour buffer ensures that all sessions marked as "closed" have had time to be indexed. For a daily task that extracts yesterday's data (00:00 - 24:00 of the date before today), the earliest start time is 1:00 am.

In addition to the one-hour buffer, sessions do not close until the canister session idle time has expired. If the session idle time is set for 30 minutes, the earliest executable start time is 1:30 am.

Suppose that the Nightly Extract is scheduled to run at 00:01 each morning. At 00:05 the Nightly Extract attempts to run and checks the session indexes.

- The last indexed session time was 23:49:50 from the previous day, so the one hour buffer test failed and the task is scheduled to run again at 01:01.
- At 00:55, the Nightly Extract attempts to schedule a run at 01:01 and checks the session indexes. Since the last indexed session time was 23:59:43 from the previous day, the one-hour buffer test failed at the time of the test, and the task was scheduled to run again at 02:01.
- At 01:55 the Nightly Extract attempts to schedule a run at 02:01 and checks the session indexes. The index test passes, and the task is scheduled and started at 02:01:01.

Note: To account for the processes of indexing sessions and canister session timeout settings, it is recommended that any daily tasks be scheduled after 02:00:00 each night.

Index

B

bus 29

C

CEP 29
Complex Event Processing 29
configuration 6, 10, 29
cxConnect 1, 2, 6, 10, 27, 54

D

da 10
data analysis 1, 2, 10, 27
Data Analysis 1, 2, 10, 27

E

event 29
Event Bus 29

I

installation 2, 6
integration 1, 10, 27, 54

O

overview 1

R

remote addr 29

T

tasks 10
TLA 29
troubleshooting 54