BRISTOL TECHNOLOGY®

TransactionVision®

TransactionVision Administrator’s Guide

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Chapter 1

TransactionVision Administration Overview

TransactionVision is the transaction tracking solution that graphically shows you the interaction between all the components of your system. TransactionVision non-intrusively records individual electronic events generated by a transaction flowing through a computer network. More importantly, TransactionVision's patent-pending "Transaction Constructor" algorithm assembles those events into a single coherent business transaction.

Graphical analysis of business transactions enable you to:

- Find lost transactions
- Monitor and meet service level agreements
- Improve efficiencies of your business processes

TransactionVision Basics

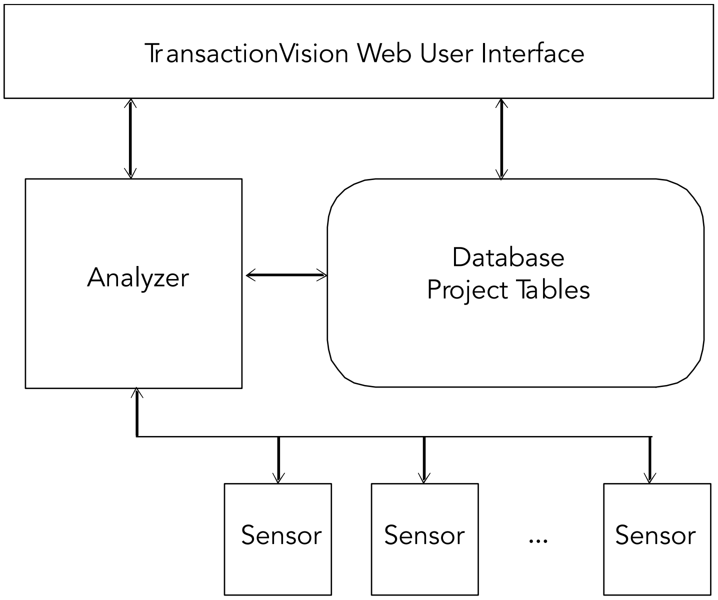
To understand the tasks required to administer TransactionVision, you must understand the TransactionVision components, as well as some basic concepts.

Components

TransactionVision consists of three major components:

- Sensors
- Analyzers

TransactionVision Web User Interface The following diagram shows the relationship between these components:



Sensors

Sensors collect transactional events from the various applications involved in your distributed transactions. Sensors are lightweight libraries or exit programs that are installed on each computer in your environment. Each Sensor monitors calls made by supporting technologies on that system and compares them against filter conditions. If the call matches the filter conditions, the Sensor collects entry information about the call, then passes the call on to the appropriate library for processing. When the call returns, the Sensor collects exit information about then call. It then combines the entry and exit information into a TransactionVision event, which it forwards to the Analyzer by placing it on a designated event queue.

TransactionVision provides several types of Sensors:

- WebSphere MQ Sensors
- Servlet Sensor
- JMS Sensor
- EJB Sensor
- CICS Sensor

For a complete description of TransactionVision Sensors, see the *TransactionVision Sensor Installation and Configuration Guide*.

Analyzer

The Analyzer is a service that communicates with Sensors via WebSphere MQ or JMS services. It generates and delivers configuration messages to Sensors by placing them on a designated configuration queue. Configuration messages specify Sensor configuration information such as the name of the event queue where the Sensor should place event messages and data collection filter definitions.

The Analyzer also retrieves events placed on an event queue by Sensors and processes them for analysis and display by the web user interface. It performs the unmarshalling, correlation, analysis, and data management functions.

The Analyzer can operate in two modes: standard mode and failure mode. In failure mode, the Analyzer will only store event data of failed business transactions (or transactions violating SLA). For successful business transactions, only the corresponding business transaction rows will be saved. Using failure mode reduces the data storage requirement for a project. For more information about enabling failure mode, see Chapter 3, “Managing Analyzers.”

Web User Interface

The TransactionVision web user interface is an enterprise application for IBM WebSphere or BEA WebLogic that provides the TransactionVision graphical interface. All interaction is done through web pages. Users and administrators login to the web user interface through a web browser. The web user interface communicates with the Analyzer to provide data collection configuration information such as communication links and data collection filters. It also connects to project database schemas to display project analysis and report results.

TransactionVision Terms and Concepts

To administer TransactionVision effectively, you must be familiar with the following terms and concepts:

- Communication links
- Event Collection
- Data collection filters
- Projects
- Database Schemas

Communication Links

Communication links enable a TransactionVision Sensor to communicate from a host on which an application is being monitored to the Analyzer.

Two communication paths must be defined for each communication link: one path for configuration messages from the Analyzer to the Sensors and another path for captured events from the Sensors to the Analyzer. When you define a communication link, you specify the name of the queue manager and queues the Sensor monitors for configuration messages and sends event messages to, as well as the queue managers and queues the Analyzer sends configuration messages to and retrieves event messages from.

Event Collection

The WebSphere MQ Sensor library implements all API entry points and has the same name as the standard library for the monitored technology (for example, `mqm.dll` for WebSphere MQ on Windows). It is installed in a different directory location, and your library search path is altered so that programs load the Sensor library at runtime instead of the standard technology library.

When a program running on the system where a Sensor is installed calls a WebSphere MQ API for the monitored technology, it actually calls the corresponding function in the Sensor library.

The Sensor function first generates a TransactionVision event, recording the API call and other details based on the data collection filters. It then invokes the actual API from the standard technology library. When the actual API returns, the Sensor function generates another TransactionVision event, this time representing the exit state of the function, and then forwards the return information to the calling program.

Important! For WebSphere MQ Sensors to intercept API calls from applications, the applications must link dynamically to the technology library as a shared library. Otherwise, Sensors cannot record events for the applications.

On the z/OS CICS platform, WebSphere MQ Sensors use the API-crossing exit mechanism provided by the CICS adapter of WebSphere MQ for z/OS. On z/OS batch and IMS platforms, applications are statically linked to, or dynamically invoke, TransactionVision stubs, which are replacements for the standard WebSphere MQ stubs.

A WebSphere API Exit Sensor is also available for other platforms.

The WebSphere Application Server servlet, JMS, and EJB Sensors use Java bytecode instrumentation to intercept servlet, JMS, and EJB API calls. At installation of the WebSphere servlet Sensor, the server JVM settings are modified to add a Sensor classloader plugin. This plugin intercepts servlet API calls and allows the TransactionVision Sensor to report them. The JMS API called are trapped using static bytecode instrumentation and the instrumented jar file must be added to the application CLASSPATH before any other JMS jar file.

Projects

Event collection projects enable you to easily group and manipulate communication links, data collection filters, database schemas, and Analyzers as one entity. An event collection project is used by an Analyzer to define the communication links, the data collection filters, and the database schema that data will be written into.

Each TransactionVision project is assigned a single host running the Analyzer. Projects enable you to easily group and manipulate communication links, data collection filters, database schemas, and Analyzers as one entity. When you start a project, the Analyzer on the host assigned to the project is started automatically. You may also start the Analyzer on a host from the Analyzers page in the web user interface, in which case the Analyzer starts processing events on all active projects it is assigned to.

Data Collection Filters

Data collection filters assigned to a project determine the amount and type of information collected by each Sensor. Data collection filters specify criteria such as the following:

- Which technologies, hosts, programs, or APIs to collect information about
- Which CICS regions, transactions, and job names to collect information about
- Which queues or queue managers to collect information about
- Which servlets, WebSphere applications, WebSphere servers and URIs to collect information about
- What time range to collect information for
- The level of detail to be collected, such as API name only, API name and call arguments, or API name, call arguments, and data buffer segment. For the Servlet Sensor, the default data buffer size is 1K.

Database Schemas

The project schema defines the tables into which the events collected by Sensors are stored. When the Analyzer retrieves and processes events collected by Sensors, it places them into event related tables. By using schemas to partition event data by project, you can control access to event data collected by each project.

TransactionVision Administration

This guide provides instructions for performing the following administration tasks:

- Planning the TransactionVision deployment (Chapter 2)
- Installing the TransactionVision web user interface, Analyzer, and Sensors (Chapter 3)
- Setup and configuration (Chapter 4)
- Managing user accounts (Chapter 5)
- Managing communication links (Chapter 5)
- Managing projects (Chapter 5)
- Configuring data collection filters (Chapter 5)
- Configuring the Analyzer (Chapter 5)
- Managing database schemas (Chapter 5)
- Extending TransactionVision Sensors (Chapter 12)
- Resolving TransactionVision problems (Chapter 10)

For information on using TransactionVision views and reports to identify and resolve potential problems in your transaction-based applications, see the *TransactionVision User's Guide*.

Starting TransactionVision for Administration

The TransactionVision web user interface runs in a web browser. To access it, start your browser and open the URL for the TransactionVision web user interface application. This URL has the following format:

http://hostname:port/root_url

Field	Description
hostname	The hostname of the application server.
port	The appserver port number used by the virtual host. For a default WebSphere setup using *default_host* as the virtual host, this is typically port 9080.
root_url	`/tv` or the value of the `root_url` entry in the `tvision-ws-config.properties` file (WebSphere 4 only). See the *TransactionVision Web Application Installation and Configuration Guide* for more information about this file.

For example, if your application server’s hostname is *company_was* and the root URL for the TransactionVision web user interface application is */tv*, the URL for starting the TransactionVision web user interface is:

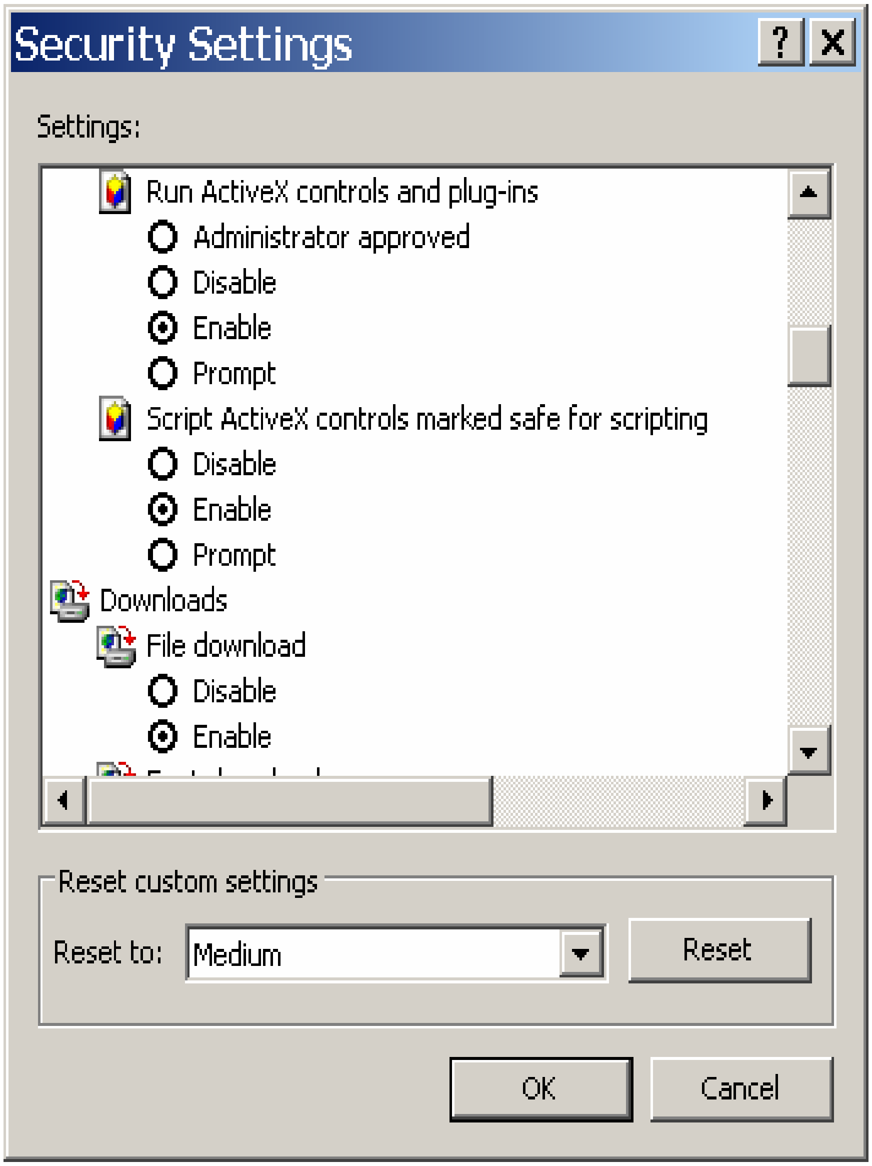
`http://company_was:9080/tv/`

Browser Security Settings

For the TransactionVision user interface to function properly, you must configure your browser security settings to enable it to run the Java and Flash plug-ins used by TransactionVision.

To verify or change browser security settings in IE6, perform the following steps:

1. In your browser window, choose Tools > Internet Options. The Internet Options dialog opens.
2. On the Security tab of the Internet Options dialog, click the icon for the zone for the server running TransactionVision and click Custom Level. The Security Settings dialog opens.



Run ActiveX controls and plug-ins
- ○ Administrator approved
- ○ Disable
- ● Enable
- ○ Prompt

Script ActiveX controls marked safe for scripting
- ○ Disable
- ● Enable
- ○ Prompt

Downloads

File download
- ○ Disable
- ● Enable

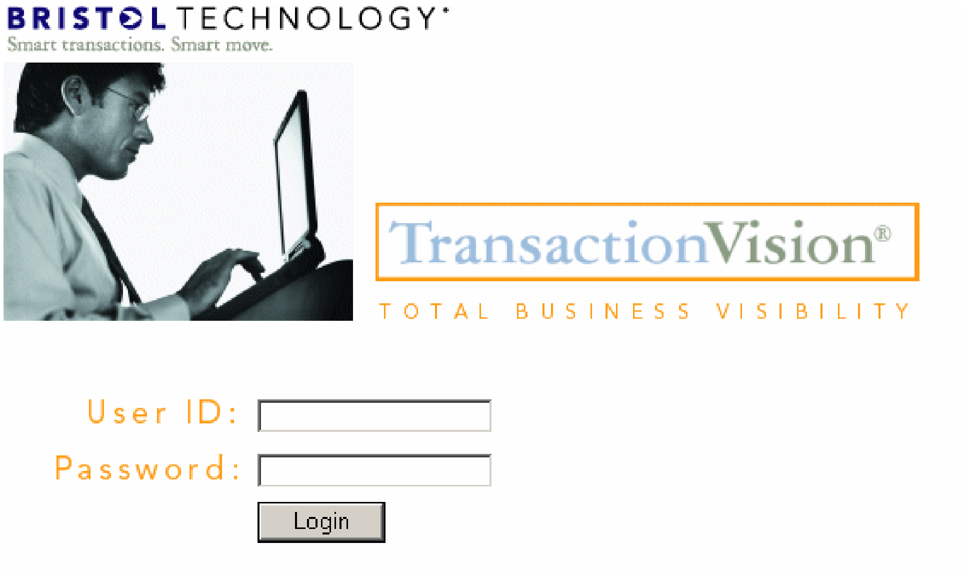
Reset to: Medium

3. Scroll to the Run ActiveX controls and plug-ins setting and click the Enable radio button.
4. Click OK.

Important! If the server running TransactionVision is in the Internet zone, you may wish to add it to the Trusted Sites zones instead. By default, the Trusted Sites zone has all the necessary security settings for TransactionVision to function properly, and you do not have to enable ActiveX controls and plug-ins for the entire Internet zone.

Logging Into TransactionVision

When you enter the URL for the TransactionVision web user interface application, the TransactionVision login page appears.



1. Type your user name in the Login field. The user name must match an LDAP user entry. For more information about managing users, see Chapter 9, “Managing Users.”
2. Press the Tab key and type your password in the Password field.
3. Click Login to display your TransactionVision home page.

Enabling Automatic Login

You can enable automatic login to allow users to bypass the login step when they use the TransactionVision Web user interface. Automatic login s disabled by default. When it is enabled, the “Remember Login?” checkbox will appear on the login page. If it is checked, TransactionVision saves the user name and password in a cookie file so that you are not prompted to enter this information the next time you login on the same computer. Instead, you are automatically logged in with the saved user name and password, and the TransactionVision home page is displayed. Because login information is saved in a cookie file, cookies must be enabled in your browser. Note that the password is encrypted in the cookie file using the Java JCE interface.

Important! When automatic login is enabled, login information is only remembered if you close the TransactionVision browser window without clicking Logout. If you log out explicitly by clicking this button, login information is not saved.

To enable automatic login with a cookie file, perform the following steps:

1. Modify the following properties in the `<TVISION_HOME>/config/ui/UI.properties` file:

- `autologin`
  Set this property to **true** to enable automatic login or **false** to disable it.

- `jceProvider`
  Set this property to the name of the JCE provider library. The default is to use IBM JCE for encrypting/decrypting passwords. If you prefer to use the Sun JCE provider instead, set this property as follows:

  ```
  jceProvider=com.sun.crypto.provider.SunJCE
  ```

2. Restart the TransactionVision web user interface using your application server administration console.

Setting Session Timeout

The session timeout can be set through the administration console of your application server. In Weblogic, you can change the Session Timeout setting under the Configuration > Descriptor tab of your deployed application. In WebSphere you can set it on the Web Container > Session Management tab of your application server, or individually for an application in its Session Management section. For more details refer to the appropriate WebSphere or Weblogic documentation.

Multiple Sessions

When you open a new browser window from within a TransactionVision session (for example, by pressing <CTRL>+N), the new window is part of the same session. If you start a new instance of the browser and login to the TransactionVision web user interface, a new session is started. You may wish to use multiple sessions for reasons such as the following:

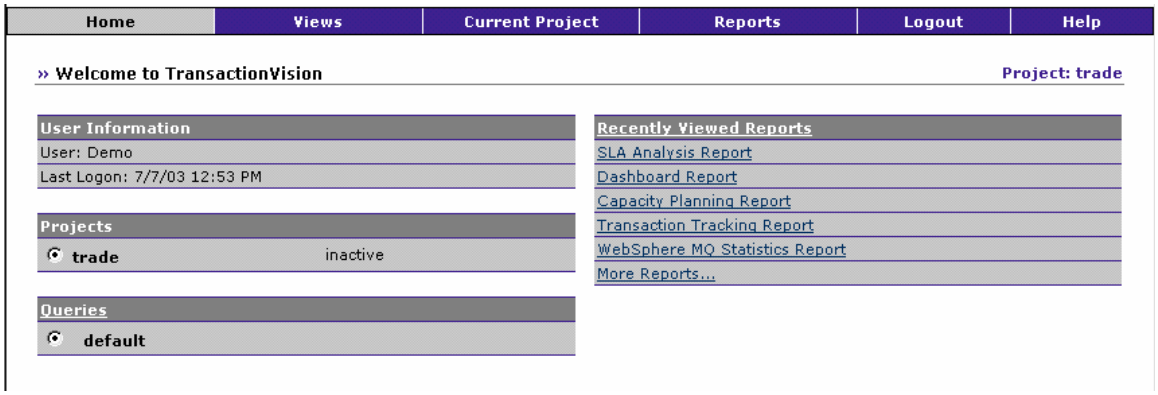
- You want to view and compare the results of two different queries for the same project. If you open a new window in the same session to do this, the new window reverts to the current query when it is refreshed.

- More than one user needs to login with the same user ID and password.

If you start an additional session from a different IP address than the current session, TransactionVision displays a warning that another user with the same user ID is logged in and that changes in your session and the other user’s session may overwrite each other. To continue with the session, click Yes. To cancel and login with a different user ID, click No.

The TransactionVision Home Page

When you login to TransactionVision, the TransactionVision home page is displayed.



» Welcome to TransactionVision

Project: trade

User Information
User: Demo
Last Logon: 7/7/03 12:53 PM

Projects
○ trade inactive

Queries
○ default

Recently Viewed Reports
SLA Analysis Report
Dashboard Report
Capacity Planning Report
Transaction Tracking Report
WebSphere MQ Statistics Report
More Reports...

Menus

All TransactionVision user and administrator operations can be performed by selecting the appropriate menu item. If a user does not have access to a menu hierarchy, it will not appear in the menu bar. The following menus are available:

Menu	Description
Home	Displays your TransactionVision home page.
Views	Provides access to the Component Topology Analysis, Transaction Analysis, and Event Analysis views. See the *TransactionVision User's Guide* for instructions on using these views.
Current Project	Provides project status information as well as information about scheduled jobs, communication links, data collection filters, and queries used by the project. For instructions on using queries, see the *TransactionVision User's Guide*. • For information about data collection filters, see Chapter 6, "Managing Data Collection Filters." • For information about communication links, see Chapter 5, "Managing Communication Links." • For more information about scheduled jobs, see Chapter 7, "Managing Scheduled Jobs."
Administration	Provides commands for managing projects, jobs, Analyzers, communication link templates, and database schemas. This menu is only visible if you have access rights to perform administrative operations. • For more information about user access rights, see Chapter 9, "Managing Users." • For more information about projects and database schemas, see Chapter 4, "Managing Projects." • For information about managing services, see Chapter 3,

Menu	Description
	"Managing Analyzers." • For information about communication link templates, see Chapter 5, "Managing Communication Links." • For more information about jobs, see Chapter 7, "Managing Scheduled Jobs."
Reports	Displays the Reports page, which provides links to all reports for which you have the correct access rights. For instructions on using the standard reports installed with TransactionVision, see the *TransactionVision User's Guide*. For information about creating custom reports, see the *TransactionVision Programmer's Guide*.
Logout	Ends your current TransactionVision session and displays the Login page.
Help	Provides access to online help, documentation, TransactionVision version information, and links to support information on Bristol's web site.

User Information

The User Information area lists the user name you are logged on as. It also lists the date and time of your last logon.

Projects

The Projects area lists all TransactionVision projects that you have access rights to use for analysis. For each project, the project name, status, and optional description is listed.

Click the radio button to the left of a project name to make it the active project for your session. When you display the Component Topology Analysis, Transaction Analysis, or Event Analysis views, the views are created with data from the active project.

Click the Projects link to display more detailed information about the active project.

Queries

The Queries area lists all available queries for the active project. For each query, the query name and optional description is listed.

Click the radio button to the left of a query name to make it the active query for your project. When you display the Component Topology Analysis, Transaction Analysis, or Event Analysis views, the views are created with data from the active project that meet the active query.

Click the Queries link to display more detailed information about available queries.

Recently Viewed Reports

The Recently Viewed Reports area lists TransactionVision the reports most recently viewed by the current user. Click a report name to access it. Click the Recently Viewed Reports link to display a list of all available and saved reports.

Using the TransactionVision Samples

To help you understand the types of transaction information you can track with TransactionVision, the TransactionVision installation provides two sample databases that you can import into TransactionVision:

- Trade is a sample based on a stock-trading system that processes a number of different classes of transactions.
- Account is a sample that has add, display, delete, and update commands to a CICS VSAM file through 3270 terminal input and query commands to the VSAM file from a transaction invoked by the WebSphere MQ-CICS bridge in response to WebSphere MQ messages on the bridge request queue.

Using the Trade Demo

TransactionVision provides a sample event database named Trade. You can use this demo to become familiar with the features and capabilities of TransactionVision.

The Trade demo database contains simulated statistics data spanning over two months. This simulated data is for demonstration purposes only.

The steps for importing the Trade demo data so that users can access it depend on whether you are using DB2 or Oracle as your DBMS.

Files Installed with the Trade Demo

File	Description
readme.txt	Readme file
trade_db2.zip	Zip file containing DB2 IXF import table archives.
trade_oracle.zip	Zip file containing Oracle table dump archive.
TradeTransaction.xdm	Trade demo XML database mapper transaction definition file.
TradeTransactionClass.xdm	Trade demo XML database mapper transaction class definition file.
create_user_trade.sql	Oracle SQL script to generate the user TRADE.

create_project_trade.sql	Oracle SQL script to insert the TRADE schema into the system table.
transactionclass.sql	Transaction class definition file for this demo (for reference only).

Importing Trade Demo Data for DB2:

Perform the following steps to import the trade data using DB2:

1. Copy all files from the `<cd root>/Demos/trade` directory to a location on your system's hard drive. Using a command prompt or terminal window, cd to this directory. All commands listed in subsequent steps should be run from this directory.
2. Unzip the demo database files from the `trade_db2.zip` archive. On Windows, use either the Windows Compressed Folder utility or WinZip. On UNIX platforms, use the command:

   ```
   unzip trade_db2.zip
   ```
3. Make sure that the database is ready for import (no active transactions).
4. Copy the following files to the `<TVISION_HOME>/config/xdm` directory:

- `<TVISION_HOME>/demos/trade/TradeTransaction.xdm`
- `<TVISION_HOME>/demos/trade/TradeTransactionClass. xdm`

5. Create the TRADE database schema tables. In the folder `<TVISION_HOME>/demos/trade/trade_ixf`, run the following command:

   ```
   $TVISION_HOME/bin/CreateSqlScript[.sh|.bat] -n -e -c
   -p TRADE
   ```
6. If you are using Windows, open a DB2 command window in either of the following ways:

- Choose the Start>All Programs>IBM DB2>Command Line Tools>Command Window menu selection.
- Run the command **`db2cmd`** from the Command Prompt.

   If you are using UNIX, make sure that your database environment is set up properly. This may require logging in under the appropriate database instance user ID. Contact your database administrator if assistance is required.

7. In a DB2 command window, connect to the TVISION database:

   ```
   db2 connect to TVISION
   ```

8. In a DB2 command window, run the following command to populate the transaction class table used by reports in the TRADE project:

   ```
   db2 -n -t -f $TVISION_HOME/demos/trade/
   transactionclass.sql
   ```

9. In the folder `<TVISION_HOME>/demos/trade/trade_ixf`, run the following command to generate the sql script to import the ixf files:

   ```
   $TVISION_HOME/bin/CreateSqlScript[.sh|.bat] -i -p
   TRADE
   ```

10. Remove the first two lines (shown below) from the `import_project_tables.sql` file:

    ```
    LOAD FROM RAW_EVENT.IXF OF IXF LOBS FROM .\ MODIFIED
    BY lobsinfile INSERT INTO TRADE.RAW_EVENT;
    ```

    ```
    RUNSTATS ON TABLE TRADE.RAW_EVENT AND INDEXES ALL;
    ```

11. Run the generated script with the following command to load the database with the Trade demo data:

    ```
    db2 -n -t -f import_project_tables.sql
    ```

    Important! Note that the import operation could take a long time to complete!

12. Using the TransactionVision user interface, create a project called trade (lowercase) with the schema TRADE:

- Choose Administration > Projects and click New Project...
- Specify the project name **trade** and click Next>.
- Use the existing database schema **TRADE**, uncheck Apply timeskew to collected events, and click Next>.
- It is not necessary to assign any Analyzer. Click Next>.
- Uncheck the deleteEvents and Transaction Statistics jobs, then click Next>.
- Click Finish.

13. Using the TransactionVision user interface, run the reports on the Reports page or browse the views to see the data in this project.

14. The folder containing the trade demo files copied from the CD is no longer needed and can be deleted.

15. If you want to continue collection using the TRADE schema, run the follwoing command to reset the database sequence:

    ```
    CreateSqlScript[.sh|.bat] -r -p TRADE
    ```

Importing Trade Demo Data for Oracle:

Perform the following steps to import the trade data using Oracle:

1. Copy all files from the `<cd root>/Demos/trade` directory to a location on your system's hard drive. Using a command prompt or terminal window, cd to this directory. All commands listed in subsequent steps should be run from this directory.
2. Unzip the demo database files from the `trade_oracle.zip` archive. On Windows, use either the Windows Compressed Folder utility or WinZip. On UNIX platforms, use the command:

   ```
   unzip trade_oracle.zip
   ```
3. Make sure that the database is ready for import (no active transactions).
4. Copy the following files to the `<TVISION_HOME>/config/xdm` directory:

- `<TVISION_HOME>/demos/trade/TradeTransaction.xdm`
- `<TVISION_HOME>/demos/trade/TradeTransactionClass. xdm`

5. If you are using Windows, open a SQL Plus command window by choosing the Start>All Programs>Oracle>Application Development>SQL Plus menu selection.

   If you are using UNIX, make sure that your database environment is set up properly. This may require logging in under the appropriate database user ID. Contact your database administrator if assistance is required.
6. Create the user TRADE:

   ```
   sqlplus create_user_trade.sql
   ```
7. Run the Oracle imp utility to import TRADE data. The following is a sample command:

   ```
   imp trade/trade file=trade_oracle.dmp fromuser=trade
   touser=trade
   ```
8. Insert the TRADE schema into the system table with the following command:

   ```
   sqlplus create_project_trade.sql
   ```
9. Using the TransactionVision user interface, create a project called trade (lowercase) with the schema TRADE:

- Choose Administration > Projects and click New Project...
- Specify the project name **trade** and click Next>.

- Use the existing database schema **TRADE**, uncheck Apply timeskew to collected events, and click Next>.
- It is not necessary to assign any Analyzer. Click Next>.
- Uncheck the deleteEvents and Transaction Statistics jobs, then click Next>.
- Click Finish.

10. Using the TransactionVision user interface, run the reports on the Reports page or browse the views to see the data in this project.
11. If you want to continue collection using the TRADE schema, reset the database sequence:

    ```
    <TVISION_HOME>/bin/CreateSqlScript[.sh|.bat] -n -e -d -p TRADE
    ```

12. The folder containing the trade demo files copied from the CD is no longer needed and can be deleted.

Trade Demo Cleanup

To drop the TRADE database schema, run the following command:

```
CreateSqlScript[.sh|.bat] -n -e -d -p TRADE
```

Using the Account Demo

In addition to the Trade demo, TransactionVision also provides a sample event database named Account.

Files Included with the Account Demo

File	Description
readme.txt	Readme file
account_db2.zip	Zip file containing DB2 IXF import table archives.
account_oracle.zip	Zip file containing Oracle table dump archive.
create_user_account.sql	Oracle SQL script to generate the user ACCOUNT.
create_project_account.sql	Oracle SQL script to insert the ACCOUNT schema into the system table.
transactionclass.sql	Transaction class definition file for this demo (for reference only).

The steps for importing the Account demo data so that users can access it depend on whether you are using DB2 or Oracle as your DBMS.

Importing Account Demo Data for DB2:

Perform the following steps to import the account data using DB2:

1. Copy all files from the `<cd root>/Demos/account` directory to a

location on your system's hard drive. Using a command prompt or terminal window, cd to this directory. All commands listed in subsequent steps should be run from this directory.

2. Unzip the demo database files from the `account_db2.zip` archive. On Windows, use either the Windows Compressed Folder utility or WinZip. On UNIX platforms, use the command:

   ```
   unzip account_db2.zip
   ```

3. Make sure that the database is ready for import (no active transactions).
4. Create the ACCOUNT database schema tables. In the folder `<TVISION_HOME>/demos/account/account_db2`, run the following command:

   ```
   $TVISION_HOME/bin/CreateSqlScript[.sh|.bat] -n -e -c
   -p ACCOUNT
   ```

5. If you are using Windows, open a DB2 command window in either of the following ways:

- Choose the Start>All Programs>IBM DB2>Command Line Tools>Command Window menu selection.
- Run the command **`db2cmd`** from the Command Prompt.

   If you are using UNIX, make sure that your database environment is set up properly. This may require logging in under the appropriate database instance user ID. Contact your database administrator if assistance is required.

6. In a DB2 command window, connect to the TVISION database:

   ```
   db2 connect to TVISION
   ```

7. In the folder `<TVISION_HOME>/demos/account/accounting_db2`, run the following command to generate the sql script to import the ixf files:

   ```
   $TVISION_HOME/bin/CreateSqlScript[.sh|.bat] -i -noLob
   -p ACCOUNT
   ```

8. Run the generated script with the following command to load the database with the Account demo data:

   ```
   db2 -n -t -f import_project_tables.sql
   ```

   Important! Note that the import operation could take a long time to complete!

9. Using the TransactionVision user interface, create a project called **account** (lowercase) with the schema **ACCOUNT**:

- Choose Administration > Projects and click New Project...

- Specify the project name **account** and click Next>.
- Use the existing database schema **ACCOUNT**, uncheck Apply timeskew to collected events, and click Next>.
- It is not necessary to assign any Analyzer. Click Next>.
- Uncheck the deleteEvents job, check the Transaction Statistics job, and click Next>.
- Click Finish.

10. Using the TransactionVision user interface, run the reports on the Reports page or browse the views to see the data in this project.
11. The folder containing the Account Demo files copied from the CD is no longer needed and can be deleted.
12. If you want to continue collection using the ACCOUNT schema, run the follwoing command to reset the database sequence:

```
CreateSqlScript[.sh|.bat] -r -p ACCOUNT
```

Importing Account Demo Data for Oracle:

Perform the following steps to import the account data using Oracle:

1. Copy all files from the `<cd root>/Demos/account` directory to a location on your system's hard drive. Using a command prompt or terminal window, cd to this directory. All commands listed in subsequent steps should be run from this directory.
2. Unzip the demo database files from the `account_oracle.zip` archive. On Windows, use either the Windows Compressed Folder utility or WinZip. On UNIX platforms, use the command:

```
unzip account_oracle.zip
```

3. Make sure that the database is ready for import (no active transactions).
4. If you are using Windows, open a SQL Plus command window by choosing the Start>All Programs>Oracle>Application Development>SQL Plus menu selection.

   If you are using UNIX, make sure that your database environment is set up properly. This may require logging in under the appropriate database user ID. Contact your database administrator if assistance is required.
5. Create the user ACCOUNT:

```
sqlplus create_user_account.sql
```

6. Run the Oracle imp utility to import ACCOUNT data. The following is a sample command:

```
imp account/account file=account_oracle.dmp
fromuser=account touser=account
```

7. Insert the ACCOUNT schema into the system table with the following command:

   ```
   sqlplus create_project_account.sql
   ```

8. Using the TransactionVision user interface, create a project called account (lowercase) with the schema ACCOUNT:

- Choose Administration > Projects and click New Project...
- Specify the project name **account** and click Next>.
- Use the existing database schema **ACCOUNT**, uncheck Apply timeskew to collected events, and click Next>.
- It is not necessary to assign any Analyzer. Click Next>.
- Uncheck the deleteEvents and Transaction Statistics jobs, and click Next>.
- Click Finish.

9. Using the TransactionVision user interface, run the reports on the Reports page or browse the views to see the data in this project.
10. If you want to continue collection using the ACCOUNT schema, reset the database sequence:

    ```
    <TVISION_HOME>/bin/CreateSqlScript[.sh|.bat] -n -e -d -p ACCOUNT
    ```

11. The folder containing the Account Demo files copied from the CD is no longer needed and can be deleted.

Account Demo Cleanup

To drop the ACCOUNT database schema, run the following command:

```
CreateSqlScript[.sh|.bat] -n -e -d -p ACCOUNT
```

Additional TransactionVision Resources

Documentation Roadmap

This guide provides instructions for managing user accounts and communication links, configuring projects and data collection filters, and managing services and schemas. In addition to this guide, the following documents are provided with TransactionVision:

- The *TransactionVision Planning Guide* provides information to help you plan the TransactionVision implementation in your environment.

- The *TransactionVisionWeb Application Installation and Configuration Guide* provides instructions for installing and configuring the TransactionVision web user interface. This file is also available from the TransactionVision Help menu.
- The *TransactionVision Sensor Installation and Configuration Guide* provides instructions for installing and configuring TransactionVision Sensors. This file is also available from the TransactionVision Help menu.
- The *TransactionVision Analyzer Installation and Configuration Guide* provides instructions for installing and configuring the Analyzer, as well as configuring your database to work with TransactionVision. This file is also available from the TransactionVision Help menu.
- The *TransactionVision User's Guide* provides instructions using TransactionVision analysis views. This file is also available from the TransactionVision Help menu.
- The *TransactionVision Programmer's Guide* provides information for creating custom beans and reports for use with TransactionVision.
- The *TransactionVision Security Guide* provides an overview of the security features and setup procedures of TransactionVision. These features and procedures ensure that data collected by TransactionVision is secure and accessible to the appropriate people.

Contacting Bristol Support

If you encounter a problem installing or configuring TransactionVision, contact Bristol Support by any of the following methods:

- TransactionVision: Choose the Help > Bristol Support menu item. From the submenu, you may open the Bristol Support home page, open the TransactionVision knowledgebase, or open a problem report form.
- Web: http://www.bristol.com/support
- Email: support@bristol.com
- Phone: **203-798-1007** Press 3

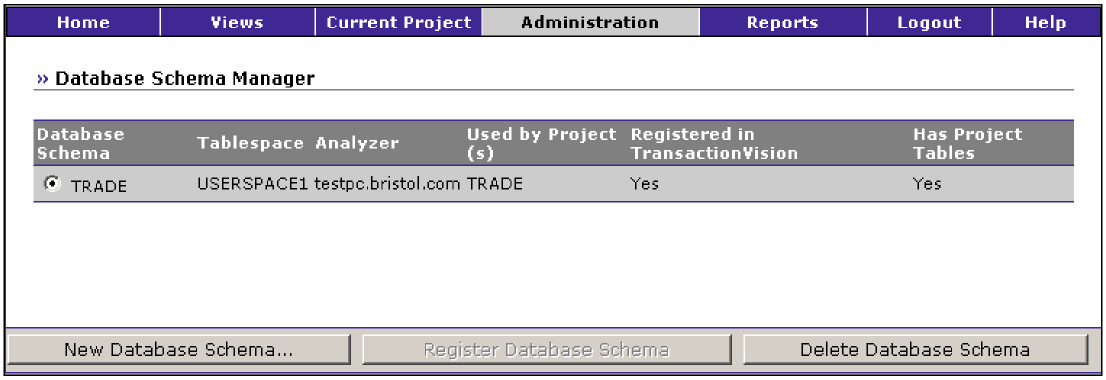
Chapter 2
Managing Database Schemas

When the Analyzer processes event data collected by Sensors, it stores the results in database schemas assigned to TransactionVision projects.

Only users with access to the Administration menu may manage database schemas. See Chapter 9, “Managing Users,” for information about permissions.

View All Database Schemas

To display the Database Schema Manager, choose the Administration > Database Schemas menu item.



» Database Schema Manager

Database Schema	Tablespace	Analyzer	Used by Project (s)	Registered in TransactionVision	Has Project Tables
● TRADE	USERSPACE1	testpc.bristol.com	TRADE	Yes	Yes

This page provides the following information for each schema available in your environment:

- The schema name
- The database tablespace associated with the schema
- The host name and IP address of the Analyzer host that is assigned to the schema. Analyzer hosts are assigned to the schema by the Project wizard or the Update Analyzer page.

- The names of any projects the schema is assigned to. Schemas are assigned to projects by the Project wizard.
- Whether the schema has been registered in TransactionVision. A schema is registered in TransactionVision when any project uses the schema. However, if all projects using the schema are deleted, it is still registered in TransactionVision.
- Whether TransactionVision project tables have been created.

In general, when a project is created using the TransactionVision web user interface, the “Registered in TransactionVision” and “Has Project Tables” columns will have the value Yes. However, if a database administrator creates or manages schemas/tables using database tools (instead of the TransactionVision web user interface), a scenario may occur where the project tables exist, but not the corresponding entries in the administration tables of the TransactionVision web user interface.

Similarly, a schema and its tables might be deleted using external database tools, but a project might still use the schema. In that case, this page provides the status of these schemas in relation to TransactionVision projects and allows you to fix any errors.

New Database Schema...

To create a new schema, click New Database Schema.... The Create a New Database Schema page appears. You may also create a new schema when you create a project with the Project wizard. See “Create a New Database Schema” for information on creating a schema.

Register Database Schema

To register an unregistered schema, click the radio button next to the schema name to select it and click Register Database Schema.

Create Tables

To create tables for a schema that does not have project tables, click the radio button next to the schema name to select it and click Create Tables.

Delete Database Schema

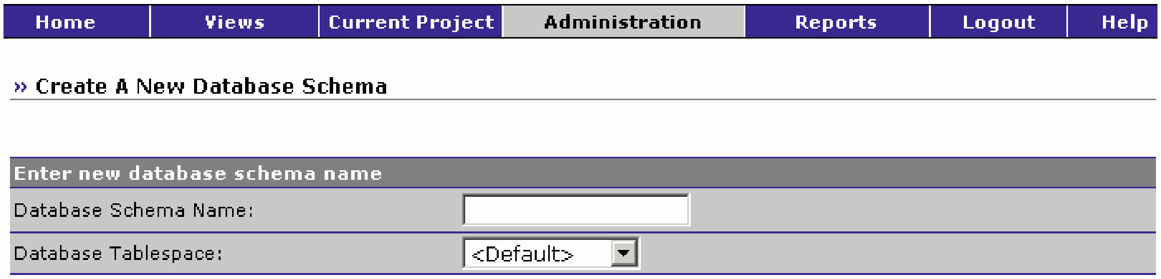
To delete a schema, click the radio button next to the schema name to select it and click Delete Database Schema.

Important! Deleting a database schema permanently erases all event data in projects associated with the database schema. This data is not recoverable, so use this command with caution. You may not delete a schema if an Analyzer is assigned to it.

You will be prompted to confirm the deletion; click Yes to proceed.

Create a New Database Schema

Each project must be assigned one database schema. To create a new database schema, click New Database Schema... on the Database Schema Manager page.



» Create A New Database Schema

Enter new database schema name	
Database Schema Name:	
Database Tablespace:	<Default>

Enter the name of the new database schema. The schema name may contain only alphanumeric characters and the underscore character. It must begin with an alphabetical character.

Select the database tablespace to use for the schema from the list of available tablespaces. The default tablespace is the tablespace specified when TransactionVision was configured with **`TVisionSetupInfo`**.

Cli Finish. The new database schema is registered in TransactionVision and all TransactionVision related tables are created.

Chapter 3
Managing Analyzers

TransactionVision uses the Analyzer service to perform the following tasks:

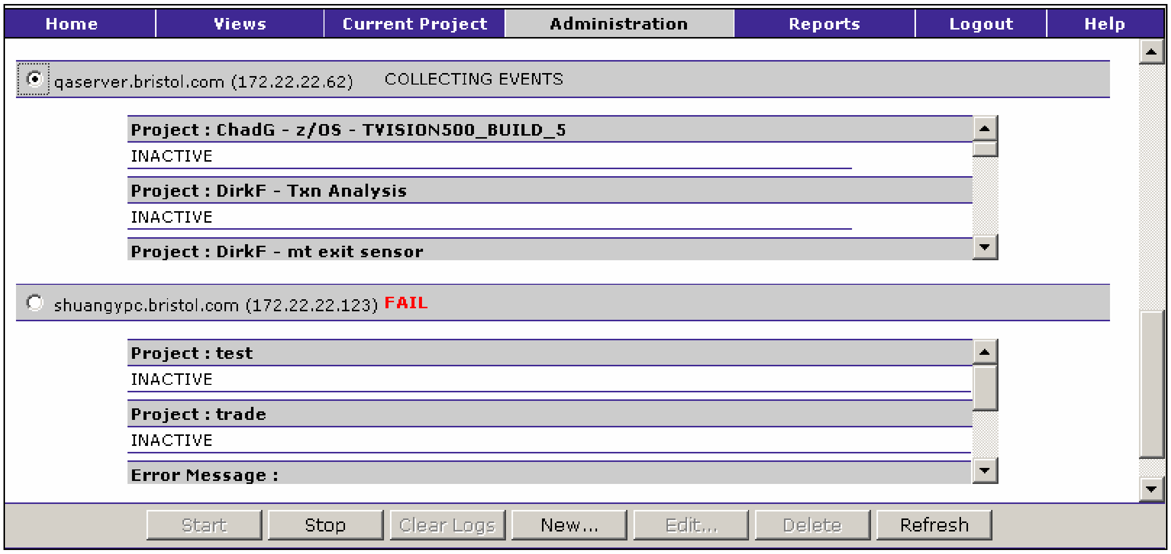
- Send configuration messages to Sensors and collect event messages from Sensors
- Process events from the Sensor, correlate them into transactions, and store them in the project schema.

The Analyzer uses an embedded RMI registry so that Analyzers may be controlled by the TransactionVision web user interface running on remote hosts.

Only users with required permissions may manage services. See Chapter 9, “Managing Users,” for information about permissions.

View All Analyzer Hosts

An Analyzer host is a host running the Analyzer service. To view the Analyzers page, choose the Administration > Analyzers menu item.



● qaserver.bristol.com (172.22.22.62) COLLECTING EVENTS

Project : ChadG - z/OS - TVISION500_BUILD_5
INACTIVE

Project : DirkF - Txn Analysis
INACTIVE

Project : DirkF - mt exit sensor

○ shuangypc.bristol.com (172.22.22.123) FAIL

Project : test
INACTIVE

Project : trade
INACTIVE

Error Message :

This page displays the following information about each Analyzer available in your environment:

- The host name and IP address of the host on which the TransactionVision Analyzer component is installed.
- The Analyzer status. The following table describes possible status values:

Status	Description
COLLECTING EVENTS	The Analyzer is started and collecting events.
FAIL	TransactionVision cannot connect to the Analyzer; an error message is provided.
RECOVERY	The Analyzer is performing statistics recovery. This can happen when the Analyzer has been stopped abnormally (for example, the process has been killed), and not all event statistics have been flushed to disk. In this case the Analyzer will reprocess the last events to get the statistics up-to-date before it starts the normal processing.
QUIESCING	The Analyzer is shutting down all collection threads in response to a stop command. Once all collection threads are shut down, the status changes to NOT COLLECTING EVENTS.
NOT COLLECTING EVENTS	The Analyzer has been stopped and is not collecting events.

Status	Description
SENSOR COLLECTING EVENTS ONLY	The Analyzer has been stopped or has exited without sending stop configuration messages to the Sensors. Sensors will continue to produce events, which will collect on the event queue until the Analyzer and project are started again.

- The name and status of each project that the Analyzer is assigned to.
- If the status is COLLECTING EVENTS, the following details for each communication link for each active project:
- Communication link name
- Number of configuration messages sent since the Analyzer was started or refreshed
- Number of events collected on the communication link
- Number of event packages sent on the communication link
- Amount of time skew across the communication link

Start/Stop

To begin collecting events on an Analyzer host, click the radio button next to the host name to select it and click Start. The Analyzer connects to assigned communication links and starts collecting events from the event queues. The status changes to COLLECTING EVENTS and details about event collection are displayed for each communication link for each active project.

If the RECOVERY status is displayed, the Analyzer is performing statistics recovery. This can happen when the Analyzer has been stopped abnormally (for example, the process has been killed), and not all event statistics have been flushed to disk. In this case the Analyzer will reprocess the last events to get the statistics up-to-date before it starts the normal processing.

To stop collecting events from communication link event queues on an Analyzer host, click the radio button next to the host name to select it and click Stop. The Analyzer shuts down all collection threads without waiting for them to clean out events in the event queue. While the Analyzer is shutting down all the threads, its status is set to QUIESCING. Once all collection threads are shut down, the status changes to NOT COLLECTING EVENTS.

Important! If an Analyzer ends abnormally, there may be XML events in the database that have not been processed for transaction analysis yet. When the Analyzer is started, it scans the event table for unprocessed events and recovers the statistics cache. To recover events for analysis, put failed events from the exception message queue back to the event queue with the ManageQueue utility. For more information about this utility, see Appendix A.

Clear Logs

To clear Analyzer log messages from the display, click Clear Logs.

New...

To add a new Analyzer host to your environment, click New.... The Create Analyzer page appears. See “Create or Edit an Analyzer Host” for information on adding a new Analyzer host.

Edit...

To change the Analyzer configuration settings for a host, click the radio button next to the host name to select it and click Edit.... The Update Analyzer page appears. See “Create or Edit an Analyzer Host” for information on modifying settings for an Analyzer host. If the Analyzer is collecting events, the Edit... button is disabled; click Stop to stop the Analyzer to edit it.

Delete

To remove an Analyzer host from your environment, click the radio button next to the host name to select it and click Delete. You may only delete an Analyzer host if no projects are assigned to it. You will be prompted to confirm the deletion; click Yes to proceed.

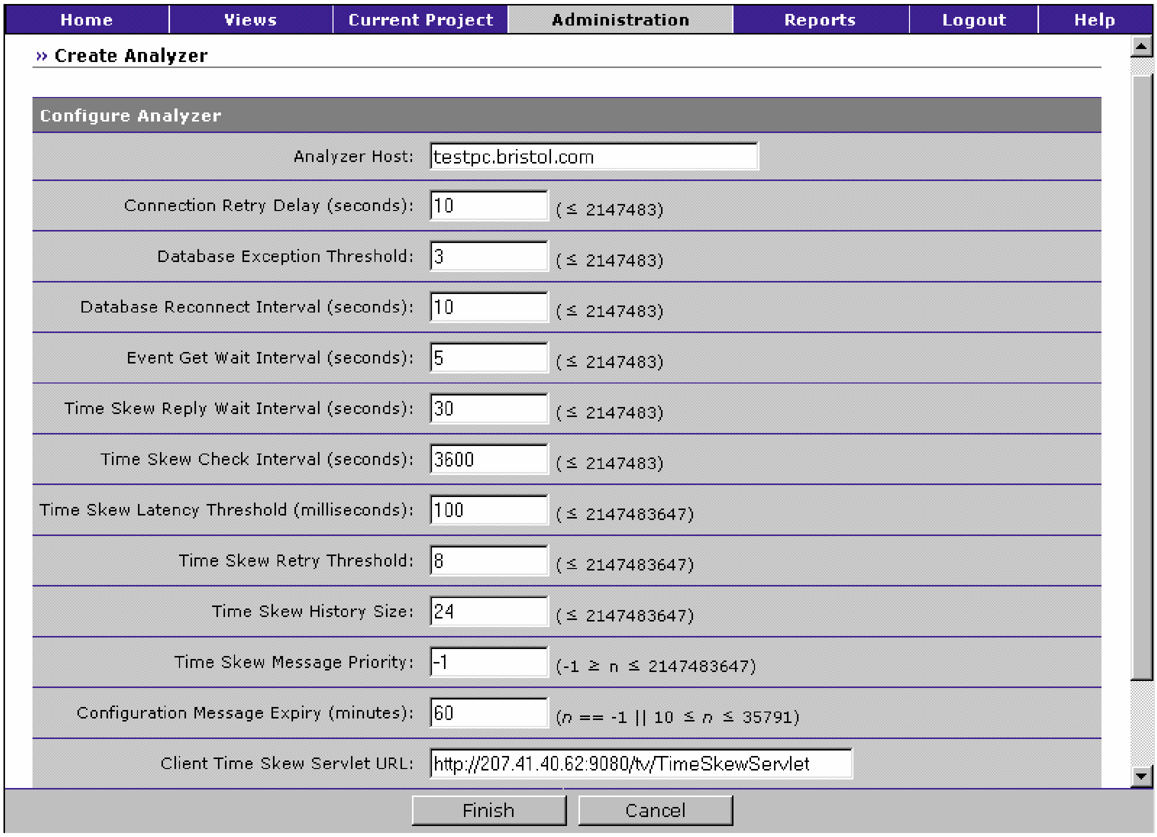
Refresh

To update the view to reflect any changes since it was created, click Refresh.

Create or Edit an Analyzer Host

Create an Analyzer host to identify a host running the Analyzer service. You must create an Analyzer host to assign communication links for a TransactionVision project to it. Once an Analyzer host is created, you may modify settings.

You may access the Create Analyzer page from the Analyzers page or Project wizard. You may access the Update Analyzer page from the Analyzers page.



» Create Analyzer

Configure Analyzer

Analyzer Host:	testpc.bristol.com	
Connection Retry Delay (seconds):	10	(≤ 2147483)
Database Exception Threshold:	3	(≤ 2147483)
Database Reconnect Interval (seconds):	10	(≤ 2147483)
Event Get Wait Interval (seconds):	5	(≤ 2147483)
Time Skew Reply Wait Interval (seconds):	30	(≤ 2147483)
Time Skew Check Interval (seconds):	3600	(≤ 2147483)
Time Skew Latency Threshold (milliseconds):	100	(≤ 2147483647)
Time Skew Retry Threshold:	8	(≤ 2147483647)
Time Skew History Size:	24	(≤ 2147483647)
Time Skew Message Priority:	-1	(-1 ≥ n ≤ 2147483647)
Configuration Message Expiry (minutes):	60	(*n* == -1 || 10 ≤ *n* ≤ 35791)
Client Time Skew Servlet URL:	http://207.41.40.62:9080/tv/TimeSkewServlet	

To create or update an Analyzer host, complete the following fields and click Finish. If applicable, the valid value range is shown to the right of each field.

Field	**Description**
Analyzer Host	Enter the name of the host to add (for example, host1.bristol.com). The Analyzer service component must be installed on this host. Only one instance of the Analyzer may run on a given host; however, it can handle multiple projects.
Connection Retry Delay	Specify the number of seconds to wait between attempts to connect to the queue manager for the communication link event queue. The default is 10 seconds.
Database Exception Threshold	Specify the number of exceptions from the database to accept in the event collection threads before attempting to reconnect to the database.
Database Reconnect Interval	Specify the time in seconds to wait between tries to connect to the database. This value is used if the first attempt to connect to the database fails. The default is 10 seconds.
Event Get Wait Interval	Specify the number of seconds to wait for an event message. Increasing this number slows down the Analyzer response to commands. The default is 5 seconds.

Field	Description
Time Skew Reply Wait Interval	Specify the number of seconds to wait for the message sent to determine the time skew across a communication link. The default is 30 seconds. If no response is received in this time, the time skew is disregarded.
Time Skew Check Interval	Specify the number of seconds between sending messages to check determine the time skew across the communication link. The default is 3600 seconds (one hour). At each specified interval, the Analyzer takes time skew samplings across the communication links and, if it is running on a different server, the TransactionVision application server.
Time Skew Latency Threshold	Specify the amount of time in milliseconds to accept when sampling time skews. The default value is 100 milliseconds. If more than the specified time passes when waiting for a time skew reply, another time skew sampling is taken in hopes it will have a lower latency. Any time skew samples that surpass the threshold are still kept in the time skew history because it is possible no samplings will ever be under the suggested latency threshold. This threshold affects time skew sampling across communication links and to the application server.
Time Skew Retry Threshold	Specify the maximum number of time skew samples to take at a single time skew check interval. At each time skew check interval, TransactionVision will continue to retry up to this number of times if the sampling surpasses the time skew latency threshold. The default number of retries is 8.
Time Skew History Size	Specify the number of previous time skew samplings to consider for the best time skew to use. The default is 24. Having a larger history size improves the chance of finding a time skew with smaller latency, but it also increases the chance of picking a time skew that may have occurred long ago to represent a time skew that may be more off due to clock drifting. A history size of 0 causes the time skew that was taken with the smallest latency to be used. This time skew is not discarded until a new time skew with equal or less latency is taken. Using this value disregards clock drift, which occurs frequently.
Time Skew Message Priority	Specify the WebSphere MQ Message Priority on the Confirmation of Arrival (COA) time skew messages. The default value is -1, which causes the default priority to be used. Since configuration and event messages use the

Field	Description
	default priority, it is a good idea to set this value at a value higher than the default. Setting a higher value ensures that time skew messages travel through channels faster than other messages that may be backed up on transmission queues. Therefore, latency times when sampling time skews is reduced and results are more accurate. This value must not exceed the MaxPriority attributes of the queue managers.
Configuration Message Expiry	Specify the expiration time in minutes of configuration messages sent from the Analyzer to the Sensors. When this value is set, configuration messages are sent two minutes before the old configuration message will expire. Setting an expiration time limits how long Sensors will continue to report events if the Analyzer is stopped in a non-proper fashion. When the configuration messages expire, Sensors stop reporting events. Set the Configuration Message Expiry to a value small enough so that the amount of events generated by an “orphaned” configuration message can fit into the event queues without causing major production issues. Specify value of -1 if you do **not** want configuration messages to expire. The Analyzer only sends configuration messages if filter criteria change, it has been told to start or stop, or a communication link is changed. For guidance on setting this value, see “Configuration Message Expiry” following this table.
Client Time Skew Servlet URL	Specify the URL of the servlet used by the Analyzer to determine the time skew between the Analyzer host and the host running the TransactionVision application server. This servlet is installed at the default URL when the TransactionVision web user interface is installed.
Analyzer port	Enter the port number where the Analyzer listens for RMI calls. The default value is 1099. If this system is changed on the server so that the Analyzer listens for RMI calls on another port, you must specify the correct port number.
Database Schema	Check the box for each database schema you wish to assign to the Analyzer. The Analyzer will be automatically assigned to all projects that use selected database schemas. You may only select project schemas that are not currently assigned to an Analyzer host. This field is available when editing an Analyzer, but not when creating a new Analyzer.

Configuration Message Expiry

The Analyzer depends on a database connection in order to maintain its configuration messages, which tell Sensors wether to collect events or not. When the database used by TransactionVision is shutdown, particularly for extended periods of time, configuration message expiry settings can affect how your Analyzer and Sensors perform. There are two ways the configuration message expiry can effect your collection of events:

- The configuration message expiry controls how long Sensors remain active after the database shuts down. If the database is down, the Analyzer will not be able to generate new configuration messages; after the time specified in the configuration message expiry settings, Sensors will automatically be disabled.
- The configuration message expiry setting also controls how often the Analyzer will attempt to re-establish communication and send out a new configuration message. It will be at most *configuration message expiry setting* minutes after the database is restarted that Sensors will be re-enabled.

Reasons for a High Configuration Message Expiry

If it is critical that your Sensors do not miss collecting any events, even those that occur while the database is down, you would want to set your configuration expiry to a high value. This means that Sensors would continue to collect for this long after the Analyzer Goes Inactive, And Place Their Messages In The Message Queue. When The Analyzer finally reconnects, it will process all the backed up messages on the queues.

Important! If the database were to be down for a long time, events would keep being backed up on the queues since they would never be processed. Make sure you have the necessary system resources set to be able to handle the backed up events if you have a high event volume, expect the database to be down for extended periods, and want to ensure that all events are saved during this period.

Reasons for a Low Configuration Message Expiry

On the other hand, if keeping all generated events during database downtime is not important, you could set your configuration expiry to a shorter value. In this way, Sensors will stop collecting after the specified time period, and be disabled until the Analyzer is able to reconnect and send out a new message. This would prevent unnecessary events from backing up while the analyzer is unable to process them.

To force the Analyzer to immediately resend a configuration message after the database has been shutdown, simply stop and restart the project.

Configure the Analyzer

Analyzer configuration information is stored in the `<TVISION_HOME>/config/ services/Analyzer.properties` file. For more information about this file, see the *TransactionVision Analyzer Installation and Configuration Guide*.

Stopping and Restarting the Analyzer Process

To completely stop the Analyzer process on Windows, you can either run the **`ServicesManager`** script with the `-exit` flag, or you can stop the Analyzer through the standard Windows Services administration control panel. On UNIX, you must use the **`ServicesManager`** script with the `-exit` flag.

Important! There is also a -killserver flag to stop the Analyzer; however, it is not the recommended way of shutting down the Analyzer and should only be used if you need to quickly abort the Analyzer and the -exit option did not work. Using the -killserver flag will cause the Analyzer to exit without writing out its cache to disk, causing it to enter recovery mode upon restarting.

To restart the Analyzer, simply use the **`ServicesManager`** script with the `-start` option. On Windows, you can also start it with the Service control panel. When the Analyzer is started, it will automatically continue with collection on any projects that are in the active state.

Failure Mode

The Analyzer can process events in a new special mode called Failure Mode. In this mode, the Analyzer will only store event data of *failed* business transactions (or transactions violating SLA). For successful business transactions, only the corresponding business transaction rows will be saved. Since this mode relies heavily on a meaningful value of the 'result' attribute of the business transaction, it requires a transaction classification with suitable rules for the 'result' column to be in place. The failure mode can be enabled on a per-project basis, allowing to run certain projects in failure mode while running others in the conventional Standard Mode.

The main goal of the Analyzer Failure Mode is to reduce the data storage requirement for a project. In a system that only carries a few percent of failed transactions, the Failure Mode can significantly reduce the amount of data that gets stored into the database. In addition, on less powerful database storage systems the reduced workload on the database level can also increase the performance of the Analyzer by up to 50 %. The advantages of the Failure Mode comes at a price though: since all event data is only kept in memory, recovery from a system crash or processing errors is not possible.

A typical use case for the Failure Mode is for high-volume systems with short-lived transactions where statistics collection and failure alerting is the primary requirement.

Enabling Failure Mode

To enable Failure Mode processing in the Analyzer, set the property `enable_failure_mode=on` in the <TVISION_HOME>/config/services/Analyzer.properties configuration file. By default, only the Standard Mode (`enable_dbcaching=on`) is enabled. In case all of your projects only use Failure Mode, the Standard Mode can be disabled to save some system resources.

Once the Failure Mode has been enabled in the Analyzer, one or more projects can be configured to use the new processing mode. This can either be done at project creation time by selecting "*Only save events of failed transactions"* in the project creation wizard or by editing an existing project and checking the same option in the project edit page. For more information on creating or editing a project, see Chapter 4, "Managing Projects."

It is possible to switch the Analyzer processing mode *while* the Analyzer is running – once the mode is set and the Analyzer starts processing new events, those events will get processed using the new processing mode.

How Failure Mode Works

When the Analyzer is processing a transaction in Failure Mode, all event, correlation and local transaction data is kept in memory until the transaction result is known. While the Standard Mode flushes *all* data continuously to the database, the Failure Mode only writes the business transaction data (table BUSINESS_TRANSACTION and custom XDM transaction tables) for all incoming events to the database. The remaining data (event XML, user data, correlation and local transaction data) is stored in memory caches until either:

- The transaction result is set to SUCCESS by matching classification rules, in which case all data for this transaction kept in memory will get discarded (except the business transaction data itself, which has already been flushed in the same way as in Standard Mode). Further events for this transaction will get discarded as well.
- The transaction result is set to FAILED by the classification rule engine, in which case all data of this transaction will get flushed to

the database. Further events for this transaction will get stored as well.

- The transaction violates a predefined SLA set for its class. The response time of a transaction is continuously monitored and transaction data is flushed to the database if this response times exceeds an SLA time value set in the business transaction table.
- The transaction result has still not been set even after a certain configurable time has passed, in which case the transaction is also considered to be *"aged out"*, and all data will get flushed to the database. The SLA status column of the transaction (explained below) will be set to "Aged Out". In case an event will be processed later which marks the transaction as "successful", the SLA status will get reset and the transaction will get treated in the same way as a successful transaction - all further events will get discarded.

Since the memory caches are limited in size, it is vital for the efficiency of the Failure Mode that the caches are cleared as quickly as new events are entering the Analyzer and being processed. A high system load, too small cache sizes, or keeping event data too long in the caches can all lead to cache overflows (indicated by a "FailureModeCacheOverflow" warning in the analyzer.log file). When this happens, the entire cache contents will be written to the database slowing down the Analyzer event processing rate.

The timeout after which a transaction is considered to "age out" is dynamically computed from the sum of the transaction class SLA plus a configurable "process delay" value which is defined in Analyzer.properties file. This value specifies the maximum time the processing of any event can be 'delayed' within the Analyzer in respect to other events of the same transaction. There is a certain amount of lag between the time events in a transaction are generated at the sensor and the time events for a transaction are completely processed by the Analyzer. This lag is due to the effects of queuing in the WebSphere MQ infrastructure, event batching, multithreading, and context switches by the OS. So if for e.g. the transaction class SLA is defined as 5 seconds, and the "process_delay" is set to 10 seconds, any transaction whose result has not been determined 15 seconds after the first event has been processed will be aged out.

Successful transactions will still appear together with their attribute values on the Transaction Tracking Report in the GUI application, but it won't be possible any more to navigate to any other views or drill down to the event level, since all this data has not been written to the database. But for failed and aged out transactions all data is available, and the report will offer the same functionality as if those transactions had been processed in Standard Mode.

SLA violations

In addition to the two scenarios mentioned above (failed and aged out), the Failure Mode can also be configured to write all event data in case a transaction violated the defined SLA for its class. In order to allow SLA violation tracking, the following section has to be enabled in Beans.xml:

```
<Module name="LogSLAViolationCtx" type="Context">
   <Module
class="com.bristol.tvision.services.analysis.eventanalysis.
LogSLAViolationBean" type="Bean">
      <Attribute name="WriteTxn" value="true"/>
   </Module>
</Module>
```

When the context is enabled, the response time of each transaction is continuously monitored against the SLA value defined for its class, and the status is stored in the "sla_status" column of the business transaction. If the response time exceeds the SLA, a value of 1 (=Violated) will be stored, otherwise a value of 0 (=None). For transactions which age out during the analysis process (as mentioned above), a value of 2 (=AgedOut) will be stored into the column. When the attribute "WriteTxn" is set to true, transactions violating the SLA will be treated like failed transactions, and their event data will be stored in the database.

Tuning Considerations

As mentioned previously, the Failure Mode only works efficiently if the Analyzer is able to clear out the memory caches as quickly as new data is coming in. If a cache overflow occurs, the system will considerably slow down since all the data has to be written to the database. A system with frequent cache overflows will not perform as expected.

The ability of the Analyzer to keep the caches from overflowing is determined by multiple factors:

- The rate of which new events are coming into the system,
- The database performance,
- The configured size of the caches,
- The time an open transaction is kept in the system (determined by SLA + process delay).

The Analyzer Failure Mode is intended for systems with *short* living transactions, with SLA values in the range of seconds. As the SLA values get bigger, the transactions need to be kept in the caches much longer, and more data can accumulate in the caches. Such a system can still work properly - if the cache sizes are large enough, or if the load on the system is small enough.

There are certain issues with the Failure Mode one has to be aware of. First of all, since all event data is initially only kept in memory, this mode does not offer any recoverability. If an Analyzer crash, database error, or general system failure occurs, the data in the caches will be lost. In standard processing mode, the XML event will always be written to the database, so that in case of such a failure the missing analysis data can be recovered. In Failure Mode, the XML event data might have not been written to the database, so there is nothing to recover from.

Another issue arises when events for a successful transaction are being processed (or even entering the system) *after* the data for the transaction has been discarded from the caches. If these events contain an event which will increase the response time of the transaction beyond the SLA value, and if writing of SLA violations is enabled, then this transaction will only have partial data stored in the database, because previous event data has already been discarded. Note that this issue will *not* occur if the transaction classification contains time rules, since successful transaction will not be removed from the cache until the time rules have fired.

The second case in which late events can cause a problem occurs when the event is being processed so late that the correlation data for the corresponding transaction has already been pushed out of the lookup caches (which are, like the write caches, also limited in size). In this case, an event might not get correlated into the existing business transaction, and a new transaction will be created instead. Increasing the size of the caches (event_based) could remedy the problem, but it might also be an indicator that the Failure Mode is not well suited for this kind of transactions.

Advanced Configuration

If Failure Mode is used, it will usually be necessary to increase the cache sizes defined in CacheSizes.properties. We recommend to increase the sizes at least to twice of the size used in the standard processing mode.

The following other configuration parameters can be changed in Analyzer.properties :

- failure_mode_thread_count
- failure_mode_process_delay
- failure_mode_discard_overflow

failure_mode_thread_count:

Defines the number of flushing threads to use for Failure Mode. This number should be set high enough so that the cache data can be flushed fast enough, but low enough to not waste too many system resources. The default value is 2.

failure_mode_process_delay:

Defines the amount of time, in milli-seconds, which gets added to the SLA value for determining the age out timeout and is a crucial value for the Failure Mode. If this value is set too low, a lot of successful transaction data will unnecessarily age out and be written to the database, which will result in poorer performance, and wasted database disk space. If this value is set too high, too much data will be held in the memory caches. If the cache sizes are not large enough for the system load, cache overflows will occur frequently and lead to very poor performance The default value is 5 seconds.

failure_mode_discard_overflow:

In case of a cache overflow all the data in the caches will normally be written to the database. If the overflow was caused, for whichever reason, by a longer lasting system slowdown, the constant flushing of the cache could further worsen the situation and slow down the Analyzer even more. If the main concern is to avoid any chance of filling up the event queue in such situations, you can set the above parameter to true and force the discarding of all cache data in case of an overflow. The default value is on.

The *diagnostic status* output of the Analyzer can assist in finding appropriate configuration values for the Failure Mode. Here are the steps how to get a meaningful status :

1. Set detail=on in the file <TVISION_HOME>/config/services/Performance.properties
2. Enable Failure Mode in Analyzer.properties, and change the processing mode of the project in the GUI
3. Run the project in Failure Mode for a sufficient amount of time on typical data
4. Run ServicesManager –diagstatus
5. Look for the section beginning with “FailureMode Cache Manager statistics for schema …”

A sample output will look like the following:

```
FailureMode Cache Manager statistics for schema TEST

[…]

Number of forced flushes:           0

FailureMode FlushThread#0: last flush: 4 rows 0 ms
   current flush time = 0 ms
   total flush cycles: 213
   cycles skipped: 3
   max scan depth: 0
```

```
FailureMode FlushThread#1: last flush: 0 rows 0 ms
   current flush time = 0 ms
   total flush cycles: 309
   cycles skipped: 309
   max scan depth: 0

Max txn processing time in schema TEST: 16188 ms (business
txn 858)
Avg txn processing time in schema TEST: 4842 ms
Number of txns (success/failed/agedOut) :  0/129/6
Number of overflow cache writes in schema TEST: 0
```

The values of interest are:

- *Number of forced flushes*: This is the number of times the Analyzer processing had to wait for the caches to be flushed to disk. If there are no forced flushes, the event processing and data flush happen mostly asynchronously with maximum performance. If the number of forced flushes is high, the processing threads have to suspend the analysis process until the flushing threads have emptied the caches often, which will result in poor Analyzer performance. To minimize forced flushes, increase the number of flushing threads, or the size of the caches.
- *Total flush cycles / cycles skipped*: The ratio of both numbers gives an indication how well utilized the flushing threads are. If the number of cycles skipped is very close to the total number of flush cycles, the threads are idle most of the time and the number of flushing threads can be reduced to save some system resources. If **all** flushing threads show a very low number of skipped cycles, it indicates that all threads are fully utilized, and additional flush threads might be necessary.
- *Maximum transaction processing time*: This is the longest time a transaction has been processing inside the Analyzer (from first to last event). The Failure Mode *process_delay* value should be chosen at least so big that the maximum processing time will still be less than the sum of transaction class SLA and *process_delay* value to avoid unnecessary aging out of transaction data. If the value is set too high or too low, it can lead to performance issues as described earlier.
- *Number of overflow cache writes*: The number of times the complete cache contents had to be flushed to the database because a cache overflow occurred. Since overflow cache writes have a severe impact on the performance, it should always be tried to keep this value at zero by configuring the parameters explained above as required. If this still won’t succeed it might indicate that the system load or transaction structure may not be well suited to be processed in Failure Mode.

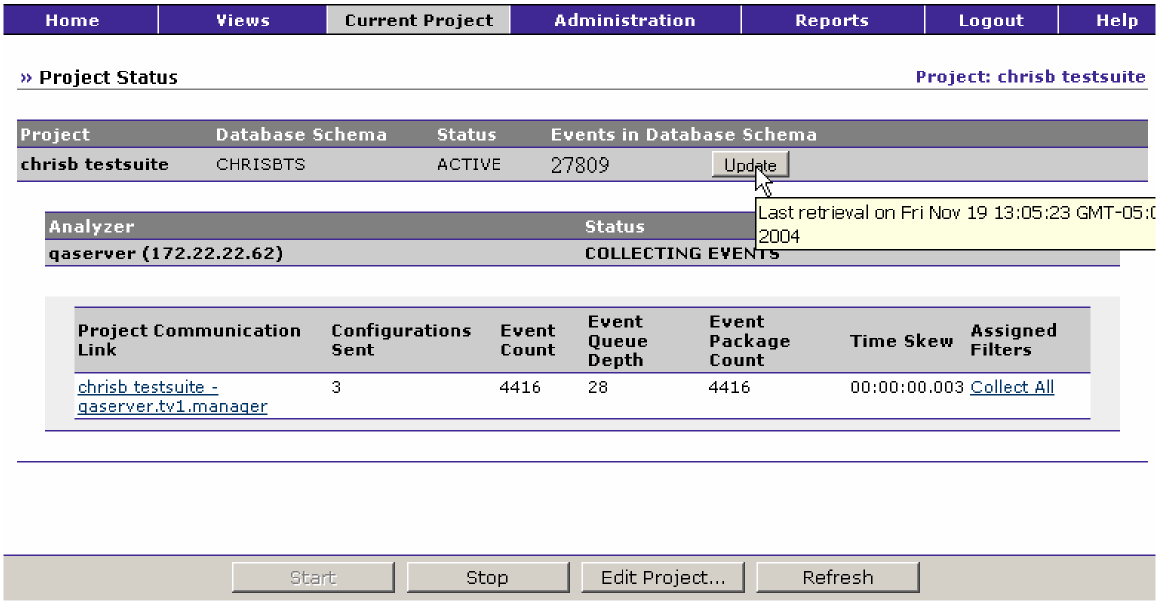
Chapter 4
Managing Projects

Event data collected by TransactionVision for analysis is organized into projects. When you are logged into TransactionVision, one project is the *current project*—any project-related changes are applied to the current project, and any analysis views use data from the current project. Use commands under the Current Project menu to view the status for or make changes to the current project. Use commands under the Administration menu to create new projects or modify any existing projects.

View Current Project Status

The Project Status page displays information about the current project. Use this page to start and stop data collection or edit project settings.

To display the Project Status page, choose the Current Project > Project Status menu item. Note that if your project contains a large number of events (more than 5 million), this page can take a few moments to display.



» Project Status

Project: chrisb testsuite

Project	Database Schema	Status	Events in Database Schema
chrisb testsuite	CHRISBTS	ACTIVE	27809

Last retrieval on Fri Nov 19 13:05:23 GMT-05:0
2004

Analyzer	Status
qaserver (172.22.22.62)	COLLECTING EVENTS

Project Communication Link	Configurations Sent	Event Count	Event Queue Depth	Event Package Count	Time Skew	Assigned Filters
chrisb testsuite - qaserver.tv1.manager	3	4416	28	4416	00:00:00.003	Collect All

The Project Status page provides the following information about the project:

Information	Description
Project	The name of the current project. To change the current project, click Home and select a new project on the TransactionVision Home page.
Database Schema	The name of the database schema associated with the project.
Status	Indicates whether the project is currently collecting events. If the status is ACTIVE, the project is collecting events according to the settings in the data collection filter. If the status is INACTIVE, the project is not currently collecting events.
Events in Database Schema	The number of events in the project database schema. Transaction-Vision calculates the event count the first time the Project Status page in displayed in a session. When the page is refreshed, the event count is **not** updated for performance reasons. To update the event count, click Update. Updating the event count does not refresh the other information on the Project Status page. Move your cursor over the Update button to view a tooltip that shows the date and time the event count was calculated.

Information	Description
Analyzer	The name, IP address, and status of the Analyzer host assigned to the schema associated with the project. Status values are: • COLLECTING EVENTS • NOT COLLECTING EVENTS • QUIESCING • FAIL • RECOVERY • SENSOR COLLECTING EVENTS ONLY If the project receives a stop command and its Analyzer is still cleaning out events in the event queue, the Analyzer status is set to QUIESCING and the Start and Stop buttons for the project are disabled. A FAIL status indicates that TransactionVision cannot connect to the Analyzer host. The RECOVERY status indicates that the Analyzer is performing statistics recovery. This can happen when the Analyzer has been stopped abnormally (for example, the process has been killed), and not all event statistics have been flushed to disk. In this case the Analyzer will reprocess the last events to get the statistics up-to-date before it starts the normal processing. The SENSOR COLLECTING EVENTS ONLY status indicates that the Analyzer has been stopped or has exited without sending stop configuration messages to the Sensors. Sensors will continue to produce events, which will collect on the event queue until the Analyzer and project are started again. This page also displays a list of the communication links assigned to the Analyzer host. For each communication link, it shows: • The number of configuration messages sent • The number of events processed • The number of unprocessed events on the event queue • The number of event packages sent • The time skew • The data collection filters assigned to the communication link. To view or edit a communication link, click the communication link name to display the Edit Project Communication Link page. See “Edit a Communication Link or Template” for more information. To view or edit an assigned data collection filter, click the filter name to open the Edit Data Collection Filter page. See “Edit a Data Collection Filter” for more information.

Start/Stop

To activate the current project, click Start. To stop data collection, click Stop. Only users with required permissions may start or stop data collection. See Chapter 9, “Managing Users,” for information about permissions.

Clear Logs

To clear Analyzer log messages from the display, click Clear Logs.

Edit Project...

To change any of the following, click Edit Project... to display the Edit Project page:

- Description
- Whether to apply timeskew to collected events
- Communication link assignments
- Data collection filter assignments

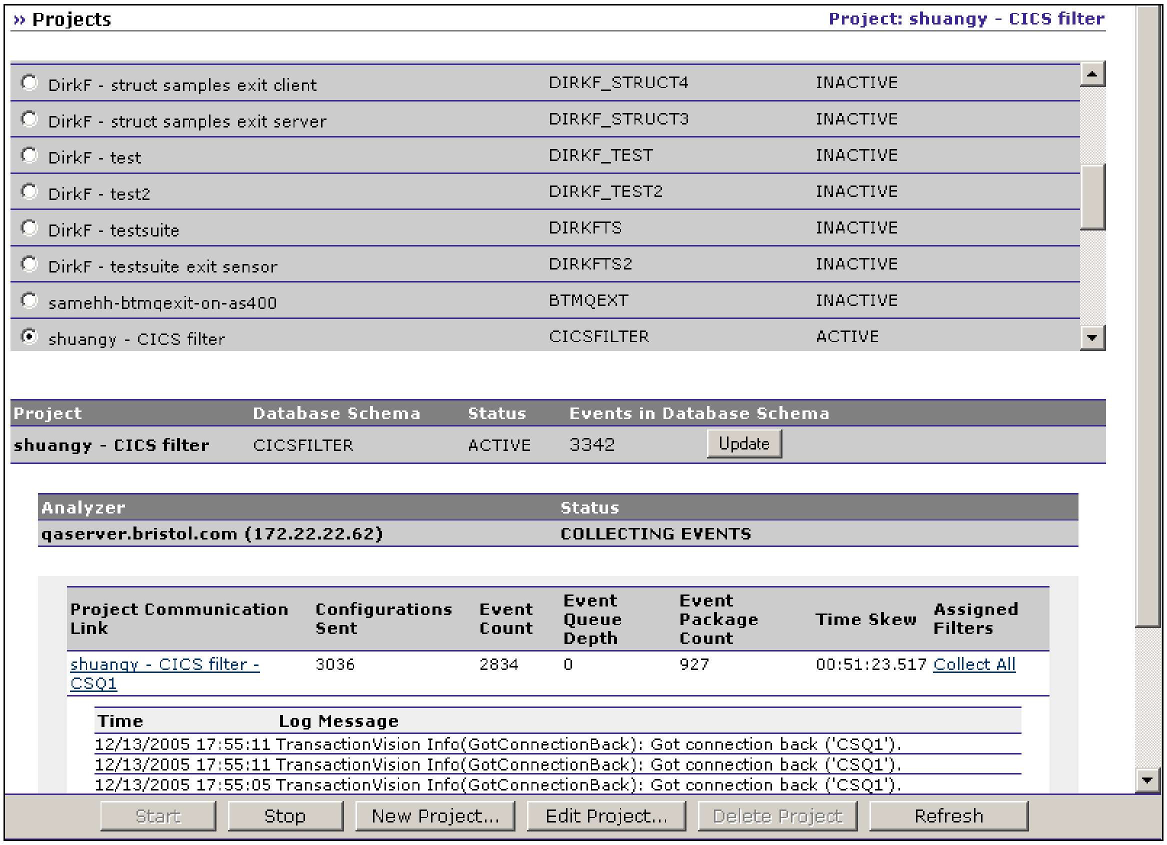
See "Edit a Project" for more information.

Refresh

To update the view to reflect any changes since it was created, click Refresh. When you refresh the page, the event count is **not** updated; click Update (to the right of the event count) to update the number of events in the project.

View All Projects

To display the project list, choose the Administration > Projects menu item.



» Projects Project: shuangy - CICS filter

○ DirkF - struct samples exit client	DIRKF_STRUCT4	INACTIVE
○ DirkF - struct samples exit server	DIRKF_STRUCT3	INACTIVE
○ DirkF - test	DIRKF_TEST	INACTIVE
○ DirkF - test2	DIRKF_TEST2	INACTIVE
○ DirkF - testsuite	DIRKFTS	INACTIVE
○ DirkF - testsuite exit sensor	DIRKFTS2	INACTIVE
○ samehh-btmqexit-on-as400	BTMQEXT	INACTIVE
● shuangy - CICS filter	CICSFILTER	ACTIVE

Project	Database Schema	Status	Events in Database Schema
shuangy - CICS filter	CICSFILTER	ACTIVE	3342 Update

Analyzer	Status
qaserver.bristol.com (172.22.22.62)	**COLLECTING EVENTS**

Project Communication Link	Configurations Sent	Event Count	Event Queue Depth	Event Package Count	Time Skew	Assigned Filters
shuangy - CICS filter - CSQ1	3036	2834	0	927	00:51:23.517	Collect All

Time	Log Message
12/13/2005 17:55:11	TransactionVision Info(GotConnectionBack): Got connection back ('CSQ1').
12/13/2005 17:55:11	TransactionVision Info(GotConnectionBack): Got connection back ('CSQ1').
12/13/2005 17:55:05	TransactionVision Info(GotConnectionBack): Got connection back ('CSQ1').

The project list page provides the following information for all projects:

Information	Description
Project Name	The name of the project.
Database Schema	The name of the schema associated with the project.
Status	Indicates whether the project is currently collecting events. If the status is ACTIVE, the project is collecting events according to the settings in the data collection filter. If the status is INACTIVE, the project is not currently collecting events.

It also provides more detailed information about the current project:

Information	Description
Events in Database Schema	The number of events processed by the schema associated with the project.
Analyzer	The name, IP address, and status of the Analyzer host assigned to the schema associated with the project. Status values are: • COLLECTING EVENTS • NOT COLLECTING EVENTS • QUIESCING • FAIL • RECOVERY • SENSOR COLLECTING EVENTS ONLY

If the project receives a stop command and its Analyzer is still cleaning out events in the event queue, the Analyzer status is set to QUIESCING and the Start and Stop buttons for the project are disabled. A FAIL status indicates that TransactionVision cannot connect to the Analyzer host. The SENSOR COLLECTING EVENTS ONLY status indicates that the Analyzer has been stopped or has exited without sending stop configuration messages to the Sensors. Sensors will continue to produce events, which will collect on the event queue until the Analyzer and project are started again.

This page also displays a list of the communication links assigned to the Analyzer host. For each communication link, it shows:

- The number of configuration messages sent
- The number of events processed
- The number of unprocessed events on the event queue
- The number of event packages sent
- The time skew
- The data collection filters assigned to the communication link.

To view or edit a communication link, click the communication link name to display the Edit Project Communication Link page. See “Edit a Communication Link or Template” for more information.

To view or edit an assigned data collection filter, click the filter name to open the Edit Data Collection Filter page. See “Edit a Data Collection Filter” for more information.

To select a different project as the current project, click in the circle to the left of the project name.

Start/Stop

To activate the current project, click Start. To stop data collection, click Stop. Only users with required permissions may start or stop data collection. See Chapter 9, “Managing Users,” for information about permissions.

Clear Logs

To clear Analyzer log messages from the display, click Clear Logs.

New Project...

To create a new project, click New Project... to start the Project Wizard. “Create a New Project” for more information.

Edit Project...

To change any of the following, click Edit Project... to display the Edit Project page:

- General project description
- Analyzer host
- Communication link assignments

- Data collection filter assignments

See “Edit a Project” on page 55 for more information.

Delete Project

To delete the current project, click Delete Project. This button is only enabled if the project is inactive. You will be prompted to confirm the deletion; click Yes to delete the project. Only users with required permissions may delete projects. See Chapter 9, “Managing Users,” for information about permissions.

Important! Deleting a project does not drop the database schema that is associated with the project.

Refresh

To update the view to reflect any changes since it was created, click Refresh.

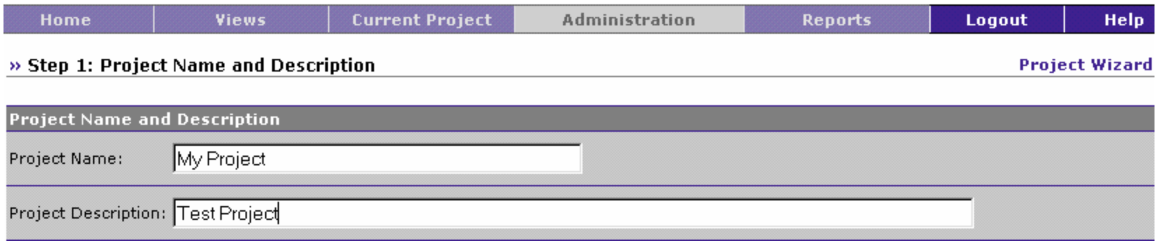
Create a New Project

The Project Wizard guides you through the steps of creating a new project. To start the Project Wizard, choose the Administration > Projects menu item to display the Projects page and click New Project....

Important! New projects may only be created by users with the necessary permissions. See Chapter 9, “Managing Users,” for information about permissions.

Step 1: Project Name and Description

Enter the name and a brief description for your project. This information appears on the TransactionVision home, Projects, and Project Status pages.



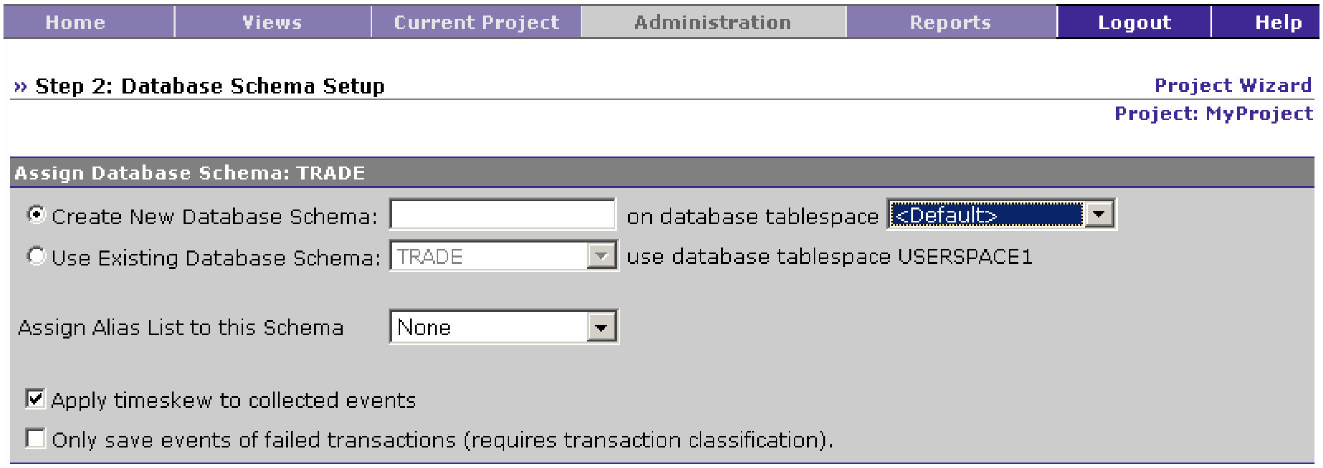
Project Name: My Project

Project Description: Test Project

Click Next> to assign a schema to the project.

Step 2: Database Schema Setup

Each project must be assigned a database schema where the Analyzer stores events collected by Sensors.



» Step 2: Database Schema Setup

Project: MyProject

Assign Database Schema: TRADE

● Create New Database Schema: on database tablespace <Default>

○ Use Existing Database Schema: TRADE use database tablespace USERSPACE1

Assign Alias List to this Schema: None

☑ Apply timeskew to collected events

□ Only save events of failed transactions (requires transaction classification).

You may create a new schema for the project or use an existing schema. To create a new schema, enter the schema name. Note that schema names must begin with a letter and may contain only letters, numbers, and underscore characters.

Select the database tablespace to use for the project from the list of available tablespaces. The default tablespace is the tablespace picked by the database to create the schema.

To assign an alias list to the schema, select it from the list of available alias lists. If you assign an alias list, alias names will be used for objects in the list in TransactionVision views and reports. For more information on using aliases, see Chapter 8, "Managing Aliases."

To use an existing schema, click the down arrow and select a schema from the list. Note that users of projects using the same schema will see all events from all projects that the schema is assigned to. Creating separate schemas for different projects enables you to control access to event data.

To apply the timeskew detected by TransactionVision on the communication link to vents, check the Apply timeskew to collected events checkbox. This box is checked by default. Note that disabling the timeskew calculation affects all projects that use the database schema assigned to your project.

To enable failure mode, in which the Analyzer only stores event data of failed business transactions (or transactions violating SLA), check Only save events of failed transactions. For successful business transactions, only the corresponding business transaction rows will be saved. Failure mode requires the following:

- A transaction classification with suitable rules for the 'result' column must be in place. See the *TransactionVision Programmer's Guide* for information about transaction classification.

- Failure mode processing must be enabled in the Analyzer. For instructions, see Chapter 3, “Managing Analyzers.”

The failure mode can be enabled on a per-project basis, allowing to run certain projects in failure mode while running others in the conventional Standard Mode.

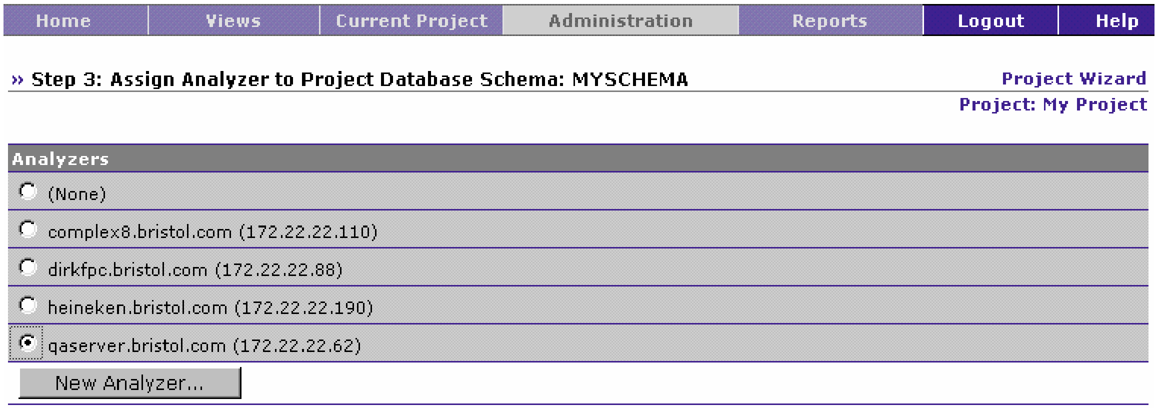
The main goal of the Analyzer Failure Mode is to reduce the data storage requirement for a project.

Click Next> to assign an Analyzer host to the project.

Click <Back to return to the Product Description step or Cancel to exit the Project wizard.

Step 3: Assign Analyzer Host to Project Database Schema

Each project must be assigned an Analyzer host for correlating and performing transaction analysis on events in the schema.



» Step 3: Assign Analyzer to Project Database Schema: MYSCHEMA

Project: My Project

Analyzers

○ (None)
○ complex8.bristol.com (172.22.22.110)
○ dirkfpc.bristol.com (172.22.22.88)
○ heineken.bristol.com (172.22.22.190)
● qaserver.bristol.com (172.22.22.62)

A single Analyzer host may serve multiple schemas, but each schema may be served by only one Analyzer host. Therefore, if you assigned an existing schema to your project, the Analyzer host used by the schema is assigned to your project automatically.

If you created a new schema for your project, select an existing Analyzer host from the list or click New Analyzer... to define a new Analyzer host and select it. See “Refresh

To update the view to reflect any changes since it was created, click Refresh.

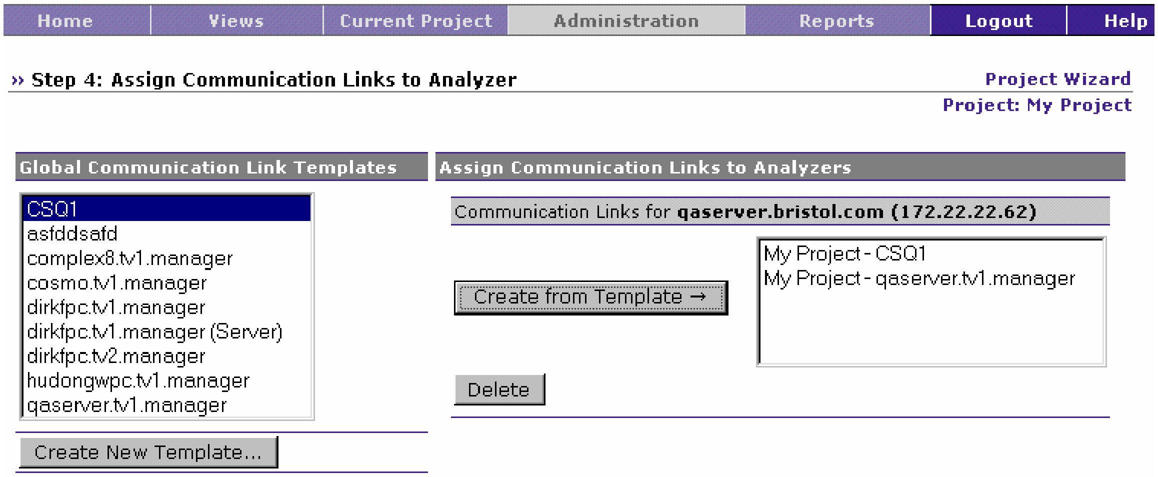
Create or Edit an Analyzer Host” on page 30 for more information on defining a new Analyzer host.

Click Next> to assign communication links to the Analyzer.

Click <Back to return to the Database Schema Setup step or Cancel to exit the Project wizard.

Step 4: Assign Communication Links to the Analyzer

The Analyzer used by a project must be assigned one or more communication links to allow a Sensor to communicate from a host on which an application is being monitored to the Analyzer. This step only occurs if you select an Analyzer in the previous step.



» Step 4: Assign Communication Links to Analyzer

Project Wizard
Project: My Project

Global Communication Link Templates

CSQ1
asfddsafd
complex8.tv1.manager
cosmo.tv1.manager
dirkfpc.tv1.manager
dirkfpc.tv1.manager (Server)
dirkfpc.tv2.manager
hudongwpc.tv1.manager
qaserver.tv1.manager

Assign Communication Links to Analyzers

Communication Links for **qaserver.bristol.com (172.22.22.62)**

My Project - CSQ1
My Project - qaserver.tv1.manager

To assign a communication link to the Analyzer, select a communication link template in the list of global communication link templates and click Create from Template>. The communication link created for your project is a copy of the selected template; changes to the template do not affect the communication link used by your project.

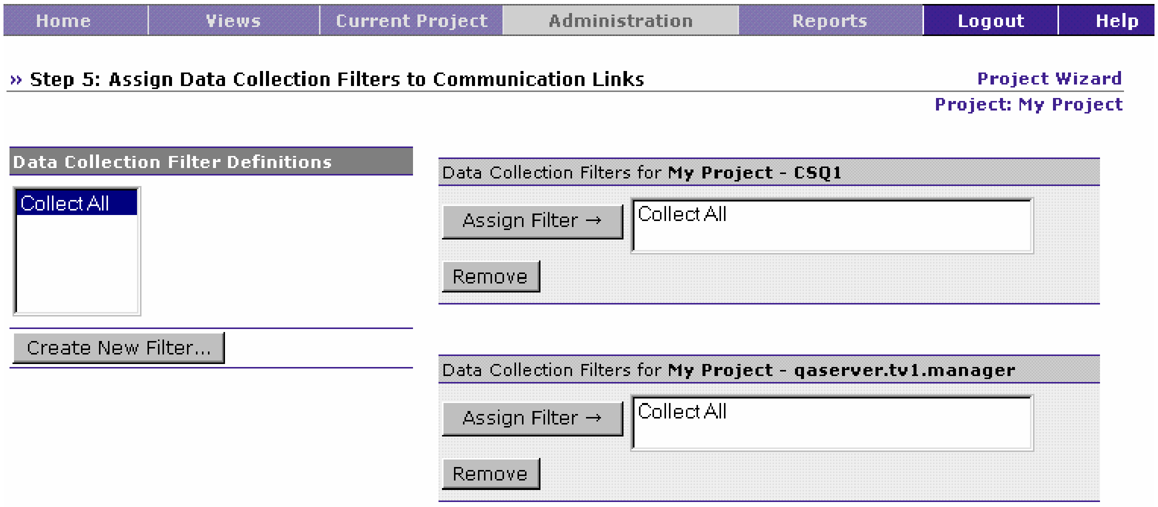
- To add a new global communication link template, click Create New Template... to start the Communication Link wizard. “ Create a New Communication Link or Template” on page 70 for information on creating communication link templates.
- To delete a communication link assigned to the Analyzer, select it in the list of communication links and click Delete.

Click Next> to assign data collection filters to communication links in your project.

Click <Back to return to the Assign Analyzer Host to Project Database Schema page or Cancel to exit the Project wizard.

Step 5: Assign Data Collection Filters to Communication Links

You must assign one or more data collection filters to the communication links for the Analyzer assigned to your project. By default the Collect All filter, which collects all events, is assigned. This step only occurs if you assign a communication link in the previous step.


Home
Views
Current Project
Administration
Reports
Logout
Help
» Step 5: Assign Data Collection Filters to Communication Links
Project Wizard
Project: My Project
Data Collection Filter Definitions
Collect All
Create New Filter...
Data Collection Filters for My Project - CSQ1
Assign Filter →
Collect All
Remove
Data Collection Filters for My Project - qaserver.tv1.manager
Assign Filter →
Collect All
Remove

To assign a filter to the communication links for the Analyzer associated with your project, select the filter name in the Data Collection Filter Definitions list and click Assign Filter>. The filter name appears in the Data Collection Filters list.

To create a new data collection filter definition, click Create New Filter... to display the Add Filter page. See “Create a New Data Collection Filter” for information on creating a filter.

You may assign any number of filters. Events that match **any** filter are collected by Sensors and forwarded to the Analyzer. If you create a new filter with specific filter conditions, make sure you remove the Collect All filter. Otherwise, all events will continue to be collected because they match the conditions of a filter. To remove a data collection filter from the list, select it and click Remove.

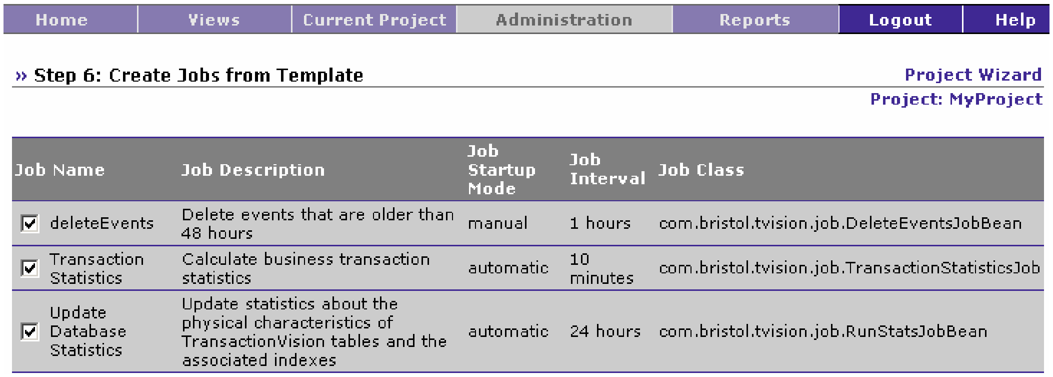
Click Next> to create jobs for your new project.

Click <Back to return to the Assign Communication Links to the Analyzer page or Cancel to exit the Project wizard.

Step 6: Create Jobs from Template

A job is a task that runs at a specified frequency. You may assign one or more jobs from available job templates to your project. A job instance is defined for this particular project; that instance can only be run on this project. However, multiple instances of the job bean may be run concurrently, each configured for a different project. For more information about jobs, see Chapter 7, “Managing Scheduled Jobs.”

Important! If the project you are creating shares a schema with another project, be aware that it will also share jobs with that project. For example, if you create a delete events job in project A and one in project B, if both projects share the same schema, the effects of both delete event jobs will be seen in both projects. When creating jobs for projects that share a schema, keep this in mind to prevent one project's jobs from having unintended consequences on data that is shared between the projects.



» Step 6: Create Jobs from Template

Job Name	Job Description	Job Startup Mode	Job Interval	Job Class
☑ deleteEvents	Delete events that are older than 48 hours	manual	1 hours	com.bristol.tvision.job.DeleteEventsJobBean
☑ Transaction Statistics	Calculate business transaction statistics	automatic	10 minutes	com.bristol.tvision.job.TransactionStatisticsJob
☑ Update Database Statistics	Update statistics about the physical characteristics of TransactionVision tables and the associated indexes	automatic	24 hours	com.bristol.tvision.job.RunStatsJobBean

Check the checkbox for any job you wish to create an instance of for your new project.

- The deleteEvents job deletes all events more than 48 hours old from your project database. This job is optional, and by default is turned off. To enable this job, go to the Job Status page after you finish creating the project.
- The Transaction Statistics job calculates business transaction statistics.This job is required if you wish to collect transaction statistics; these statistics are used by a number of different reports. If this job is not running, those reports will not be able to show any data.
- The Update Database Statistics job updates statistics about the physical characteristics of a project's schema table and the associated indexes. These characteristics include number of records, number of pages, and average record length. The database optimizer uses these statistics when determining access paths to the data.

To change the startup mode, job interval, or startup settings for jobs after your project is created, choose Current Project > Job Status to display the Job Status page. For more information, see "View Jobs for the Current Project" on page 151. For the deleteEvents job, in particular, you may wish to make the following changes to the startup options:

- By default, the value for the `-commit` option for the deleteEvents job is 100, meaning that the commit is done after the deletion of every 100 events. If you are deleting a large number of events, explicitly specify the parameter `-commit` *`n`* to commit after *n* event deletions. Otherwise, the database transaction log may overflow or the table may be locked for a long period of time.

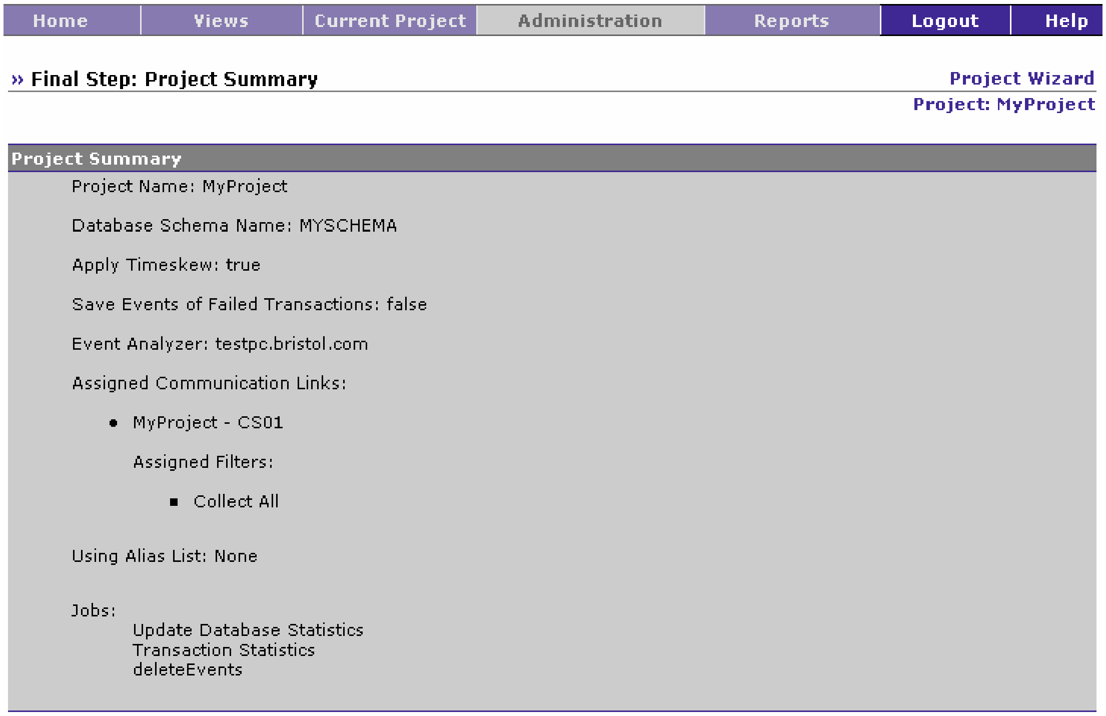
- By default, the deleteEvents job and script do not allow deleting events in the last 48 hours. To override the default of 48 hours, use the `-minage` number-of-hours option. For example, `-minage 10` prevents the job from deleting events from the last 10 hours.

Click Next> to display the Project Summary for your new project.

Click <Back to return to the Assign Data Collection Filters to Communication Links in Project page or Cancel to exit the New Project wizard without creating the new project.

Final Step: Project Summary

The project summary lists the settings you have made for your new project.



» Final Step: Project Summary

Project Wizard
Project: MyProject

Project Summary

Project Name: MyProject

Database Schema Name: MYSCHEMA

Apply Timeskew: true

Save Events of Failed Transactions: false

Event Analyzer: testpc.bristol.com

Assigned Communication Links:

- MyProject - CS01

  Assigned Filters:

  - Collect All

Using Alias List: None

Jobs:
Update Database Statistics
Transaction Statistics
deleteEvents

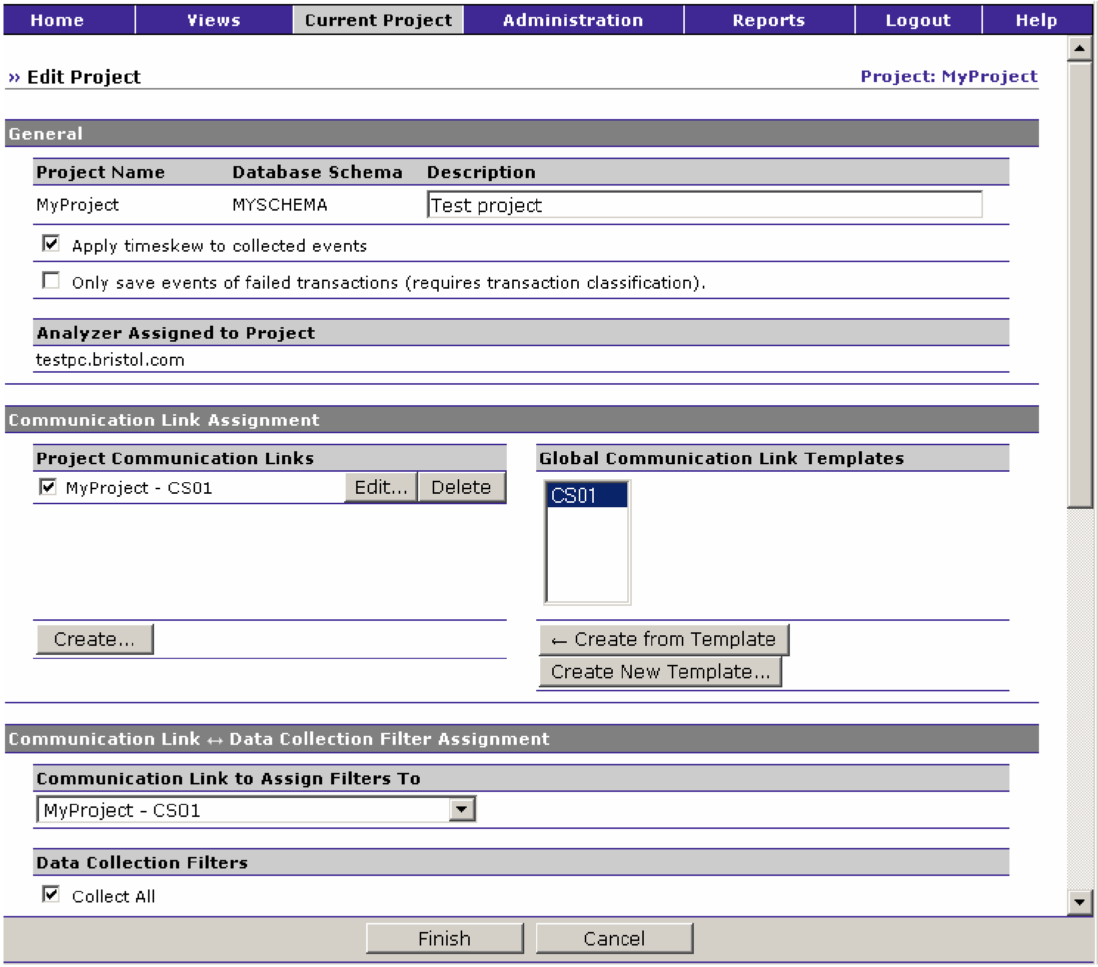
Click Finish to confirm that the settings are correct and create the new project. The Projects page is displayed.

Click <Back to return to the Assign Data Collection Filters to Communication Links in Project page or Cancel to exit the Project wizard without creating the new project.

Edit a Project

Projects may only be edited by users with the necessary permissions. See Chapter 9, “Managing Users,” for information about permissions.

To edit the current project, choose the Current Project > Project Status or Administration > Projects menu item and click Edit Project... to display the Edit Project page.



» Edit Project — Project: MyProject

General

Project Name	Database Schema	Description
MyProject	MYSCHEMA	Test project

☑ Apply timeskew to collected events

☐ Only save events of failed transactions (requires transaction classification).

Analyzer Assigned to Project

testpc.bristol.com

Communication Link Assignment

Project Communication Links	Global Communication Link Templates
☑ MyProject - CS01	CS01

Communication Link ↔ Data Collection Filter Assignment

Communication Link to Assign Filters To

MyProject - CS01

Data Collection Filters

☑ Collect All

Make desired changes to the following project settings, then click Finish:

Project description

Enter a brief description for your project. This information appears on the TransactionVision home, Projects, and Project Status pages.

Time Skew

To apply the timeskew detected by TransactionVision on the communication link to events, check the Apply timeskew to collected events checkbox. This box is checked by default. Note that disabling the timeskew calculation affects all projects that use the database schema assigned to your project. You must restart the Analyzer associated with your project for this change to take effect.

Failure Mode

To enable failure mode, in which the Analyzer only stores event data of failed business transactions (or transactions violating SLA), check Only save events of failed transactions. For successful business transactions, only the corresponding business transaction rows will be saved. Failure mode requires the following:

- A transaction classification with suitable rules for the 'result' column must be in place. See the *TransactionVision Programmer's Guide* for information about transaction classification.
- Failure mode processing must be enabled in the Analyzer. For instructions, see Chapter 3, "Managing Analyzers."

The failure mode can be enabled on a per-project basis, allowing to run certain projects in failure mode while running others in the conventional Standard Mode.

Communication Link Assignment

The Analyzer used by a project must be assigned one or more communication links to allow a Sensor to communicate from a host on which an application is being monitored to the Analyzer.

- To assign a communication link to the Analyzer, select a communication link template in the list of global communication link templates and click <Create from Template. The communication link created for your project is a copy of the selected template; changes to the template do not affect the communication link used by your project.
- To view details about a global communication link template, choose the Administration > Communication Link Templates menu item to display the Communication Link Templates page.
- To add a new global communication link template, click Create New Template... to start the Communication Link wizard. See "Create a New Communication Link or Template" on page 70 for information about creating communication link templates.
- To create a communication link for the project that is **not** based on a global template, click Create... to start the Communication Link wizard. See "Create a New Communication Link or Template" for information about creating communication links.
- To modify a communication link assigned to the Analyzer, click Edit.... to open the Edit Project Communication Link page. See "Edit a Communication Link or Template" for information about editing communication links.

- To delete a communication link assigned to the Analyzer, click Delete.
- To disable a communication link without deleting it, clear the checkbox to the left of the communication link. To enable a disabled communication link, check the box.

Communication Link to Assign Filters To

You must assign one or more data collection filters to each communication link for the Analyzer assigned to your project. By default the Collect All filter, which collects all events, is assigned. Select the communication link to view/assign filters to from the drop-down list, then check filters to assign them or clear checks to unassign filters.

To create a new data collection filter definition, click Create New Filter... to display the Add Filter page. See "Create a New Data Collection Filter" for information about creating new data collection filters.

Alias List Assignment

An alias maps a user-defined name to system model objects displayed in the Component Topology Analysis, Transaction Analysis, and Event Analysis views. Alias definitions are grouped into alias lists, which may be associated with one or more projects.

To associate an alias list with the project, select it from the drop-down list. See Chapter 8 for information about creating alias lists and defining alias mappings.

Chapter 5
Managing Communication Links

TransactionVision uses WebSphere MQ or TIBCO EMS for communication between Sensors and the Analyzer. Before a Sensor can collect events and forward them to the Analyzer, you must create a communication link between the Sensor and the Analyzer. A communication link defines the message queues used to pass configuration and event messages between the Sensor and Analyzer.

Only users with required permissions may create or edit communication links. See Chapter 9, “Managing Users,” for information about permissions.

Understanding Communication Links

TransactionVision communication links require two message queues for the exchange of messages between a Sensor and the Analyzer:

- A configuration queue that Sensors monitor for configuration messages from the Analyzer
- An event queue that the Analyzer monitors for event messages from Sensors

Configuration Queues

When TransactionVision begins recording events for a project, the Analyzer sends a configuration message to the configuration queues defined in the active communication links for the project. This configuration message defines the data collection filter conditions for the project, the name of the queue that event messages should be sent to, and the expiration time of the configuration message itself.

When a sensored event occurs, the Sensor checks to see whether a configuration queue exists. If no configuration queue exists, the Sensor simply skips the event generation code and returns control to the sensored application. If a configuration queue does exist, the Sensor reads all configuration messages on the queue, deleting any that have expired.

Event Queues

The Sensor evaluates the monitor event against the data collection filter conditions specified in the configuration message. If all filter conditions are met, the Sensor creates an event entry message about the API call. The Sensor then delegates control to the user application to finish the real work. When the work finishes, the Sensor creates an event exit message, and then passes the return on to the calling application. Entry and exit events are grouped into a single message to be put on the specified event queue. There may be more than one configuration message, so event messages may be put on more than one event queue.

For WebSphere MQ monitoring, Sensors use the same configuration queue for all applications that make Sensored API calls on the same queue manager. However, data collection filter conditions such as host name or program name may limit the number of event messages sent to the Analyzer.

After the first successfully monitored event, the Sensor continues to check the configuration queue periodically for new configuration messages.

While the Analyzer is recording events, it reads messages from the event queues into TransactionVision project schemas. It also sends new configuration messages to replace expiring configuration messages or to change the data collection filter conditions. When the Analyzer stops recording events, it sends a new configuration message to the configuration queue indicating that no more events should be recorded. The Analyzer may stop recording events for any of the following reasons:

- A user stops event recording from the TransactionVision web user interface.
- The end time specified in the data collection filter is reached.

Important! The channel that TransactionVision uses for event queue communications should have the channel property CONVERT set to NO. If this property is set to YES, event messages are discarded to the exception message queue. If the channel is being shared by queues that have messages that require the property to be set to YES, please create a separate channel specifically for the event queue.

WebSphere MQ Configurations

For Sensors that use WebSphere MQ for communication with the Analyzer, configuration and event queues may reside on the same queue manager or on different queue managers. The following are possible configurations for communication links that use WebSphere MQ:

- Both the Sensor and the Analyzer communicate directly with the same queue manager.
- The Sensor uses one queue manager and the Analyzer uses a different one.
- The Sensor uses one queue manager, and the Analyzer sends configuration messages to one queue manager and monitors an event queue on a different queue manager.

Important! The configuration queue used by the WebSphere MQ Sensor must be on the same queue manager used by the application being monitored.

TIBCO EMS Configurations

For Sensors that use TIBCO EMS for communication, the configuration queue and event queue must use the same EMS server to make a connection. However, you can use the TIBCO routing feature to access route home queues on different EMS servers. The following are possible configurations for Sensors that use TIBCO EMS:

- Both the Sensor and the Analyzer communicate directly with the TIBCO EMS server.
- The Sensor uses one TIBCO EMS server, and the Analyzer uses a different one. The configuration queue or event queue on one TIBCO EMS server is defined as a route to the TIBCO route home queue of the same name on the other TIBCO EMS server.
- The Sensor uses one TIBCO EMS server, and the Analyzer sends configuration messages to one TIBCO EMS server but use another TIBCO EMS server to retrieve events.

Exception Message Queues

If an event fails to be processed by the Analyzer, either because of an invalid event or an unexpected error or exception, the event is removed from the event queue and put on the exception message queue defined in the communication link.

Any fatal Java errors (such as OutOfMemoryError) will cause the event to be put on the exception message queue and events will no longer be pulled off the event queue until the project is restarted. If the expection message queue name is blank, the failed event will be discarded.

You can use the GetPut utility to transfer messages from the specified exception message queue to enable the Analyzer to attempt to reprocess the failed events. See Appendix A, “Utilities Reference,” for more information.

TransactionVision Queue Requirements

WebSphere MQ

When creating queues for use with TransactionVision, you must specify attributes such as maximum message size and maximum queue depth. The settings you choose depend on factors such as the number of Analyzers using a queue manager, the number and size of messages used by monitored applications and the number of data collection filter conditions you specify.

In addition, TransactionVision event and configuration queues must have specific queue parameters and security permissions.

Message Length

The message length requirements for configuration queues are small. A default configuration message uses approximately 500 bytes. However, specifying data collection filter conditions increases the size of configuration messages. A minimum message length of 10,000 bytes is required.

The length of event messages can vary greatly, depending on the parameters passed to the API, the user data passed through the calls, and data collection filter conditions. For event queues, Bristol Technology recommends using the default maximum message length of 4194304 bytes; a minimum message length of 10,000 bytes is required. To restrict the message length based on your applications, consider the length of messages sent by your application and allow an additional 4000 bytes for event information.

Queue Depth

For configuration queues, the default queue depth should be sufficient. Analyzers send configuration messages to start data collection, to change data collection filter conditions, to end data collections, and to determine time skews across hosts. The number of configuration messages sent to a configuration queue depends on the number of Analyzers sending messages to the queue.

Event queue depth should be set to a value that matches the queue manager storage space based on the average event message size. It should be adequate to handle the peak volume. Bristol Technology recommends using the largest queue depth possible for the event queue and, in the case of remote communication link configurations, all queues in between. In most cases, Sensors put event messages on the event queues faster than Analyzers retrieve them. Insufficient queue depth may result in event queues filling up and Sensors slowing down waiting for the Analyzer to catch up. Increasing the event queue depth helps prevent this situation.

Event Queue Manager

It is best to have the actual event queue hosted on a queue manager other than the production queue manager, so that issues related to event queues (such as running out of disk storage due to event backlog) will not affect normal operations.

Important! The channel on which the TransactionVision event queue is located should have the channel property CONVERT set to NO. If this property is set to YES, event messages are discarded to the exception message queue. If the channel is being shared by queues that have messages that require the property to be set to YES, please create a separate channel specifically for the event queue.

Event Queue Storage

Event queue storage should match the event queue depth based on the event message size. It should not exceed the storage capability of the queue manager host system. This is especially important when the event queue and TransactionVision exception message queue are hosted by the production queue manager because running out of storage space may stop the queue manager completely.

Event Queue Message Persistency

The event queue message persistency property should match the event collecting policy.

Queue Parameters

- TransactionVision configuration and event queues must have the Default Share Option (DEFSOPT) set to SHARED.
- TransactionVision configuration and event queues must allow Shared Access (SHARE).
- TransactionVision configuration and event queues must allow Get (GET(ENABLED)) and Put (PUT(ENABLED)) operations.
- TransactionVision configuration queues must allow messages of at least 10,000 bytes in length (MAXMSGL).
- TransactionVision event queues must allow messages of at least 10,000 bytes in length (MAXMSGL).
- All channels (including client channels) must have MAXMSGL of at least 10,000 bytes.

Sensor Security Permissions

Userids of programs using the Sensor require the following:

- GET and BROWSE authority to the TransactionVision configuration queue.
- PUT authority to the TransactionVision event queue.

Analyzer Security Permissions

Users of the Analyzer require the following:

- PUT, GET, BROWSE, and INQ authority to all TransactionVision configuration and event queues.
- Passid permission to test communication links.

Note that Analyzer users can be given authority to only subsets of the configuration/event queues if you want to limit access to certain Sensors.

If a user does not have the required access permission on the configuration queue (TVISION.CONFIGURATION.QUEUE by default), the following message will be found in TransactionVision logs:

```
TransactionVision Sensor: cannot open event queue
TVISION.CONFIGURATION.QUEUE on queue manager merce.es1.manager:
Not authorized for access.
```

To set access permission of TVISION.CONFIGURATION.QUEUE for a user (tester in this example), run the following command:

```
setmqaut -m queuemanager -n TVISION.CONFIGURATION.QUEUE -t
queue -p tester. +get +browse +put +inq
```

It will return a message that the command completed successfully.

To display the access permission of TVISION.CONFIGURATION.QUEUE for a user (tester in this example), run the following command:

```
dspmqaut -m queuemanager -n TVISION.CONFIGURATION.QUEUE -t
queue -p tester
```

It will return output similar to the following example:

```
Entity tester has the following authorizations for object
TVISION.CONFIGURATION.QUEUE:

      get
      browse
      put
      inq
```

TIBCO EMS

Event Queue TIBCO EMS Server

It is best to have the actual event queue hosted on a TIBCO EMS server other than the production EMS server, so that issues related to event queues (such as running out of disk storage due to event backlog) will not affect normal operations.

Event Queue Storage

Event queue storage should not exceed the storage capability of the TIBCO EMS server host system. This is especially important when the event queue and TransactionVision exception message queue are hosted by the production TIBCO EMS server because running out of storage space may cause unpredictable behavior of the production EMS server.

Event Queue Message Persistency

The event queue message persistency property should match the event collecting policy.

Queue Parameters

- TransactionVision configuration and event queues must allow receive, send, browse operations are granted to the user that are defined at TransactionVision setup.
- TransactionVision configuration queues must allow messages of at least 10,000 bytes in length (maxbytes).
- TransactionVision event queues must allow messages of at least 10,000 bytes in length (maxbytes).

Sensor Security Permissions

The user used by the TransactionVision Sensor to connect to configuration and event queues must have the following permissions:

- receive and browse permission to the TransactionVision configuration queue
- send permission to the TransactionVision event queue

Furthermore, to allow the TIBCO EMS sensor to resolve route and bridge information correctly, the username provided in TIBCO EMS server setup must have administrative permission

Analyzer Security Permissions

The user used by the TransactionVision Analyzer to connecto to configuration and event queues must have the following permissions:

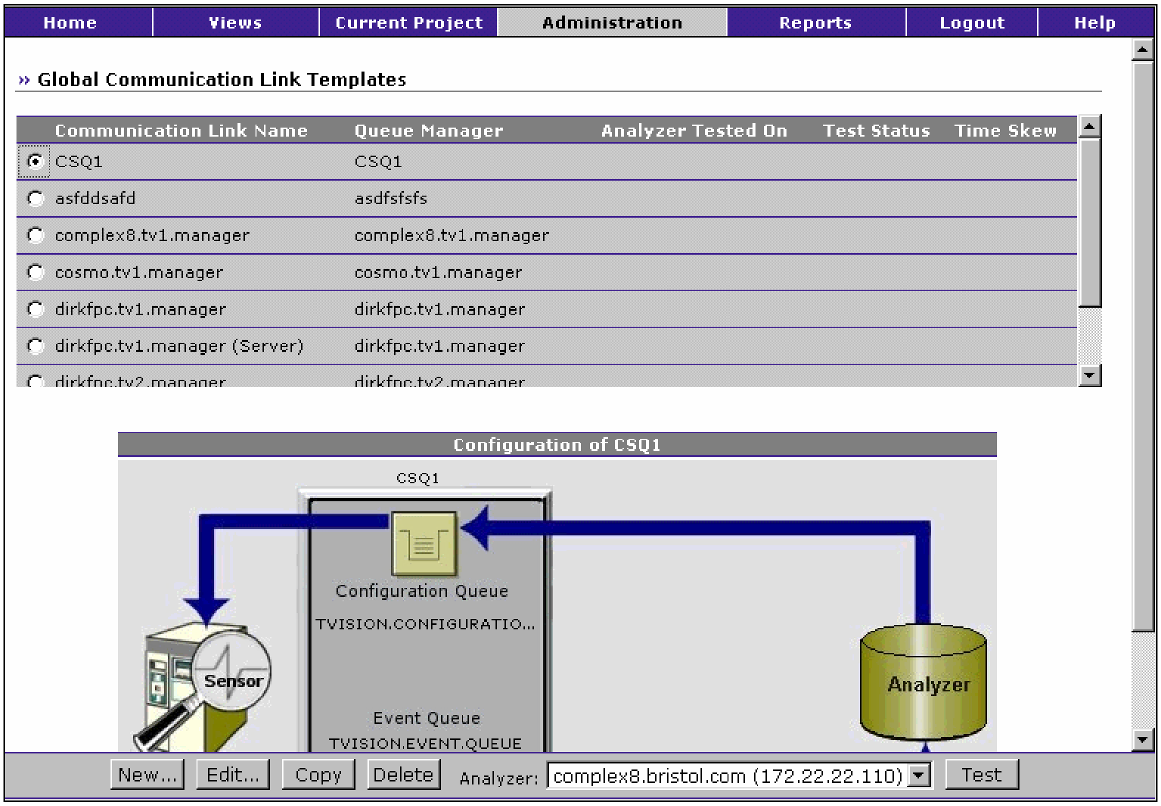
- send, receive, browse permission to all configuration and event queues
- view-destination permission on event queues to check the pending unprocessed event count

View Global Communication Link Templates

TransactionVision enables you to define global communication link templates to be used as the basis for project communication links. A global communication link template identifies the configuration and event queues and queue managers for the Sensor and the Analyzer.

When you select a global communication link template when creating a new project, project communication links based on the template are created. The project communication link is a copy of the global communication link template. Changes made to the template do not affect project commutation links and changes to project communication links do not affect the template.

Choose the Administration > Communication Link Templates menu item to display the Global Communication Link Templates page. Use this page to view, create, edit, test, and delete communication link templates.



» Global Communication Link Templates

	Communication Link Name	Queue Manager	Analyzer Tested On	Test Status	Time Skew
●	CSQ1	CSQ1			
○	asfddsafd	asdfsfsfs			
○	complex8.tv1.manager	complex8.tv1.manager			
○	cosmo.tv1.manager	cosmo.tv1.manager			
○	dirkfpc.tv1.manager	dirkfpc.tv1.manager			
○	dirkfpc.tv1.manager (Server)	dirkfpc.tv1.manager			
○	dirkfpc.tv2.manager	dirkfpc.tv2.manager			

Configuration of CSQ1

Analyzer: complex8.bristol.com (172.22.22.110)

The diagram provides a graphical representation of the selected communication link template.

New...

Click New... to start the Communication Link Wizard. This wizard guides you through the entire process of creating a new communication link template. See “Create a New Communication Link or Template” for information about creating a new global communication link template.

Edit...

Click Edit... to display the Edit Communication Link Template page and make any desired changes. See “Edit a Communication Link or Template” for information about modifying a communication link template.

Copy

Select an existing communication link and click Copy to create a copy of a communication link named Copy of *original_link_name*. Select the copy and click Edit... to change settings on the Edit Communication Link Template page.

Delete

To delete a communication link template, select it and click Delete. You will be prompted to confirm the deletion; click Yes to proceed.

Test

Perform the following steps to test a communication link:

1. Select the communication link to test.
2. Select the Analyzer to test the selected communication link with.
3. Click Test. If the selected communication link template uses WebSphere MQ queues, the selected Analyzer sends a request message to the configuration queue requesting a confirmation on arrival (COA). The COA report message is sent to the event queue by the configuration queue that the communication link is configured to monitor. The end result is much like the behavior of typical communication between the Analyzer and Sensors. The communication link entry in the list of communication links is updated to show the Analyzer and test status.

   If the selected communication link template uses JMS queues, the test only checks whether the selected Analyzer can successfully make a connection to the given configuration queue and event queue.

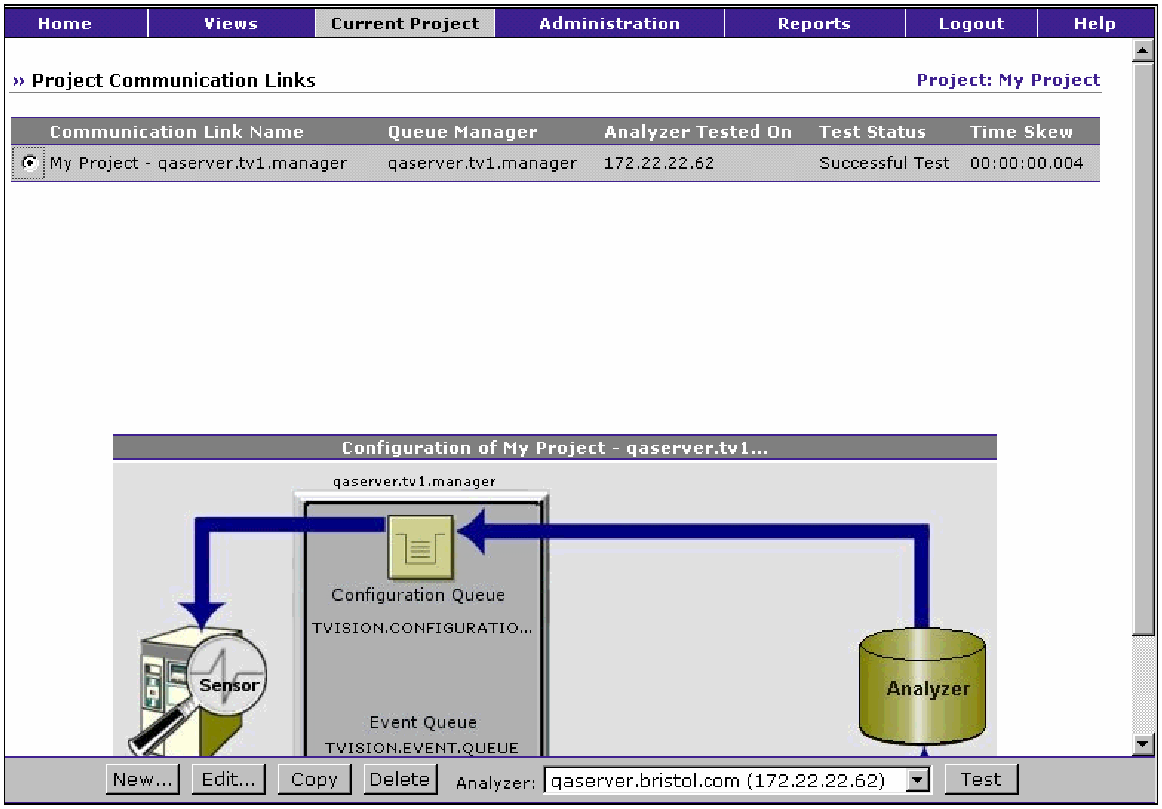
If the test fails, the error message is displayed in the test status column. The following are the most common reasons for a communication link test to fail:

- Timeout waiting for a reply message
  This error is typically caused by channel problems with remote configurations. The request message may not make it to the final queue manager that is to report, or the report message may not make it to the queue manager the Communication Link Editor is connected to. If the link test fails for this reason, see Chapter 10, "Troubleshooting."

- WebSphere MQ errors
  WebSphere MQ problems within the communication link are reported with the WebSphere MQ error reason, which usually provides enough information to isolate the problem.

View Communication Links for a Project

Choose the Current Project > Communication Links menu item to display the Project Communication Links page. Use this page to view, create, edit, test, and delete communication links for the current project.



» Project Communication Links

Project: My Project

	Communication Link Name	Queue Manager	Analyzer Tested On	Test Status	Time Skew
●	My Project - qaserver.tv1.manager	qaserver.tv1.manager	172.22.22.62	Successful Test	00:00:00.004

Analyzer: qaserver.bristol.com (172.22.22.62)

When you select a communication link, the diagram provides a graphical representation of the selected communication link.

New...

Click New... to start the Communication Link Wizard. This wizard guides you through the entire process of creating a new communication link. See “Create a New Communication Link or Template” for information about creating a new global communication link template.

Edit...

Click Edit... to display the Edit Communication Link page and make any desired changes. See “Edit a Communication Link or Template” for information about modifying a communication link template.

Copy

Select an existing communication link and click Copy to create a copy of a communication link named Copy of *original_link_name*. Select the copy and click Edit... to change settings on the Edit Communication Link page.

Delete

To delete a communication link, select it and click Delete. You will be prompted to confirm the deletion; click Yes to proceed.

Test

Perform the following steps to test a communication link:

1. Select the communication link to test.
2. Select the Analyzer to test the selected communication link with.
3. Click Test. If the selected communication link template uses WebSphere MQ queues, the selected Analyzer sends a request message to the configuration queue requesting a confirmation on arrival (COA). The COA report message is sent to the event queue by the configuration queue that the communication link is configured to monitor. The end result is much like the behavior of typical communication between the Analyzer and Sensors. The communication link entry in the list of communication links is updated to show the Analyzer and test status.

   If the selected communication link template uses JMS queues, the test only checks whether the selected Analyzer can successfully make a connection to the given configuration queue and event queue.

If the test fails, the error message is displayed in the test status column. The following are the most common reasons for a communication link test to fail:

- Timeout waiting for a reply message
  This error is typically caused by channel problems with remote configurations. The request message may not make it to the final queue manager that is to report, or the report message may not make it to the queue manager the Communication Link Editor is connected to. If the link test fails for this reason, see Chapter 10, "Troubleshooting."

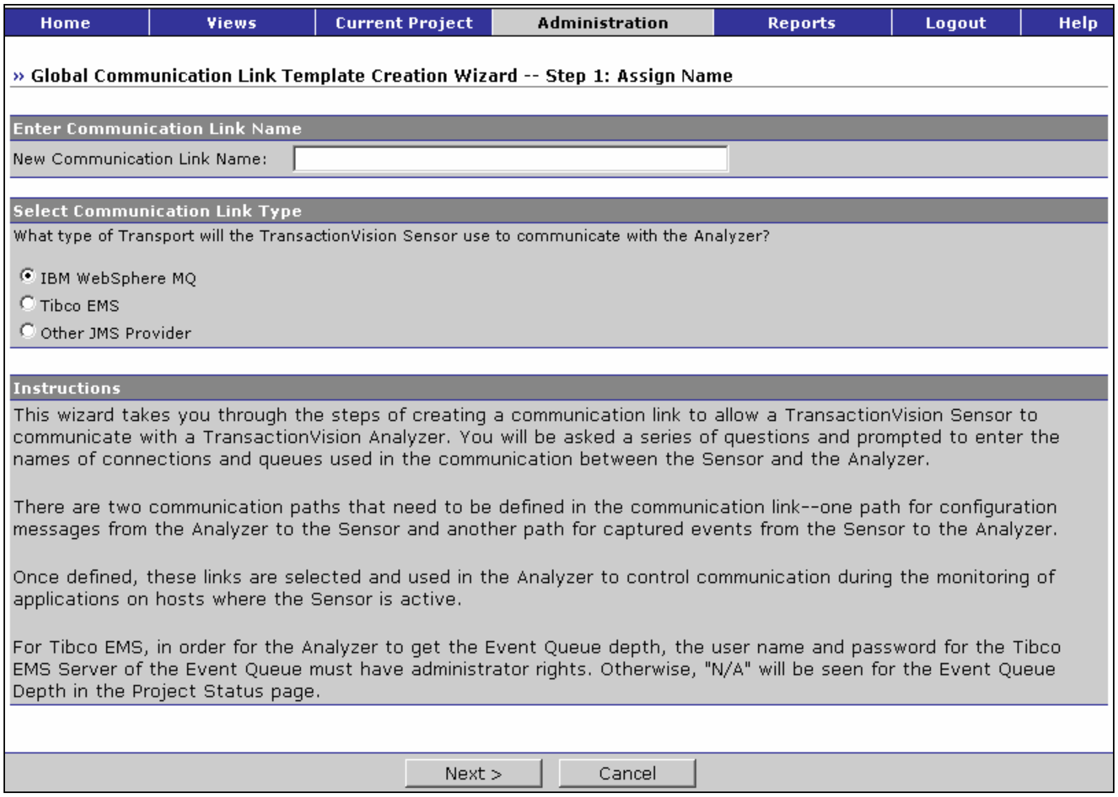
- WebSphere MQ errors
  WebSphere MQ problems within the communication link are reported with the WebSphere MQ error reason, which usually provides enough information to isolate the problem.

Create a New Communication Link or Template

The Communication Link Wizard guides you through the process of creating a project communication link or a communication link template.

Important! The Communication Link Wizard does not check whether a queue exists when creating communication links. However, you must create all queues before TransactionVision can use the communication link. These queues include event queues, configuration queues, and exception message queues.

Step 1: Assign Name



» Global Communication Link Template Creation Wizard -- Step 1: Assign Name

Enter Communication Link Name

New Communication Link Name:

Select Communication Link Type

What type of Transport will the TransactionVision Sensor use to communicate with the Analyzer?

● IBM WebSphere MQ
○ Tibco EMS
○ Other JMS Provider

Instructions

This wizard takes you through the steps of creating a communication link to allow a TransactionVision Sensor to communicate with a TransactionVision Analyzer. You will be asked a series of questions and prompted to enter the names of connections and queues used in the communication between the Sensor and the Analyzer.

There are two communication paths that need to be defined in the communication link--one path for configuration messages from the Analyzer to the Sensor and another path for captured events from the Sensor to the Analyzer.

Once defined, these links are selected and used in the Analyzer to control communication during the monitoring of applications on hosts where the Sensor is active.

For Tibco EMS, in order for the Analyzer to get the Event Queue depth, the user name and password for the Tibco EMS Server of the Event Queue must have administrator rights. Otherwise, "N/A" will be seen for the Event Queue Depth in the Project Status page.

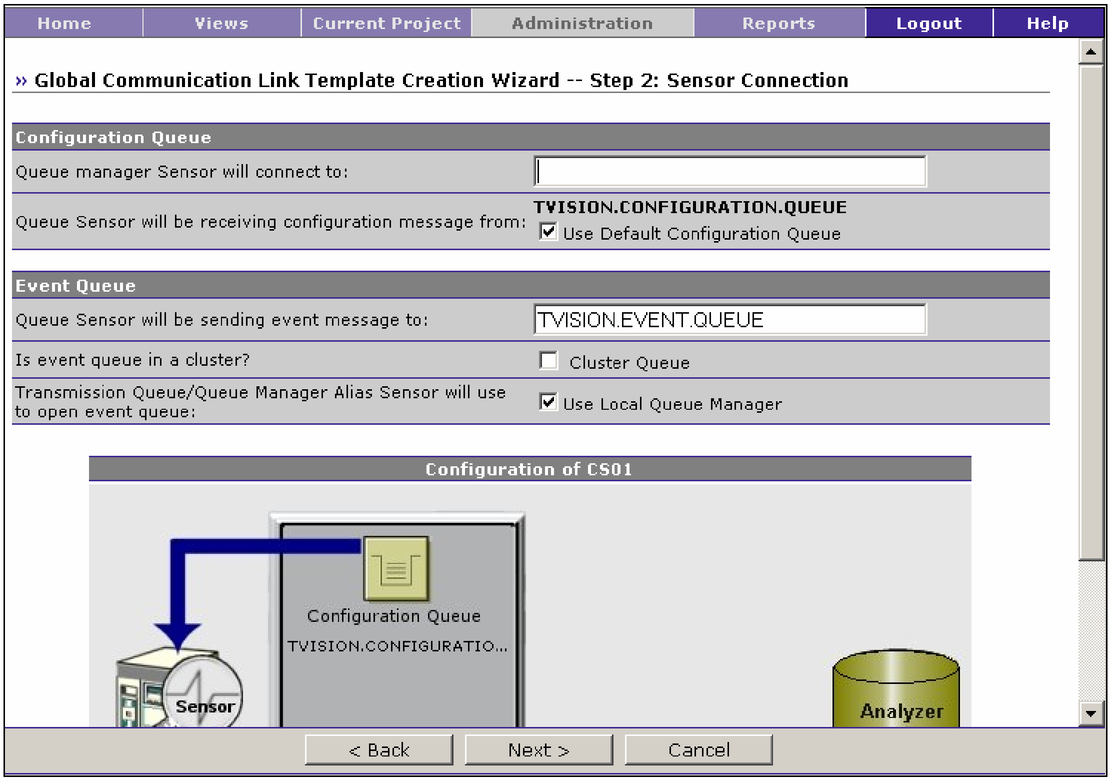
Enter the name of the new communication link and select the communication link type, then click Next> to define the Sensor connection.

For the communication link type, select the type of transport to use for communication between the Sensor and the Analyzer. The remaining steps vary between different communication link types.

Step 2: Sensor Connection

IBM WebSphere MQ Communication Link Type

If you selected IBM WebSphere MQ as the communication link type, the following page appears. As you provide information on this page, the diagram is updated to provide a graphical representation of the Sensor connection for the new communication link.



» Global Communication Link Template Creation Wizard -- Step 2: Sensor Connection

Configuration Queue

Queue manager Sensor will connect to:

Queue Sensor will be receiving configuration message from: TVISION.CONFIGURATION.QUEUE
☑ Use Default Configuration Queue

Event Queue

Queue Sensor will be sending event message to: TVISION.EVENT.QUEUE

Is event queue in a cluster? □ Cluster Queue

Transmission Queue/Queue Manager Alias Sensor will use to open event queue: ☑ Use Local Queue Manager

Configuration of CS01

1. Specify the name of the queue manager Sensors will connect to. This queue manager must be used by applications to be monitored.
2. Specify the name of the queue that Sensors should check for configuration messages. This queue must be a local queue on the specified queue manager. Check Use Default Configuration Queue to use the default configuration queue name TVISION.CONFIGURATION.QUEUE. To use a different queue

name, uncheck Use Default Configuration Queue and enter the queue name.

3. Specify the name of the queue that Sensors should send event messages to. This queue should not be used by applications other than TransactionVision.

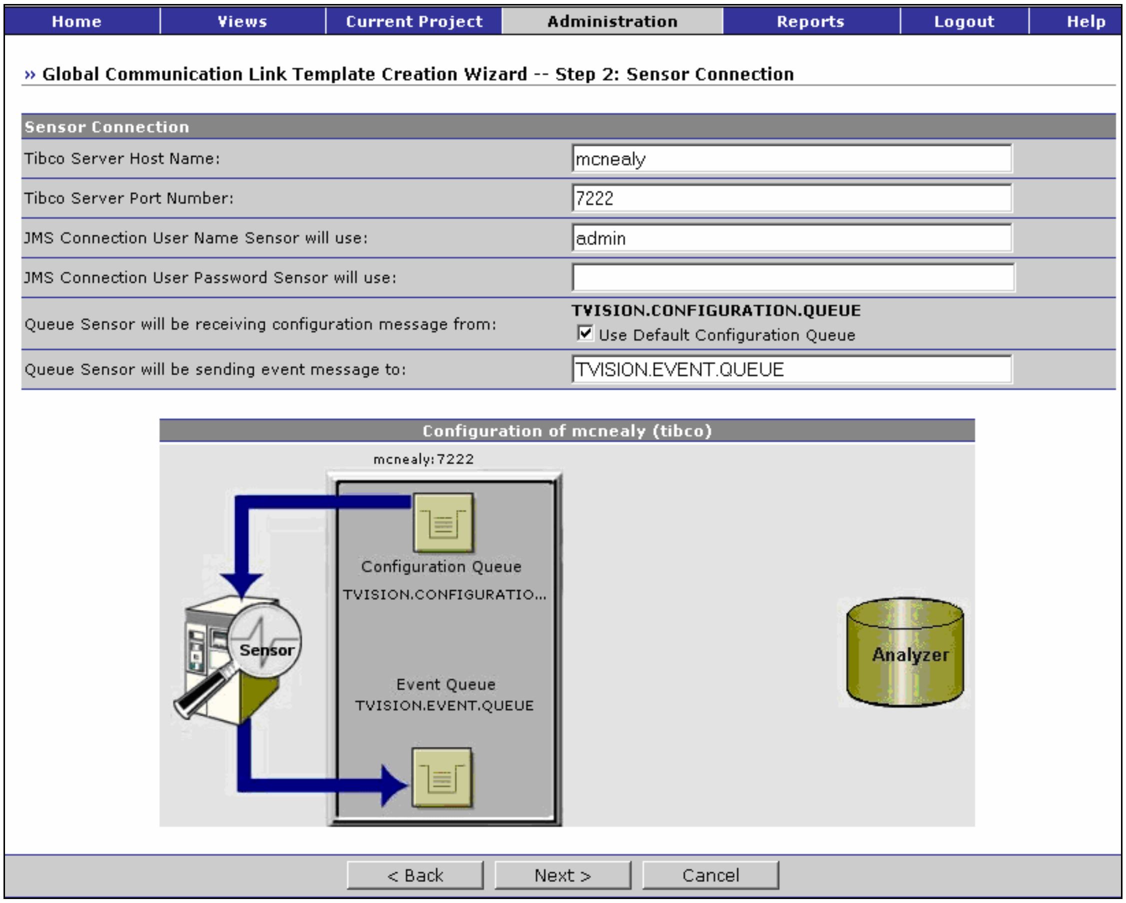
   If this queue is in a cluster, check Cluster Queue. If you check this setting, the Transmission Queue setting is not displayed.

   If this queue is not in a cluster and is a local queue, check Use Local Queue Manager. If it is not a local queue, uncheck Use Local Queue Manager and specify either the name of the transmission queue that has the same name as the remote queue manager or a queue manager alias that resolves to the remote queue manager. This method of sending messages is described in the WebSphere MQ Application Programming Guide (SC33-0807-08).

4. Click Next> to specify whether the Analyzer should connect to the same queue manager that the Sensors connect to, or <Back to return to the communication link name page.

TIBCO EMS Communication Link Type

If you selected TIBCO EMS as the communication link type, the following page appears. As you provide information on this page, the diagram is updated to provide a graphical representation of the Sensor connection for the new communication link.



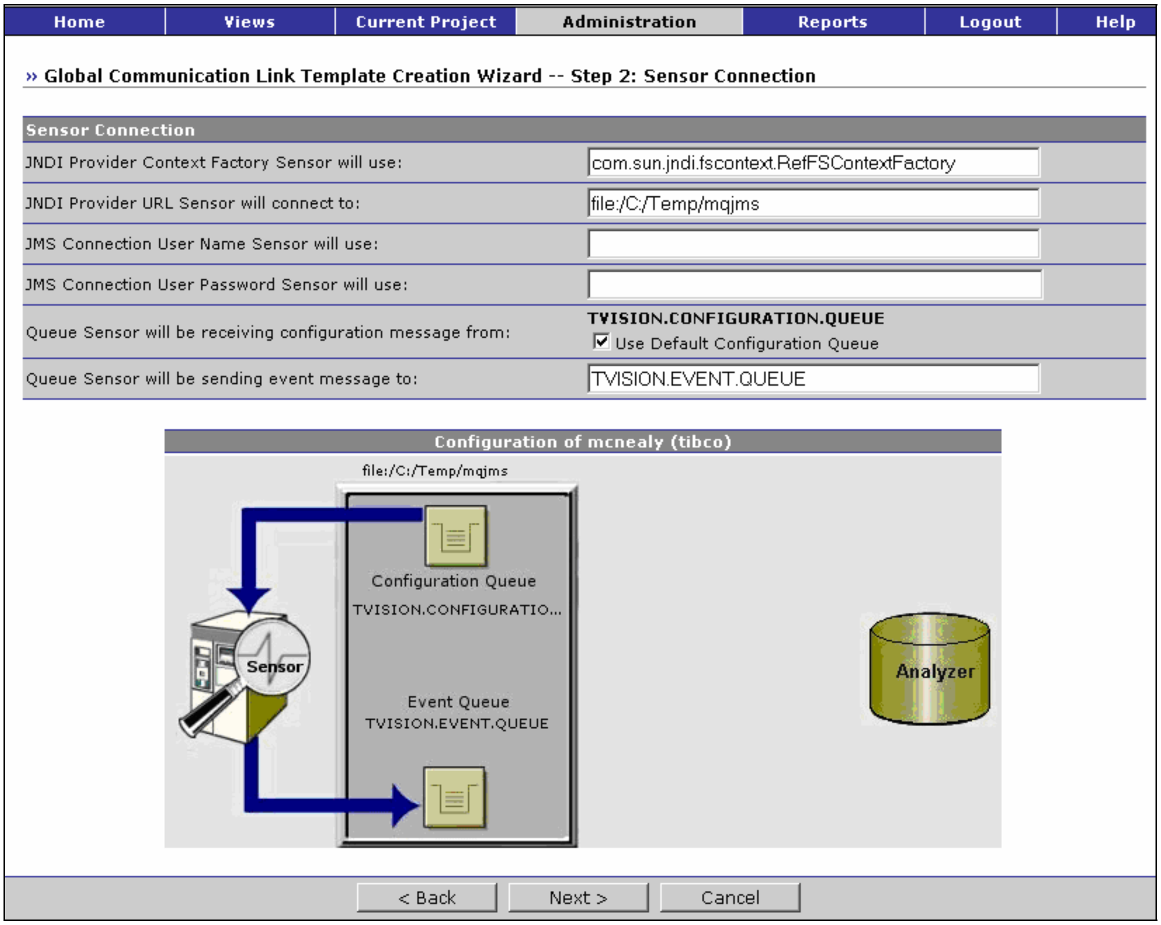
» Global Communication Link Template Creation Wizard -- Step 2: Sensor Connection

Sensor Connection	
Tibco Server Host Name:	mcnealy
Tibco Server Port Number:	7222
JMS Connection User Name Sensor will use:	admin
JMS Connection User Password Sensor will use:	
Queue Sensor will be receiving configuration message from:	TVISION.CONFIGURATION.QUEUE ☑ Use Default Configuration Queue
Queue Sensor will be sending event message to:	TVISION.EVENT.QUEUE

1. Specify the name of the name of the TIBCO EMS server host.
2. Specify the port number of the TIBCO EMS server.
3. Specify the username and password the Sensor will use for JMS connections. This user should have administrative privileges.
4. Specify the name of the queue that Sensors should check for configuration messages. Check Use Default Configuration Queue to use the default configuration queue name TVISION.CONFIGURATION.QUEUE. To use a different queue name, uncheck Use Default Configuration Queue and enter the queue name.
5. Specify the name of the queue that Sensors should send event messages to. This queue should not be used by applications other than TransactionVision.
6. Click Next> to specify whether the Analyzer should connect to the same queue manager that the Sensors connect to, or <Back to return to the communication link name page.

Other JMS Provider Communication Link Type

If you selected Other JMS Provider as the communication link type, the following page appears. As you provide information on this page, the diagram is updated to provide a graphical representation of the Sensor connection for the new communication link.



» Global Communication Link Template Creation Wizard -- Step 2: Sensor Connection

Sensor Connection

JNDI Provider Context Factory Sensor will use:	com.sun.jndi.fscontext.RefFSContextFactory
JNDI Provider URL Sensor will connect to:	file:/C:/Temp/mqjms
JMS Connection User Name Sensor will use:	
JMS Connection User Password Sensor will use:	
Queue Sensor will be receiving configuration message from:	TVISION.CONFIGURATION.QUEUE ☑ Use Default Configuration Queue
Queue Sensor will be sending event message to:	TVISION.EVENT.QUEUE

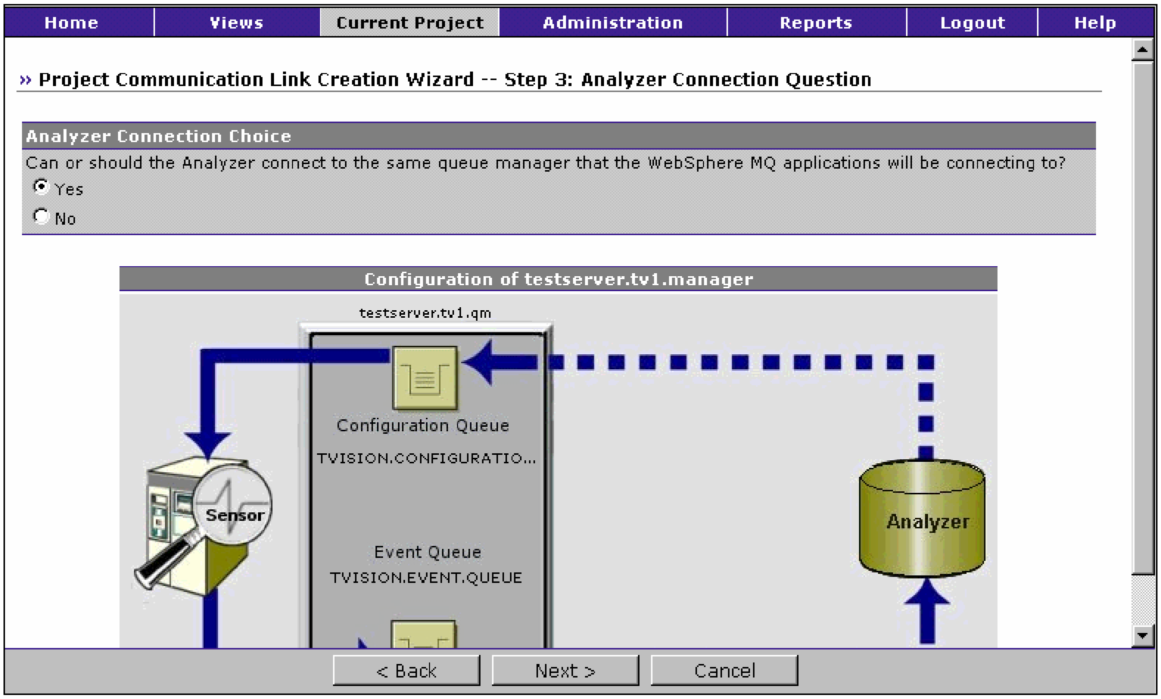
1. Specify the initial context factory of the JMS provider.
2. Specify the URL that sensor uses to make connection to the JNDI naming service.
3. Specify the username and password the Sensor will use to make the connection.
4. Specify the name of the queue that Sensors should check for configuration messages. This queue must be a local queue on the specified queue manager. Check Use Default Configuration Queue to use the default configuration queue name TVISION.CONFIGURATION.QUEUE. To use a different queue name, uncheck Use Default Configuration Queue and enter the queue name.

5. Specify the name of the queue that Sensors should send event messages to. This queue should not be used by applications other than TransactionVision.
6. Click Next> to specify whether the Analyzer should connect to the same queue manager that the Sensors connect to, or <Back to return to the communication link name page.

Step 3: Analyzer Connection Question

WebSphere MQ Communication Link Type

If you selected WebSphere MQ as the communication link type in Step 1, the following page is displayed:



» Project Communication Link Creation Wizard -- Step 3: Analyzer Connection Question

Analyzer Connection Choice

Can or should the Analyzer connect to the same queue manager that the WebSphere MQ applications will be connecting to?

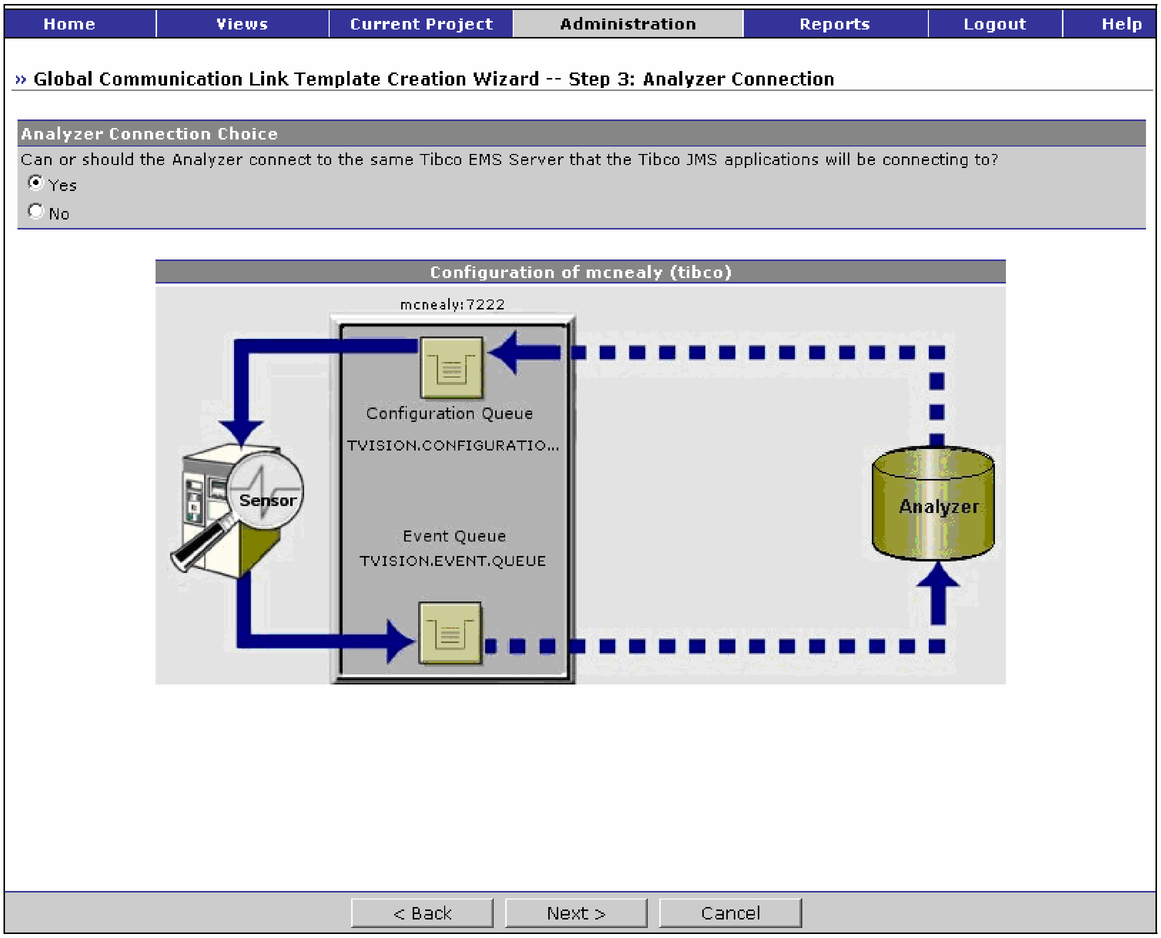
● Yes
○ No

If the Analyzer should connect to the same queue manager that WebSphere MQ applications connect to, select Yes. Click Next> to specify the maximum message length (see Step 6).

If not, select No. Click Next> to specify whether to use one or two remote queue managers (see Step 4).

TIBCO EMS Communication Link Type

If you selected TIBCO EMS as the communication link type in Step 1, the following page is displayed:



» Global Communication Link Template Creation Wizard -- Step 3: Analyzer Connection

Analyzer Connection Choice

Can or should the Analyzer connect to the same Tibco EMS Server that the Tibco JMS applications will be connecting to?

● Yes

○ No

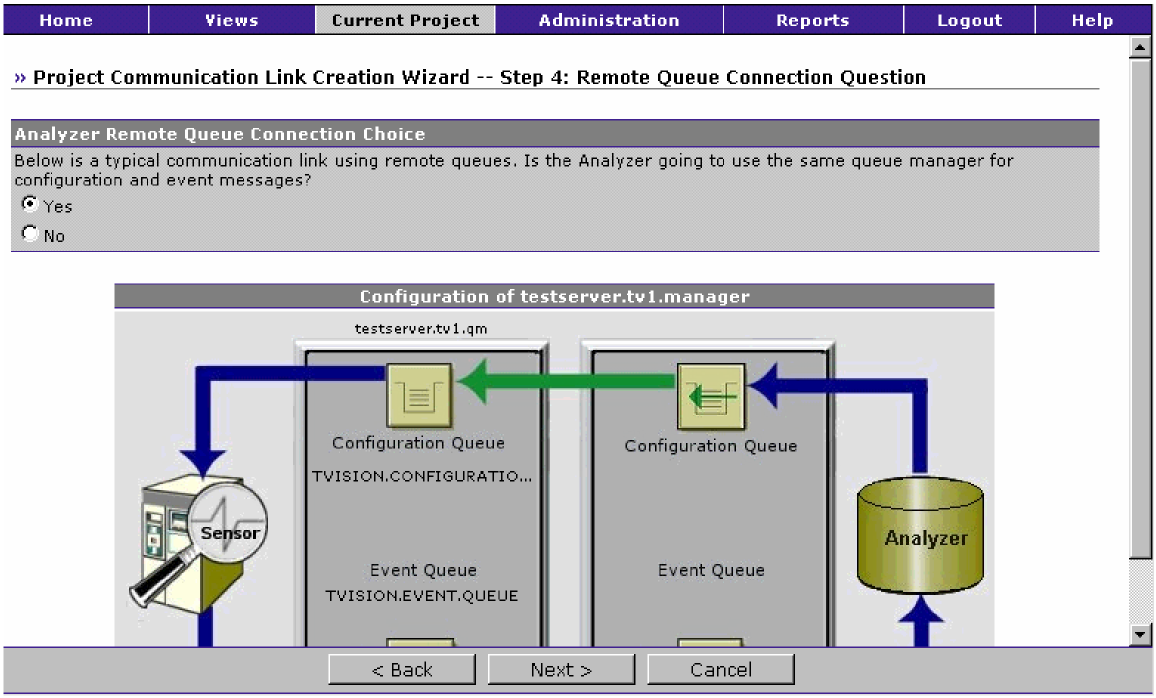
If the Analyzer should connect to the same TIBCO EMS Server that the Sensor connects to, select Yes. Click Next> to specify the maximum message length (see Step 6).

If not, select No. Click Next> to specify whether to use one or two TIBCO EMS server (see Step 4).

Step 4: Remote Queue Connection Question

WebSphere MQ Communication Link Type

If you selected WebSphere MQ as the communication link type in Step 1, the following page is displayed:



» Project Communication Link Creation Wizard -- Step 4: Remote Queue Connection Question

Analyzer Remote Queue Connection Choice

Below is a typical communication link using remote queues. Is the Analyzer going to use the same queue manager for configuration and event messages?

● Yes

○ No

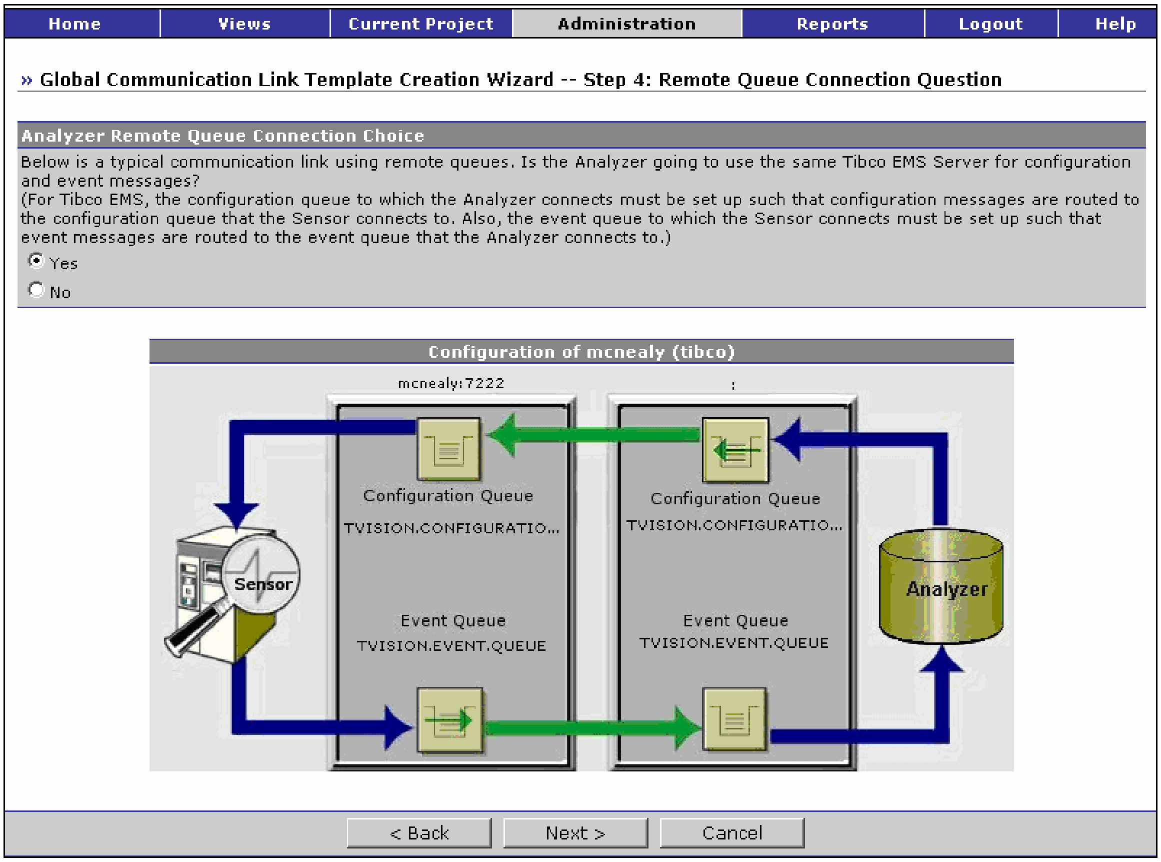
If the Analyzer should use the same queue manager for both configuration and event messages, select Yes.

If the Analyzer should use different queue managers for configuration and event messages, select No.

Click Next> to specify remote queue connections or <Back to return to the Communication Link Analyzer Connection Question page.

TIBCO EMS Communication Link Type

If you selected TIBCO EMS as the communication link type in Step 1, the following page is displayed:



» Global Communication Link Template Creation Wizard -- Step 4: Remote Queue Connection Question

Analyzer Remote Queue Connection Choice

Below is a typical communication link using remote queues. Is the Analyzer going to use the same Tibco EMS Server for configuration and event messages?
(For Tibco EMS, the configuration queue to which the Analyzer connects must be set up such that configuration messages are routed to the configuration queue that the Sensor connects to. Also, the event queue to which the Sensor connects must be set up such that event messages are routed to the event queue that the Analyzer connects to.)

● Yes

○ No

Configuration of mcnealy (tibco)

If the Analyzer should use the same TIBCO EMS server for both configuration and event messages, select Yes.

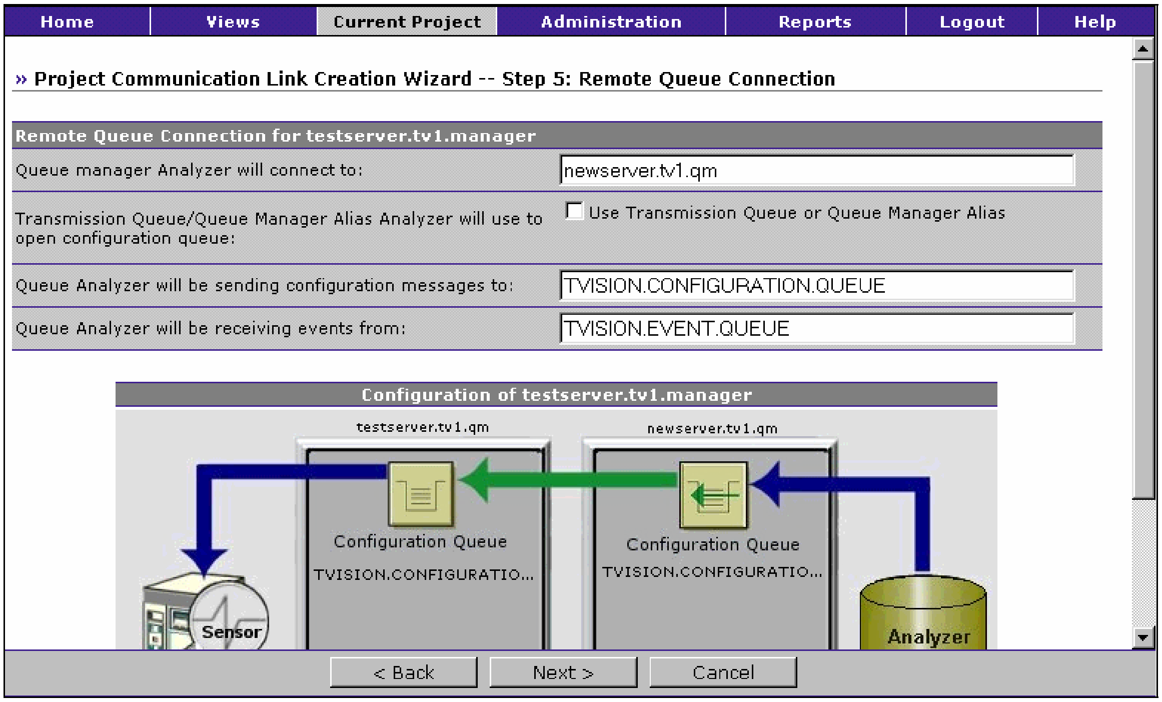
If the Analyzer should use different TIBCO EMS servers for configuration and event messages, select No.

Click Next> to specify remote queue connections or <Back to return to the Communication Link Analyzer Connection Question page.

Step 5: Remote Queue Connection

Same WebSphere MQ Queue Manager

If you are using a WebSphere MQ communication link type and answered Yes in Step 4, specify a single remote queue manager.



» Project Communication Link Creation Wizard -- Step 5: Remote Queue Connection

Remote Queue Connection for testserver.tv1.manager

Queue manager Analyzer will connect to: newserver.tv1.qm

Transmission Queue/Queue Manager Alias Analyzer will use to open configuration queue: □ Use Transmission Queue or Queue Manager Alias

Queue Analyzer will be sending configuration messages to: TVISION.CONFIGURATION.QUEUE

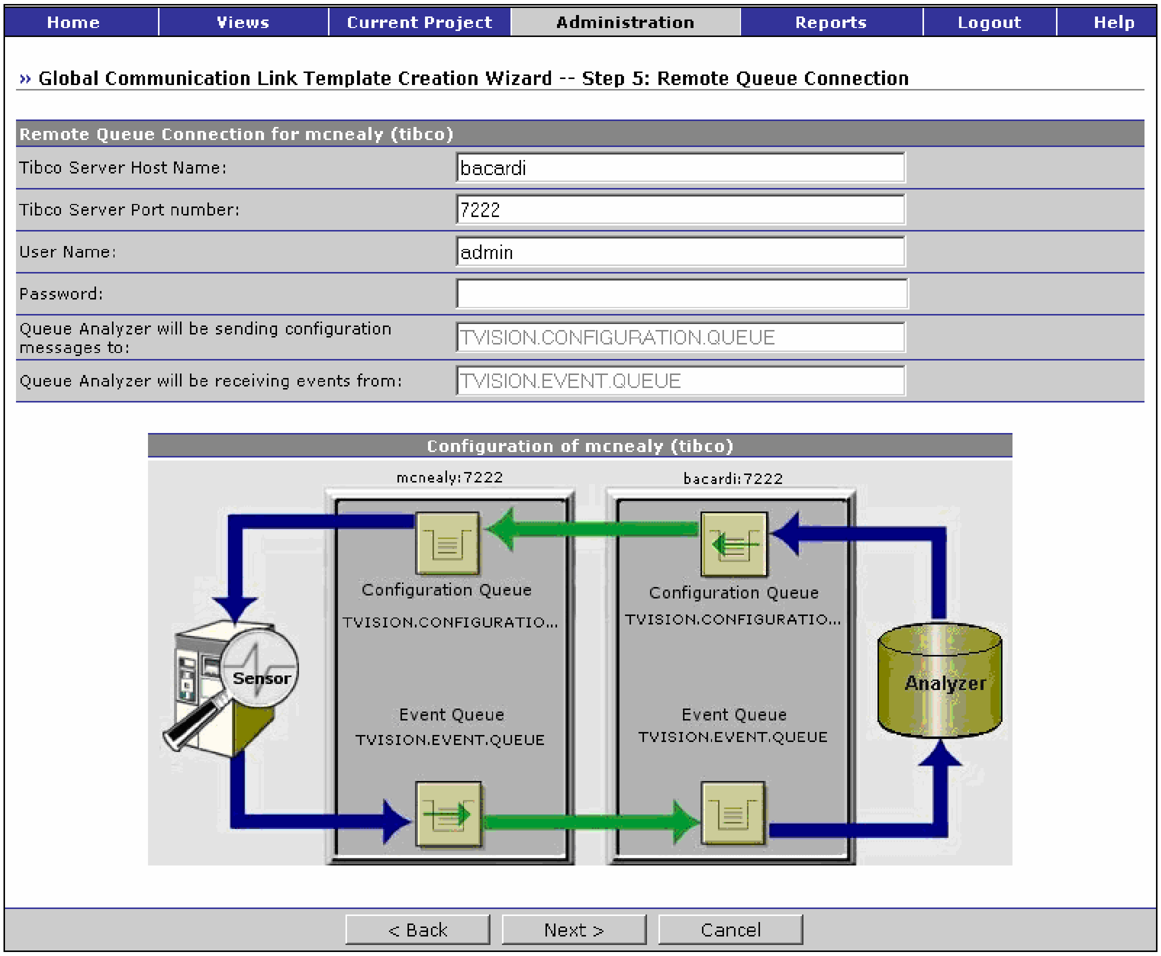
Queue Analyzer will be receiving events from: TVISION.EVENT.QUEUE

Configuration of testserver.tv1.manager

1. Specify the name of the queue manager the Analyzer will use for both configuration and event messages.
2. Specify the name of the queue that the Analyzer should send configuration messages to. This queue must be a remote queue for the configuration queue on the Sensor queue manager.
3. To use a transmission queue or queue manager alias, check the box next to User Transmission Queue or Queue Manager Alias. Enter the name of the transmission queue that has the same name as the remote queue manager or a queue manager alias that resolves to the remote queue manager.
4. Specify the name of the queue that the Analyzer should monitor for event messages. This queue must be a local queue and should not be used by applications other than TransactionVision.
5. Click Next> to specify the maximum message length or <Back to return to the Communication Link Remote Queue Connection Question page.

Same TIBCO EMS Server

If you are using a TIBCO EMS communication link type and answered Yes in Step 4, specify a single TIBCO EMS server:



» Global Communication Link Template Creation Wizard -- Step 5: Remote Queue Connection

Remote Queue Connection for mcnealy (tibco)

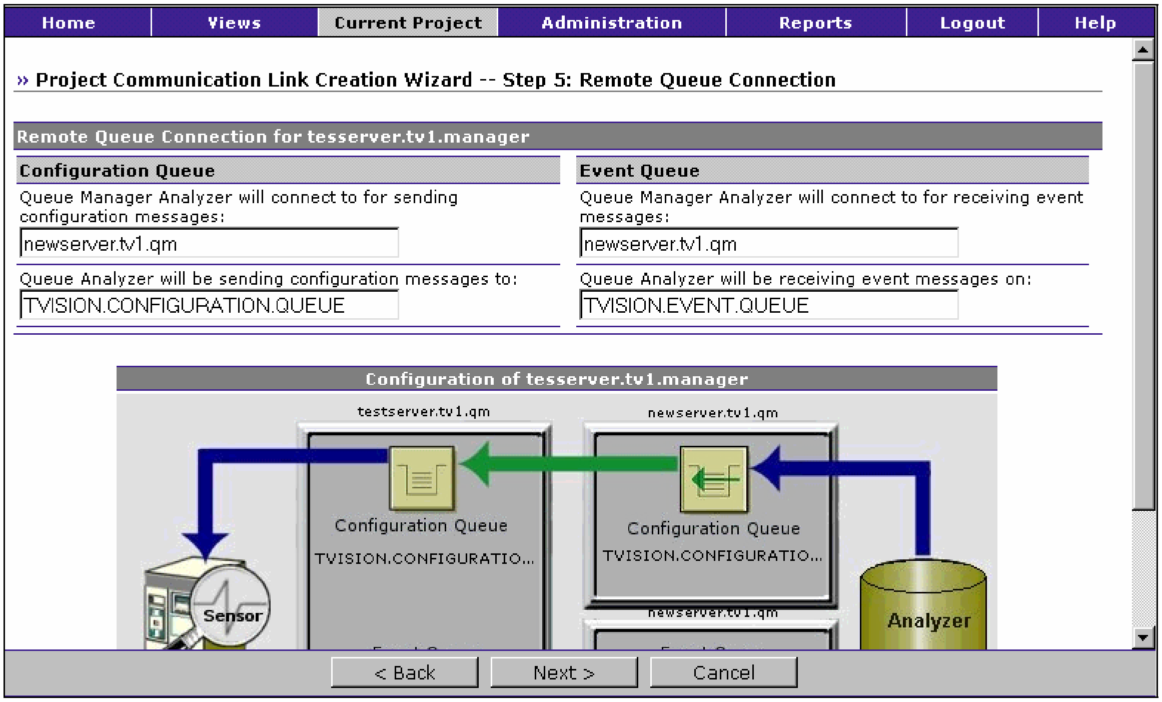
Tibco Server Host Name:	bacardi
Tibco Server Port number:	7222
User Name:	admin
Password:	
Queue Analyzer will be sending configuration messages to:	TVISION.CONFIGURATION.QUEUE
Queue Analyzer will be receiving events from:	TVISION.EVENT.QUEUE

Configuration of mcnealy (tibco)

1. Specify the TIBCO EMS server host name and port number.
2. Specify the user name and password to make the connection.
3. Because route queues must have the same name as their home queue, the configuration queue and event queue are not editable here.
4. Click Next> to specify the maximum message length or <Back to return to the Com¬munication Link Remote Queue Connection Question page.

Separate WebSphere MQ Queue Managers

If you are using a WebSphere MQ communication link type and answered No in Step 4, specify separate remote queue managers.



» **Project Communication Link Creation Wizard -- Step 5: Remote Queue Connection**

Remote Queue Connection for tesserver.tv1.manager

Configuration Queue

Queue Manager Analyzer will connect to for sending configuration messages:

newserver.tv1.qm

Queue Analyzer will be sending configuration messages to:

TVISION.CONFIGURATION.QUEUE

Event Queue

Queue Manager Analyzer will connect to for receiving event messages:

newserver.tv1.qm

Queue Analyzer will be receiving event messages on:

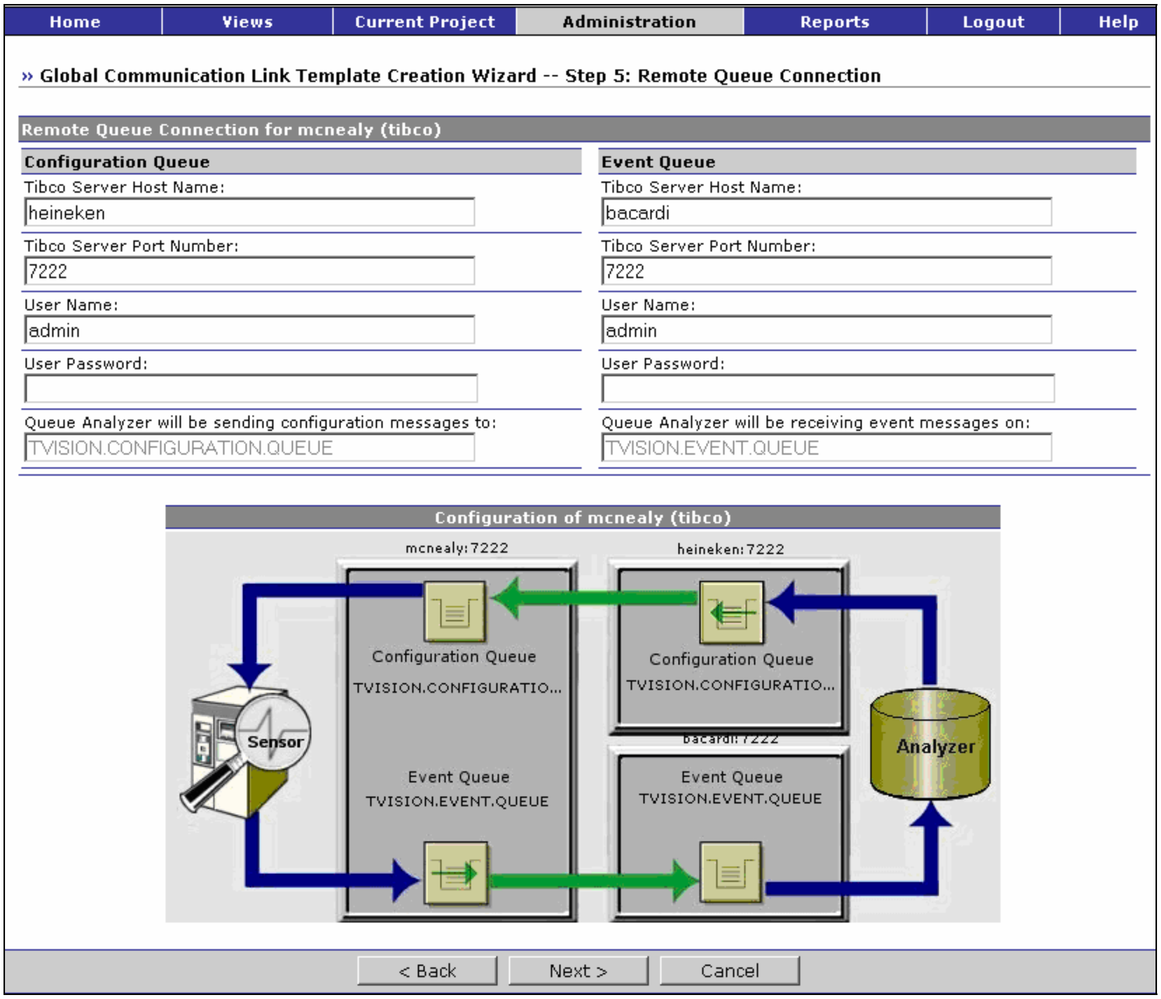
TVISION.EVENT.QUEUE

Configuration of tesserver.tv1.manager

1. Specify the name of the queue manager the Analyzer will use for sending configuration messages to Sensors.
2. Specify the name of the queue that the Analyzer should send configuration messages to. This queue must be a remote queue for the configuration queue on the Sensor queue manager.
3. Specify the name of the queue manager the Analyzer will monitor for event messages from Sensors.
4. Specify the name of the queue on the event queue manager that the Analyzer should monitor for event messages. This queue must be a local queue and should not be used by applications other than TransactionVision.
5. Click Next> to specify the maximum message length or <Back to return to the Communication Link Remote Queue Connection Question page.

Separate TIBCO EMS Servers

If you are using a TIBCO EMS communication link type and answered No in Step 4, specify separate TIBCO EMS servers.



» Global Communication Link Template Creation Wizard -- Step 5: Remote Queue Connection

Remote Queue Connection for mcnealy (tibco)

Configuration Queue

Tibco Server Host Name: heineken

Tibco Server Port Number: 7222

User Name: admin

User Password:

Queue Analyzer will be sending configuration messages to: TVISION.CONFIGURATION.QUEUE

Event Queue

Tibco Server Host Name: bacardi

Tibco Server Port Number: 7222

User Name: admin

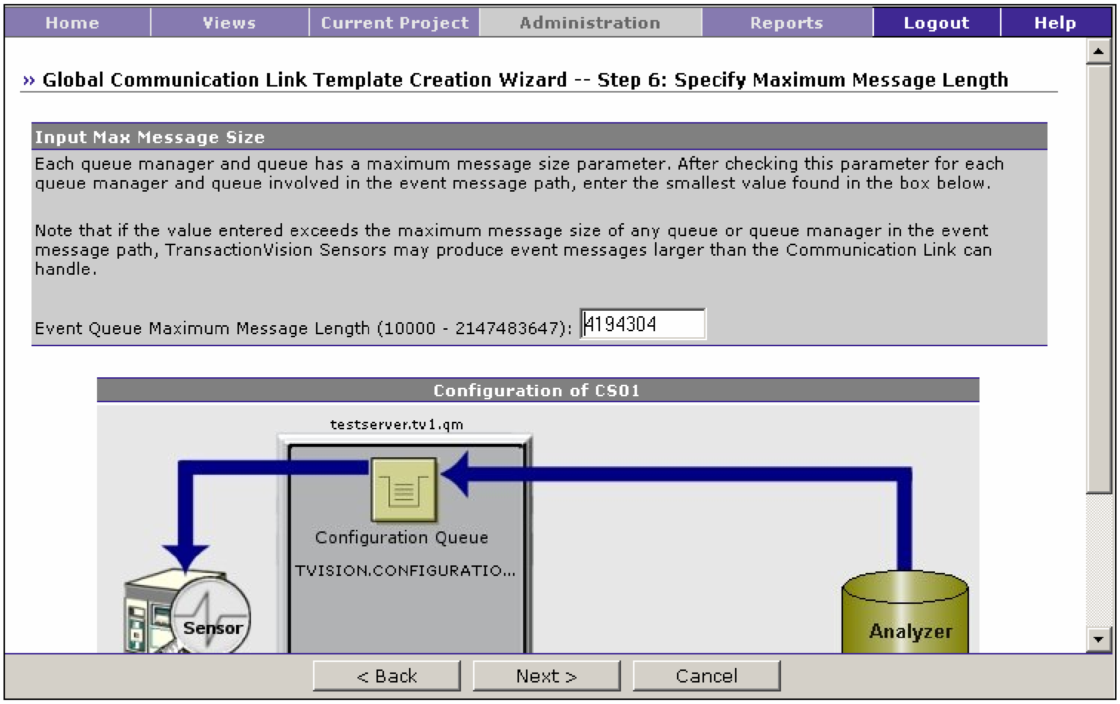
User Password:

Queue Analyzer will be receiving event messages on: TVISION.EVENT.QUEUE

Configuration of mcnealy (tibco)

1. Specify the host name and port number for configuration queue’s TIBCO EMS server.
2. Specify the user name and password to make the connection to the configuration queue.
3. Specify the host name and port number for the event qeueue’s TIBCO EMS server.
4. Specify the user name and password to make connection to the event queue.
5. Because route queues must have the same name as their home queues, the configuration queue and event queue names are not editable here.
6. Click Next> to specify the maximum message length or <Back to return to the Com¬munication Link Remote Queue Connection Question page.

Step 6: Maximum Message Length



» Global Communication Link Template Creation Wizard -- Step 6: Specify Maximum Message Length

Input Max Message Size

Each queue manager and queue has a maximum message size parameter. After checking this parameter for each queue manager and queue involved in the event message path, enter the smallest value found in the box below.

Note that if the value entered exceeds the maximum message size of any queue or queue manager in the event message path, TransactionVision Sensors may produce event messages larger than the Communication Link can handle.

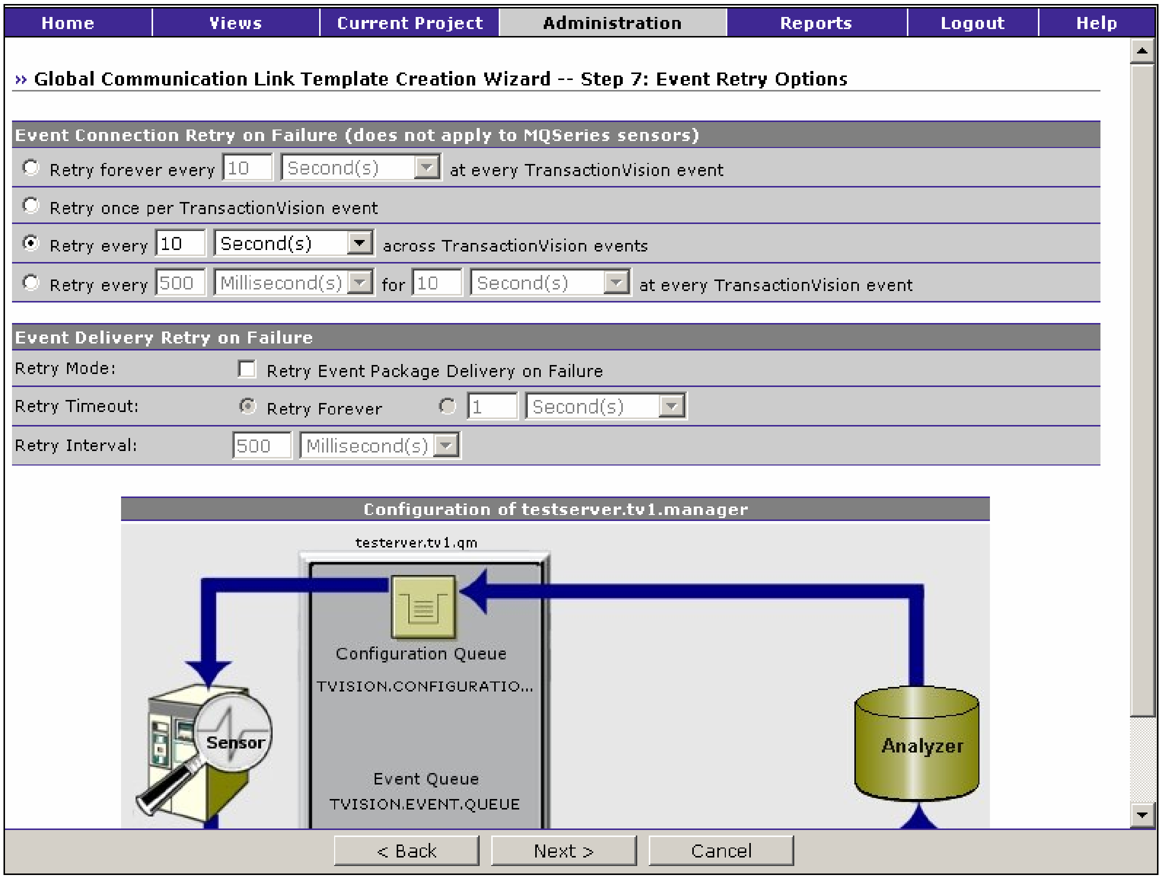
Event Queue Maximum Message Length (10000 - 2147483647): 4194304

Specify the maximum event message length. This value can be no larger than the maximum message length of any of the event queues, channels, transmission queues, and queue managers used in this communication link.

Bristol Technology recommends using the default maximum message length of 4194304 bytes; a minimum message length of 10,000 bytes is required. To restrict the message length based on your applications, consider the length of messages sent by your application and allow an additional 4000 bytes for event information.

Click Next> to specify event delivery retry information for the communication link or <Back to return to the Remote Queue Connection page.

Step 7: Event Retry



» Global Communication Link Template Creation Wizard -- Step 7: Event Retry Options

Event Connection Retry on Failure (does not apply to MQSeries sensors)

○ Retry forever every 10 Second(s) at every TransactionVision event

○ Retry once per TransactionVision event

● Retry every 10 Second(s) across TransactionVision events

○ Retry every 500 Millisecond(s) for 10 Second(s) at every TransactionVision event

Event Delivery Retry on Failure

Retry Mode: □ Retry Event Package Delivery on Failure

Retry Timeout: ● Retry Forever ○ 1 Second(s)

Retry Interval: 500 Millisecond(s)

Configuration of testserver.tv1.manager

The WebSphere MQ Sensor relies on the sensored application to handle connections to the event and configuration queue manager. However, other Sensors can be configured to try to reconnect if the event or configuration queue manager goes down and the Sensor loses the connection. Choose on of the following actions to take if the event or configuration connection is lost:

If a Sensor is unable to connect to the event queue or is unable to put events on the event queue, **events will be lost**. To avoid this situation, you can configure retry options for event connection and delivery.

Select one of the following actions for the Sensor to take if connection to the event queue fails:

Option	Description
Retry forever	Continues to retry at the specified interval as long as event collection is in progress. Note that this option may cause every application API call to slow down in the event of a connection failure, reducing application performance significantly. This option is recommended for an audit environment where all events must be logged.

Option	Description
Retry once per TransactionVision event	Retries once for each event. This option reduces the impact on application performance if a connection is lost, but TransactionVision events are lost if the retry attempt is not successful.
Retry across transaction events	Continues to retry at the specified interval as long as event collection is in progress. However, the reconnection time delay is not incurred for each API call, but at a given frequency.
Retry for a specified interval at every TransactionVision event	Continues to retry at the specified interval until the timeout is reached.

The default setting is to retry forever every 10 seconds.

To enable Sensors to retry if they fail to put an event on the event queue, check Retry Event Package Delivery on Failure. If you enable retry mode, set the following options to control retry attempts:

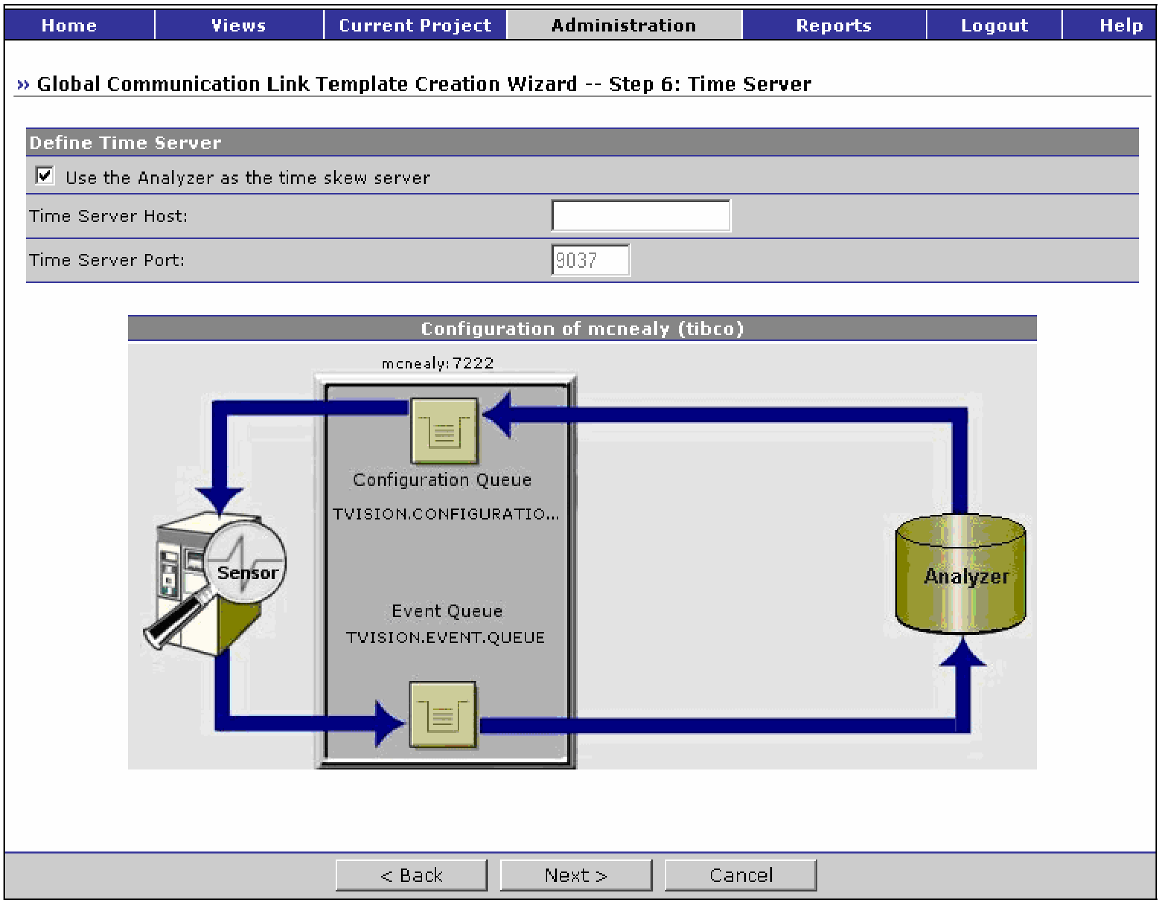
Option	Description
Retry Timeout	To continue to retry as long as event collection is in progress, choose Retry Forever. Otherwise, specify the number of seconds, minutes, or hours to continue to retry. The default is to retry forever.
Retry Interval	Specify the number of milliseconds or seconds that the Sensor should wait between failed retry attempts.

The default setting is not to retry event package delivery on failure. Set a value appropriate for your event collecting strategy. In a production environment, uncheck Retry Event Package Delivery on Failure for the safest setting.

To avoid any delays in the application when a failure occurs, setting Event Delivery Retry on Failure to not retry will override the Event Connection Retry on Failure option set on the same Communication Link.

Click Next> to specify time server information for TIBCO EMS communication link types or miscellaneous information for other communication link links, or click <Back to return to the Maximum Message Length page.

Time Server Information



» Global Communication Link Template Creation Wizard -- Step 6: Time Server

Define Time Server

☑ Use the Analyzer as the time skew server

Time Server Host:

Time Server Port: 9037

For TIBCO EMS communication link types, the Analyzer and Sensors require a time server to calculate the time skew information. Check Use the Time Server Running in the Analyzer if you are running the time server within the Analyzer. Otherwise, specify the name of the host running the time server and its port number.

The time server reports the current time on the host where it is running. Any TransactionVision component can connect to it via TCP/IP and get the time skew from the current host to the host running the time server.

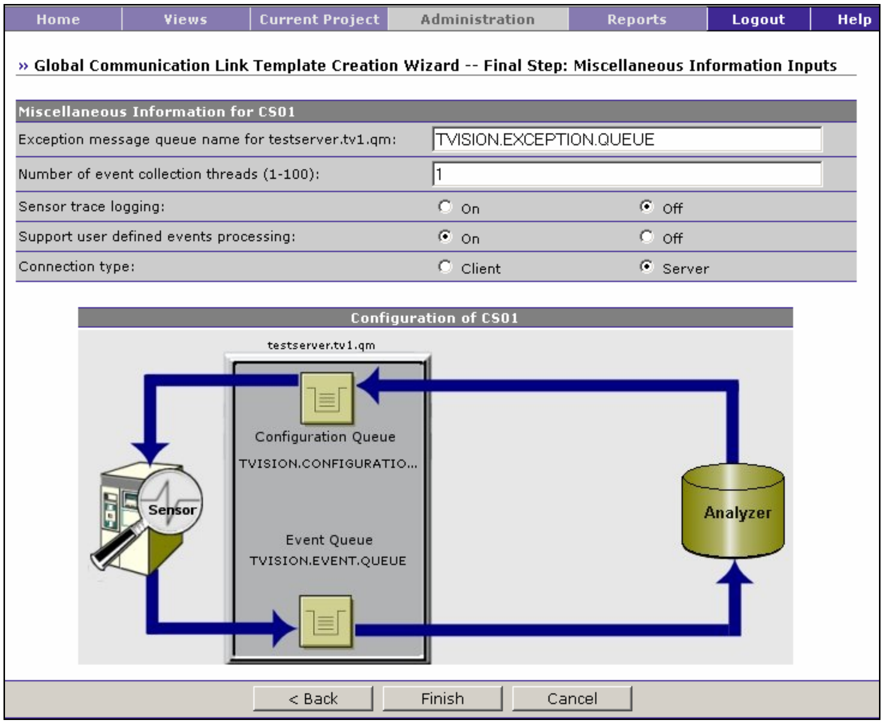
The Analyzer itself can act as a time server, or it can be run on a different host. To run the time server within the Analyzer, modify the `Analyzer.properties` file as follows:

- Set the `time_server` property to `on`
- Optionally, set `time_server_port` to the listening port you would like it to use. The default port is 9037.

Use the **`TimeServer.[sh|bat][`*`PORT`*`]`** utility to run the time server standalone. The default port is 9037.

Click Next> to specify miscellaneous information for the communication link, or click <Back to return to the Event Retry page.

Final Step: Miscellaneous Information



» Global Communication Link Template Creation Wizard -- Final Step: Miscellaneous Information Inputs

Miscellaneous Information for CS01		
Exception message queue name for testserver.tv1.qm:	TVISION.EXCEPTION.QUEUE	
Number of event collection threads (1-100):	1	
Sensor trace logging:	○ On	● Off
Support user defined events processing:	● On	○ Off
Connection type:	○ Client	● Server

Configuration of CS01

1. Specify the name of the exception message queue for the queue manager. The default is TVISION.EXCEPTION.QUEUE. If an event fails to be processed by the Analyzer, either because of an invalid event or an unexpected error or exception, the event is removed from the event queue and put on the exception message queue defined in the communication link.

   Any fatal Java errors (such as OutOfMemoryError) will cause the event to be put on the exception message queue and events will no longer be pulled off the event queue until the project is restarted. If the exception message queue name is blank, the failed event will be discarded.

   You can use the **`ManageQueue`** utility to transfer messages from the specified exception message queue to enable the Analyzer to attempt to reprocess the failed events. See Appendix A, "Utilities Reference," for more information.

2. Specify the number of event collection threads, from 1 to 100. The default value is 1. This value should match the results from the DBMS insert test. For more information about performing this test, seethe *TransactionVision Planning Guide*.

Important! Multiple threads performing concurrent database operations along with a DB2 behavior called Next Row Locking may lead to database deadlocks. To avoid deadlocks when using multiple event-processing threads, set the DB2 variable DB2_RR_TO_RS to ON with the following command:

```
db2set DB2_RR_TO_RS=ON
```

This setting is only effective after a DB2 restart. It affects all DB2 applications and cannot be used if other non-TransactionVision applications that require "Repeatable Read" semantics (Transaction Isolation Level RR) are using the same DB2 instance. If other applications using the same instance require "Repeatable Read" semantics, you must either create a separate DB2 instance for TransactionVision or set the number of event collection threads to 1.

3. Specify whether to enable Sensor trace logging. Sensor trace logging is off by default.
4. Specify whether to support user defined events processing. User events are events created by user applications beyond those originating from the standard TransactionVision Sensors. For information about implementing user events in applications, see the *TransactionVision Programmer's Guide*. By default, the communication link is configured to process standard Sensor events. If your application implements user events, select On to enable the communication link to process user events as well.
5. Specify whether to use a client or server connection type. The default connection type is server.

Important! For TIBCO EMS communication links and generic JMS communication links, the client connection concept does not apply.

If you select client, enter the following information:

Field	**Description**
Configuration Channel	Specify the channel to use when the Analyzer connects to the configuration queue manager.
Configuration Host	Specify the host running the configuration queue manager.
Configuration Port	Specify the listener port for the configuration queue manager.
Event Channel	Specify the channel to use when the Analyzer connects to the event queue manager.
Event Host	Specify the host running the event queue manager.

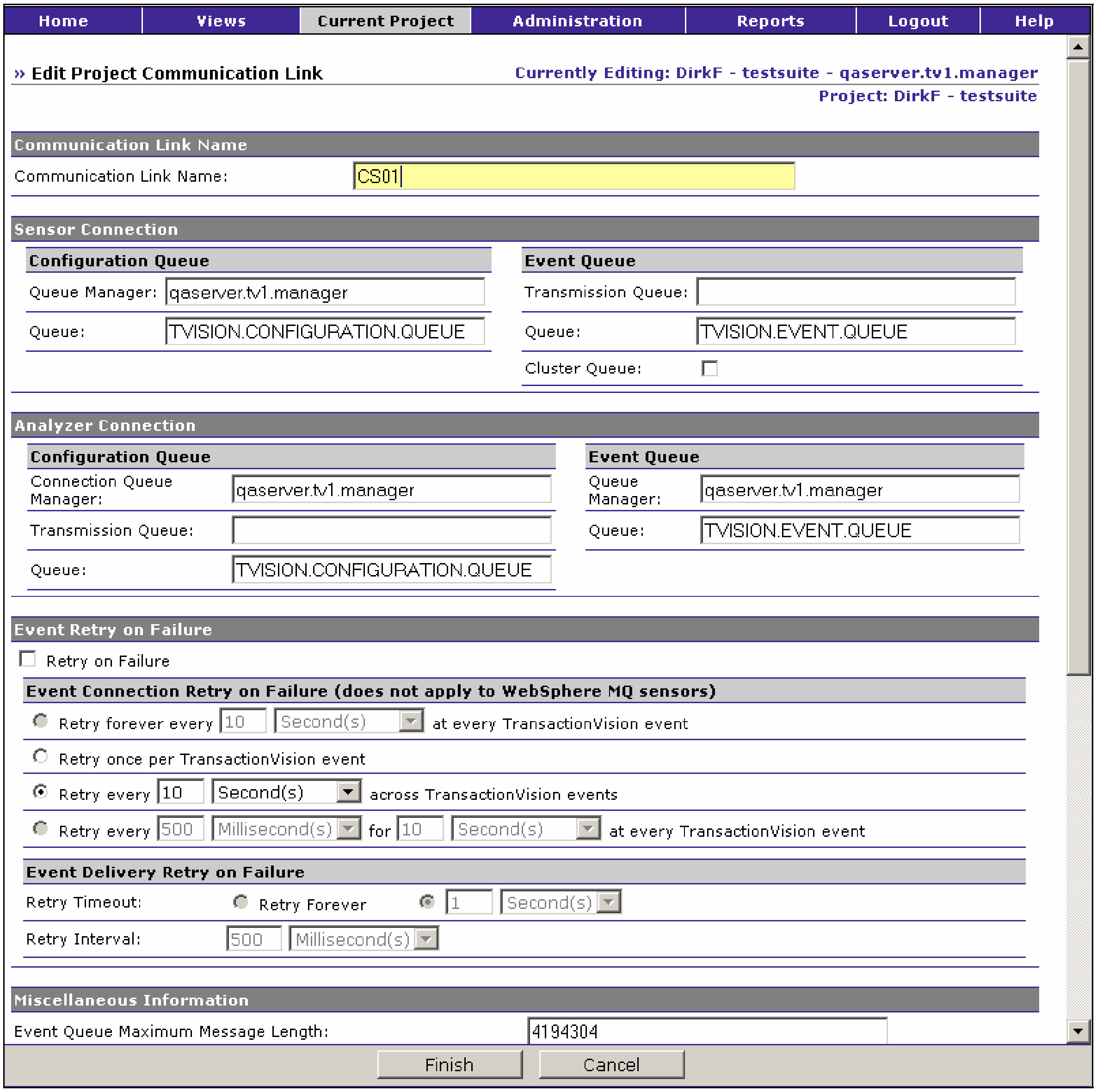
Field	Description
Event Port	Specify the listener port for the event queue manager.

6. Click Finish to create the communication link or <Back to return to the Communication Link Maximum Message Length page.

Edit a Communication Link or Template

Use the Edit Project Communication Link page to modify a project communication link or the Edit Communication Link Template page to modify a global communication link template.

WebSphere MQ Communication Links



» Edit Project Communication Link

Currently Editing: DirkF - testsuite - qaserver.tv1.manager
Project: DirkF - testsuite

Communication Link Name

Communication Link Name: CS01

Sensor Connection

Configuration Queue		Event Queue	
Queue Manager:	qaserver.tv1.manager	Transmission Queue:	
Queue:	TVISION.CONFIGURATION.QUEUE	Queue:	TVISION.EVENT.QUEUE
		Cluster Queue:	□

Analyzer Connection

Configuration Queue		Event Queue	
Connection Queue Manager:	qaserver.tv1.manager	Queue Manager:	qaserver.tv1.manager
Transmission Queue:		Queue:	TVISION.EVENT.QUEUE
Queue:	TVISION.CONFIGURATION.QUEUE		

Event Retry on Failure

□ Retry on Failure

Event Connection Retry on Failure (does not apply to WebSphere MQ sensors)

○ Retry forever every 10 Second(s) at every TransactionVision event

○ Retry once per TransactionVision event

● Retry every 10 Second(s) across TransactionVision events

○ Retry every 500 Millisecond(s) for 10 Second(s) at every TransactionVision event

Event Delivery Retry on Failure

Retry Timeout: ○ Retry Forever ● 1 Second(s)

Retry Interval: 500 Millisecond(s)

Miscellaneous Information

Event Queue Maximum Message Length: 4194304

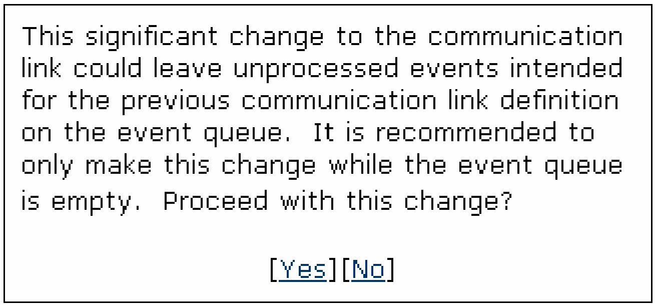
Make desired changes to the following fields, then click Finish:

Field	Description
Communication Link Name	Enter the name of the communication link.
Sensor Connection	
Configuration Queue Manager	Specify the name of the queue manager Sensors will connect to. This queue manager must be used by applications to be monitored.
Configuration Queue	Specify the name of the queue that Sensors should check for configuration messages. This queue must be a local queue on the specified queue manager. The default configuration queue name is TVISION.CONFIGURATION.QUEUE.
Event Transmission Queue	This field only appears if the event queue is not in a cluster. Leave this field blank to indicate that the event queue is on the same queue manager as the configuration queue. If not, specify either the name of the transmission queue that has the same name as the remote queue manager or the queue manager alias that resolves to the remote queue manager. This method of sending messages is described in the WebSphere MQ Application Programming Guide (SC33-0807-08).
Event Queue	Specify the name of the queue that Sensors should send event messages to. This queue should not be used by applications other than TransactionVision.
Cluster Queue	Check if the event queue is in a cluster. When this field is checked, the Event Transmission Queue field is not displayed.
Analyzer Connection	
Configuration Queue Manager	Specify the name of the queue manager the Analyzer will use for sending configuration messages to Sensors.
Configuration Transmission Queue	Leave this field blank if the configuration queue is on the same queue manager as the event queue. If not, specify either the name of the transmission queue that has the same name as the remote queue manager or the queue manager alias that resolves to the remote queue manager.
Configuration Queue	Specify the name of the queue that the Analyzer should send configuration messages to.
Event Queue Manager	Specify the name of the queue manager the Analyzer will monitor for event messages from Sensors.
Event Queue	Specify the name of the queue on the event queue manager that the Analyzer should monitor for event messages. This queue must be a local queue and should not be used by applications other than TransactionVision.

Field	Description
Event Retry on Failure	
Retry on Failure	Check to retry if the event connection or delivery fails. Then specify event connection and delivery failure retry options. Otherwise, events will be lost if the event connection or delivery fails.
Event Connection Retry on Failure	
Retry forever	Continues to retry at the specified interval as long as event collection is in progress. Note that this option may cause every application API call to slow down in the event of a connection failure, reducing application performance significantly. This option is recommended for an audit environment where all events must be logged.
Retry once per TransactionVision event	Retries once for each event. This option reduces the impact on application performance if a connection is lost, but TransactionVision events are lost if the retry attempt is not successful.
Retry across transaction events	Continues to retry at the specified interval as long as event collection is in progress. However, the reconnection time delay is not incurred for each API call, but at a given frequency.
Retry for a specified interval at every TransactionVision event	Continues to retry at the specified interval until the timeout is reached.
Event Delivery Retry	
Retry Mode	To enable Sensors to retry if they fail to put an event on the event queue, check Retry Event Package Delivery on Failure. If you enable retry mode, set the Retry Timeout and Retry Interval to control retry attempts. To avoid any delays in the application when a failure occurs, setting Event Delivery Retry on Failure to not retry will override the Event Connection Retry on Failure option set on the same Communication Link.
Retry Timeout	To continue to retry as long as event collection is in progress, choose Retry Forever. Otherwise, specify the number of seconds, minutes, or hours to continue to retry. The default is to retry forever.
Retry Interval	Specify the number of milliseconds or seconds that the Sensor should wait between failed retry attempts.
Event Queue Maximum Message Length	Specify the maximum event message length. This value can be no larger than the maximum message length of any of the event queues, channels, transmission queues, and queue managers used in this communication link. Bristol Technology recommends using the default maximum message length of 4194304 bytes; a

Field	Description
	minimum message length of 10,000 bytes is required. To restrict the message length based on your applications, consider the length of messages sent by your application and allow and additional 4000 bytes for event information.
Exception Message Queue Name	Specify the name of the exception message queue for the queue manager where the Analyzer will place configuration messages. The default is TVISION.EXCEPTION.QUEUE. If left blank, the Analyzer will discard events that fail to be placed in the database. For more information about the exception message queue, see “Final Step: Miscellaneous Information.”
Number of Event Collection Threads	Specify the number of event collection threads, from 1 to 100. The default value is 1. For more information about event collection threads, see “Final Step: Miscellaneous Information.”
Sensor Trace Logging	Specify whether to enable Sensor trace logging. Sensor trace logging is off by default.
Support user defined events processing	Specify whether to support user defined events processing. User events are events created by user applications beyond those originating from the standard TransactionVision Sensors. For information about implementing user events in applications, see the *TransactionVision Programmer’s Guide*. By default, the communication link is configured to process standard Sensor events. If your application implements user events, select On to enable the communication link to process user events as well.
Connection Type	Specify whether to use a client or server connection type. If you choose a client connection, you must also specify the following information: • The channel to use when the Analyzer connects to the configuration queue manager • The host running the configuration queue manager • The listener port for the configuration queue manager • The channel to use when the Analyzer connects to the event queue manager • The host running the event queue manager • The listener port for the event queue manager

Depending on your changes, the following message may be displayed:

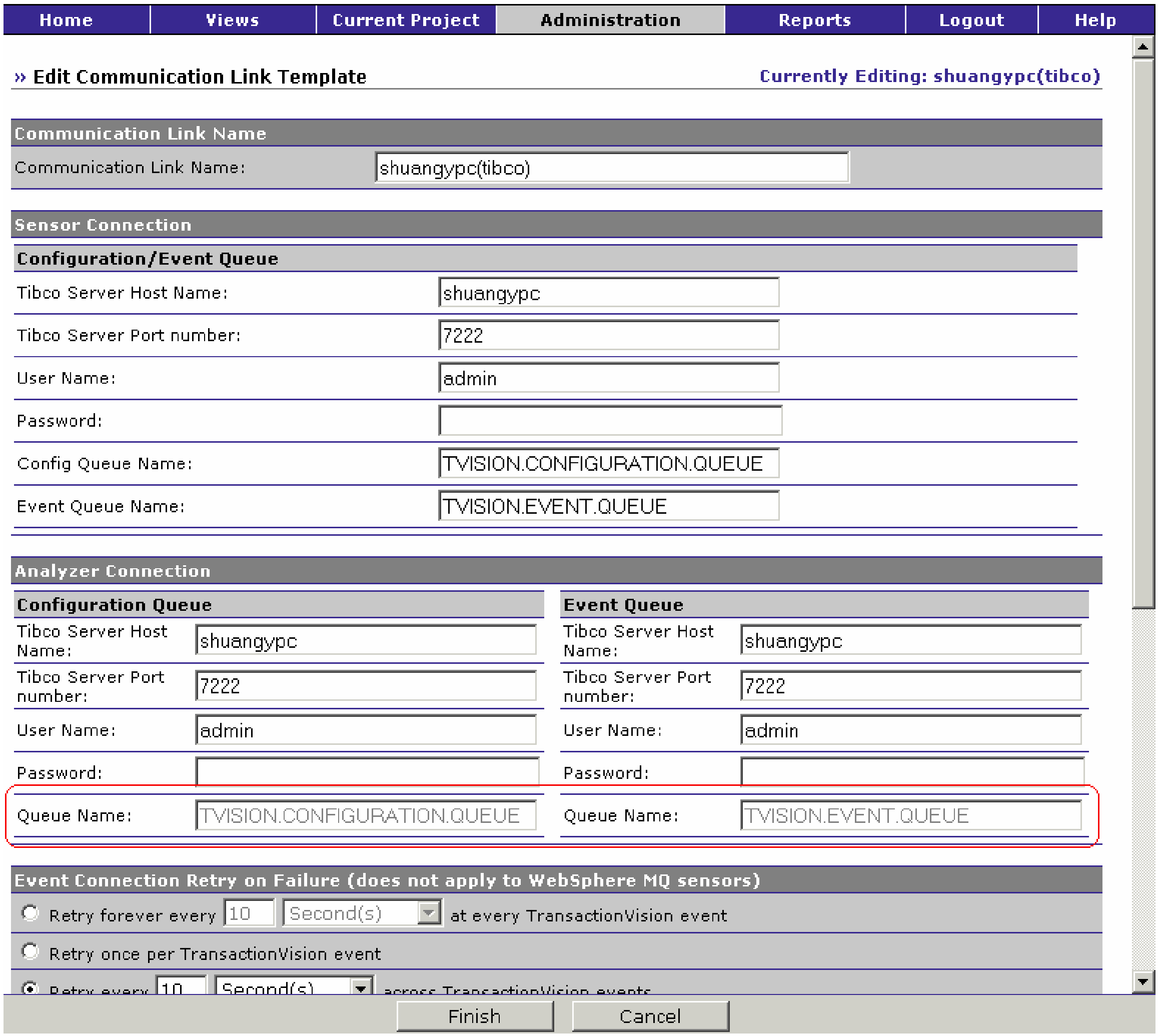


This significant change to the communication link could leave unprocessed events intended for the previous communication link definition on the event queue. It is recommended to only make this change while the event queue is empty. Proceed with this change?

View the Project Status to ensure that the event queue is empty, then click Yes to confirm your changes.

Note that if the project event packaging (specified in the data collection filter) is greater than 1, the Sensor may have events buffered but not yet sent to the event queue. If you are packaging multiple events, stop the project to cause the Sensor to send any buffered events to the event queue. Then restart the project to process the events on the event queue.

TIBCO EMS Communication Links



» Edit Communication Link Template — Currently Editing: shuangypc(tibco)

Communication Link Name

Communication Link Name: shuangypc(tibco)

Sensor Connection

Configuration/Event Queue

Tibco Server Host Name: shuangypc

Tibco Server Port number: 7222

User Name: admin

Password:

Config Queue Name: TVISION.CONFIGURATION.QUEUE

Event Queue Name: TVISION.EVENT.QUEUE

Analyzer Connection

Configuration Queue		Event Queue	
Tibco Server Host Name:	shuangypc	Tibco Server Host Name:	shuangypc
Tibco Server Port number:	7222	Tibco Server Port number:	7222
User Name:	admin	User Name:	admin
Password:		Password:	
Queue Name:	TVISION.CONFIGURATION.QUEUE	Queue Name:	TVISION.EVENT.QUEUE

Event Connection Retry on Failure (does not apply to WebSphere MQ sensors)

○ Retry forever every 10 Second(s) at every TransactionVision event

○ Retry once per TransactionVision event

● Retry every 10 Second(s) across TransactionVision events

Make desired changes to the following fields, then click Finish:

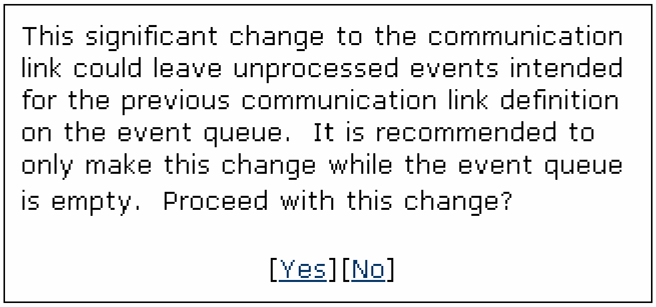
Field		Description
Communication link name		Enter the name of the communication link.
Sensor Connection		
	TIBCO Server Host Name	Specify the name of the TIBCO EMS server host.
	TIBCO Server Port number	Specify the port number of the TIBCO EMS server host.
	User Name	Specify the username the Sensor will use for JMS connections. This user should have administrative privileges.
	Password	Specify the password for the specified user.

Field	Description
Config Queue Name	Specify the name of the queue that Sensors should check for configuration messages. The default configuration queue name is TVISION.CONFIGURATION.QUEUE.
Event Queue Name	Specify the name of the queue that Sensors should send event messages to. This queue should not be used by applications other than TransactionVision.
Analyzer Connection	
Configuration Queue TIBCO Server Host Name	Specify the name of the TIBCO EMS server host the Analyzer will use for configuration messages.
Configuration Queue TIBCO Server Port number	Specify the port number of the TIBCO EMS server the Analyzer will use for configuration messages.
Configuration Queue User Name	Specify the username the Analyzer will use for JMS connections. This user should have administrative privileges.
Configuration Queue Password	Specify the password for the specified user name.
Configuration Queue Name	Because route queues must have the same name as their home queue, the configuration queue and event queue are not editable.
Event Queue TIBCO Server Host Name	Specify the name of the TIBCO EMS server host the Analyzer will use for event messages.
Event Queue TIBCO Server Port number	Specify the port number of the TIBCO EMS server the Analyzer will use for event messages.
Event Queue User Name	Specify the username the Analyzer will use for JMS connections. This user should have administrative privileges.
Event Queue Password	Specify the password for the specified user.
Event Queue Name	Because route queues must have the same name as their home queue, the configuration queue and event queue are not editable.
Event Connection Retry on Failure	
Retry forever	Continues to retry at the specified interval as long as event collection is in progress. Note that this option may cause every application API call to slow down in the event of a connection failure, reducing application performance significantly. This option is recommended for an audit environment where all events must be logged.
Retry once per TransactionVision event	Retries once for each event. This option reduces the impact on application performance if a connection is lost, but TransactionVision events are lost if the retry attempt is not successful.

Field	Description
Retry across transaction events	Continues to retry at the specified interval as long as event collection is in progress. However, the reconnection time delay is not incurred for each API call, but at a given frequency.
Retry for a specified interval at every TransactionVision event	Continues to retry at the specified interval until the timeout is reached.
Event Delivery Retry	
Retry Mode	To enable Sensors to retry if they fail to put an event on the event queue, check Retry Event Package Delivery on Failure. If you enable retry mode, set the Retry Timeout and Retry Interval to control retry attempts. To avoid any delays in the application when a failure occurs, setting Event Delivery Retry on Failure to not retry will override the Event Connection Retry on Failure option set on the same Communication Link.
Retry Timeout	To continue to retry as long as event collection is in progress, choose Retry Forever. Otherwise, specify the number of seconds, minutes, or hours to continue to retry. The default is to retry forever.
Retry Interval	Specify the number of milliseconds or seconds that the Sensor should wait between failed retry attempts.
Event Queue Maximum Message Length	Specify the maximum event message length. This value can be no larger than the maximum message length of any of the event queues, channels, transmission queues, and queue managers used in this communication link. Bristol Technology recommends using the default maximum message length of 4194304 bytes; a minimum message length of 10,000 bytes is required. To restrict the message length based on your applications, consider the length of messages sent by your application and allow and additional 4000 bytes for event information.
Exception Message Queue Name	Specify the name of the exception message queue for the queue manager where the Analyzer will place configuration messages. The default is TVISION.EXCEPTION.QUEUE. If left blank, the Analyzer will discard events that fail to be placed in the database. For more information about the exception message queue, see “Final Step: Miscellaneous Information.”
Number of Event Collection Threads	Specify the number of event collection threads, from 1 to 100. The default value is 1. For more information about event collection threads, see “Final Step: Miscellaneous Information.”

Field	**Description**
Sensor Trace Logging	Specify whether to enable Sensor trace logging. Sensor trace logging is off by default.
Support user defined events processing	Specify whether to support user defined events processing. User events are events created by user applications beyond those originating from the standard TransactionVision Sensors. For information about implementing user events in applications, see the *TransactionVision Programmer's Guide*. By default, the communication link is configured to process standard Sensor events. If your application implements user events, select On to enable the communication link to process user events as well.
Time Server	Specify the hostname and port number of the time skew server.

Depending on your changes, the following message may be displayed:



This significant change to the communication link could leave unprocessed events intended for the previous communication link definition on the event queue. It is recommended to only make this change while the event queue is empty. Proceed with this change?

View the Project Status to ensure that the event queue is empty, then click Yes to confirm your changes.

Note that if the project event packaging (specified in the data collection filter) is greater than 1, the Sensor may have events buffered but not yet sent to the event queue. If you are packaging multiple events, stop the project to cause the Sensor to send any buffered events to the event queue. Then restart the project to process the events on the event queue.

Chapter 6
Managing Data Collection Filters

Collecting all possible event information about all API calls can cause the project database to grow quite large. It also adds to your WebSphere MQ overhead— depending on project settings, the Sensor may send a message for each event. However, you typically do not need to collect all information about every event that occurs in your system. For example, you may only need to collect events that occur on a specific host, events for a specific API, events with a specific MQI reason code, or events with a specific value in the user data buffer. You may require only a specific amount of user data for each event.

Data collection filters limit the number of events and the amount of data for each event that Sensors collect and forward to the Analyzer. The Analyzer communicates data collection filter criteria to Sensors via the configuration queue and queue manager defined in the communication links assigned to the Analyzer. The Sensor only collects events that match the filter criteria specified in the configuration message.

Only users with required permissions may create or edit data collection filters. See Chapter 9, “Managing Users,” for information about permissions.

Planning Data Collection Filters

Data collection filters are unique for each project. You may create any number of filters for a project. You may assign a filter to multiple communication links, and you may assign multiple filters to a single communication link. When planning filters, keep the following in mind:

- An event only meets filter criteria if it matches **all** criteria specified for the filter. The AND operation is used **within** each filter.
- The Sensor collects events that meet the criteria for **any** assigned filter. The OR operation is used **between** filters.

- For each filter condition, you may specify whether to **include** or **exclude** events that meet the filter criteria.
- You may need to define more than one filter to meet your specific requirements.

Important! For the WebSphere MQ and CICS Sensors, a blank field is treated as a match when a data collection filter condition is specified. For example, if you create a filter that collects events with the user name J_SMITH, events with an empty user name are also collected by the WebSphere MQ and CICS Sensors.

Identifying Collection Needs

Before creating data collection filters, first identify exactly which events you need to collect. For example, you may only need to collect events for a particular Sensor type, host, or application. Or you may only need to collect events that use a specific WebSphere MQ object or application server. Or you may need to collect only events for a specific API, with a specific reason code, or with specific data in the user data buffer.

Once you determine which type of events you need to collect, you'll find it helpful to convert your criteria to an algebraic formula and generate a truth table to verify that the equation satisfies the requirement.

For example, suppose you want to collect all events from application X except MQCMIT events, and you also don't want to collect any event with the MQRC_NO_MSQ_AVAILABLE reason code. To state these requirements as an algebraic formula, use the following variables:

A = application X
B = APICODE MQCMIT
C = reason code MQRC_NO_MSQ_AVAILABLE

The resulting formula is as follows:

```
(A & !B & !C) | (!A & !C)
```

This formula shows two data collection filters. The first specifies the following conditions:

- Program = **include** events for application X
- API = **exclude** MQCMIT

Reason code = **exclude** MQRC_NO_MSQ_AVAILABLE The second filter specifies the following conditions:

- Program = **exclude** events for application X
- Reason code = **exclude** MQRC_NO_MSQ_AVAILABLE

The following truth table shows that this combination of data collection filters satisfies the filter requirements:

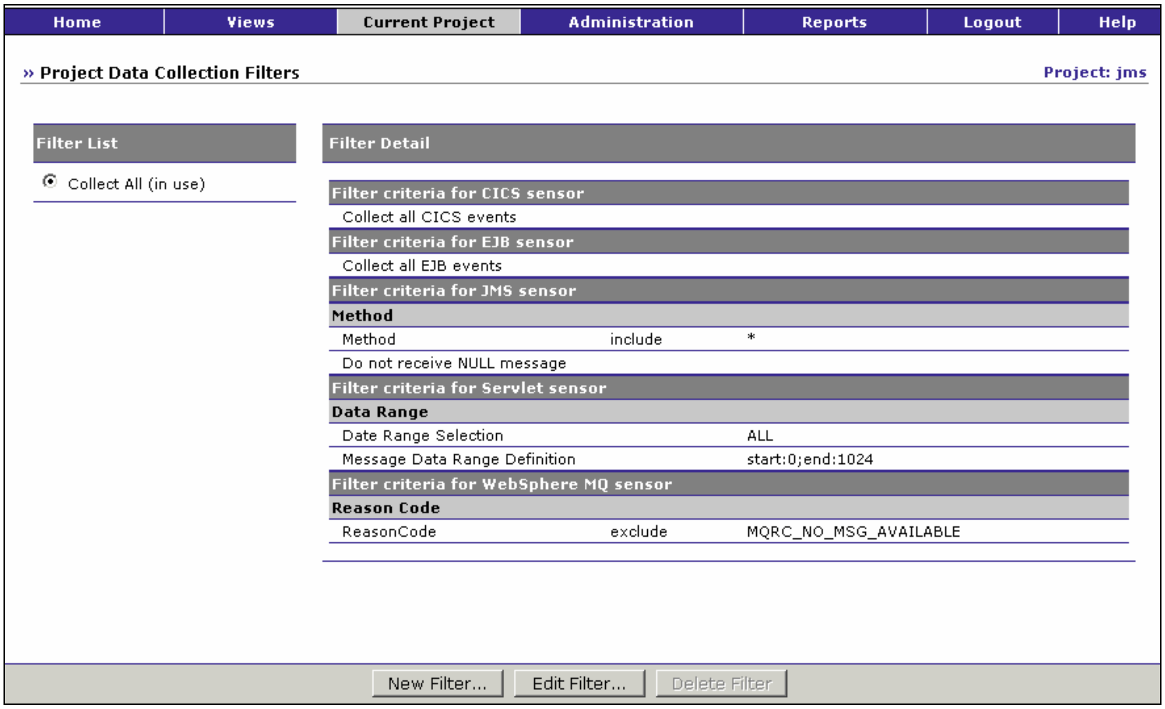
```
A B C   (A & !B & !C)   (!A & !C)   (A & !B & !C) | (!A &
!C)
0 0 0   0   1   1
0 0 1   0   0   0
0 1 0   0   1   1
0 1 1   0   0   0
1 0 0   1   0   1
1 0 1   0   0   0
1 1 0   0   0   0
1 1 1   0   0   0
```

Data Collection Filters and Communication Links

Data collection filters assigned to communication links should have only the required MQ objects, applications, hosts, and APIs specified for collection. MQGET calls with NO_MSG_AVAIL reason code should generally be filtered out.

View Filters for the Current Project

The Project Data Collection Filters page displays a list of data collection filters available for the current project. To view this page, click Current Project > Data Collection Filter.



» Project Data Collection Filters

Project: jms

Filter List

◉ Collect All (in use)

Filter Detail

Filter criteria for CICS sensor		
Collect all CICS events		
Filter criteria for EJB sensor		
Collect all EJB events		
Filter criteria for JMS sensor		
Method		
Method	include	*
Do not receive NULL message		
Filter criteria for Servlet sensor		
Data Range		
Date Range Selection		ALL
Message Data Range Definition		start:0;end:1024
Filter criteria for WebSphere MQ sensor		
Reason Code		
ReasonCode	exclude	MQRC_NO_MSG_AVAILABLE

New Filter...

To create a new data collection filter, click New Filter... to display the Add Filter page. See "Create a New Data Collection Filter" for information on creating a new filter.

Edit Filter...

To modify an existing filter, click the circle to the left of the filter name to select it. Click Edit Filter... to display the Edit Data Collection Filter page. See "Edit a Data Collection Filter" for information about editing a data collection filter.

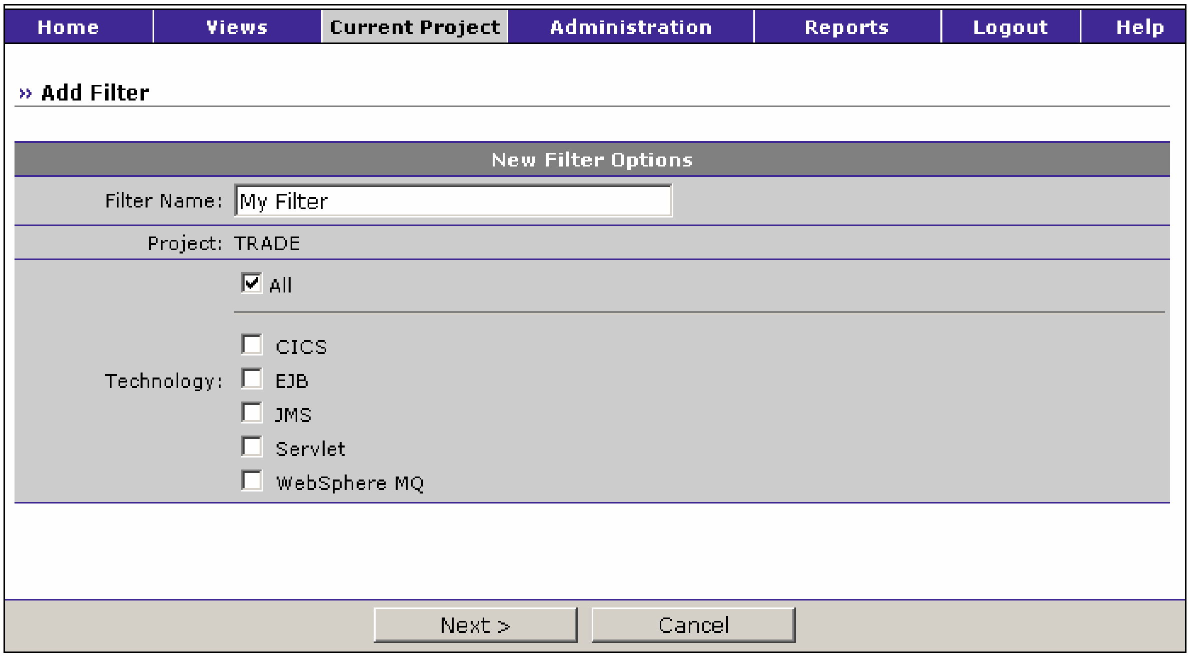
Delete Filter

To delete the selected filter, click Delete Filter.

Create a New Data Collection Filter

Perform the following steps to create a new data collection filter for a project:

1. Click New Filter... on the Project Data Collection filters page to display the Add Filter page.



» Add Filter

New Filter Options

Filter Name: My Filter

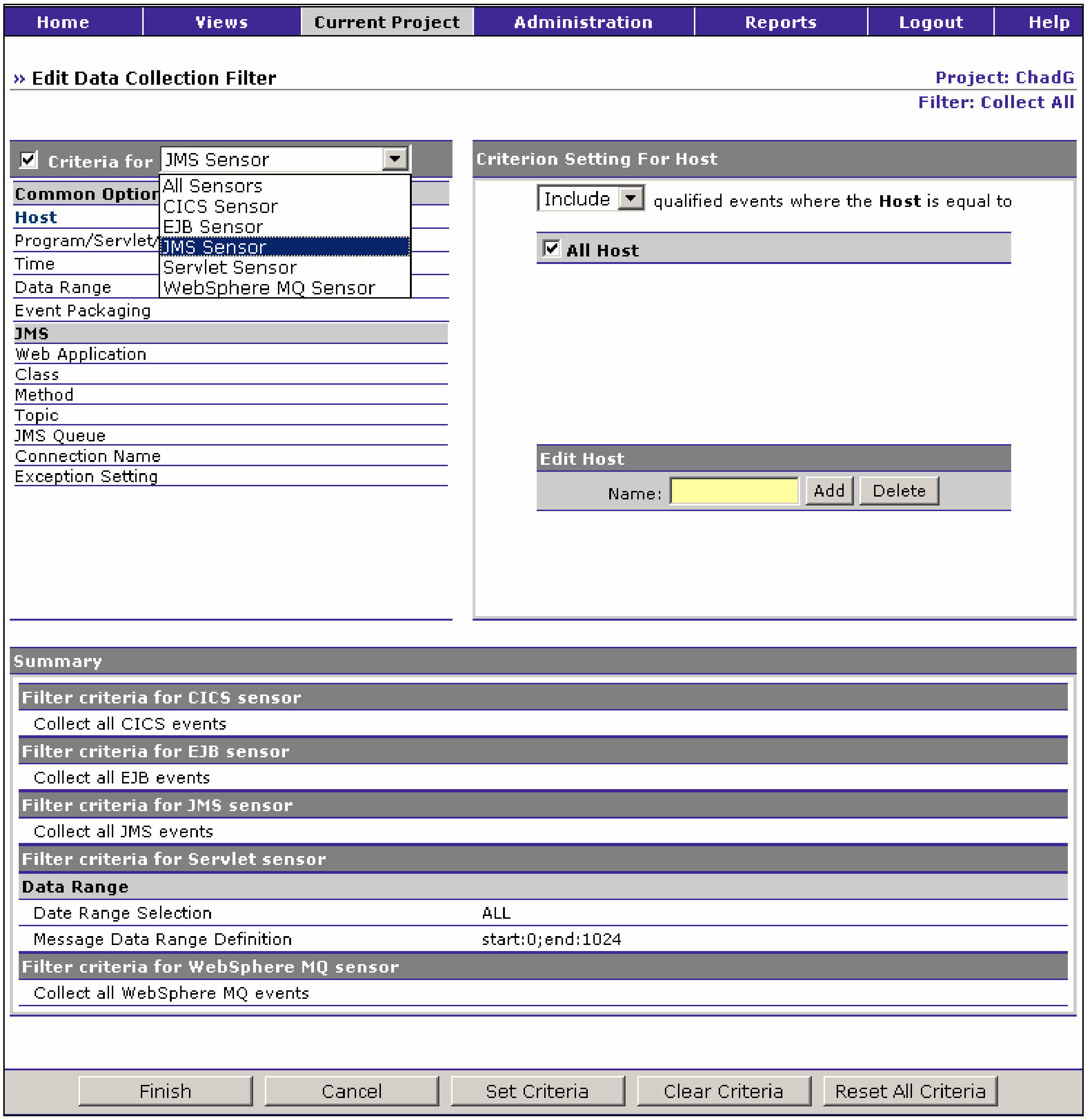
Project: TRADE

Technology:
☑ All
□ CICS
□ EJB
□ JMS
□ Servlet
□ WebSphere MQ

2. Enter the name for the new data collection filter. This name used on the Project List, Project Status, and Edit Project pages.
3. Check each technology you want to include in your filter, or check All to include events for all technologies. This option provides a quick way to create a filter that collects all events for a specific

technology. However, you may still specify additional criteria for each technology you select, or you specify criteria for other technologies.

4. Click Next> to display the Edit Data Collection Filter page and specify collection criteria.



» Edit Data Collection Filter

Project: ChadG
Filter: Collect All

Criterion Setting For Host

Include qualified events where the **Host** is equal to

☑ **All Host**

Summary

Filter criteria for CICS sensor
Collect all CICS events

Filter criteria for EJB sensor
Collect all EJB events

Filter criteria for JMS sensor
Collect all JMS events

Filter criteria for Servlet sensor

Data Range

Date Range Selection	ALL
Message Data Range Definition	start:0;end:1024

Filter criteria for WebSphere MQ sensor
Collect all WebSphere MQ events

The left side of the page lists all filter conditions that you may change. The right side shows the setting for the currently selected criteria.

5. Click the criteria category name on the left side for the condition that you wish to change from the default value and make desired

changes on the right side of the page. See “Filter Conditions” for instructions on setting criteria for each condition.

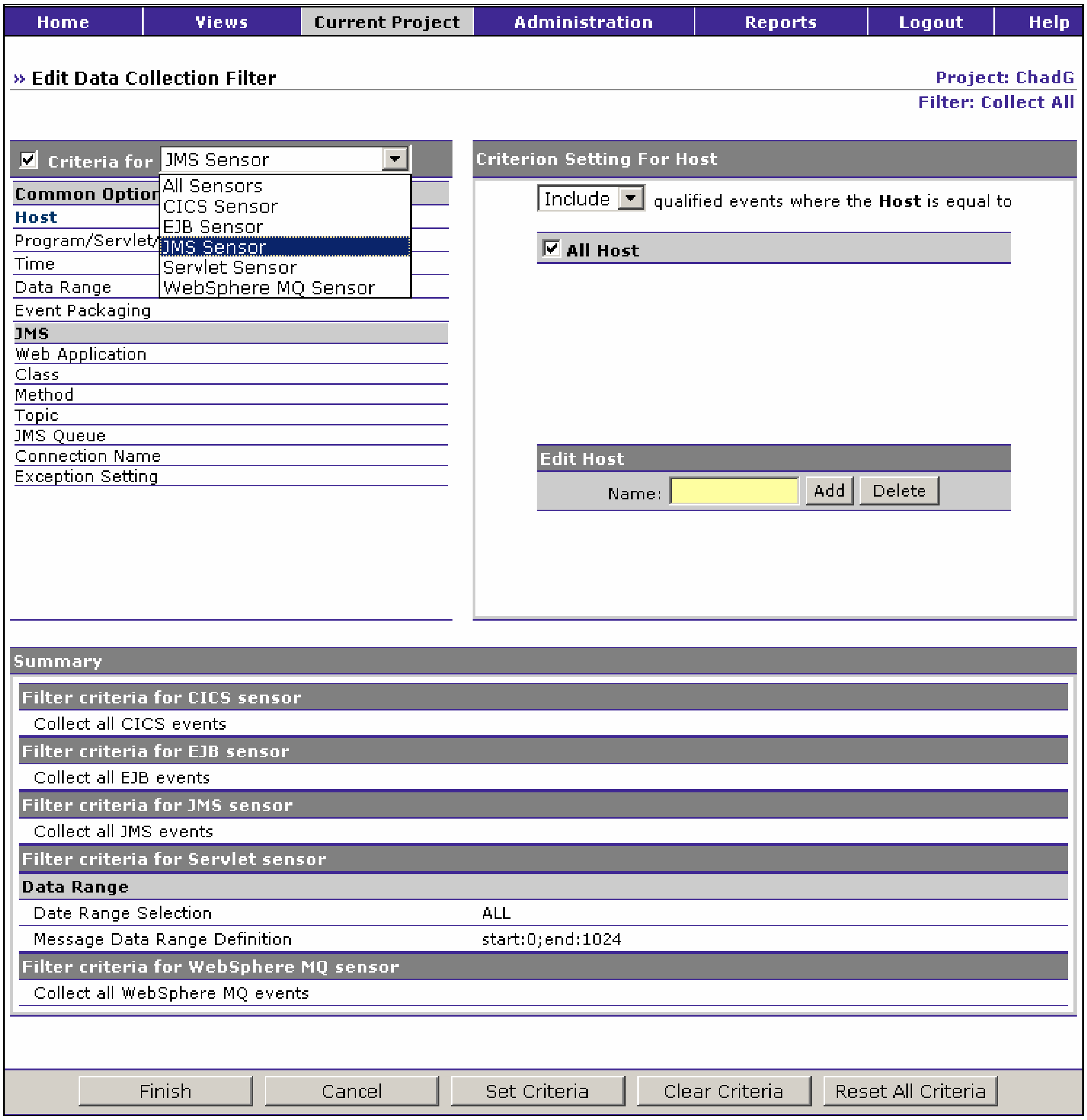
6. Click Set Criteria to save your settings for the current category. To clear changes for the current category, click Clear Criteria. To reset all categories to the default criteria, click Reset All Criteria.
7. When all query criteria are set, click Finish.

Edit a Data Collection Filter

Perform the following steps to edit a data collection filter for a project:

1. On the Project Data Collection Filters page, select the filter you wish to edit and click Edit Filter... to display the Edit Data Collection Filter page.

   The left side of the page lists all filter conditions that you may change. The right side shows the setting for the currently selected criteria.



» Edit Data Collection Filter

Project: ChadG
Filter: Collect All

☑ Criteria for JMS Sensor

Criterion Setting For Host

Include qualified events where the **Host** is equal to

☑ **All Host**

Name:

Summary

Filter criteria for CICS sensor

Collect all CICS events

Filter criteria for EJB sensor

Collect all EJB events

Filter criteria for JMS sensor

Collect all JMS events

Filter criteria for Servlet sensor

Data Range

Date Range Selection	ALL
Message Data Range Definition	start:0;end:1024

Filter criteria for WebSphere MQ sensor

Collect all WebSphere MQ events

2. Click the criteria category name on the left side for the condition that you wish to change and make desired changes on the right side of the page. See “Filter Conditions” for instructions on setting criteria for each condition.

3. Click Set Criteria to save your settings for the current category. To clear changes for the current category, click Clear Criteria. To reset all categories to the default criteria, click Reset All Criteria.

4. When all query criteria are set, click Finish.

Filter Conditions

The left side of the Edit Data Collection Filter page lists all the criteria categories for filters. Only events that match the criteria for each category are displayed in the TransactionVision views.

Sensors:

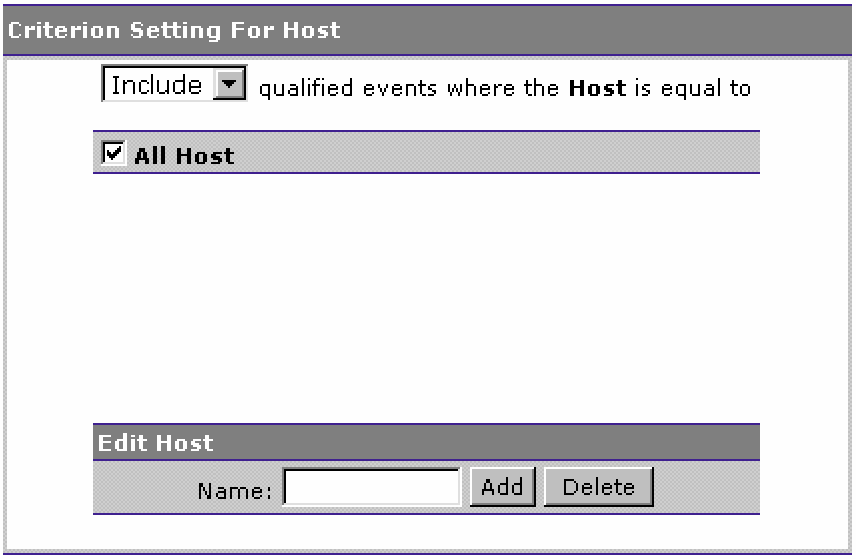
Select the Sensor for which you wish to specify filter criteria from the drop-down list. You may specify criteria that apply to all Sensors, or you may specify criteria specific to the CICS, EJB, WebSphere MQ, JMS, or Servlet filters.

Check the box to the left of the Sensor to include events for the selected Sensor in your filter results, or clear the box to exclude events for the selected Sensor from your filter results.

Common Options:

The following criteria apply to all Sensors. However, if you specify a criteria for All Sensor, you may specify a different criteria for an individual Sensor. The setting for the individual Sensor overrides the setting for all Sensors. For example, you select All Hosts for All Sensor, but on the Host page for the JMS Sensor, you may select only the host Host1. JMS events originating on Host1 and other Sensor events originating on any host all match the filter criteria.

Host



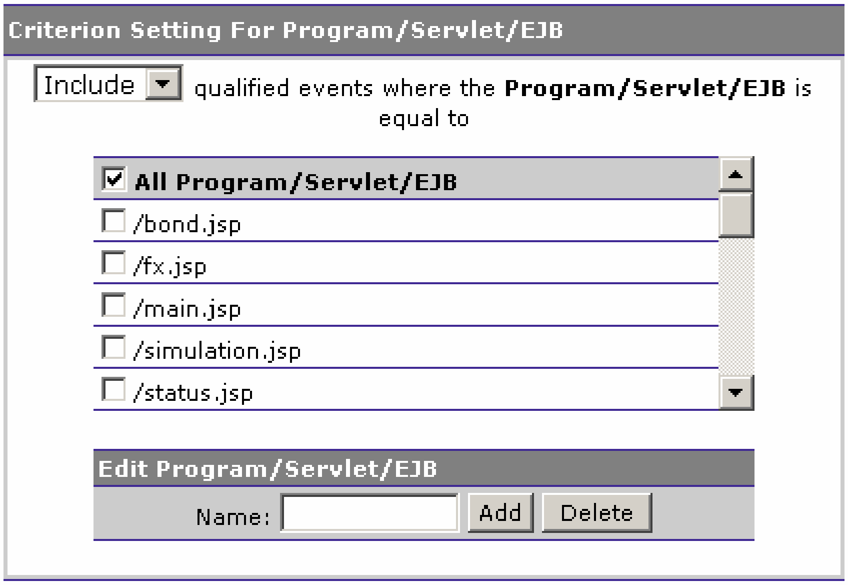
Include ▾ qualified events where the **Host** is equal to

☑ **All Host**

1. Select whether to Include or Exclude selected hosts in the filter criteria.

2. Check the box next to each host you want to include specifically in the filter criteria, or check the box next to All Host to include all hosts in the filter criteria.
3. The host list is generated from events collected in the project database. To add a new host to the list, enter the host name and click Add. To remove a host name from the list, check the box next to the host name and click Delete.

Program/Servlet/EJB



Criterion Setting For Program/Servlet/EJB

Include ▾ qualified events where the **Program/Servlet/EJB** is equal to

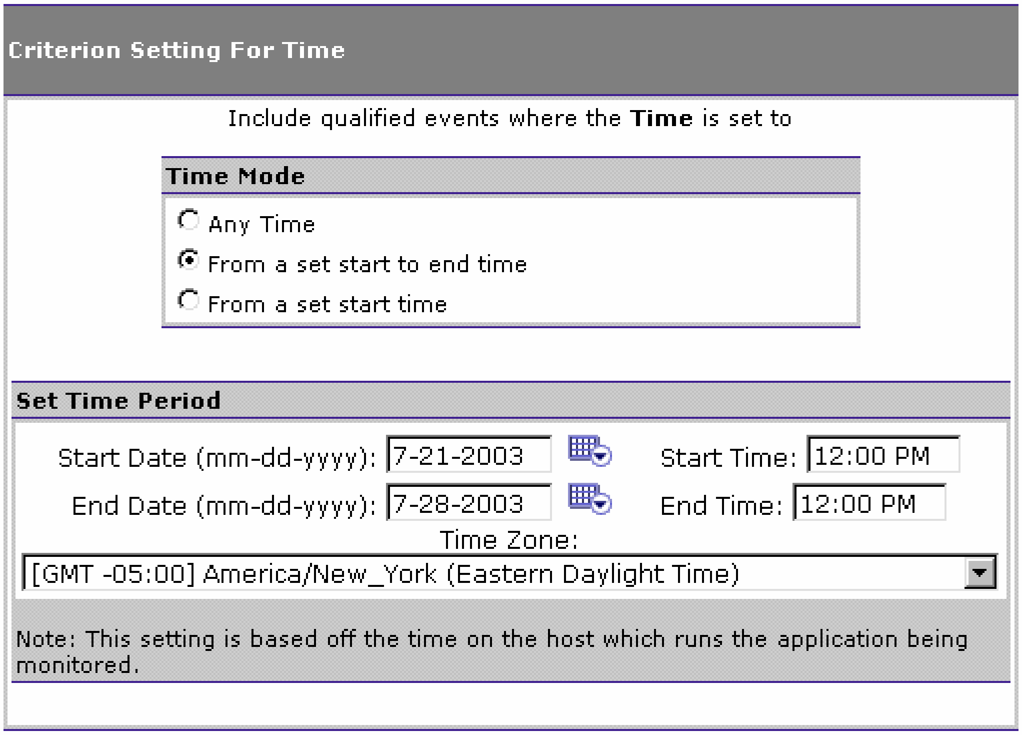
- ☑ **All Program/Servlet/EJB**
- ☐ /bond.jsp
- ☐ /fx.jsp
- ☐ /main.jsp
- ☐ /simulation.jsp
- ☐ /status.jsp

Edit Program/Servlet/EJB

Name:

1. Select whether to Include or Exclude selected programs, servlets, or EJBs in the filter criteria.
2. Check the box next to each program, servlet, or EJB you want to include specifically in the filter criteria, or check the box next to All Program/Servlet/EJB to include all programs, servlets, and EJBs in the filter criteria.
3. The program list is generated from events collected in the project database. To add a new program to the list, enter the program name and click Add. To remove a program name from the list, check the box next to the program name and click Delete.

Time



Criterion Setting For Time

Include qualified events where the **Time** is set to

Time Mode

○ Any Time
● From a set start to end time
○ From a set start time

Set Time Period

Start Date (mm-dd-yyyy): 7-21-2003 Start Time: 12:00 PM
End Date (mm-dd-yyyy): 7-28-2003 End Time: 12:00 PM
Time Zone: [GMT -05:00] America/New_York (Eastern Daylight Time)

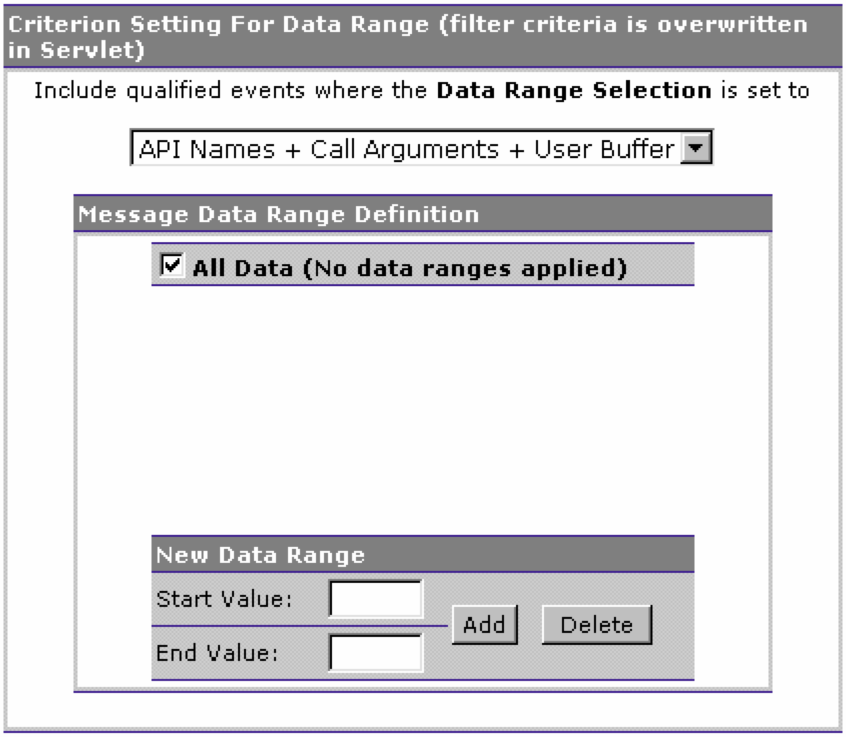
Note: This setting is based off the time on the host which runs the application being monitored.

Click the radio button next to the desired time mode.

Time Mode	Description
Any Time	Collects events with no time restrictions.
From a set start to end time	Collects events from a specific start time until a specific end time. Enter the start date and time, the end date and time, and select the time zone. To select the date from a calendar, click the calendar button and then click the desired date.
From set start time	Collects events from a specific start time until you explicitly stop recording. Specify the start date and time and select the time zone. To select the date from a calendar, click the calendar button and then click the desired date.

Important! Even if you specify a start time, you must initialize event recording before that start time. Initializing event recording causes the Analyzer to send a configuration message with filter information to all active communication links.

Data Range



Criterion Setting For Data Range (filter criteria is overwritten in Servlet)

Include qualified events where the **Data Range Selection** is set to

API Names + Call Arguments + User Buffer

Message Data Range Definition

☑ **All Data (No data ranges applied)**

New Data Range

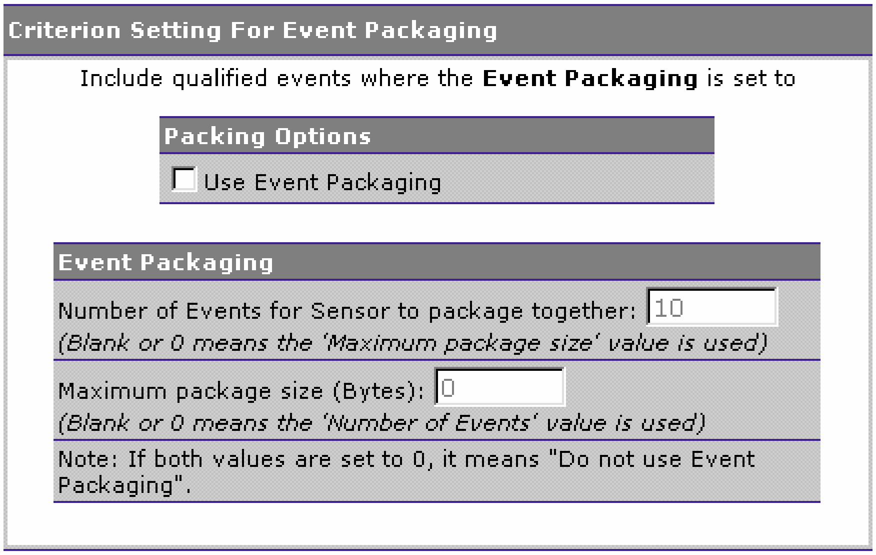
Start Value:

End Value:

1. Specify whether to collect only the API names called, the API names and call arguments, or the API names, call arguments, and user data buffer (All). Note that if you collect API names only, some TransactionVision functionality will not be available. You cannot view event details for events collected with this filter condition, the Analyzer cannot correlate MQPUT and MQGET calls, and you cannot specify API parameter values as query criteria in queries. However, restricting the amount of data collected for each event reduces the size of event messages.
2. If you specify a data range that includes user buffer data, select a range to specify how many bytes of the user data buffer to collect. Check the box next to All Data to collect the entire user data buffer.
3. To add a new range, enter the starting byte number in the Start Value field and the ending byte number in the End Value field and click `Add`. For example, use a start value of 0 and an end value of 100 to collect the first 100 bytes of the user data buffer. Specify a * in the End Value field to collect to the end of the user data buffer.

Important! Sensors collect data in all selected data range definitions, so deselect or remove any data ranges you do not want to collect. To remove an existing range, select it and click Delete.

Event Packaging



Criterion Setting For Event Packaging

Include qualified events where the **Event Packaging** is set to

Packing Options

□ Use Event Packaging

Event Packaging

Number of Events for Sensor to package together: 10
(Blank or 0 means the 'Maximum package size' value is used)

Maximum package size (Bytes): 0
(Blank or 0 means the 'Number of Events' value is used)

Note: If both values are set to 0, it means "Do not use Event Packaging".

To enable Sensors to package multiple events together before sending them to the Analyzer, select Use Event Packaging. When you use event packaging, the Sensor buffers events until the event packaging criteria is met, then sends the packaged events to the event queue. If the Sensor has buffered events for event packaging and the project is stopped, it sends the buffered events to the event queue on the next MQI call.

Event Packaging directly improves the performance of the Sensor. However, if the application terminates abnormally without doing an MQDISC, event packages buffered in the Sensor will **not** be sent to the Analyzer.

You may specify a number of events and/or maximum package size for event packaging. If you specify a value for both the number of events and the maximum package size, Sensors will combine message into packages based on which limit is reached first. If both are zero or blank, the default behavior of no event packaging is used.

Option	Description
Number of Events	Specify the number of events that will be stored in the Sensor before sending a package to the Analyzer. As soon as the Sensor reaches this number of events while packaging events together, it will send the package to the event queue. The number of event should be set to a value suitable to the environment, usually 10 events per message. Leave this field blank or specify a value of zero to use the maximum package size field exclusively.

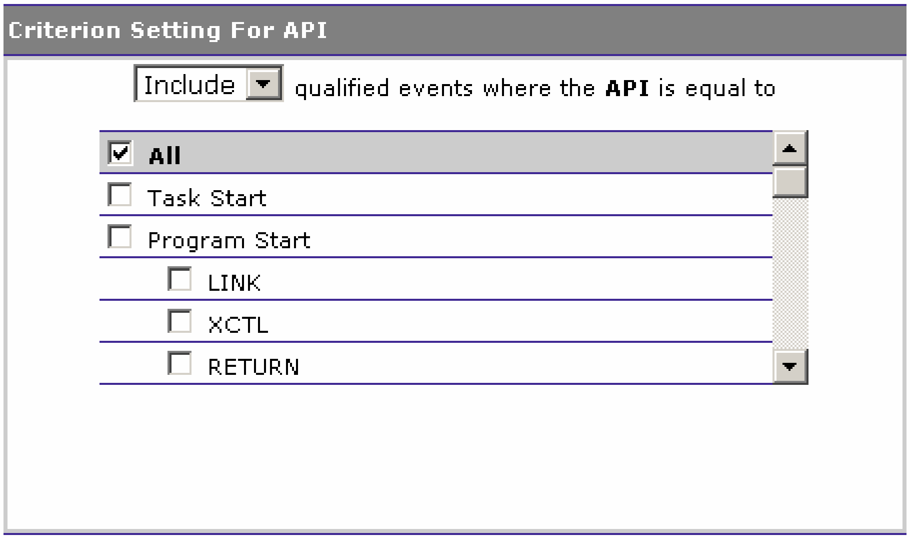
Option	Description
Maximum Package Size	Specify the limit on the amount of memory a Sensor can set aside for storing events to be packaged. When the Sensor reaches or exceeds this limit while packaging events together, it will send the package to the event queue. Leave this field blank or specify a value of zero to use the number of events field exclusively. Note that if the Maximum Package Size is smaller than the event size, each event will be sent immediately. In this case, Event Packaging will effectively be turned off. The minimum event size is approximately 4000 bytes.

CICS Sensor Options:

The following options are available if you select the CICS Sensor:

API

This page allows you to filter CICS events by their API names as well as enable or disable CICS exits to filter a group of APIs.



Criterion Setting For API

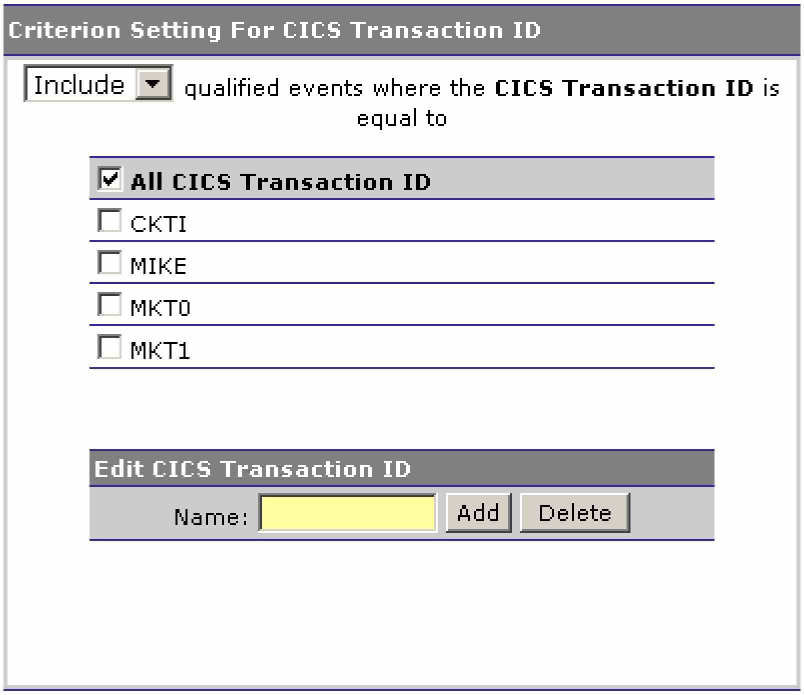
Include ▾ qualified events where the **API** is equal to

☑ **All**
☐ Task Start
☐ Program Start
☐ LINK
☐ XCTL
☐ RETURN

1. Select whether to Include or Exclude events for selected APIs. To filter on selected exits, select Include and the API or API type check boxes for exits you wish to filter on. Selected APIs will be enabled; all other exits will be disabled. To disable specific exits, select Exclude and the API or API type check boxes for exits you wish to disable. All other exits will be enabled.
2. Check the box next to each API you want to enable or disable, or check the box next to All API to enable or disable all APIs. The APIs are grouped by API type. To select all APIs for a specific type, check the box next to the API type.

For example, if you select only the File Control exit to Include, all other exits are stopped and information messages are shown on the operator console. Similarly, if you Exclude File Control exits, all other exits are enabled.

CICS Transaction ID



Criterion Setting For CICS Transaction ID

Include ▾ qualified events where the **CICS Transaction ID** is equal to

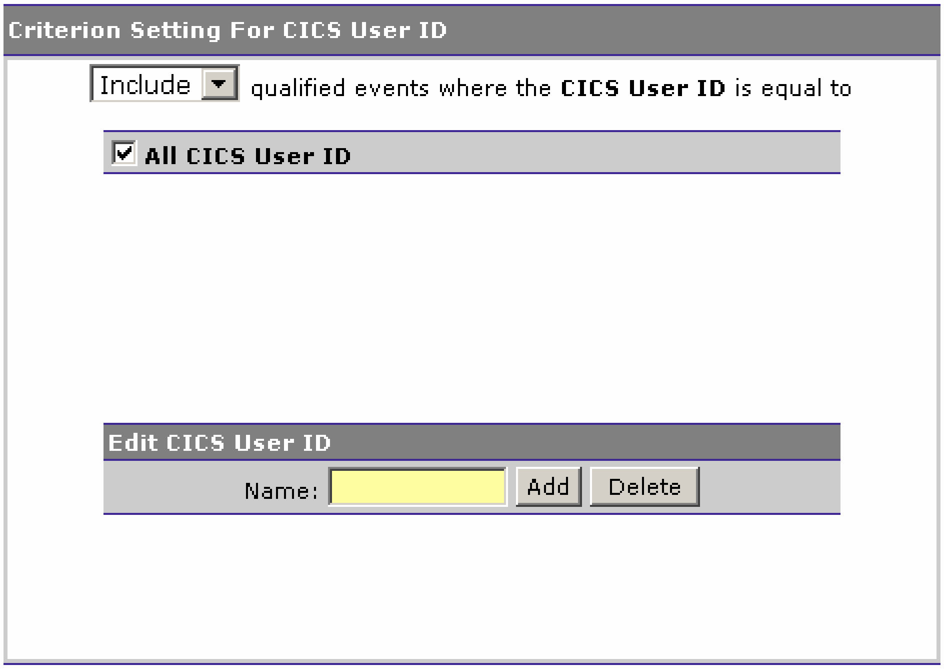
☑ **All CICS Transaction ID**
□ CKTI
□ MIKE
□ MKT0
□ MKT1

Edit CICS Transaction ID

Name:

1. Select whether to Include or Exclude events for selected CICS transaction IDs.
2. Check the box next to each transaction ID you want to include specifically in the filter criteria, or check the box next to All CICS Transaction ID to include all transaction IDs in the filter criteria.
3. The list of transaction IDs is generated from events collected in the project database. To add a transaction ID to the list, enter its name and click Add. To remove a transaction ID from the list, check the box next to it and click Delete.

CICS User ID



Criterion Setting For CICS User ID

Include qualified events where the **CICS User ID** is equal to

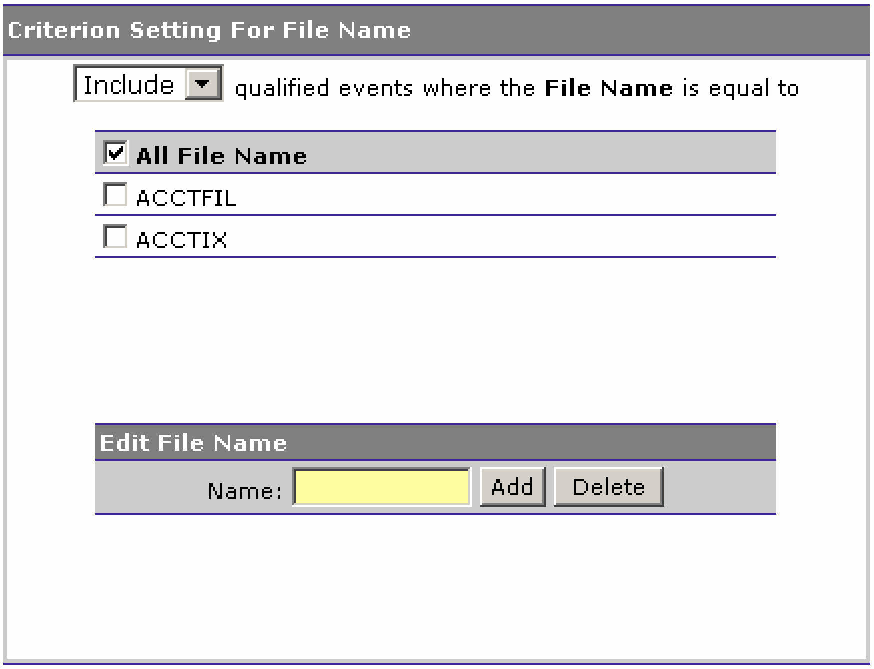
☑ **All CICS User ID**

Edit CICS User ID

Name:

1. Select whether to Include or Exclude events for selected CICS user IDs.
2. Check the box next to each user ID you want to include specifically in the filter criteria, or check the box next to All CICS User ID to include all user IDs in the filter criteria.
3. The list of user IDs is generated from events collected in the project database. To add a user ID to the list, enter its name and click Add. To remove a user ID from the list, check the box next to it and click Delete.

File Name

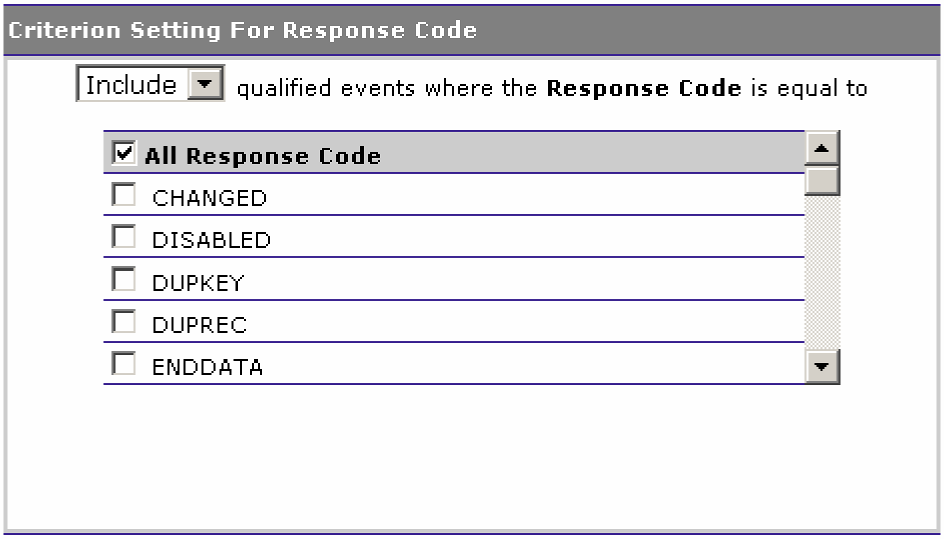


Include ▾ qualified events where the **File Name** is equal to

☑ **All File Name**
□ ACCTFIL
□ ACCTIX

1. Select whether to Include or Exclude events for selected file names.
2. Check the box next to each file name you want to include specifically in the filter criteria, or check the box next to All File Name to include all file names in the filter criteria.
3. The list of file names is generated from events collected in the project database. To add a file name to the list, enter its name and click Add. To remove a file name from the list, check the box next to it and click Delete.

Response Code



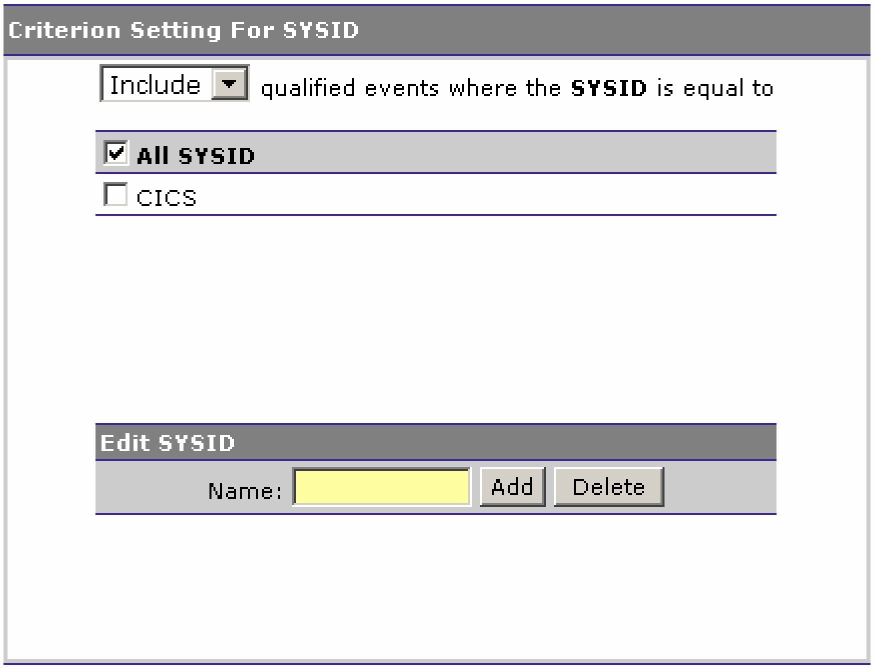
Criterion Setting For Response Code

Include qualified events where the **Response Code** is equal to

- ☑ **All Response Code**
- □ CHANGED
- □ DISABLED
- □ DUPKEY
- □ DUPREC
- □ ENDDATA

1. Select whether to Include or Exclude events for selected response codes.
2. Check the box next to each response code you want to include specifically in the filter criteria, or check the box next to All Response Code to include all response codes in the filter criteria.

SYSID



Criterion Setting For SYSID

Include qualified events where the **SYSID** is equal to

- ☑ **All SYSID**
- □ CICS

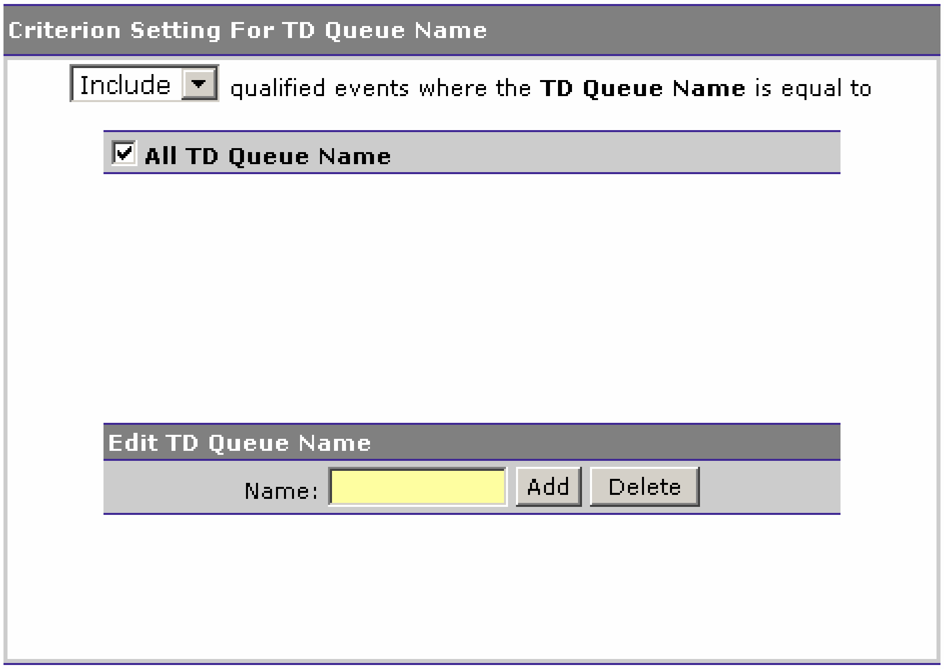
Edit SYSID

Name:

1. Select whether to Include or Exclude events for selected CICS SYSIDs.

2. Check the box next to each SYSID you want to include specifically in the filter criteria, or check the box next to All CICS SYSID to include all SYSIDs in the filter criteria.
3. The list of SYSIDs is generated from events collected in the project database. To add a SYSID to the list, enter its name and click Add. To remove a SYSID from the list, check the box next to it and click Delete.

TD Queue Name

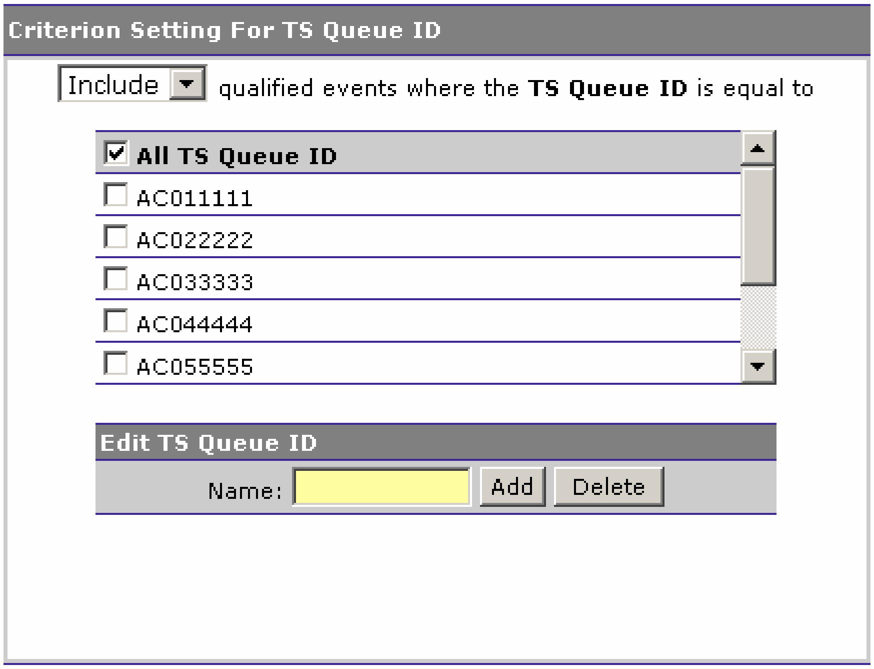


Include ▾ qualified events where the **TD Queue Name** is equal to

☑ **All TD Queue Name**

1. Select whether to Include or Exclude events for selected transient data (TD) queue names.
2. Check the box next to each TD queue name you want to include specifically in the filter criteria, or check the box next to All TD Queue Name to include all TD queue names in the filter criteria.
3. The list of TD queue names is generated from events collected in the project database. To add a TD queue name to the list, enter its name and click Add. To remove a TD queue name from the list, check the box next to it and click Delete.

TS Queue ID



Criterion Setting For TS Queue ID

Include ▾ qualified events where the **TS Queue ID** is equal to

☑ **All TS Queue ID**

□ AC011111

□ AC022222

□ AC033333

□ AC044444

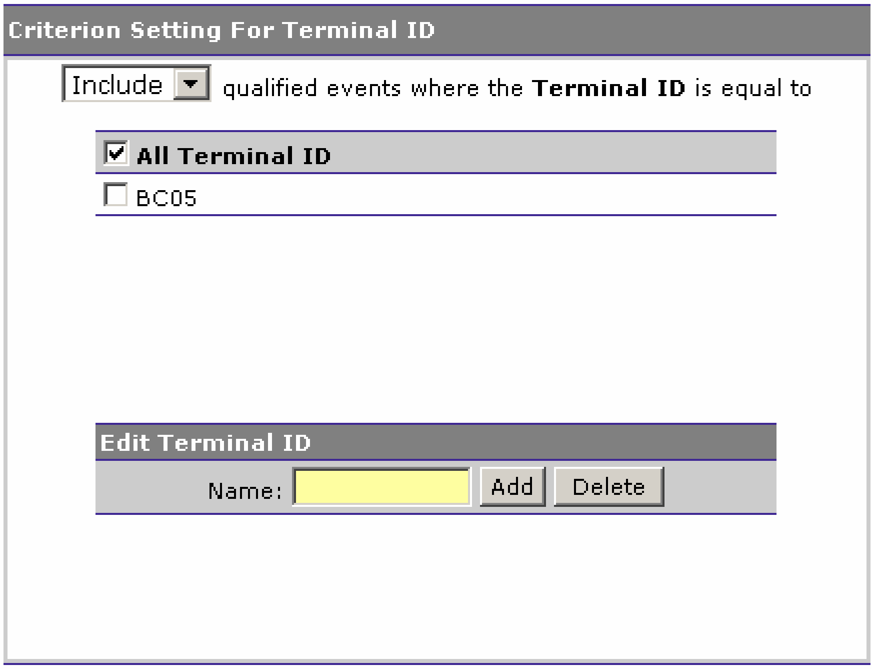
□ AC055555

Edit TS Queue ID

Name:

1. Select whether to Include or Exclude events for selected temporary storage (TS) queue IDs.
2. Check the box next to each TS queue ID you want to include specifically in the filter criteria, or check the box next to All TS Queue ID to include all TS queue IDs in the filter criteria.
3. The list of TS queue IDs is generated from events collected in the project database. To add a TS queue ID to the list, enter its name and click Add. To remove a TS queue ID from the list, check the box next to it and click Delete.

Terminal ID



Include qualified events where the **Terminal ID** is equal to

☑ **All Terminal ID**

□ BC05

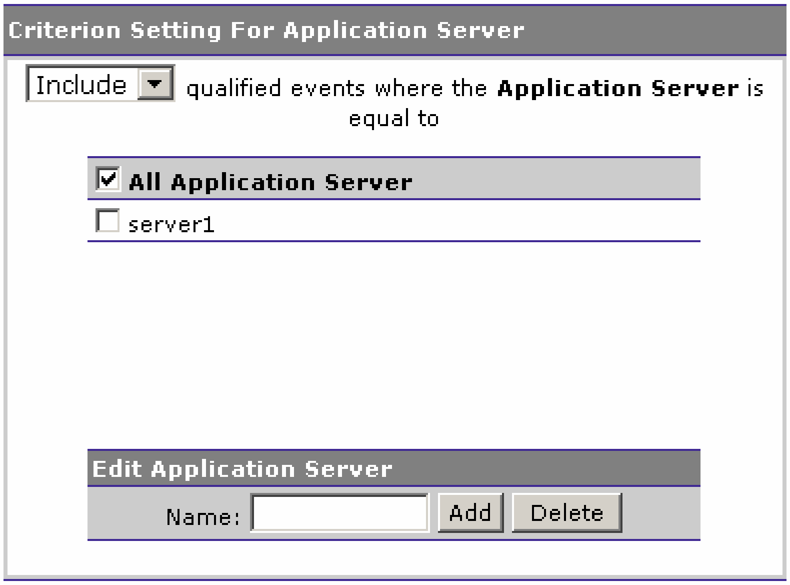
Name:

1. Select whether to Include or Exclude events for selected terminal IDs.
2. Check the box next to each terminal ID you want to include specifically in the filter criteria, or check the box next to All Terminal ID to include all terminal IDs in the filter criteria.
3. The list of terminal IDs is generated from events collected in the project database. To add a terminal ID to the list, enter its name and click Add. To remove a terminal ID from the list, check the box next to it and click Delete.

EJB Sensor Options:

The following options are available if you select the EJB Sensor:

Application Server



Criterion Setting For Application Server

Include ▾ qualified events where the **Application Server** is equal to

☑ **All Application Server**

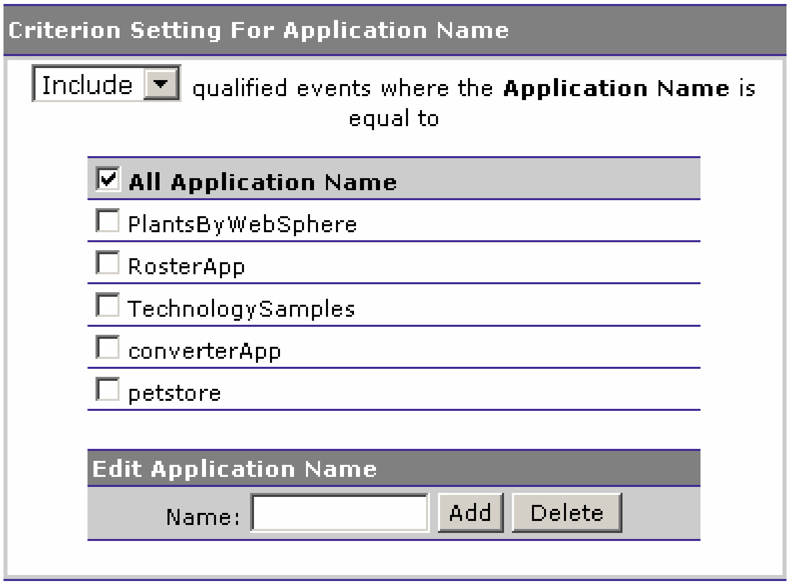
□ server1

Edit Application Server

Name:

1. Select whether to Include or Exclude events for selected application servers.
2. Check the box next to each application server you want to include specifically in the filter criteria, or check the box next to All Application Server to include all application servers in the filter criteria.
3. The list of application servers is generated from events collected in the project database. To add an application server to the list, enter its name and click Add. To remove an application server from the list, check the box next to it and click Delete.

Application Name



Criterion Setting For Application Name

Include ▾ qualified events where the **Application Name** is equal to

☑ **All Application Name**

□ PlantsByWebSphere

□ RosterApp

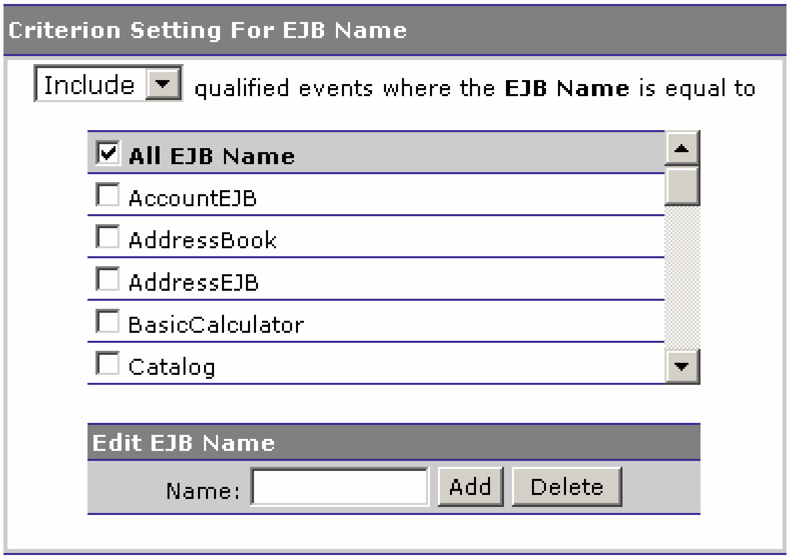
□ TechnologySamples

□ converterApp

□ petstore

1. Select whether to Include or Exclude events for selected application names.
2. Check the box next to each application name you want to include specifically in the filter criteria, or check the box next to All Application Name to include all application names in the filter criteria.
3. The list of application names is generated from events collected in the project database. To add an application name to the list, enter the name and click Add. To remove an application name from the list, check the box next to it and click Delete.

EJB Name



Criterion Setting For EJB Name

Include ▾ qualified events where the **EJB Name** is equal to

☑ **All EJB Name**

□ AccountEJB

□ AddressBook

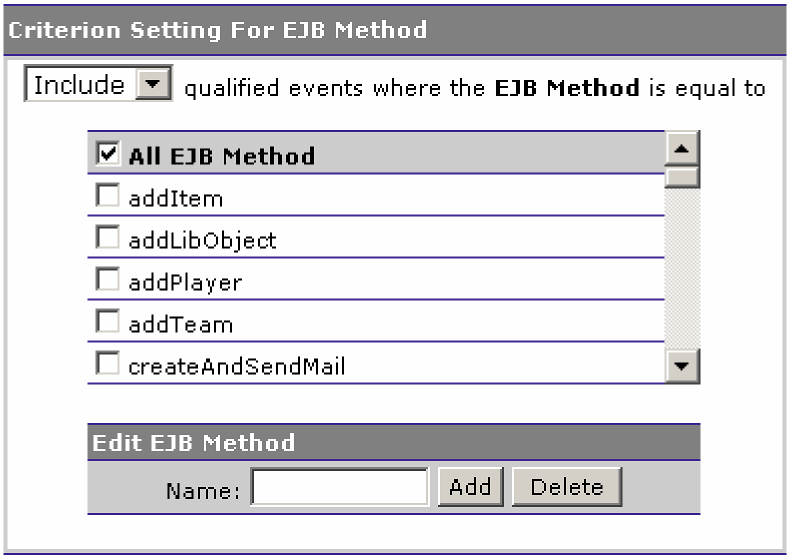
□ AddressEJB

□ BasicCalculator

□ Catalog

1. Select whether to Include or Exclude events for selected EJB names.
2. Check the box next to each EJB name you want to include specifically in the filter criteria, or check the box next to All EJB Name to include all application names in the filter criteria.
3. The list of EJB names is generated from events collected in the project database. To add a EJB name to the list, enter its name and click Add. To remove an EJB name from the list, check the box next to it and click Delete.

EJB Method



Criterion Setting For EJB Method

Include qualified events where the **EJB Method** is equal to

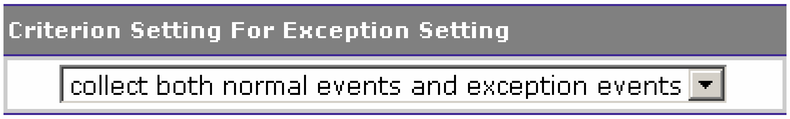
☑ **All EJB Method**
□ addItem
□ addLibObject
□ addPlayer
□ addTeam
□ createAndSendMail

Edit EJB Method

Name:

1. Select whether to Include or Exclude events for selected EJB methods.
2. Check the box next to each EJB method you want to include specifically in the filter criteria, or check the box next to All EJB Method to include all application names in the filter criteria.
3. The list of EJB methods is generated from events collected in the project database. To add an EJB method to the list, enter its name and click Add. To remove an EJB method from the list, check the box next to it and click Delete.

Exception Setting



Criterion Setting For Exception Setting

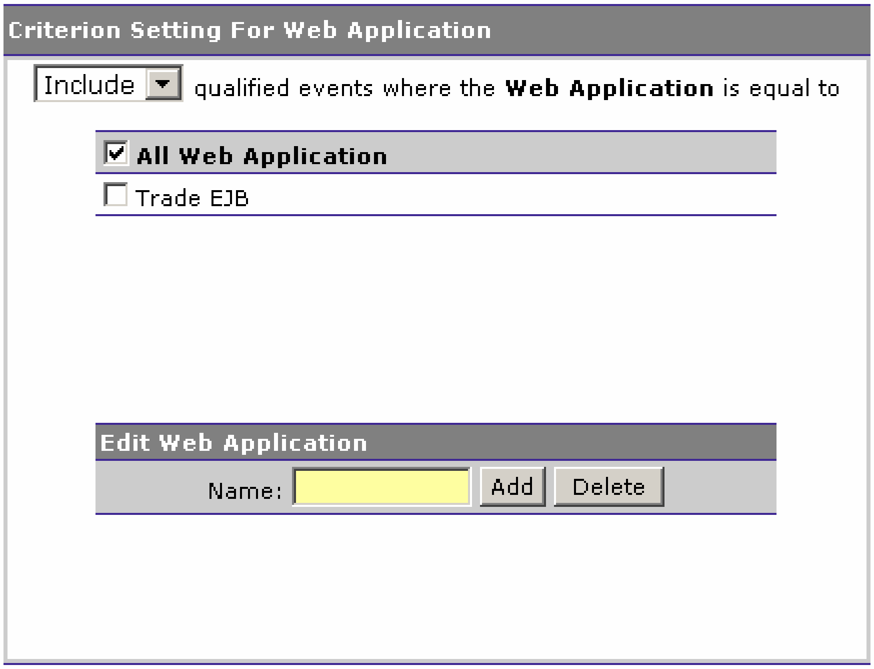
collect both normal events and exception events

Select whether to include both normal and exception events, normal events only, or exception events only.

JMS Sensor Options:

The following options are available if you select the JMS Sensor:

Web Application



Criterion Setting For Web Application

Include ▾ qualified events where the **Web Application** is equal to

☑ **All Web Application**

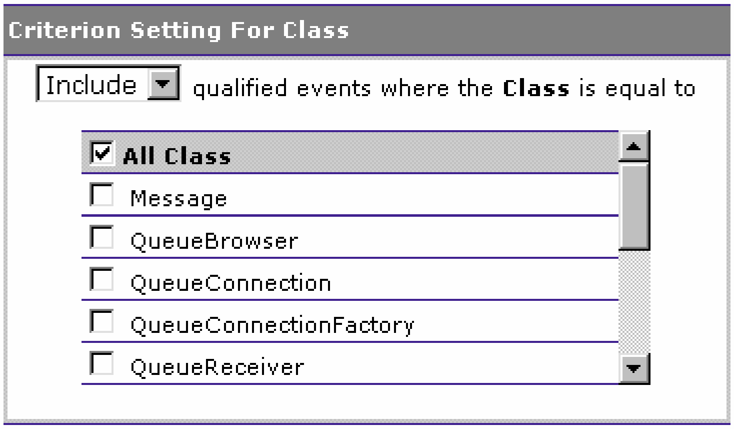
□ Trade EJB

Edit Web Application

Name:

1. Select whether to Include or Exclude events for selected web applications.
2. Check the box next to each web application you want to include specifically in the filter criteria, or check the box next to All Web Application to include all web applications in the filter criteria.
3. The list of web applications is generated from events collected in the project database. To add a web application to the list, enter its name and click Add. To remove a web application from the list, check the box next to it and click Delete.

Class



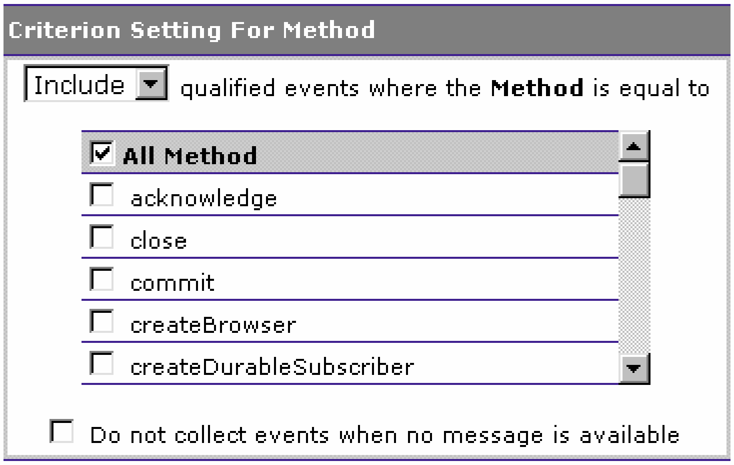
Criterion Setting For Class

Include ▾ qualified events where the **Class** is equal to

- ☑ **All Class**
- □ Message
- □ QueueBrowser
- □ QueueConnection
- □ QueueConnectionFactory
- □ QueueReceiver

1. Select whether to Include or Exclude events for selected JMS classes.
2. Check the box next to each JMS class you want to include specifically in the filter criteria, or check the box next to All JMS Class to include all classes in the query criteria.

Method



Criterion Setting For Method

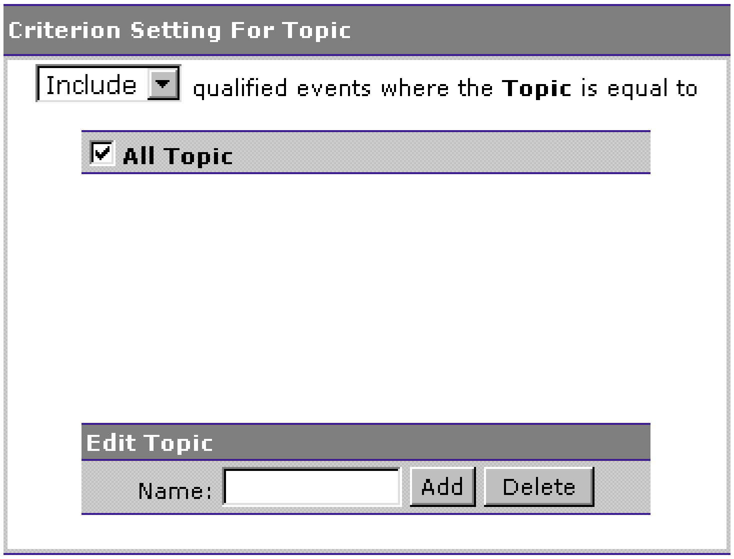
Include ▾ qualified events where the **Method** is equal to

- ☑ **All Method**
- □ acknowledge
- □ close
- □ commit
- □ createBrowser
- □ createDurableSubscriber

□ Do not collect events when no message is available

1. Select whether to Include or Exclude events for selected JMS methods.
2. Check the box next to each JMS method you want to include specifically in the filter criteria, or check the box next to All JMS Method to include all methods in the filter criteria.
3. Check Do not collect events when no message is available to avoid collecting events with no message.

Topic

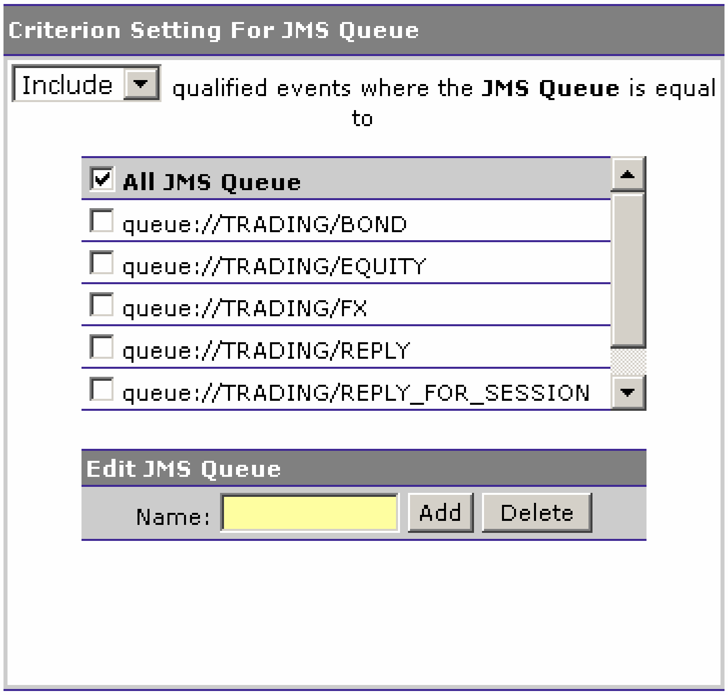


Include ▾ qualified events where the **Topic** is equal to

☑ **All Topic**

1. Select whether to Include or Exclude events for selected topics.
2. Check the box next to each topic you want to include specifically in the filter criteria, or check the box next to All Topic to include all topics in the filter criteria.
3. The list of topics is generated from events collected in the project database. To add a topic to the list, enter its name and click Add. To remove a topic from the list, check the box next to it and click Delete.

JMS Queue



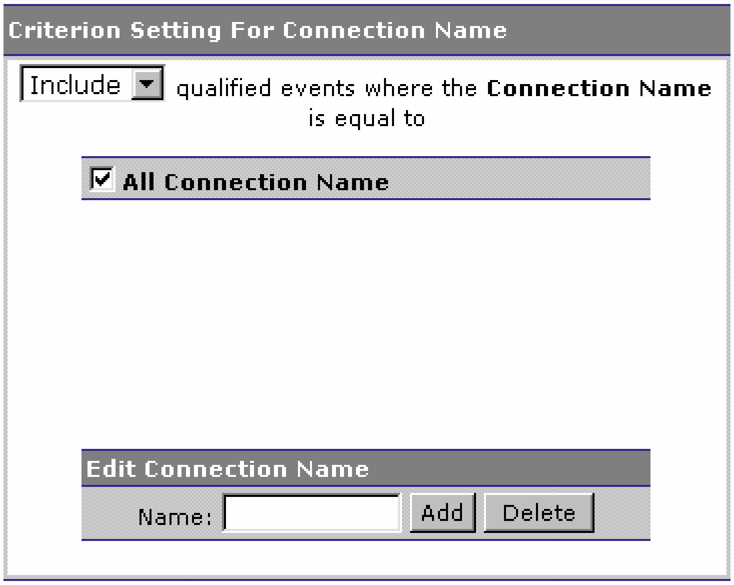
Criterion Setting For JMS Queue

Include ▾ qualified events where the **JMS Queue** is equal to

- ☑ **All JMS Queue**
- □ queue://TRADING/BOND
- □ queue://TRADING/EQUITY
- □ queue://TRADING/FX
- □ queue://TRADING/REPLY
- □ queue://TRADING/REPLY_FOR_SESSION

1. Select whether to include or exclude events for selected queues.
2. Check the box next to each queue you want to include specifically in the filter criteria, or check the box next to All Queue to include all queues in the filter criteria.
3. The list of queues is generated from events collected in the project database. To add a queue to the list, enter its name and click Add. To remove a queue from the list, check the box next to it and click Delete.

Connection Name



Criterion Setting For Connection Name

Include qualified events where the **Connection Name** is equal to

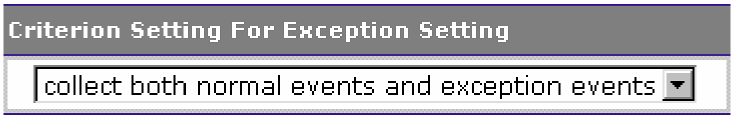
☑ **All Connection Name**

Edit Connection Name

Name:

1. Select whether to include or exclude events for selected connection names.
2. Check the box next to each connection you want to include specifically in the filter criteria, or check the box next to All Connection to include all connections in the filter criteria.
3. The list of connections is generated from events collected in the project database. To add a connection to the list, enter its name and click Add. To remove a connection from the list, check the box next to it and click Delete.

Exception Setting



Criterion Setting For Exception Setting

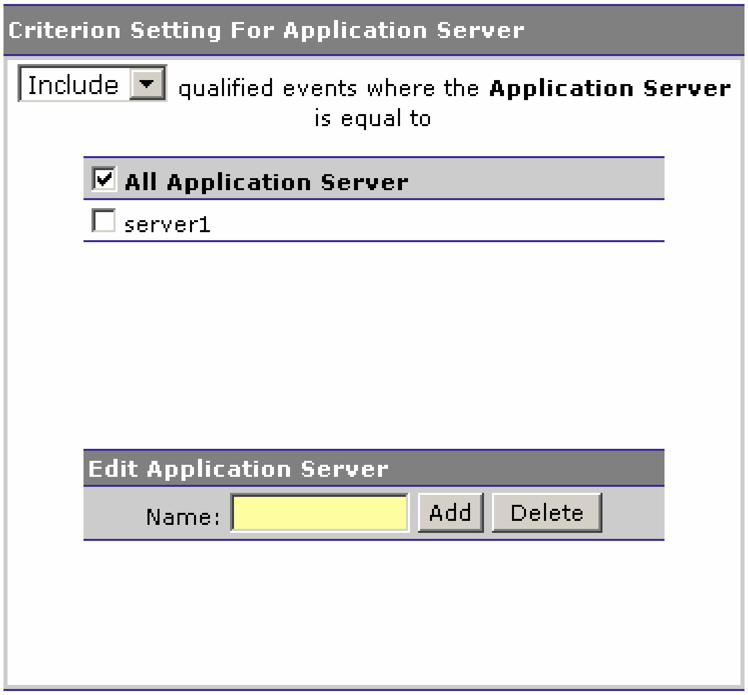
collect both normal events and exception events

Select whether to include both normal and exception events, normal events only, or exception events only.

Servlet Sensor Options:

The following options are available if you select the servlet Sensor:

Application Server



Criterion Setting For Application Server

Include ▾ qualified events where the **Application Server** is equal to

☑ **All Application Server**

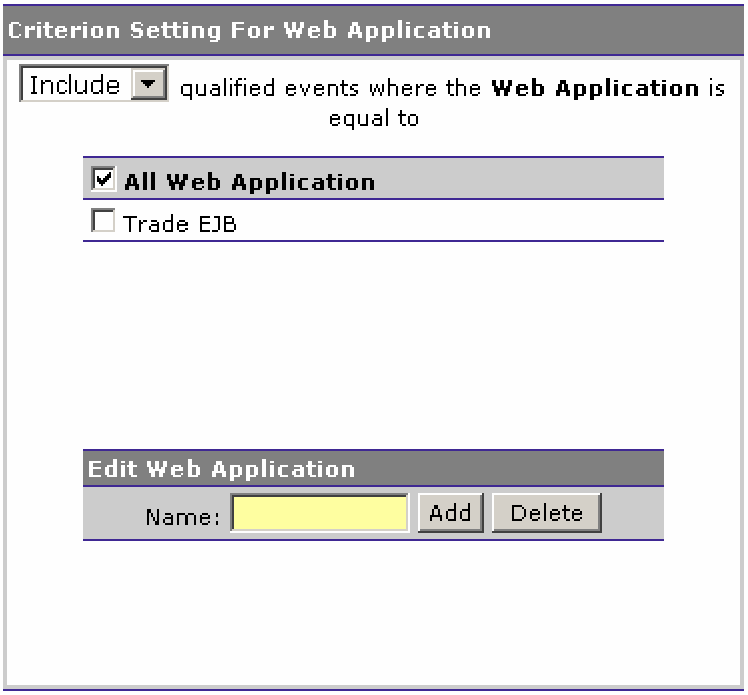
□ server1

Edit Application Server

Name: Add Delete

1. Select whether to Include or Exclude events for selected application servers.
2. Check the box next to each application server you want to include specifically in the filter criteria, or check the box next to All Application Server to include all application servers in the filter criteria.
3. The list of application servers is generated from events collected in the project database. To add an application server to the list, enter its name and click Add. To remove an application server from the list, check the box next to it and click Delete.

Web Application



Criterion Setting For Web Application

Include ▾ qualified events where the **Web Application** is equal to

☑ **All Web Application**

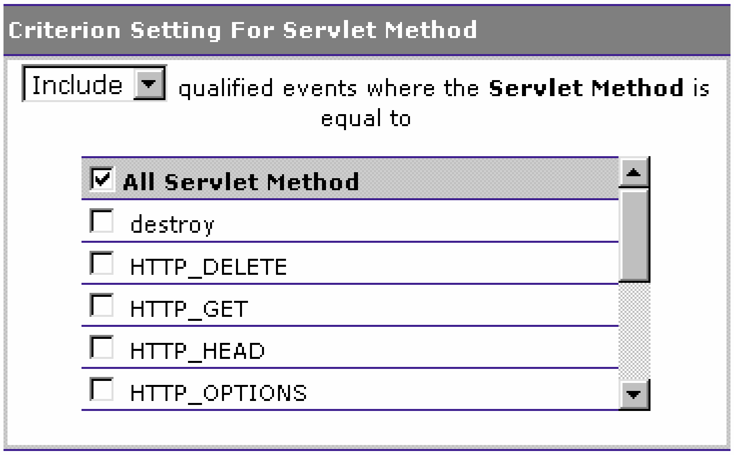
□ Trade EJB

Edit Web Application

Name: ______ Add Delete

1. Select whether to Include or Exclude events for selected web applications.
2. Check the box next to each web application you want to include specifically in the filter criteria, or check the box next to All Web Application to include all web applications in the filter criteria.
3. The list of web applications is generated from events collected in the project database. To add a web application to the list, enter its name and click Add. To remove a web application from the list, check the box next to it and click Delete.

Servlet Method



Criterion Setting For Servlet Method

Include ▾ qualified events where the **Servlet Method** is equal to

☑ **All Servlet Method**

□ destroy

□ HTTP_DELETE

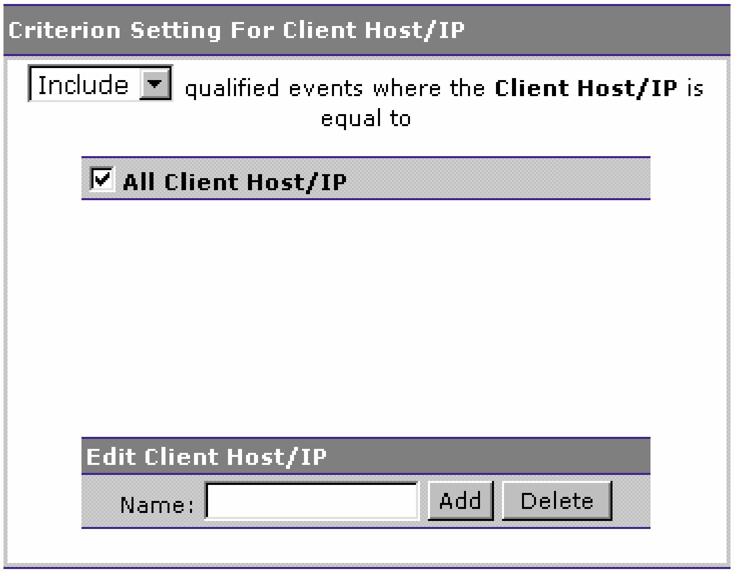
□ HTTP_GET

□ HTTP_HEAD

□ HTTP_OPTIONS

1. Select whether to Include or Exclude events for selected servlet methods.
2. Check the box next to each servlet method you want to include specifically in the filter criteria, or check the box next to All Servlet Method to include all servlet methods in the filter criteria.

Client Host/IP



Criterion Setting For Client Host/IP

Include ▾ qualified events where the **Client Host/IP** is equal to

☑ **All Client Host/IP**

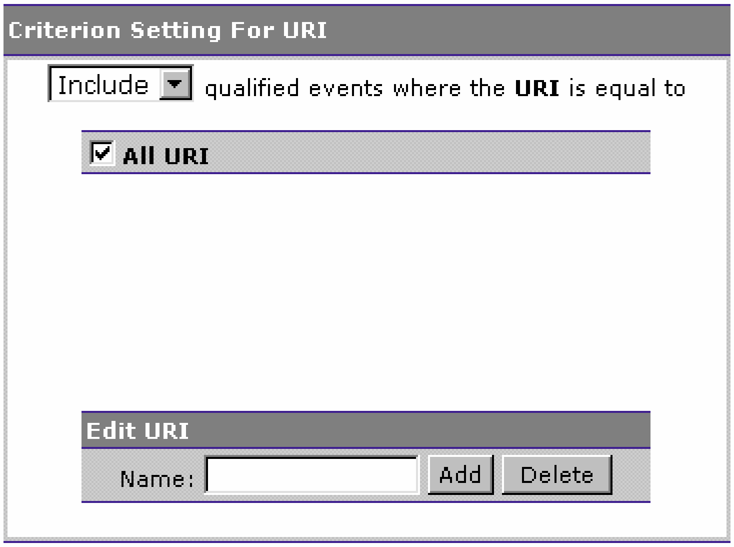
Edit Client Host/IP

Name:

1. Select whether to Include or Exclude events for selected clients.
2. Check the box next to each client you want to include specifically in the filter criteria, or check the box next to All Client Host/IP to include all clients in the filter criteria.
3. The list of clients is generated from events collected in the project database. To add a client to the list, enter its name and click Add. To remove a client from the list, check the box next to it and click Delete.

Note that the Client Host/IP setting does not affect the init method.

URI

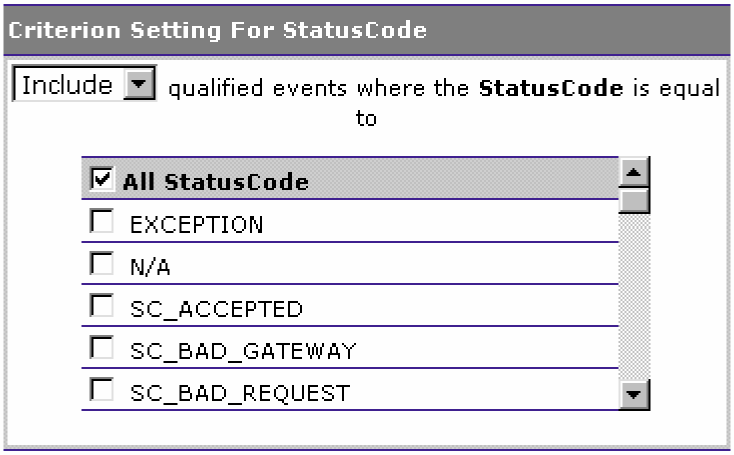


Include qualified events where the **URI** is equal to

☑ **All URI**

1. Select whether to Include or Exclude events for selected URIs.
2. Check the box next to each URI you want to include specifically in the filter criteria, or check the box next to All URI to include all URIs in the filter criteria.
3. The list of URIs is generated from events collected in the project database. To add a URI to the list, enter its name and click Add. To remove a URI from the list, check the box next to it and click Delete.

Status Code



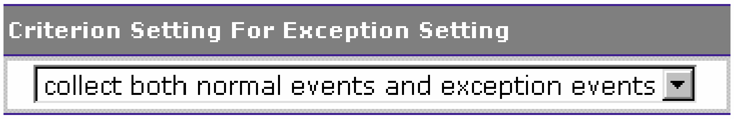
Include qualified events where the **StatusCode** is equal to

☑ **All StatusCode**
□ EXCEPTION
□ N/A
□ SC_ACCEPTED
□ SC_BAD_GATEWAY
□ SC_BAD_REQUEST

1. Select whether to Include or Exclude events for selected status codes.

2. Check the box next to each status code you want to include specifically in the filter criteria, or check the box next to All Status Code to include all status codes in the query criteria.

Exception Setting



Criterion Setting For Exception Setting

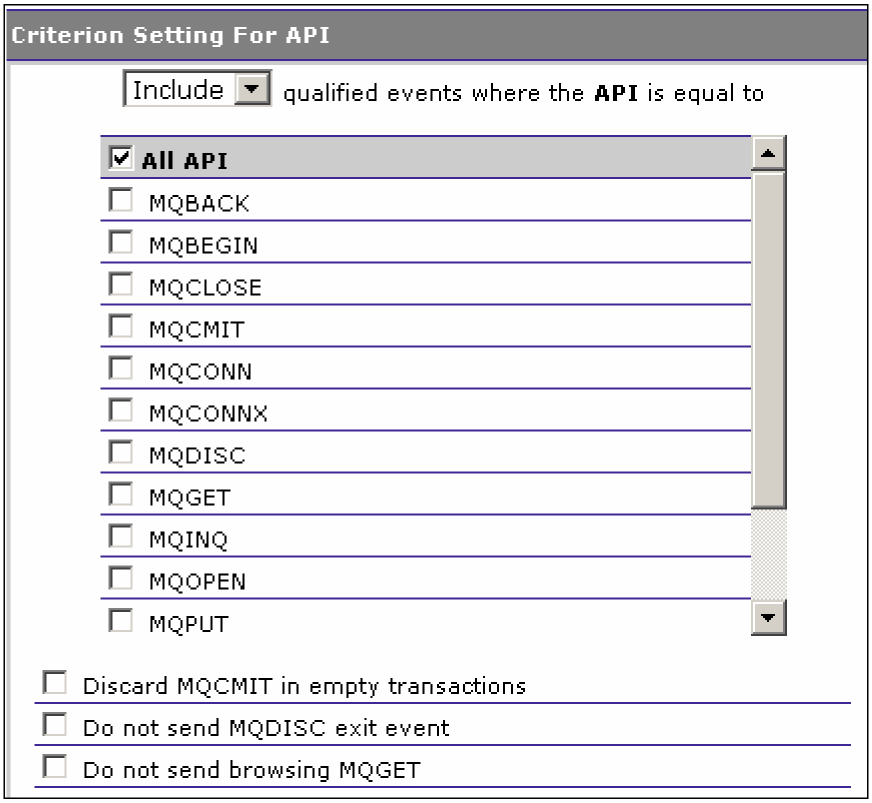
collect both normal events and exception events ▾

Select whether to include both normal and exception events, normal events only, or exception events only.

WebSphere MQ Sensor Options:

The following options are available if you select the WebSphere MQ Sensor:

WebSphere MQ API



Criterion Setting For API

Include ▾ qualified events where the **API** is equal to

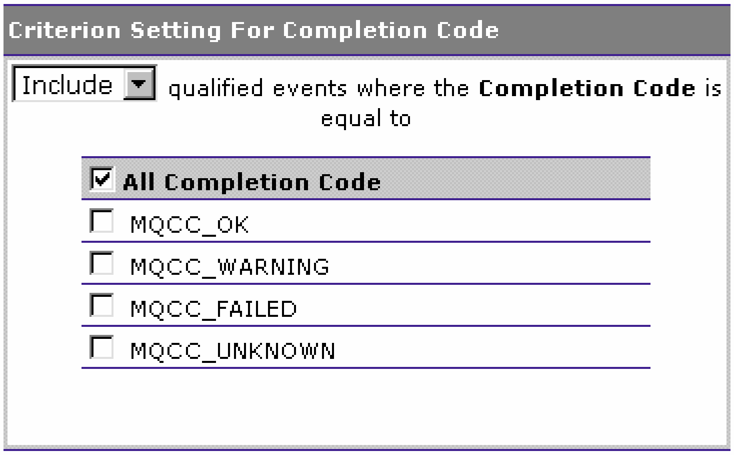
☑ **All API**
□ MQBACK
□ MQBEGIN
□ MQCLOSE
□ MQCMIT
□ MQCONN
□ MQCONNX
□ MQDISC
□ MQGET
□ MQINQ
□ MQOPEN
□ MQPUT

□ Discard MQCMIT in empty transactions
□ Do not send MQDISC exit event
□ Do not send browsing MQGET

1. Select whether to Include or Exclude selected WebSphere MQ APIs in the filter criteria.
2. Check the box next to each API you want to include specifically in the filter criteria, or check the box next to All API to include all WebSphere MQ APIs in the filter criteria.

3. Check Discard MQCMIT in empty transactions to avoid collecting empty transactions. Empty transactions occur in products like WBI, which are in a loop doing MQGET calls on several queues. When where are no inputs, the MQGET calls fail with a NO_MSG_AVAILABLE, which are filtered out by default in TransactionVision. However, the MQGET is followed by an MQCMIT. This option provides an easy way to filter out these MQCMIT events.
4. Check Do not send MQDISC exit event to report only the entry information of each MQDISC call. This improves performance and reduces overhead for the Sensor. Otherwise, the Sensor must reconnect and reopen the event queue in order to send MQDISC exit information, and this information is typically not necessary.
5. Check Do not send browsing MQGET if you do not wish to collect MQGET messages used to browse messages on the queue. These messages are often not part of a transactional system.

Completion Code



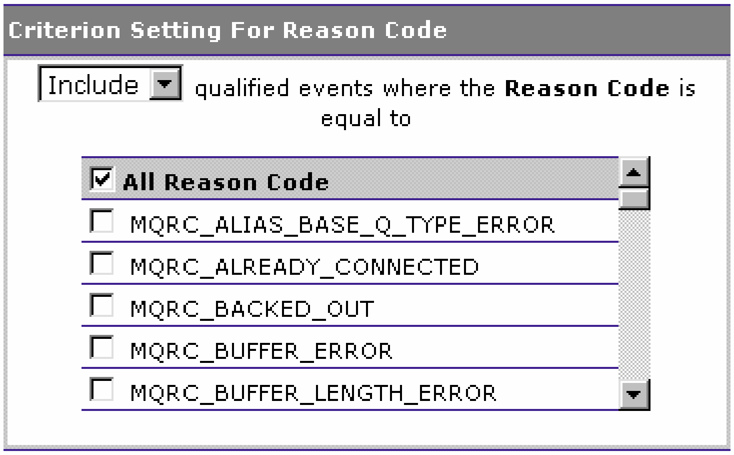
Criterion Setting For Completion Code

Include qualified events where the **Completion Code** is equal to

☑ **All Completion Code**
□ MQCC_OK
□ MQCC_WARNING
□ MQCC_FAILED
□ MQCC_UNKNOWN

1. Select whether to include or exclude events for selected WebSphere MQ API completion codes.
2. Check the box next to each API completion code you want to include specifically in the filter criteria, or check the box next to All Completion Codes to include all WebSphere MQ completion codes in the filter criteria.

Reason Code



Criterion Setting For Reason Code

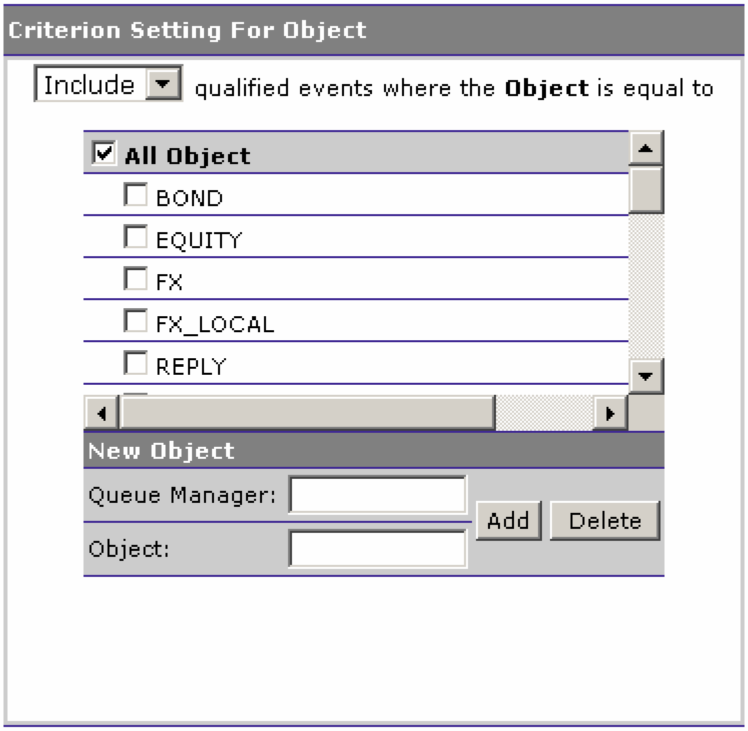
Include ▾ qualified events where the **Reason Code** is equal to

☑ **All Reason Code**
☐ MQRC_ALIAS_BASE_Q_TYPE_ERROR
☐ MQRC_ALREADY_CONNECTED
☐ MQRC_BACKED_OUT
☐ MQRC_BUFFER_ERROR
☐ MQRC_BUFFER_LENGTH_ERROR

1. Select whether to include or exclude events for selected WebSphere MQ API reason codes.
2. Check the box next to each API reason code you want to include specifically in the filter criteria, or check the box next to All Reason Codes to include all reason codes in the filter criteria.

Tip! MQGET calls with a NO_MSG_AVAILABLE reason code are filtered out by default. When monitoring WMQI brokers, make sure to filter out API calls to WMQI system queues MQGET with a NO_MSG_AVAILABLE reason code.

Object



Criterion Setting For Object

Include ▾ qualified events where the **Object** is equal to

☑ **All Object**
☐ BOND
☐ EQUITY
☐ FX
☐ FX_LOCAL
☐ REPLY

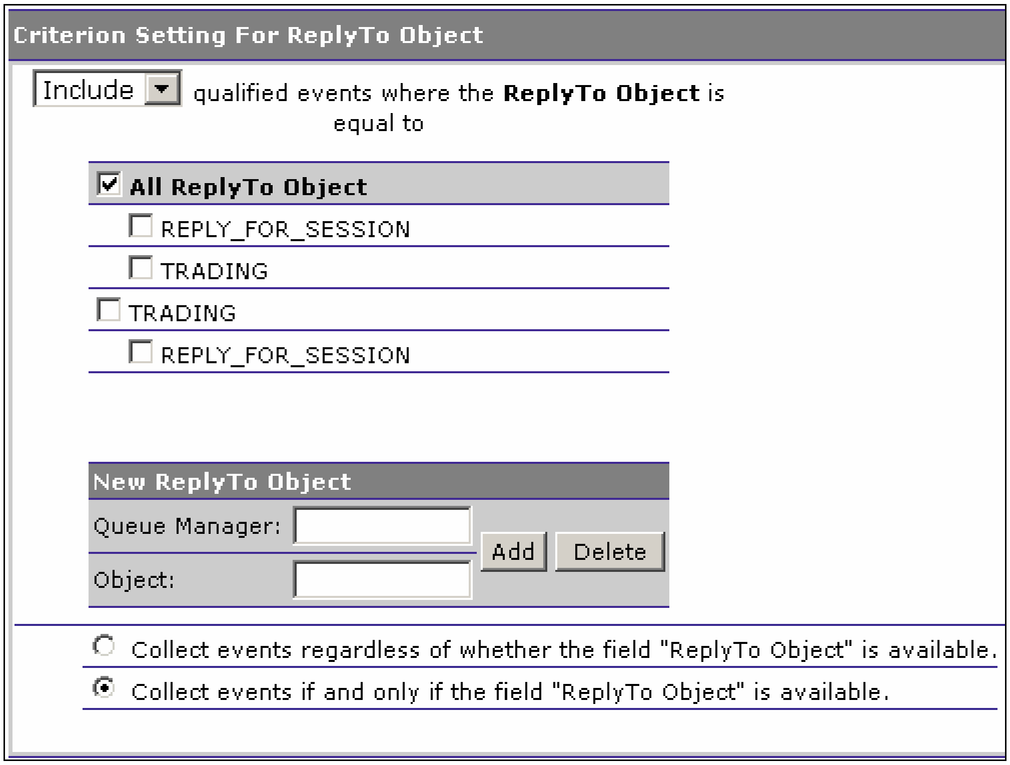
New Object

Queue Manager:
Object:

1. Select whether to Include or Exclude selected objects in the filter criteria.
2. Check the box next to each queue manager or object you want to include specifically in the filter criteria, or check the box next to All Objects to include all objects in the filter criteria. Selecting objects is useful if the same object name is present on multiple queue managers (for example, as in clusters).
3. The object list is generated from events collected in the project database. To add a new queue manager or object to the list, enter the name and click Add. To remove a queue manager or object name from the list, check the box next to it and click Delete.

   You may use wildcards at the start and/or end of queue manager or object names to specify a group of queue managers or objects. To use wildcards, add a new queue manager or object using wildcards in the name. For example, to collect events on all queue managers called ES1.*, add a new queue manager called ES1.* and check the box next to it.

ReplyTo Object



Criterion Setting For ReplyTo Object

Include ▾ qualified events where the **ReplyTo Object** is equal to

☑ **All ReplyTo Object**
- □ REPLY_FOR_SESSION
- □ TRADING

□ TRADING
- □ REPLY_FOR_SESSION

New ReplyTo Object

Queue Manager: ____
Object: ____

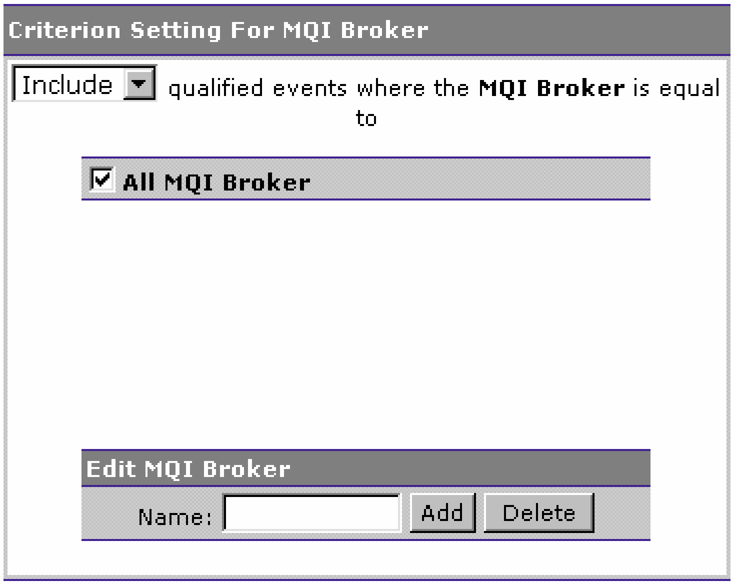
○ Collect events regardless of whether the field "ReplyTo Object" is available.
● Collect events if and only if the field "ReplyTo Object" is available.

1. Select whether to Include or Exclude selected Reply To queue managers and objects in the filter criteria.

2. Check the box next to each queue manager or queue you want to include specifically in the filter criteria, or check the box next to All Reply To Object to include all objects in the filter criteria. Selecting objects is useful if the same object name is present on multiple queue managers (for example, as in clusters).
3. The object list is generated from events collected in the project database. To add a new queue manager or object to the list, enter the name and click Add. To remove a queue manager or object name from the list, check the box next to it and click Delete.

   You may use wildcards at the start and/or end of queue manager or object names to specify a group of queue managers or objects. To use wildcards, add a new queue manager or object using wildcards in the name. For example, to collect events on all queue managers called ES1.*, add a new queue manager called ES1.* and check the box next to it.
4. To include MQPUT events that do not have a ReplyTo object, select Collect events regardless of whether the field “ReplyTo Object” is available.

WBI Broker



Criterion Setting For MQI Broker

Include ▼ qualified events where the **MQI Broker** is equal to

☑ **All MQI Broker**

Edit MQI Broker

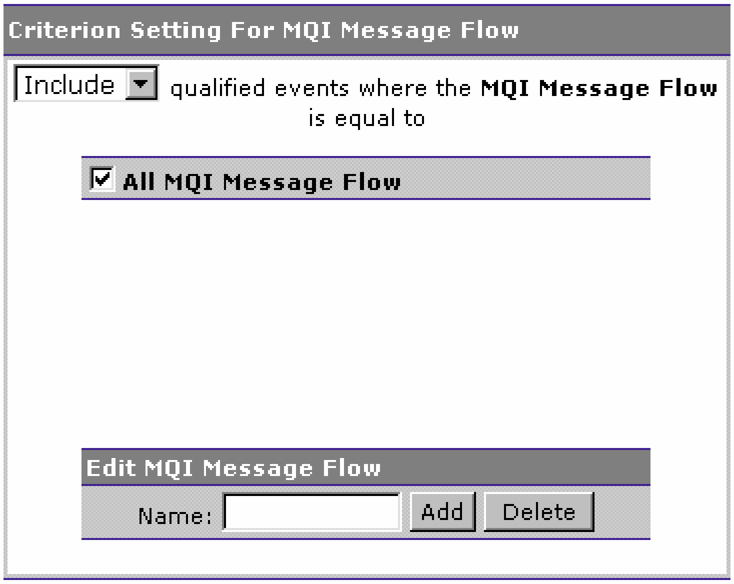
Name: [ ] Add Delete

1. Select whether to Include or Exclude selected WebSphere Business Integration (WBI) brokers in the filter criteria.
2. Check the box next to each broker you want to include specifically in the filter criteria, or check the box next to All WBI Brokers to include all brokers in the filter criteria.

3. The broker list is generated from events collected in the project database. To add a new broker to the list, enter the name and click Add. To remove a broker name from the list, check the box next to it and click Delete.

For more information about integrating TransactionVision with WebSphere MQ Integrator, see the *TransactionVision User's Guide*.

WBI Message Flow



Criterion Setting For MQI Message Flow

Include ▾ qualified events where the **MQI Message Flow** is equal to

☑ **All MQI Message Flow**

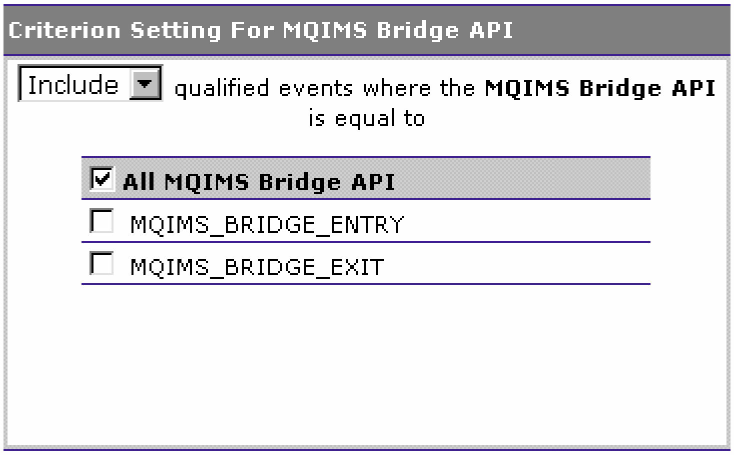
Edit MQI Message Flow

Name: [ ] Add Delete

1. Select whether to Include or Exclude selected WebSphere Business Integration (WBI) message flows in the filter criteria.
2. Check the box next to each message flow you want to include specifically in the filter criteria, or check the box next to All WBI Message Flows to include all programs in the filter criteria.
3. The message flow list is generated from events collected in the project database. To add a new message flow to the list, enter the name and click Add. To remove a message flow name from the list, check the box next to it and click Delete.

For more information about integrating TransactionVision with WebSphere MQ Integrator, see the *TransactionVision User's Guide*.

MQ IMS Bridge API



Criterion Setting For MQIMS Bridge API

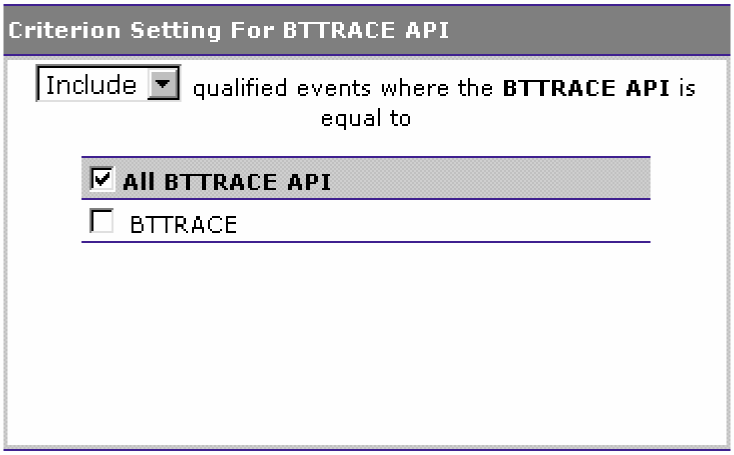
Include qualified events where the **MQIMS Bridge API** is equal to

- ☑ **All MQIMS Bridge API**
- □ MQIMS_BRIDGE_ENTRY
- □ MQIMS_BRIDGE_EXIT

1. Select whether to include or exclude events for selected MQSeries-IMS bridge APIs.
2. Check the box next to the APIs you want to include specifically in the filter criteria, or check the box next to All API to include all MQSeries-IMS bridge APIs in the filter criteria.

For more information about the MQSeries-IMS Bridge Sensor, see the *TransactionVision Sensor Installation and Configuration Guide*.

BTTRACE API



Criterion Setting For BTTRACE API

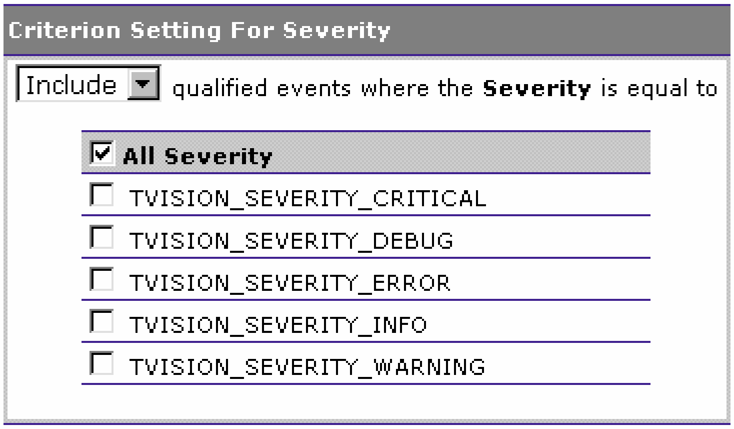
Include qualified events where the **BTTRACE API** is equal to

- ☑ **All BTTRACE API**
- □ BTTRACE

1. Select whether to include or exclude events for selected BTTRACE APIs. Applications may use the BTTRACE function provided by the Sensor library to send user-defined trace messages to the Analyzer.
2. Check the box next to each API you want to include specifically in the query criteria, or check the box next to All API to include all BTTRACE APIs in the query criteria.

For more information about the **`BTTRACE`** function, see Chapter 12, “Extending TransactionVision Sensors.”

BTTRACE Severity



Criterion Setting For Severity

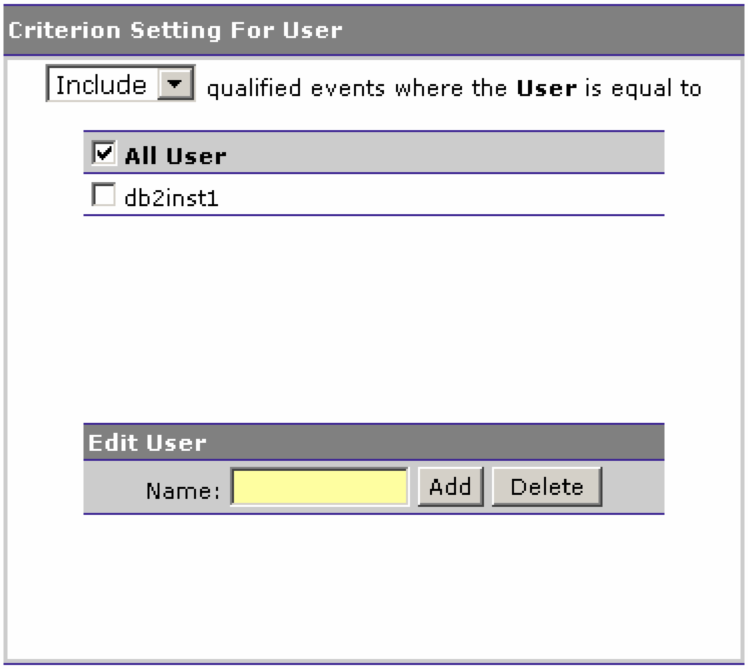
Include ▾ qualified events where the **Severity** is equal to

☑ **All Severity**
□ TVISION_SEVERITY_CRITICAL
□ TVISION_SEVERITY_DEBUG
□ TVISION_SEVERITY_ERROR
□ TVISION_SEVERITY_INFO
□ TVISION_SEVERITY_WARNING

1. Select whether to include or exclude events for selected BTTRACE severity levels. Applications may use the BTTRACE function provided by the Sensor library to send user-defined trace messages to the TransactionVision analysis views.
2. Check the box next to each severity you want to include specifically in the query criteria, or check the box next to All Severity to include all BTTRACE severity levels in the query criteria.

For more information about the **`BTTRACE`** function, see Chapter 12, “Extending TransactionVision Sensors.”

User



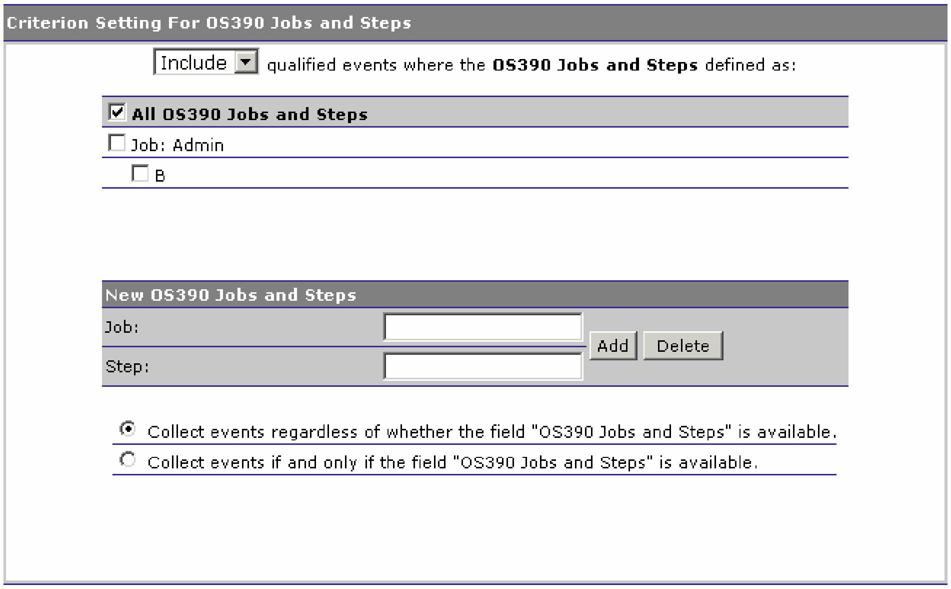
Include qualified events where the **User** is equal to

☑ **All User**

☐ db2inst1

1. Select whether to include or exclude events with selected user names.
2. Check the box next to each user name you want to include specifically in the filter criteria, or check the box next to Select All User Name to include all user names in the filter criteria.
3. The user name list is generated from events collected in the project database. To add a new user name to the list, enter the user name and click Add. To remove a user name from the list, check the box next to the user name and click Delete.

OS/390 Jobs and Steps



Criterion Setting For OS390 Jobs and Steps

Include ▾ qualified events where the **OS390 Jobs and Steps** defined as:

☑ **All OS390 Jobs and Steps**

□ Job: Admin

□ B

New OS390 Jobs and Steps

Job:

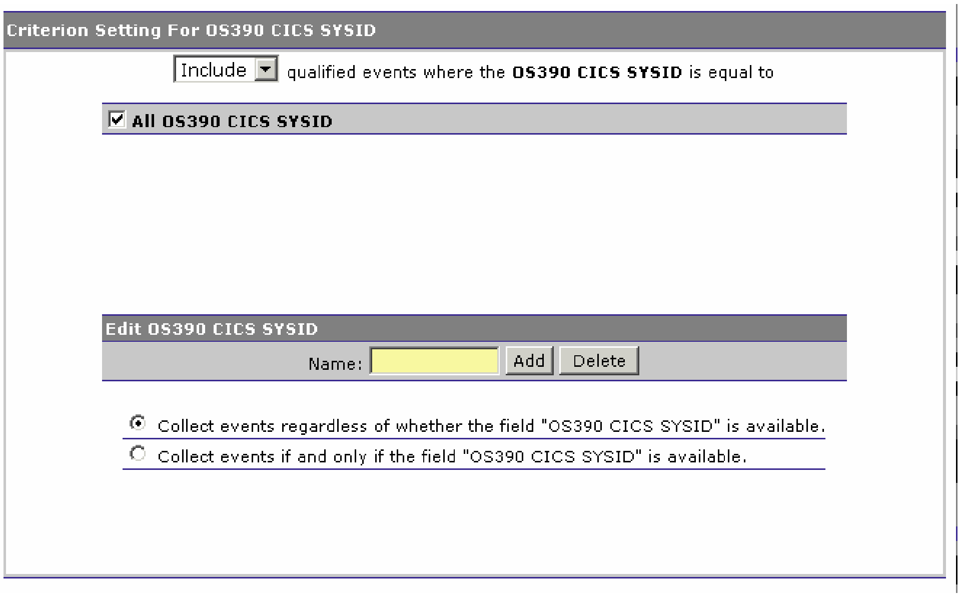
Step:

● Collect events regardless of whether the field "OS390 Jobs and Steps" is available.

○ Collect events if and only if the field "OS390 Jobs and Steps" is available.

1. Select whether to Include or Exclude selected OS/390 job steps in the filter criteria.
2. Check the box next to each job name or step you want to include specifically in the filter criteria, or check the box next to All Jobs and Steps to include all job steps in the filter criteria.
3. The job name and job step list is generated from events already collected in the project database. If no events have yet been collected, enter the job name and click Add or select a job name, enter a job step and click Add to add a step to an existing job. To remove a job name or step from the list, select it and click Delete.
4. Only events generated on the OS/390 platform have job names and job steps. To collect events that do not have a job step (non-OS/390 events), choose to collect events regardless of whether the field exists.

OS/390 CICS SYSID



Criterion Setting For OS390 CICS SYSID

Include ▾ qualified events where the **OS390 CICS SYSID** is equal to

☑ **All OS390 CICS SYSID**

Edit OS390 CICS SYSID

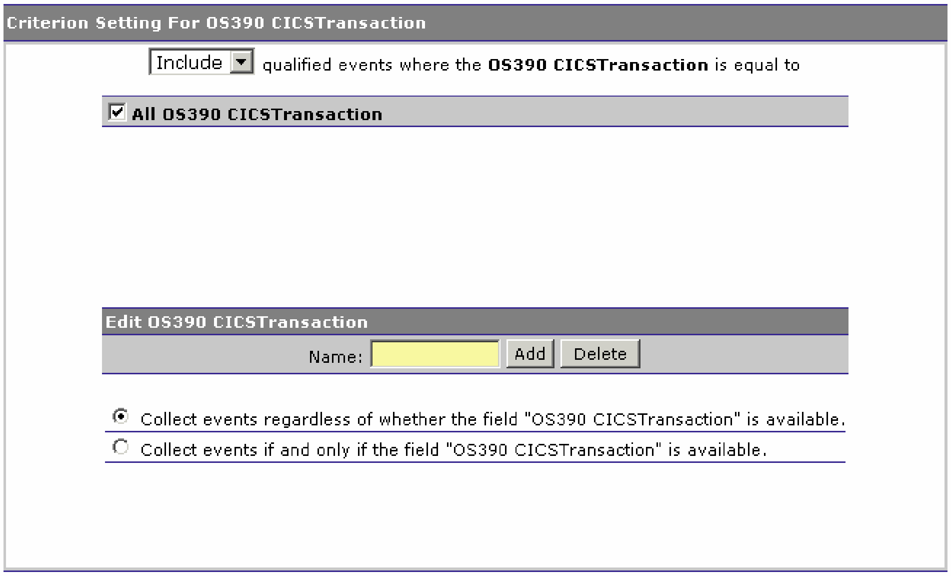
Name: [ ] Add Delete

● Collect events regardless of whether the field "OS390 CICS SYSID" is available.

○ Collect events if and only if the field "OS390 CICS SYSID" is available.

1. Select whether to include or exclude events for selected OS/390 CICS SYSIDs.
2. Check the box next to each CICS SYSID you want to include specifically in the filter criteria, or check the box next to All OS390 CICS SYSID to include all CICS SYSIDs in the filter criteria.
3. The list of CICS SYSIDs is generated from events collected in the project database. If no events have yet been collected, enter the CICS SYSID and click Add. To remove a SYSID name from the list, select it and click Delete.
4. Only events generated on the OS/390 CICS platform have a CICS SYSID. To collect events that do not have a CICS SYSID (non-OS/390 CICS events), choose to collect events regardless of whether the field exists.

OS/390 CICS Transaction



Criterion Setting For OS390 CICSTransaction

Include ▾ qualified events where the **OS390 CICSTransaction** is equal to

☑ **All OS390 CICSTransaction**

Edit OS390 CICSTransaction

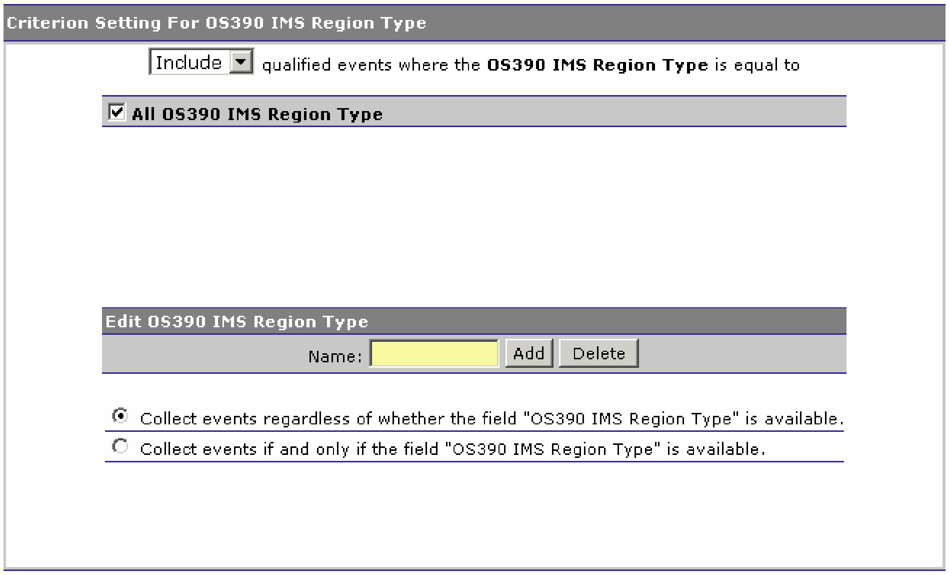
Name: [ ] Add Delete

● Collect events regardless of whether the field "OS390 CICSTransaction" is available.

○ Collect events if and only if the field "OS390 CICSTransaction" is available.

1. Select whether to include or exclude events for selected OS/390 CICS transactions.
2. Check the box next to each CICS transaction you want to include specifically in the filter criteria, or check the box next to All Transactions to include all CICS transactions in the filter criteria.
3. The list of CICS transactions is generated from events collected in the project database. If no events have yet been collected, enter the CICS transaction and click Add. To remove a transaction name from the list, select it and click Delete.
4. Only events generated on the OS/390 CICS platform have a CICS transaction. To collect events that do not have a CICS transaction (non-OS/390 CICS events), choose to collect events regardless of whether the field exists.

OS/390 IMS Region Type



Criterion Setting For OS390 IMS Region Type

Include ▾ qualified events where the **OS390 IMS Region Type** is equal to

☑ **All OS390 IMS Region Type**

Edit OS390 IMS Region Type

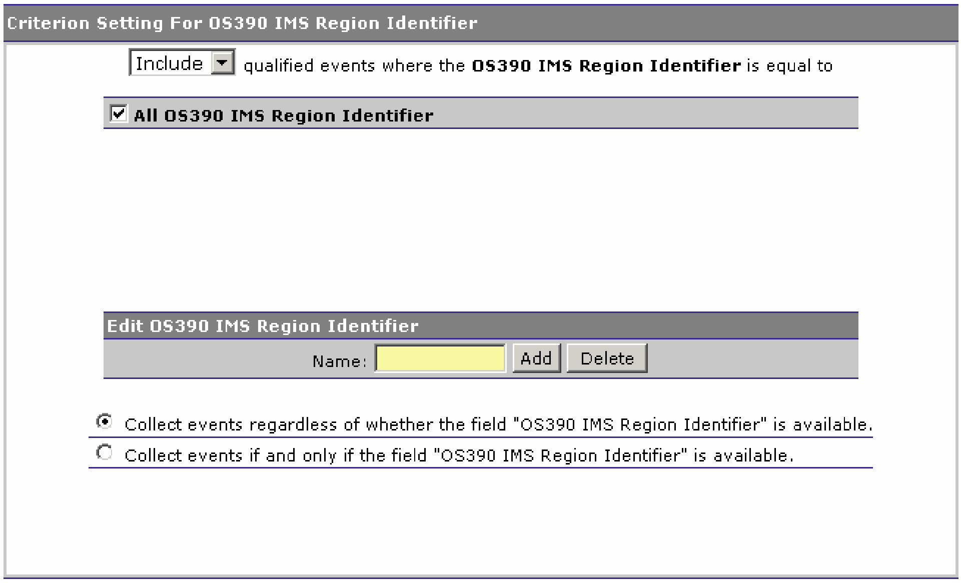
Name: [ ] Add Delete

● Collect events regardless of whether the field "OS390 IMS Region Type" is available.

○ Collect events if and only if the field "OS390 IMS Region Type" is available.

1. Select whether to include or exclude events for selected OS/390 IMS region types.
2. Check the box next to each IMS region type you want to include specifically in the filter criteria, or check the box next to All Region Type to include all IMS region types in the filter criteria.
3. The list of IMS region types is generated from events collected in the project database. If no events have yet been collected, enter the IMS region and click Add. To remove a region type name from the list, select it and click Delete.
4. Only events generated on the OS/390 IMS platform have an IMS region type. To collect events that do not have an IMS region type (non-OS/390 IMS events), choose to collect events regardless of whether the field exists.

OS/390 IMS Region Identifier



Criterion Setting For OS390 IMS Region Identifier

Include ▾ qualified events where the **OS390 IMS Region Identifier** is equal to

☑ **All OS390 IMS Region Identifier**

Edit OS390 IMS Region Identifier

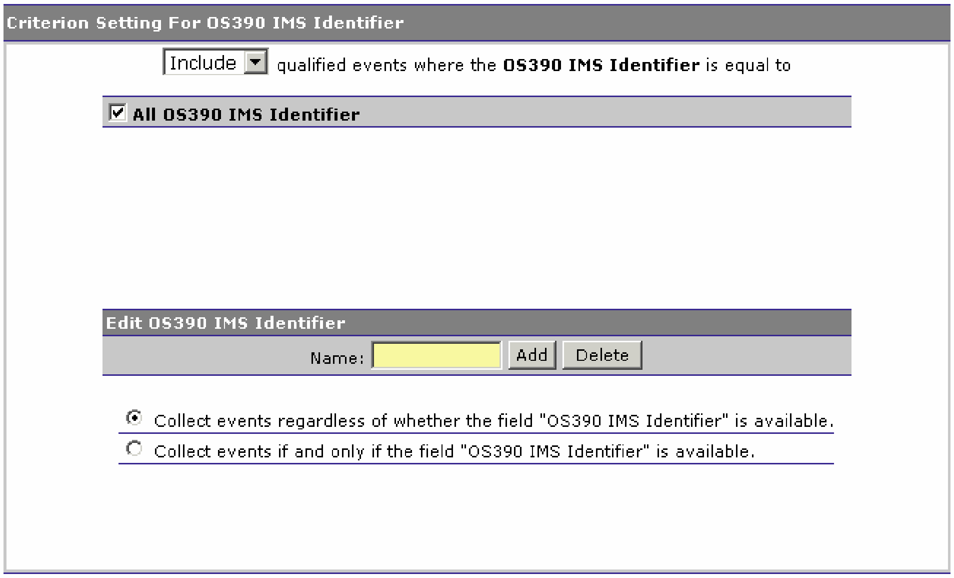
Name: Add Delete

● Collect events regardless of whether the field "OS390 IMS Region Identifier" is available.

○ Collect events if and only if the field "OS390 IMS Region Identifier" is available.

1. Select whether to include or exclude events for selected OS/390 IMS region identifiers.
2. Check the box next to each IMS region identifier you want to include specifically in the filter criteria, or check the box next to All Region Identifier to include all IMS region identifiers in the filter criteria.
3. The list of IMS region identifiers is generated from events collected in the project database. If no events have yet been collected, enter the IMS region identifier and click Add. To remove a region identifier name from the list, select it and click Delete.
4. Only events generated on the OS/390 IMS platform have an IMS region identifier. To collect events that do not have an IMS region identifier (non-OS/390 IMS events), choose to collect events regardless of whether the field exists.

OS/390 IMS Identifier



Criterion Setting For OS390 IMS Identifier

Include ▾ qualified events where the **OS390 IMS Identifier** is equal to

☑ **All OS390 IMS Identifier**

Edit OS390 IMS Identifier

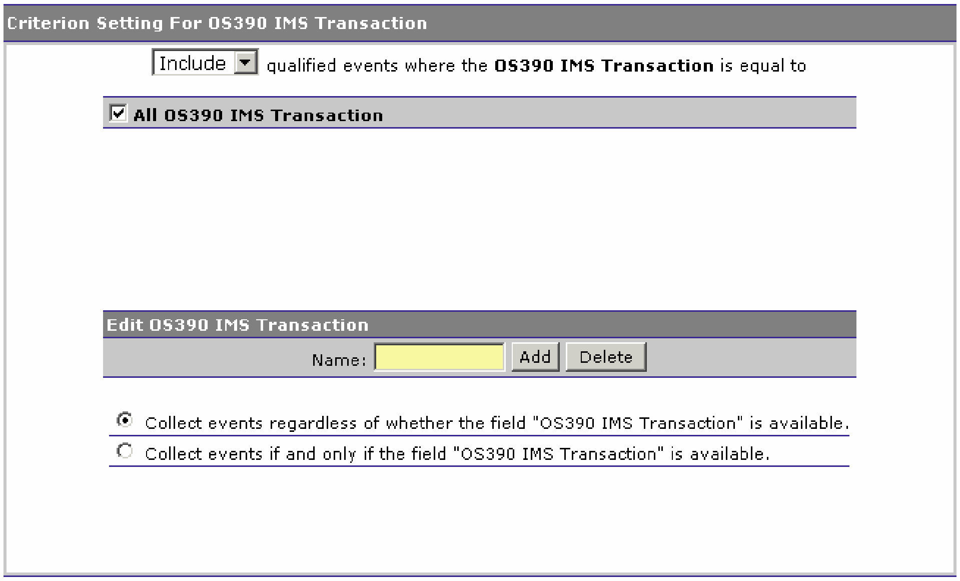
Name: [ ] Add Delete

● Collect events regardless of whether the field "OS390 IMS Identifier" is available.

○ Collect events if and only if the field "OS390 IMS Identifier" is available.

1. Select whether to include or exclude events for selected OS/390 IMS identifiers.
2. Check the box next to each IMS identifier you want to include specifically in the filter criteria, or check the box next to All Identifier to include all IMS identifiers in the filter criteria.
3. The list of IMS identifiers is generated from events collected in the project database. If no events have yet been collected, enter the IMS identifier and click Add. To remove an identifier name from the list, select it and click Delete.
4. Only events generated on the OS/390 IMS platform have an IMS identifier. To collect events that do not have an IMS identifier (non-OS/390 IMS events), choose to collect events regardless of whether the field exists.

OS/390 IMS Transaction



Criterion Setting For OS390 IMS Transaction

Include ▾ qualified events where the **OS390 IMS Transaction** is equal to

☑ **All OS390 IMS Transaction**

Edit OS390 IMS Transaction

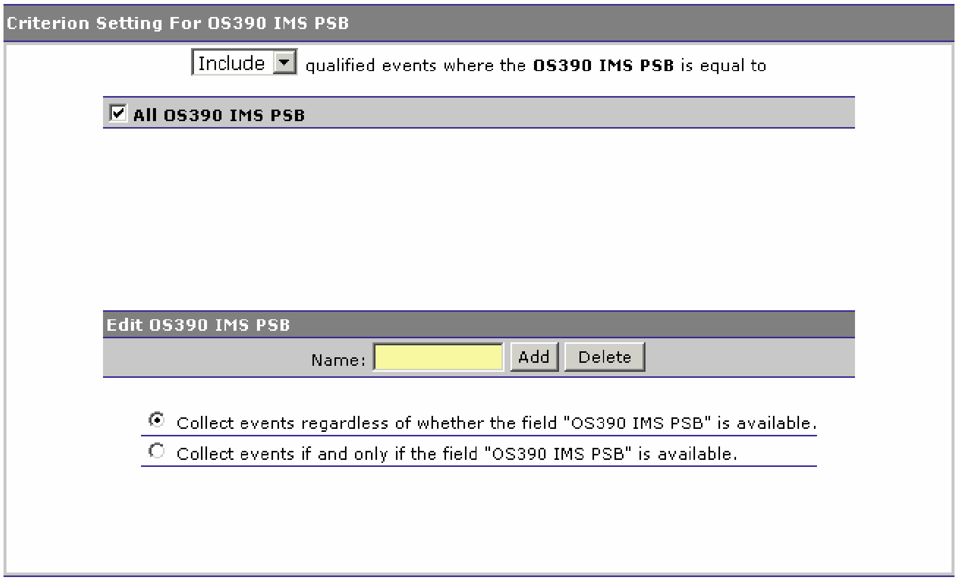
Name: [ ] Add Delete

● Collect events regardless of whether the field "OS390 IMS Transaction" is available.

○ Collect events if and only if the field "OS390 IMS Transaction" is available.

1. Select whether to include or exclude events for selected OS/390 IMS transactions.
2. Check the box next to each IMS transaction you want to include specifically in the filter criteria, or check the box next to All Transaction to include all IMS transactions in the filter criteria.
3. The list of IMS transactions is generated from events collected in the project database. If no events have yet been collected, enter the IMS transaction and click Add. To remove a transaction name from the list, select it and click Delete.
4. Only events generated on the OS/390 IMS platform have an IMS transaction. To collect events that do not have an IMS transaction (non-OS/390 IMS events), choose to collect events regardless of whether the field exists.

OS/390 IMS PSB



Criterion Setting For OS390 IMS PSB

Include qualified events where the **OS390 IMS PSB** is equal to

☑ **All OS390 IMS PSB**

Edit OS390 IMS PSB

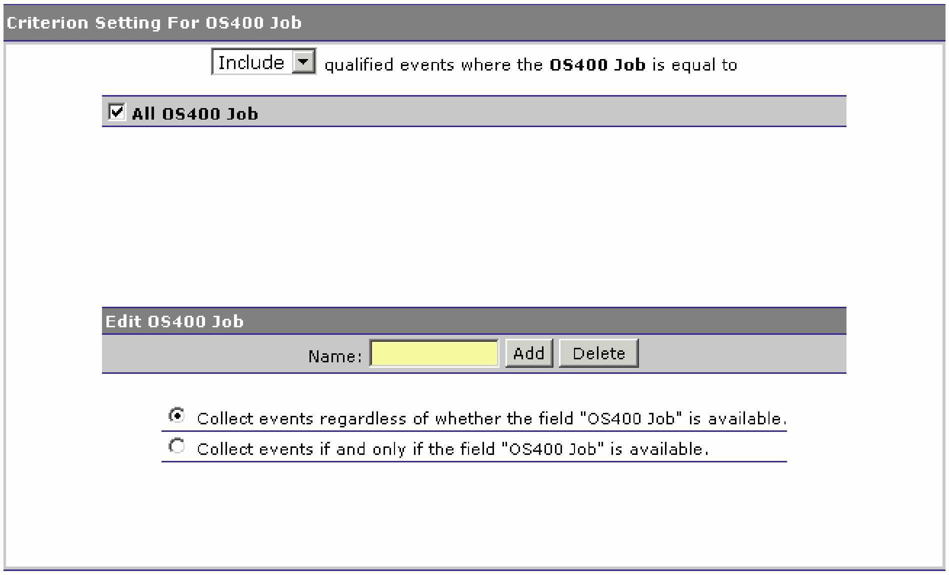
Name:

● Collect events regardless of whether the field "OS390 IMS PSB" is available.

○ Collect events if and only if the field "OS390 IMS PSB" is available.

1. Select whether to include or exclude events for selected OS/390 IMS PSBs.
2. Check the box next to each IMS PSB you want to include specifically in the filter criteria, or check the box next to All PSB to include all IMS PSBs in the filter criteria.
3. The list of IMS PSBs is generated from events collected in the project database. If no events have yet been collected, enter the IMS PSB and click Add. To remove a PSB name from the list, select it and click Delete.
4. Only events generated on the OS/390 IMS platform have an IMS PSB. To collect events that do not have an IMS PSB (non-OS/390 IMS events), choose to collect events regardless of whether the field exists.

OS/400 Job



Criterion Setting For OS400 Job

Include ▾ qualified events where the **OS400 Job** is equal to

☑ **All OS400 Job**

Edit OS400 Job

Name: [ ] Add Delete

● Collect events regardless of whether the field "OS400 Job" is available.

○ Collect events if and only if the field "OS400 Job" is available.

1. Select whether to include or exclude events for selected OS/400 job names.
2. Check the box next to each job name you want to include specifically in the filter criteria, or check the box next to All Job Names to include all job names in the filter criteria.
3. The list of job names is generated from events collected in the project database. If no events have yet been collected, enter the job name and click Add. To remove a job name from the list, select it and click Delete.
4. Only events generated on the OS/400 platform have an OS/400 job name. To collect events that do not have an OS/400 job name (non-OS/400 events), choose to collect events regardless of whether the field exists.

Chapter 7

Managing Scheduled Jobs

A job is a task that runs at a specified frequency. A job typically gathers statistics of recently arrived events and stores calculated results in a way that is easily accessible by a report. By using a job, the reports themselves do not have to perform complex, time-consuming queries to present report data. Instead, they use already calculated data that is periodically updated by a job running in the background.

A job is a bean that implements a particular task. See the *TransactionVision Programmer's Guide* for information about creating job beans and, if you are using WebLogic, adding job beans to the TransactionVision application.

Use the TransactionVision web user interface to define and manage jobs. A job instance is defined for a particular project; that instance can only be run on that project. However, multiple instances of the job bean may be run concurrently, each configured for a different project.

Only users with required permissions may manage jobs. See Chapter 9, “Managing Users,” for information about permissions.

Available Jobs

Transaction provides two jobs:

- deleteEvents
- Transaction Statistics
- RunStats

deleteEvents

The deleteEvents job deletes all events more than 48 hours old from your project database. This job is optional, and by default is turned off when you create a project. The deleteEvents job uses the **`deleteEvents`** utility;

for detailed information about this utility, see Appendix A, "Utilities Reference."

Important! TransactionVision does **not** support running multiple instances of this job simultaneously. Be sure to schedule this job so that it does not run simultaneously for multiple projects.

Transaction Statistics

The Transaction Statistics job calculates business transaction statistics. This job is required if you wish to collect transaction statistics; these statistics are used by a number of different reports. If this job is not running, those reports will not be able to show any data.

Important! TransactionVision does **not** support running multiple instances of this job simultaneously. Be sure to schedule this job so that it does not run simultaneously for multiple projects.

RunStats

The RunStats job updates statistics about the physical characteristics of a project's schema table and the associated indexes. These characteristics include number of records, number of pages, and average record length. The database optimizer uses these statistics when determining access paths to the data.

This job should be run when a table has had many updates, such as when data is continuously collected into the database by the TransactionVision Analyzer. It could result in large performance gains in queries made by TransactionVision views and reports, as well as queries made internally by the TransactionVision Analyzer to correlate events. However, the RunStats job is very resource-intensive. Therefore, schedule it to run at a time when it's impact on overall performance can best be tolerated.

If you use an Oracle database, the RunStats job uses the **`OracleRunstats`** script provided with TransactionVision. For more information about this script, see Appendix A. Note that Oracle 10g has a built-in job scheduler to automatically collect statistics; you do not need to use the RunStats job if you are using Oracle 10g.

If you use a DB2 database, you must generate the `$TVISION_HOME/bin/runstats-script.sh|bat` script used by the RunStats job with the following command:

```
CreateSqlScript.sh|bat -cs -p project_schema
```

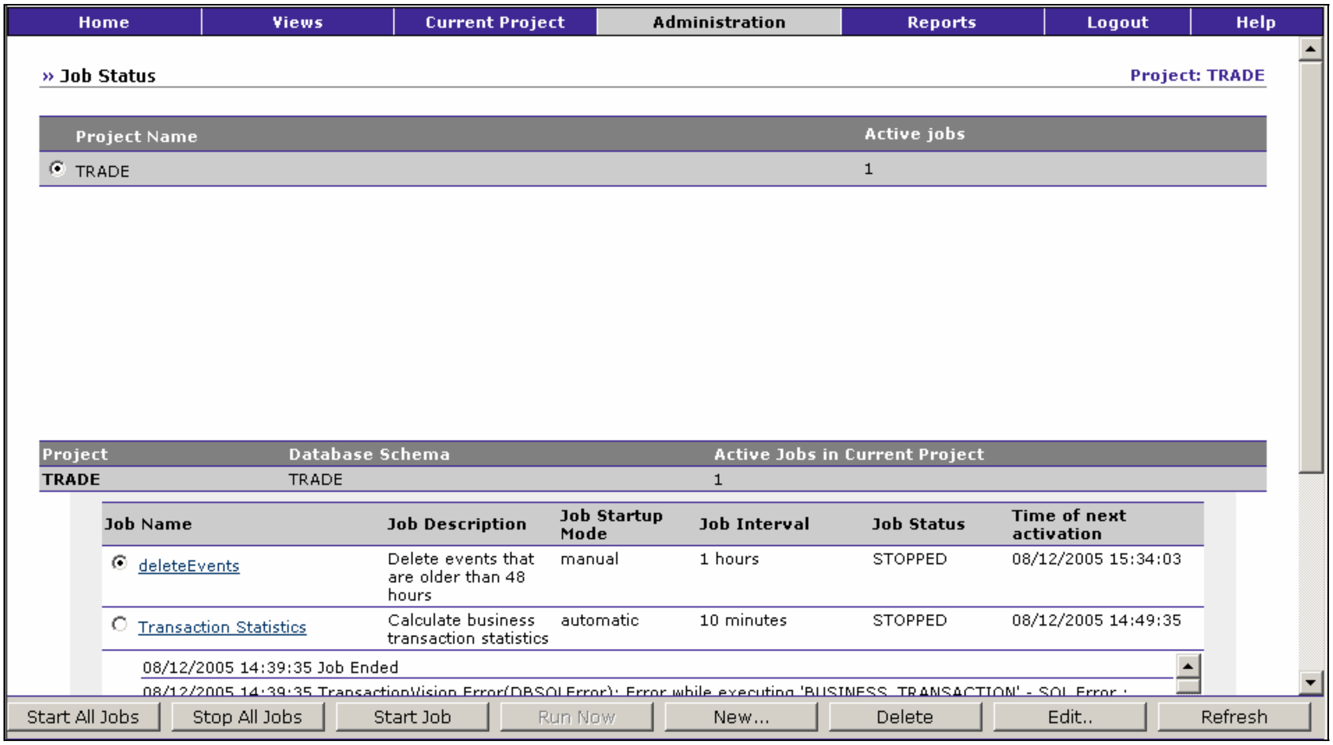
Note that you may later need to manually modify the **`DB2RunStats`** script to reflect your database schema change.

This job takes the following optional parameters:

Parameter	Description
`-database (d)`	Database name on which to perform the job.
`-user (u)`	Username for accessing the database.
`-trace (t)`	Log trace information

View Jobs for the Current Project

Choose the Current Project > Job Status menu item to view the Job Status page. Use this page to view information about jobs for the current project, start or stop jobs, run waiting jobs, create new jobs, and delete jobs.



» Job Status

Project: TRADE

Project Name	Active jobs
● TRADE	1

Project	Database Schema	Active Jobs in Current Project
TRADE	TRADE	1

Job Name	Job Description	Job Startup Mode	Job Interval	Job Status	Time of next activation
● deleteEvents	Delete events that are older than 48 hours	manual	1 hours	STOPPED	08/12/2005 15:34:03
○ Transaction Statistics	Calculate business transaction statistics	automatic	10 minutes	STOPPED	08/12/2005 14:49:35

```
08/12/2005 14:39:35 Job Ended
08/12/2005 14:39:35 TransactionVision Error(DBSQLError): Error while executing 'BUSINESS_TRANSACTION' - SQL Error :
```

This page shows the project name, assigned database schema, and number of active jobs. For each job, it provides the following information:

- Job name. Click the job name link to edit an existing job configuration. For more information about editing a job configuration, see “Create/Edit a Job” on page 154.
- Job description (optional)
- Job startup mode. The following table shows valid values:

Startup Mode	Description

Startup Mode	Description
Automatic	The job is automatically initialized and started when the web server starts or when a user clicks Start All.
Manual	The job is only started when the job is selected and started with the Start Job button.
Disabled	The job cannot be run until its startup mode is changed to Automatic or Manual. Disabling a job is useful if you have an automatically starting job that you want to temporarily turn off so it doesn’t start when the system comes up or when starting all jobs.

- Job interval. Specifies the time period interval at which the job is configured to run.
- Job status. The following table shows valid values:

Status	Description
Running	The job is in the process of executing the task it is programmed to do.
Waiting	The job is active and is waiting for its scheduled run time to arrive.
Quiescing	The job is in the process of shutting down, performing any specific cleanup or shutdown processes applicable to the job. A job initially transfers to this state when it is stopped, then automatically move from this state to Stopped when the shutdown or cleanup process is complete. For example, the DeleteEvents job finishes making database updates for its current progress in this state. When in Quiescing mode, use the Force Stop button to end a job immediately without completing pending tasks.
Stopped	The job is not active, is not loaded into memory, and will not perform any tasks until started with the Start Job or Start All Jobs button.

- Time of next activation. Specifies the time a waiting or running job will be run next.

For the selected job, the Job Status page also displays history information showing when the job has been initialized, run, and completed.

Start All Jobs

To start all automatic jobs, click Start All Jobs. Starting a job initializes and activates it. If it’s next scheduled time has already passed, it will run immediately; otherwise, it will be placed in a waiting state until its scheduled time arrives.

Stop All Jobs

To shutdown all currently active jobs, click Stop All Jobs. When a job is stopped, a cancel command is first issued, if the job is currently running, followed by commands to stop and shut it down.

Start/Stop Job

To start or stop a single job, click the radio button to the left of the job name to select it, then click Start Job to start a stopped job or Stop Job to stop a running or waiting job.

Force Stop

To force a job in the Quiescing state to stop immediately without completing pending cleanup or shutdown tasks, click the radio button to the left of the job name to select it, then click Force Stop. This button is only enabled if the selected job is in Quiescing mode.

Run Now/Cancel Run

To force a waiting job to run immediately, rather than continuing to wait for the scheduled time, click the radio button to the left of the job name to select it and click Run Now. To cancel the current run of a running job without stopping the job, select it and click Cancel Run. The job will change to a waiting state until the next scheduled run time.

New...

To create a new job configuration, click New... to open the Create Job page. For more information, see “Create/Edit a Job” on page 154.

Delete

To delete a job, click the radio button to the left of the job name to select it and click Delete. You may only delete a job if its status is stopped.

Edit...

To modify a job configuration, click Edit Job... to open the Edit Job page. For more information, see Create/Edit a Job” on page 154.

Refresh

To update the view to reflect any changes since it was created, click Refresh.

View Jobs for All Projects

To view job information for any project, rather than for the current project only, choose the Administration > Jobs menu item. The Job Status page opens. This page is similar to the Job Status page for the current project, except it has a list of projects, with the current project selected. To view job status information for a different project, click the radio button to the left of the project name to select it. For more information about job status, see “View Jobs for the Current Project” on page 151.

Create/Edit a Job

To create a new job or edit an existing job, you must first make the job class accessible to the TransactionVision application in your application server, then you must add it in the TransactionVision user interface.

Make a Job Accessible in an Application Server

Before creating a new job, add the job class under in you application server to make the class file accessible to the TransactionVision application.

WebSphere

For WebSphere, do **either** of the following:

- Set the CLASSPATH for your server through the WebSphere Administration Console to include your class file by choosing Process definition > Java virtual machine.
- Place the job class file in the `WAS_HOME/installedApps/.../TransactionVision.ear/tvision/war/WEB-INF/classes` directory in an appropriate subdirectory for its class name.

WebLogic

To add a custom job class to WebLogic, which does not have an `installedApps` directory, perform the following steps to repackage and redeploy the TransactionVision application to include the relevant classes and/or jar files:

1. Make a backup copy of the `tvision.ear` file in `TVISION_HOME/ui`.
2. Copy the `tvision.ear` file to a temporary location and extract it using the following command:

```
jar -xf tvision.ear
```

   A `tvision.war` file will be among the files extracted.

3. Move the `tvision.war` file to a temporary location and extract it as well using the following command:

   ```
   jar -xf tvision.war
   ```

   This command will extract all the TransactionVision related files. Within the files extracted, you will find two directories: `WEB-INF/lib` and `WEB-INF/classes`.
4. Copy any required jar files required to the `WEB-INF/lib` directory and any required class files to the `WEB-INF/classes` directory.

   Note: If class files are part of a package, they must be placed in that corresponding directory. For example, a java class called `com.mycompany.TestClass` would need to be placed in the `com/mycompany` directory within `WEB-INF/classes`.
5. Repack the `tvision.war` file. Remove the old `tvision.war` file from the directory and the recreate it, packing all the files in the directory by using the following command:

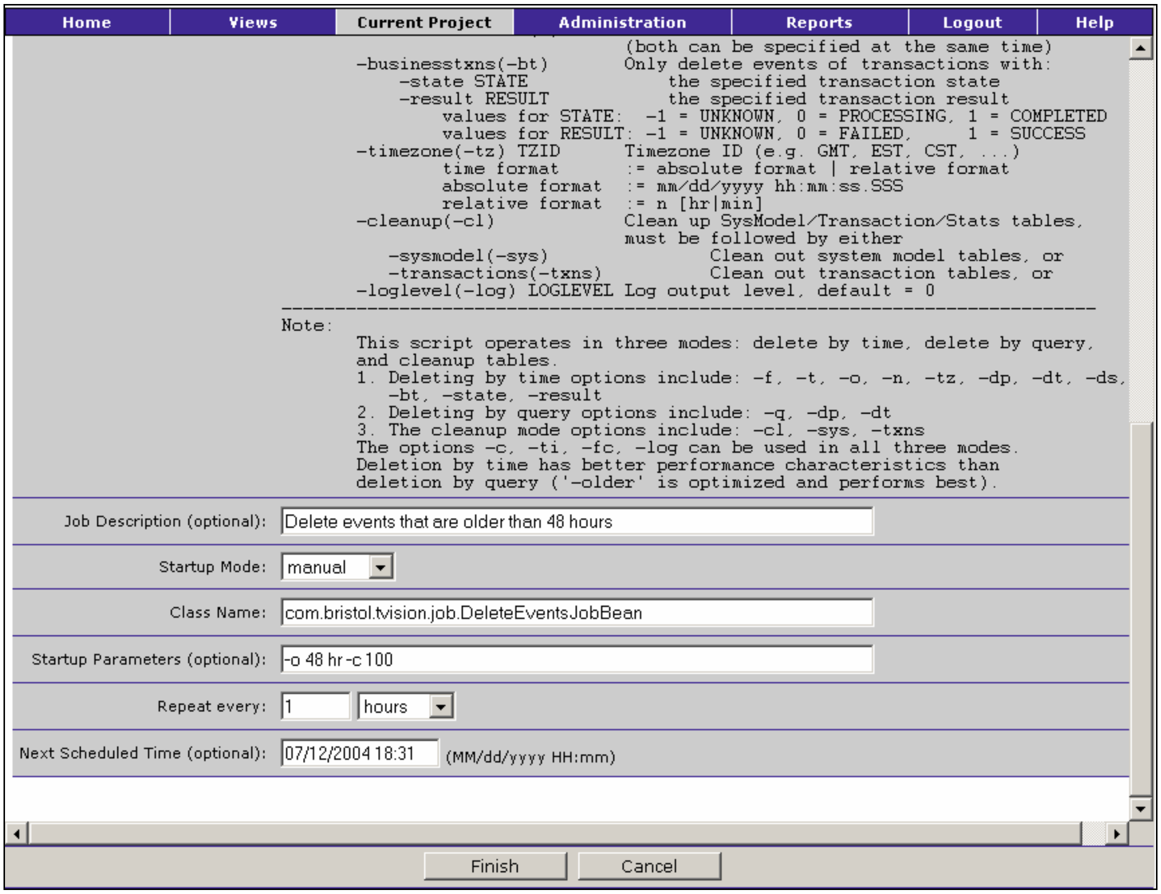
   ```
   jar -cf tvision.war
   ```
6. Copy this new `tvision.war` file to the directory where you extracted the `tvision.ear` file.
7. Repack the `tvision.ear` file in this directory with the following command:

   ```
   jar -cf tvision.ear
   ```
8. Copy this new ear file to `TVISION_HOME/ui`.
9. Run **`TVisionSetup`** to redeploy TransactionVision. The new jobs classes should now be available to the web application.

Add a Job to the TransactionVision User Interface

Once you have made your job accessible to TransactionVision in your application server, perform the following steps to add it to the TransactionVision user interface:

1. To create a new job, click New... on the Job Status page. To edit an existing job, select the job name on the Job Status page and click Edit.... TransactionVision displays the Create/Edit Job page.



```
                             (both can be specified at the same time)
       -businesstxns(-bt)      Only delete events of transactions with:
           -state STATE            the specified transaction state
           -result RESULT          the specified transaction result
               values for STATE:  -1 = UNKNOWN, 0 = PROCESSING, 1 = COMPLETED
               values for RESULT: -1 = UNKNOWN, 0 = FAILED,     1 = SUCCESS
       -timezone(-tz) TZID     Timezone ID (e.g. GMT, EST, CST, ...)
               time format     := absolute format | relative format
               absolute format := mm/dd/yyyy hh:mm:ss.SSS
               relative format := n [hr|min]
       -cleanup(-cl)           Clean up SysModel/Transaction/Stats tables,
                               must be followed by either
          -sysmodel(-sys)              Clean out system model tables, or
          -transactions(-txns)         Clean out transaction tables, or
       -loglevel(-log) LOGLEVEL Log output level, default = 0
------------------------------------------------------------------------------
Note:
       This script operates in three modes: delete by time, delete by query,
       and cleanup tables.
       1. Deleting by time options include: -f, -t, -o, -n, -tz, -dp, -dt, -ds,
          -bt, -state, -result
       2. Deleting by query options include: -q, -dp, -dt
       3. The cleanup mode options include: -cl, -sys, -txns
       The options -c, -ti, -fc, -log can be used in all three modes.
       Deletion by time has better performance characteristics than
       deletion by query ('-older' is optimized and performs best).
```

Job Description (optional):	Delete events that are older than 48 hours
Startup Mode:	manual
Class Name:	com.bristol.tvision.job.DeleteEventsJobBean
Startup Parameters (optional):	-o 48 hr -c 100
Repeat every:	1 hours
Next Scheduled Time (optional):	07/12/2004 18:31 (MM/dd/yyyy HH:mm)

2. Enter the job name and optional description as you want them to appear on the Job Status page.
3. Select one of the following startup modes:

Startup Mode	Description
Automatic	The job is automatically initialized and started when the web server starts or when a user clicks Start All.
Manual	The job is only started when the job is selected and started with the Start Job or Run Now button.
Disabled	The job cannot be run until its startup mode is changed to Automatic or Manual. Disabling a job is useful if you have an automatically starting job that you want to temporarily turn off so it doesn't start when the system comes up or when starting all jobs.

4. Enter the name of the java class that is to be instantiated for this job in the Class Name field. This class must implement the IJob interface (see the *TransactionVision Programmer's Guide* for details).

5. Enter any optional startup parameters. They are passed to the job bean's initialization method when it starts. For the deleteEvents job, keep the following in mind:

- By default, the value for the `-commit` option for the deleteEvents job is 0, meaning that the commit is done after the entire deletion. If you are deleting a large number of events, explicitly specify the parameter `-commit` *`n`* to commit after *n* event deletions. Otherwise, the database transaction log may overflow or the table may be locked for a long period of time.
- By default, the deleteEvents job and script do not allow deleting events in the last 48 hours. To override the default of 48 hours, use the `-minage` number-of-hours option. For example, `-minage 10` prevents the job from deleting events from the last 10 hours.

6. Enter the frequency of when the job should be repeated. The interval may be in minutes, hours, days, or months.
7. Enter the next scheduled job time, if desired. If you do not enter a next scheduled time, the next scheduled time is calculated based on the information in the Repeat Every field.
8. If you want to propagate this job to any existing projects, select the projects in which to create this job.
9. Click Finish to return to the Job Status page.

Chapter 8
Managing Aliases

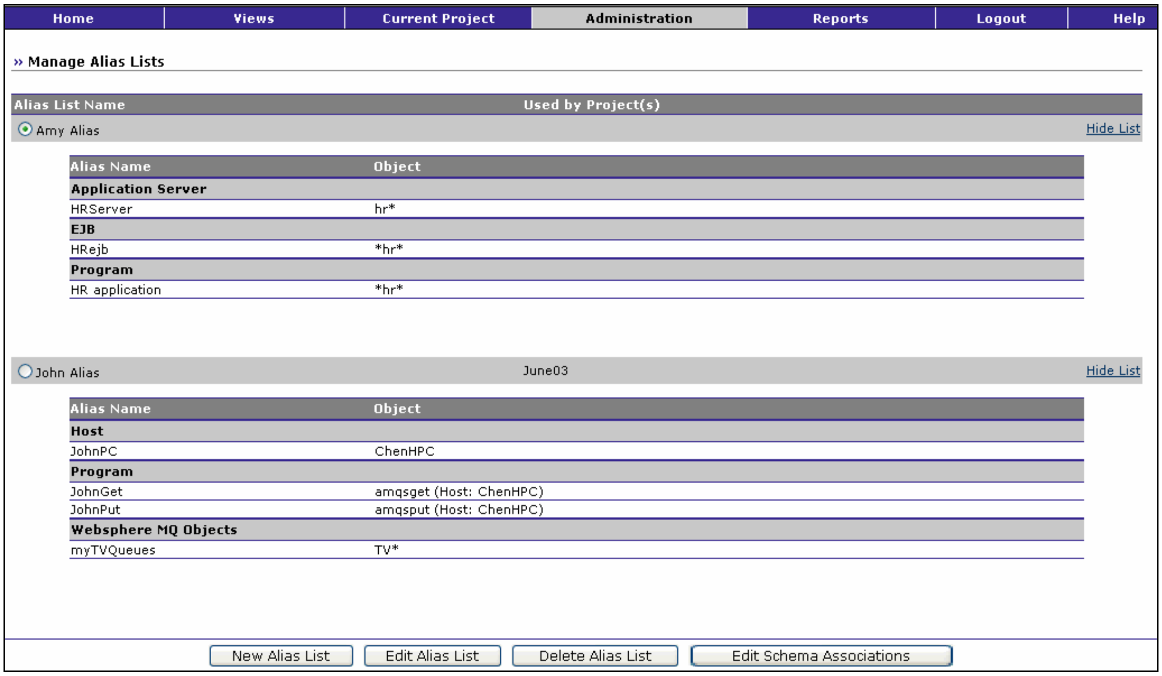
An **alias** is a custom name that you may define for any system model object. When you define an alias for an object, the alias is used in the Component Topology Analysis, Transaction Analysis, and Event Analysis views. In the Component Topology Analysis view, you can specify whether to use the real object name, the alias, or both as the node label.

An **alias definition** maps a real object name to a user-defined alias. You may use wild cards in the mapping. For example, you may map all queues that begin with “TV” to “tvqueue”.

An **alias list** can contain any number of alias definitions.l You may have multiple alias lists. An alias list can be associated with multiple project schemas. The association between schema and alias list can be changed at any time; any open views must be refreshed for changes to take effect.

View All Alias Lists

Choose the Administration > Alias Manager menu item to view the Manage Alias Lists page. Use this page to view information about alias lists.



» Manage Alias Lists

Alias List Name	Used by Project(s)	
● Amy Alias		Hide List

Alias Name	Object
Application Server	
HRServer	hr*
EJB	
HRejb	*hr*
Program	
HR application	*hr*

Alias List Name	Used by Project(s)	
○ John Alias	June03	Hide List

Alias Name	Object
Host	
JohnPC	ChenHPC
Program	
JohnGet	amqsget (Host: ChenHPC)
JohnPut	amqsput (Host: ChenHPC)
Websphere MQ Objects	
myTVQueues	TV*

This page shows the following information for each alias list:

- The list name
- Names of projects that use the alias list
- Alias definitions contained in each list. To hide list definitions, click the Hide List link. To show hidden list definitions, click the Show List link.

New Alias List

To create a new alias list, click New Alias List. See “Define a New Alias List” for more information.

Edit Alias List

To add or modify alias definitions within a list, click the radio button to the left of the alias list name to select it and click Edit Alias List. See “Add or Delete an Alias Definition” for more information.

Delete Alias List

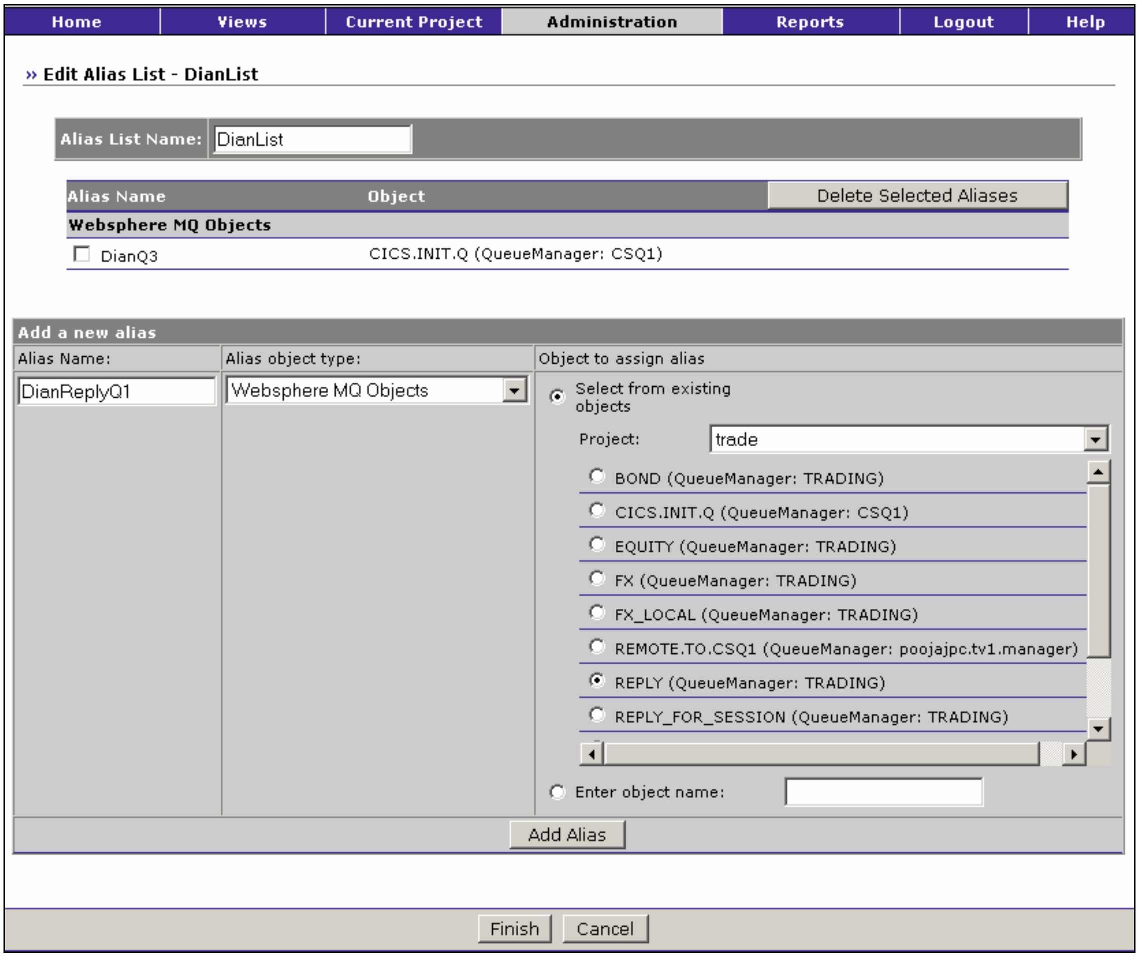
To delete an alias list, click the radio button to the left of the alias list name to select it, then click Delete Alias List. The Component Topology Analysis, Transaction Analysis, and Event Analysis views will show only the real object names.

Edit Schema Associations

To change project assignments for an alias list, click the radio button to the left of the alias list name to select it, then click Edit Schema Associations. See “Associate an Alias List with a Schema” for more information.

Define a New Alias List

To create a new alias list, click New Alias List on the Manage Alias Lists page. The Edit Alias List page appears:



» Edit Alias List - DianList

Alias List Name: DianList

Alias Name	Object
Websphere MQ Objects	
□ DianQ3	CICS.INIT.Q (QueueManager: CSQ1)

Add a new alias

Alias Name: DianReplyQ1

Alias object type: Websphere MQ Objects

Object to assign alias

● Select from existing objects

Project: trade

- ○ BOND (QueueManager: TRADING)
- ○ CICS.INIT.Q (QueueManager: CSQ1)
- ○ EQUITY (QueueManager: TRADING)
- ○ FX (QueueManager: TRADING)
- ○ FX_LOCAL (QueueManager: TRADING)
- ○ REMOTE.TO.CSQ1 (QueueManager: poojajpc.tv1.manager)
- ● REPLY (QueueManager: TRADING)
- ○ REPLY_FOR_SESSION (QueueManager: TRADING)

○ Enter object name:

1. Enter the list name in the Alias List Name field. This is the name that will appear on the on the Manage Alias Lists page and on the Edit Project page.
2. Add one or more alias definitions. For each definition, include the following information, then click Add Alias:

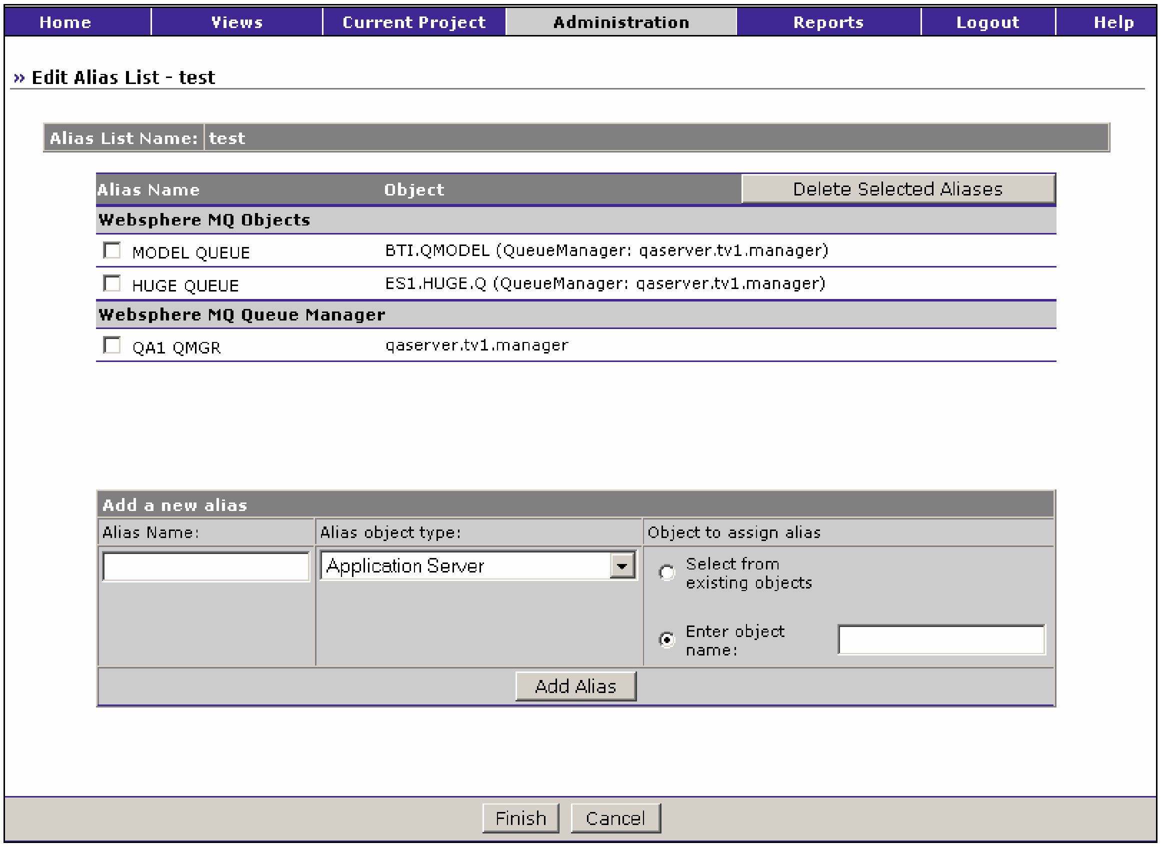
Field	Description
Alias name	Enter the alias name. This name will appear in place of the real object name on the Component Topology Analysis, Transaction Analysis, and Event Analysis views, and in all report pages.
Alias object type	Select the object type from the drop-down list.

Field	Description
Object to assign alias	You may either select from existing objects of the selected type, or enter an object name. If you enter an object name, you may use wildcard characters to map the alias to all objects that match the specified characters.

3. Click Finish.

Add or Delete an Alias Definition

To add or delete an alias definition from an alias list, click Edit Alias List on the Manage Alias Lists page. The Edit Alias List page appears:



» Edit Alias List - test

Alias List Name: test

Alias Name	Object
Websphere MQ Objects	
□ MODEL QUEUE	BTI.QMODEL (QueueManager: qaserver.tv1.manager)
□ HUGE QUEUE	ES1.HUGE.Q (QueueManager: qaserver.tv1.manager)
Websphere MQ Queue Manager	
□ QA1 QMGR	qaserver.tv1.manager

Add a new alias

Alias Name:	Alias object type:	Object to assign alias
	Application Server	○ Select from existing objects ● Enter object name:

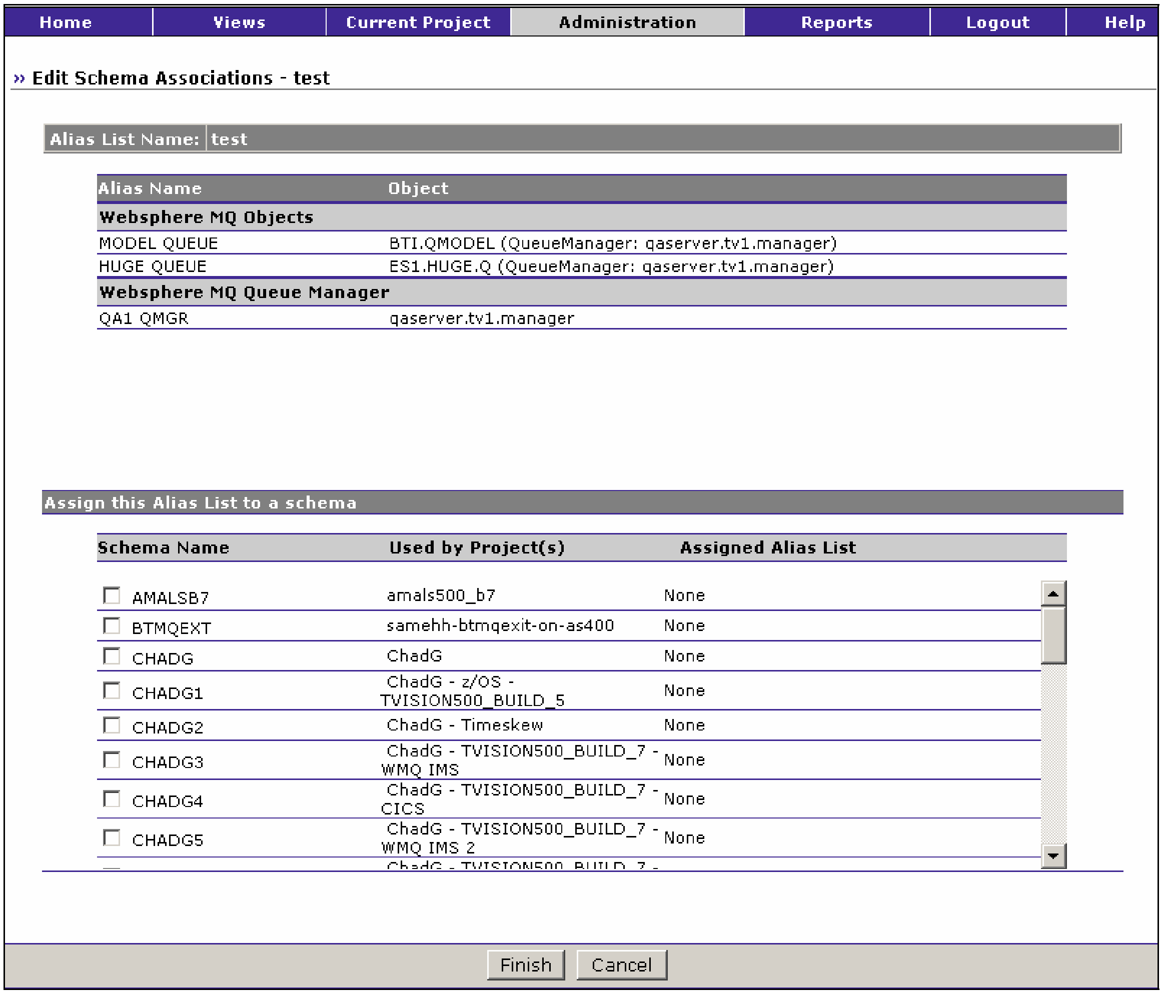
1. To add an alias definition, specify the following information, then click Add Alias:

Field	Description
Alias name	Enter the alias name. This name will appear in place of the real object name on the Component Topology Analysis, Transaction Analysis, and Event Analysis views, and in all report pages.
Alias object type	Select the object type from the drop-down list.
Object to assign alias	You may either select from existing objects of the selected type, or enter an object name. If you enter an object name, you may use wildcard characters to map the alias to all objects that match the specified characters.

2. To delete an alias definition, select it and click Delete Selected Aliases.
3. Click Finish.

Associate an Alias List with a Schema

To associate an alias list with a project schema, select the list then click Edit Schema Associations on the Manage Alias Lists page. The Edit Schema Associations page appears:



» Edit Schema Associations - test

Alias List Name: test

Alias Name	Object
Websphere MQ Objects	
MODEL QUEUE	BTI.QMODEL (QueueManager: qaserver.tv1.manager)
HUGE QUEUE	ES1.HUGE.Q (QueueManager: qaserver.tv1.manager)
Websphere MQ Queue Manager	
QA1 QMGR	qaserver.tv1.manager

Assign this Alias List to a schema

Schema Name	Used by Project(s)	Assigned Alias List
□ AMALSB7	amals500_b7	None
□ BTMQEXT	samehh-btmqexit-on-as400	None
□ CHADG	ChadG	None
□ CHADG1	ChadG - z/OS - TVISION500_BUILD_5	None
□ CHADG2	ChadG - Timeskew	None
□ CHADG3	ChadG - TVISION500_BUILD_7 - WMQ IMS	None
□ CHADG4	ChadG - TVISION500_BUILD_7 - CICS	None
□ CHADG5	ChadG - TVISION500_BUILD_7 - WMQ IMS 2	None

1. Check the box to the left of each schema name that you wish to assign the alias list to.
2. Click Finish.

Chapter 9

Managing Users

TransactionVision uses a Lightweight Directory Access Protocol (LDAP) server to authenticate users and store permissions for what TransactionVision operations a user is or is not allowed to perform. If your organization uses an existing LDAP infrastructure, you can easily integrate TransactionVision's user management.

If you do not have an LDAP server, or if you wish to keep TransactionVision separate from your existing server, download the IBM Directory Server 5.1 server from the following location: http://www-3.ibm.com/software/tivoli/products/directory-server/.

Important! If you are using the LDAP server embedded with BEA WebLogic, see "Using the WebLogic LDAP Server" for additional information.

When you run the **TVisionSetupInfo** and **TVisionSetup** utilities during installation, the information you provide is used to set entries in your TransactionVision LDAP configuration file. In addition, the TVAuthorityGroup attribute, TVAuthorization class, and TVPerson class are added to your LDAP server's object class and attribute schema. Finally, a hierarchy named `ou=TVision` containing predefined security groups and a user entry for allowing an administrator to log in are created at the specified location.

User Attributes

To assign TransactionVision permissions to users, assign a user or group of users to a TVAuthorization object. This object contains all the attributes indicating what the user is allowed to do. A user can be assigned multiple TVAuthorization objects in addition to any assigned to groups that the user is a member of.

The administrator must add the `TVAuthorityGroup` attribute to the entry for each user in order for the user to access TransactionVision. This attribute names the full distinguished name of the TransactionVision security group that this user belongs to. The authorities of the security groups are defined under the root TransactionVision directory. Each group can be configured to contain any of the possible permutations.

A TVAuthorization object specifies the following:

- Some combination of named permissions
- A list of allowable projects (if permissions indicate the user can only access certain projects)
- A list of allowable queries (if query permissions are enabled)
- A list of allowable views

Important! To use a user ID instead of user name, you must modify the `LDAP.properties` file to set the UseUID property to true. For more information about this file, see the *TransactionVision Web Application Installation and Configuration Guide.*

Default Security Groups

The following four groups are created by default to handle most cases:

- User
- Operator
- Developer
- Admin

The following table shows the TransactionVision operations that can be performed by the default groups:

Task	Admin	Developer	Operator	User
Create, edit, and delete Communication Link templates	Yes	Yes	No	No
Create, edit, and delete Communication Links	Yes	Yes	No	No
Create database schema	Yes	No	No	No
Create Analyzer host	Yes	No	No	No
Create, edit, and delete data collection filters	Yes	Yes	No	No
Create, edit, and delete projects	Yes	Yes	No	No

Task	**Admin**	**Developer**	**Operator**	**User**
Start and stop projects	Yes	Yes	Yes	No
Create, edit, and delete queries	Yes	Yes	Yes	Yes
View Component Topology, Event Analysis, and Transaction Analysis, and Event Details	Yes	Yes	Yes	Yes
View reports	Yes	Yes	Yes	Yes

TVAuthorization Attributes

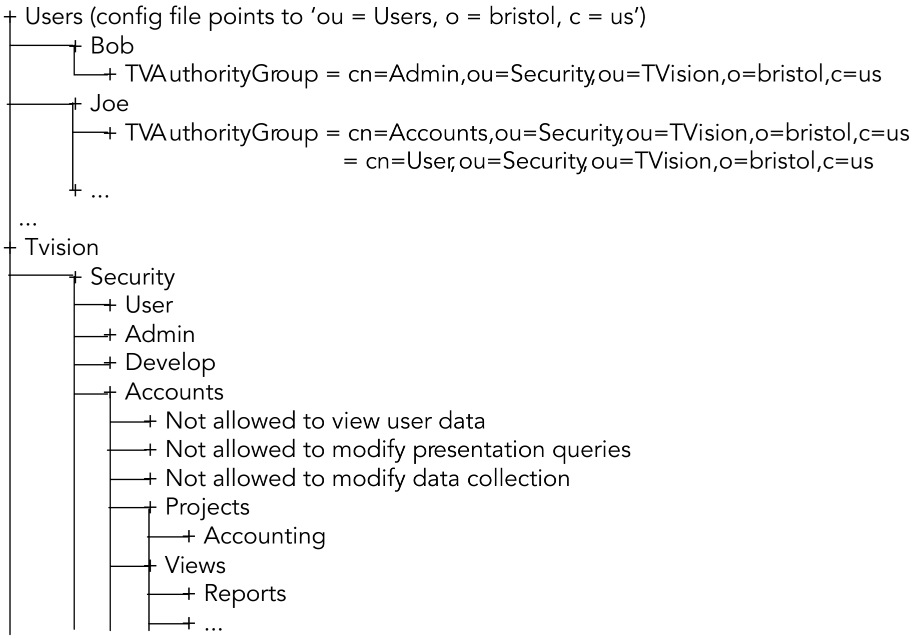
The `TVAuthorityGroup` attribute points to the distinguished name of a TVAuthorization class containing the definitions of privilege for a particular type of user. This class has the following attributes:

Attribute	**Description**
TVAuthCollectionState	If set to **true**, the user is allowed to start and stop data collection.
TVAuthUserData	If set to **true**, the user is allowed to view user data.
TVAuthModifyProject	If set to **true**, the user is allowed to modify project settings such as communication links and data collection filters.
TVAuthModifyQueries	If set to **true**, the user is allowed to modify and create queries.
TVAuthModListedProj	If set to **true** and TVAuthModifyProject is **not** enabled, the user may make changes to a project, but only if it has been entered in the user’s project list.
TVAuthOnlyListedQueries	If set to **true**, the user will only be able to use the queries in the list of allowable queries.
TVAuthQueryList	List of queries the user is allowed to use. This attribute may also optionally contain a project name, which limits which projects a user has access to a particular query. The string can be in the form `‘[projectName + ‘|’querName’`. For example, ‘STock|TradeQuery’ indicates that a user with these permissions may modify the TradeQuery query, but only in the Stock project.
TVAuthProjectList	List of projects the user is allowed to access.
TVAuthViewList	List of views the user is allowed to access.
TVAuthReportList	List of report groups the user is allowed to access. The value **allGroups** indicates that all reports may be viewed.

TVAuthAccessListedProjects	If set to **true**, a user may only see projects specified in his project list. If set to **false**, a user has read access to all projects.

You can create a new TVAuthorityGroup, or modify the attribute settings for the default groups.

In the following is an example, the user Joe assigned to the Accounts group, defined by the Accounts object under the root TransactionVision directory (Tvision), as well as the User group. This user has all permissions for both of these groups.



```
+ Users (config file points to 'ou = Users, o = bristol, c = us')
|-----+ Bob
|     |---+ TVAuthorityGroup = cn=Admin,ou=Security,ou=TVision,o=bristol,c=us
|-----+ Joe
|     |---+ TVAuthorityGroup = cn=Accounts,ou=Security,ou=TVision,o=bristol,c=us
|     |                      = cn=User,ou=Security,ou=TVision,o=bristol,c=us
|     + ...
 ...
+ Tvision
|-----+ Security
|     |---+ User
|     |---+ Admin
|     |---+ Develop
|     |---+ Accounts
|     |   |---+ Not allowed to view user data
|     |   |---+ Not allowed to modify presentation queries
|     |   |---+ Not allowed to modify data collection
|     |   |---+ Projects
|     |   |   |---+ Accounting
|     |   |---+ Views
|     |   |   |---+ Reports
|     |   |   |---+ ...
```

Important! To use a prefix other than "cn" for the user name, modify the `LDAP.properties` file to set the RDNPrefix property to the prefix you wish to use. For more information about this file, see the *TransactionVision Web Application Installation and Configuration Guide*.

TVPerson Class

This class is derived from inetOrgPerson, with the TVAuthorityGroup attribute added to it. To use an existing user directory, add the TVAuthorityGroup attribute as an optional attribute to the class that your users are defined as. Otherwise, use the TVPerson class as a base class for any added users.

Using the WebLogic LDAP Server

In general, the embedded WebLogic LDAP server works as other LDAP servers do. However, there are some unique aspects that you should be aware of.

Accessing the WebLogic LDAP Server

Access the embedded LDAP server via the URL of your WebLogic administration server. For example if your administration server runs at `http://mymachine:7001/`, set the `LDAPServerName` property in `Ldap.properties` to `ldap://mymachine:7001/`.

Before running the **`TVisionSetup`** script, change the generated Credential to your own password to access the server as follows:

1. Expand the domain (for example, mydomain).
2. Select the Security > Embedded LDAP section.
3. Change the credential.

When running **`TVisionSetup`** to initialize LDAP entries for TransactionVision, use **Admin** as the user name and the changed credential as the password. For more information, see the WebLogic documentation, “Managing the Embedded LDAP Server.”

Default Root Object

By default, WebLogic creates a root level object with the name of your domain. Use this value as the root domain in all relevant places in your TransactionVision configuration files.

For example, if your domain is named *mydomain*, you root object name is `dc=mydomain`. If you create your TransactionVision object in the default location, pass that value as the root suffix to the TransactionVision scripts that initialize your LDAP settings. Using this example, set the `UserDirectoryLocation` property in `Ldap.properties` to `ou=Users,ou=TVision,dc=mydomain`.

Modifying Access to the LDAP Server

By default, WebLogic limits access to the embedded LDAP server to users authenticated as the administrator account. For TransactionVision to use the LDAP server, you must change the default settings to grant read access to the TransactionVision LDAP hierarchy. The `<WL_HOME>/server/lib/acls.prop` file controls the access settings.

At minimum, TransactionVision requires the ability to access the `TVAuthorityGroup` attribute of the user logging in and must be able to read all attributes of the `AuthorityGroup` this attribute points to.

To grant read access to everyone, uncomment the default rule that grants read access to everyone.

To grant required permissions only within the TransactionVision tree, add the following entry:

```
ou=TVision,dc=mydomain|subtree#grant:b,s,r,c,t#[all]#public;
```

For more information about modifying access to the LDAP server, see the WebLogic *Managing WebLogic Security* document, located at http://e-docs.bea.com/wls/docs81/secmanage/ldap.html.

Reports Access

The `<TVISION_HOME>/config/ui/Reports.xml` report definition file defines the reports are available to TransactionVision users. It groups reports into report categories.

The following is a sample from the Reports.xml file. It defines a category called “Performance Analysis & Problem Resolution.” This category contains a “Reports” subcategory, which contains one or more reports.

```
<ReportCategory name=”performance”
  title=”Performance Analysis &amp; Problem Resolution”>
  <ReportSubCategory name=”reports” title=”Reports”>

...
  </ReportSubCategory>
</ReportCategory>
```

A `ReportCategory` defines a group of reports that are linked to a particular user permission. It has the following attributes:

- `name`
  A ReportCategory *name* corresponds to the name specified in a user’s LDAP settings. If this name appears in the user’s report LDAP settings then the user will be able to view this group of reports. A user whose list of report groups contains the value of allGroups can see all available reports.
- `title`
  The *title* attribute is the description of this report category and appears in the table header on the reports page.

The `Report` field defines the description, and corresponding link to the JSP that generates/displays a particular report. For more information about creating reports and defining them in the `Reports.xml` file, see the *TransactionVision Programmer’s Guide*.

The sample reports that ship with TransactionVision are included in the `tvision.ear`, and will be installed in WebSphere along with the other TransactionVision components by default. They can also be found in your install area under the *ui/ReportSample* directory.

SSL Setup

The following steps set up SSL with SecureWay 3.2 and Java Secure Socket Extensions (JSSE). For different configurations, these steps may vary.

1. Configure the LDAP server to use SSL. First use the SecureWay **`ikeyman`** key management tool to generate a certificate and keystore for the LDAP server, then enable SSL on the LDAP server and specify the generated key database and certificate. Choose Server Authentication as the SSL authentication method. In the SecureWay administration interface, use Security > SSL > Settings. On platforms without the SecureWay administration tool, edit the configuration files manually. The default SSL port is 636. For more information about configuring the LDAP server to use SSL, see the *IBM LDAP Implementation Cookbook.*
2. Download the Sun JSSE package from http://java.sun.com. This package provides a number of classes required to use SSL. Install these jar files so that they are available in the classpath. Note: if you use a third-party JSSE package, set the CryptProvider property in `Ldap.properties` to a different Cryptograph Service Provider.
3. Set up certificates on the TransactionVision side. Because JSSE uses a different format from the key database created for SecureWay, you must create another key storage. From the IBM key management utility, select Extract Certificate and export the certificate you created for SecureWay using the base 64 encoding option. This creates a file you can import into the **`keytool`** utility used by JSSE to create certificates. Use the following command to import the certificate, giving it the same name as in the SecureWay definition:

   ```
   keytool -import -alias certName -file file.arm
   -keystore keystoreLocation
   ```

   The first time you use this command, you must set a password, which will be required to make further changes to this keystore.
4. Set the following properties in `Ldap.properties`:

Property	Description
UseSSL	Set to true to enable SSL.
CertificateTrustStore	Set to the *keystoreLocation* specified in step 3. This property sets the javax.net.ssl.trustSTore property to point to this file.
LDAPServerName	Set to point to the SSL port defined in step 1.

5. Restart the TransactionVision web user interface using your application server administration console.

Chapter 10

Troubleshooting

Communication Link Problems

If your project is not receiving events that you expect it to receive, there may be a problem with the communication link or links you are using. Perform the following steps to diagnose the problem:

1. Ensure that you are not using a data collection filter that prevents Sensors from collecting the expected events and that you are not using a project query that prevents you from seeing the events even though they are in the project database.
2. Choose Current Project > Project Status to verify that you have activated at least one communication link for the project.
3. Choose Current Project > Communication Links, select each activated communication link, pick an Analyzer from the drop down list, and click Test. If the communication link test fails, the error message should indicate which queue or queue manager failed; make sure the specified queue or queue manager has been created.
4. If the communication link test passes, ensure that a Sensor is intercepting WebSphere MQ API calls from the monitored application. On UNIX and Windows platforms, set the TVISION_BANNER environment variable, then start the application. A banner indicating that the application is loading the Sensor should appear. To disable this behavior, unset TVISION_BANNER. This environment variable can be set to any value. On Windows, it must be set to a value other than an empty string. On OS/400, TVISION_BANNER does not display the library path as it does on UNIX.

If not, set the environment variable for your platform to cause the application to load the Sensor library instead of the standard WebSphere MQ library. The following table shows the appropriate environment variable for each platform:

Platform	Environment Variable
Windows 2000	PATH
Sun Solaris	LD_LIBRARY_PATH
HP-UX	SHLIB_PATH
Linux	LD_LIBRARY_PATH
IBM AIX	LIBPATH
Compaq Tru64	LD_LIBRARY_PATH

On z/OS, the CICS region prints a message when it connects to the queue manager indicating that the WebSphere MQ crossing exit was found and will be used. If the WebSphere MQ crossing exit was not found or loaded, a message indicating the error will appear. If you are not sure how to solve the problem from the error message, contact Bristol Support.

5. If the Sensor library is being loaded by the application, check the application host's system log for any error messages. If there are error messages but you are not sure how to proceed, contact Bristol Support.
6. If there are no error messages in the system log, enable trace logging for the active communication links. Look at the trace messages in the application host's UNIX system log, Windows event log, z/OS operator console log, or OS/400 user's job log for any WebSphere MQ-related errors or messages that indicate that the data collection criteria such as collection time or collection entities were too restrictive.

   On UNIX platforms, you can specify the log facility by setting the TVISION_SYSLOG environment variable to one of the following values: user, local0, local1, local2, local3, local4, local5, local6, or local7. If TVISION_SYSLOG is not set or is set to a value other than those listed, TransactionVision uses local0. The target log file must already exist.

   To view the job log on OS/400, use the `DSPJOBLOG` command.
7. If you are still unable to resolve a communication link problem, contact Bristol Support.

Disabling SHLIB_PATH on HP-UX

On HP-UX, you can use the following command to turn off shared library resolution using SHLIB_PATH on an executable:

```
chatr +s disable executable_name
```

The output of `chatr executable_name` will be as follows:

```
shared executable
shared library dynamic path search:
  SHLIB_PATH      disabled    second
  embedded path   disabled    first Not Defined
```

In this case, the executable will not be able to load the Sensor. To enable run-time location of the Sensor, you must turn on the loader's use of the SHLIB_PATH with the following command:

```
chatr +s enable executable_name
```

However, if the embedded path is enabled and is the first to search, you will have to use the following command instead to make sure that the Sensor library path is before the standard WebSphere MQ library path:

```
chatr +s enable +b enable executable_name
```

Displaying Perl and Java Program Names

By default, the TransactionVision displays `Perl` or `java.exe` as the program name for Perl or Java applications. To display the program name, set the TVISION_REPORT_ARGS environment variable to any value. to disable this behavior, unset TVISION_REPORT_ARGS. This environment variable can be set on any platform except z/OS. On Windows, it must be set to a value other than an empty string.

Monitoring Triggered Programs

Triggered programs on UNIX platforms can be monitored if two conditions are met:

1. The `runmqtrm` trigger monitor is not setuid/gid, or you are running `runmqtrm` as the mqm user. (This is because the programs started by the setuid/gid `runmqtrm` will ignore any environment variables modifying the path if the user is not the setuid/gid user - the mqm user in this case.)
2. You actually trigger a script instead of your program. The script sets the appropriate environment variable (based on the OS

platform) to point to the Sensor and then runs the actual program. For example, on Solaris this script might be:

```
#!/bin/sh
LD_LIBRARY_PATH=/opt/TVision/lib
     export LD_LIBRARY_PATH
     /usr/local/bin/trigproc "$*"
```

Where `/usr/local/bin/trigproc` was the program being triggered. The following table shows the appropriate environment variable and default installation directory for each platform:

Platform	Environment Variable	Default Directory
Windows 2000	PATH	`C:\Program Files\Bristol\TransactionVision Sensor\lib`
Sun Solaris	LD_LIBRARY_PATH	`/opt/TVision/lib`
HP-UX	SHLIB_PATH	`/opt/TVision/lib`
Linux	LD_LIBRARY_PATH	`/opt/TVision/lib`
IBM AIX	LIBPATH	`/usr/lpp/TVision/lib`
Compaq Tru64	LD_LIBRARY_PATH	`/opt/Tvision/lib`

Important! The runmqtrm trigger monitor program cannot itself be sensed by the Sensor, because it uses internal WebSphere MQ functions which are not compatible with the Sensor. To sense the trigger monitor itself, use either the amqstrg0.c trigger monitor or build your own using only public WebSphere MQ APIs.

Monitoring Client Applications

If you are monitoring client applications and notice that the WebSphere MQ listener does not generate TransactionVision events when invoked from inetd, check the user id and group id of the mqm user as follows:

```
• id mqm
uid=nnn(mqm) gid=nnn(mqm)
```

Both the user and the group should be mqm. If not, the user mqm should be added to the group mqm. Alternately, you may change the group id on the listener binary to belong to the group that the user mqm belongs to.

Optimizing Performance

To achieve optimum performance when using TransactionVision, follow these guidelines:

- Install the Analyzer on a computer that is fast enough to keep up with the rate of incoming messages from Sensors. For a slower Analyzer host, increase the maximum queue depth on the event queue used for sending event messages from Sensors to the Analyzer.
- Use data collection filters to restrict event collection to event data absolutely necessary to resolve a particular problem. Be sure to delete the default “Collect All” data collection filter if you define a more restrictive filter, since events that meet **any** filter are collected by Sensors.
- Use the **`DB2RunStats`** or **`OracleRunStats`** script to optimize database performance. See the *TransactionVision Analyzer Installation and Configuration Guide* for complete details.

Inaccurate Event Times

Running TransactionVision Sensors and Analyzers on VMWare systems can result in inaccurate event times. Because virtual machines work by time-sharing physical hardware, a virtual machine cannot exactly duplicate the timing behavior of a physical machine. This can result in a drift in the time reported by the guest operating system to the TransactionVision Sensors. The effect of this drift is that for transactions spanning multiple machines, relative transaction times will not be accurate. For a detailed description of this issue, see this document on the VMWare website:
https://www.vmware.com/pdf/vmware_timekeeping.pdf.

Missing Events

If it appears that events are missing from a project, first make sure that no data collection filter or project query is preventing the events from being collected or displayed. In the data collection filter, if the event retry timeout is set to a value other than Retry Forever and the timeout is being met, events will be lost.

If the events are still missing, make sure that the WebSphere MQ API call uses a valid hConn parameter. The Sensor uses the hConn value to determine which queue manager to connect to for configuration messages; if this value is invalid, the Sensor cannot check for configuration messages.

Queue Manager Channel Limitations

MaxChannels and MaxActiveChannels queue manager properties have to be set to a reasonable amount for TransactionVision. By default, these properties are not set and there is no limitation. For each active communication link, the TransactionVision Analyzer requires two channels plus one channel for each listening thread defined in the communication link.

If these properties are set too low, the user will see strange behavior such as a partial connection to the communication link. It may at first appear that the Analyzer is connected, but it will report a connection error and put the communication link in a "Trying to Connect" state. This behavior usually points to a problem with these queue manager properties not being set properly.

Servlet and EJB Sensor Problems

If you are not able to collect servlet or EJB events from your web application, check the following:

1. You have run **`SensorSetup.sh(bat)`** to install TransactionVision Servlet Sensor on the application server your web application is running on. The Application server name is case sensitive. "Default Server" is different from "default server" or "DefaultServer" (space counts). Run **`SensorSetup.sh(bat)`** again if needed.
2. Check `config/sensor/SensorConfiguration.xml` from your TransactionVision home to make sure the information you provided there is correct and the queue manager is running. Run **`SensorSetup.sh(bat)`** to modify the setting if needed.
3. Check `sensor.log` in your log file directory to see if there are any errors.
4. Check WebSphere's `system.out` and `system.err` log files to see if there are any errors.

JMS Sensor Problems

If you are not able to collect JMS events from stand-alone JMS application, check the following:

1. Make sure that file `java\lib\com.ibm.mqjms.jar` is in your TransactionVision home. Run **`SensorSetup.sh(bat)`** again if it is not there.
2. Your ClassPath points to `java\lib\com.ibm.mqjms.jar` in TransactionVision home AHEAD of the same file from WebSphere MQ directory.

3. Check `config/sensor/SensorConfiguration.xml` from your TransactionVision home to make sure the information you provided there is correct and the queue manager is running. Run **`SensorSetup.sh(bat)`** to modify the setting if needed.
4. If JMS functions are called from servlets, make sure you answer "YES" to the question "Do you wish to monitor JMS methods along with Servlet methods?" when running **`SensorSetup.sh(bat)`**

Web User Interface Troubleshooting

Manually Deleting a Schema

If you manually delete a project's schema (using **`CreateSqlScript`**), you may still login to TransactionVision, but most pages will not work because the database table does not exist. To remedy this situation, select the database schema associated with the project on the Database Schemas page and click Create Tables.

Loading Actuate Reports

The Actuate report engine requires an X connection to run. Your web server should be started in an environment where DISPLAY is set to a valid X server. By default, it will try to connect to the default display, "0:0". If X is not available or permission does not exist for the user to access X on the server machine, then you must set the DISPLAY environment variable to a valid X server.

If an X server is not available, the Actuate report engine fails to load and TransactionVision displays a message that the page cannot be displayed.

Upgrading the Web User Interface

After upgrading the TransactionVision Web user interface, you may notice unexpected exceptions generated by some web pages. This indicates that certain cached web page elements have not been completely reset or that the applet cache is out of date.

To clear the applet cache (for problems viewing the Component Topology Analysis or Transaction Analysis views), open the Java Control Panel and delete temporary internet files.

To completely clean the WebSphere Application Server cache after upgrading the TransactionVision Web Application, stop your application server, delete the cached files from `<WAS_HOME>/temp/<nodename>/<servername>/TransactionVision/tvision.war`, then restart the application server.

Application Troubleshooting

TransactionVision does not require changes to monitored applications. However, applications on the AIX platform may fail after installing a WebSphere MQ support pac. In WebSphere MQ support pacs, internal symbols exported from the TransactionVision WebSphere MQ Sensor on the AIX platform may change. When an internal symbol that has been exported from the Sensor library is no longer available in the WebSphere MQ library, the application cannot start and fails with various symbol resolution errors.

To work around this problem, run the **`rebind_sensor`** script whenever a WebSphere MQ support pac that modifies the WebSphere MQ libraries (libmqm.a, libmqic.a, libmqm_r.a, libmqic_r.a) are modified. For more information about this script, see Appendix A, "Utilities Reference."

Analyzer Troubleshooting

There are several reasons why the Analyzer might fail to process events. The most common are:

- Database errors, such as the database is down for a period longer than the reconnect setting or storage space is full
- Memory resource problems, such as OutOfMemory exceptions and cache overflows
- Errors caused by custom analysis beans

TransactionVision provides two methods for minimizing the impact if the Analyzer fails to process events for any reason:

- Placing event on the exception message queue
- Starting recovery mode for the Analyzer

The Exception Message Queue

If the Analyzer fails for any reason, TransactionVision will not lose any analysis data. Instead, failed events are placed on the exception message queue defined in the communication link from which the events have been retrieved. See Chapter 5 for instructions on setting the exception message queue when you create a communication link.

The number of events to be placed on the exception message queue depends on the value of the batch_commit_count property in the `Analyzer.properties` file. See Appendix C in the *TransactionVision Analyzer Installation and Configuration Guide* for more information about this file.

Once the cause of the failure is resolved, use the **`ManageQueue`** utility to replay the events on the exception message queue to the event queue, as in the following example:

```
java com.bristol.tvision.admin.ManageQueue -gq TVISION.
EXCEPTION.QUEUE -pq TVISION.EVENT.QUEUE -qm YOUR_QUEUE_
MANAGER
```

For more information about this utility, see the ManageQueue utility reference page in Appendix A.

If the exception message queue contains events that have been failed **after** the XML data of the event has been written to the database (in the event analysis stage), those events will cause a "Duplicate XML event" warning when they are replayed to the event queue. You can safely ignore this warning.

Analyzer Recovery Mode

The Analyzer uses in-memory caches to accumulate and store all event analysis data as well as the statistics data for the Static Topology Analysis view. This data is flushed and written to disk frequently by separate flush threads. The analysis data is flushed continuously during Analyzer processing, and the statistics data is flushed at certain intervals which are specified by the flush_interval property in the `StatisticsCache.properties` file. See Appendix C in the *TransactionVision Analyzer Installation and Configuration Guide* for more information about this file.

While the Analyzer is running,it keeps track of which events the analysis and statistics data has been flushed for. If the writing of the cache data fails for any reason, the transaction and statistics data will be incomplete, and the project schema will be marked for RECOVERY mode. Failures that can lead to RECOVERY mode include database errors, event processing errors, and abnormal termination of the Analyzer process.

When a project whose schema has been marked for RECOVERY is started, the Analyzer goes into RECOVERY mode to regenerate the analysis and statistics data from the stored XML event. The time needed for the recovery process is proportional to the number of events that need to re-analyzed, and is usually slower than the normal event processing rate. A log entry in the `Analyzer.log` file will show how many events need to be recovered.

If TRACE Logging is configured for the Analyzer, the progress of the recover process is also logged. To enable trace logging for the TransactionVision Analyzer, set the value of the `trace` property in the `Analyzer.properties` file to `on`. For more information about this file, see Appendix C in the *TransactionVision Analyzer Installation and Configuration Guide*.

Once the data has been flushed to disk successfully, the recovery mode of the schema will be reset, and the project will start up normally the next time.

Important! If the data is not flushed because of a processing error which cannot be resolved, the Analyzer will not be able ro re-analyze the corresponding events and will continue to start up in RECOVERY mode. In such a case, the recovery state can be cleaned out with the **`FlushStatusUtil`** utility. After the state has been cleaned, the Analyzer will not attempt to recover those events again. For more information about this utility, see the FlushStatusUtil reference page in Appendix A.

Memory Resource Problems

The amount of memory the Analyzer can use for event processing is bound by the JVM parameter "-Xmx" which defines the maximum JVM heap size. The default value is 256 Megabytes, but this value may be changed via the service_jvm_flags parameter in the Analyzer.properties configuration file. If the in-memory caches in the Analyzer are configured too large, the Analyzer will try to keep more data in memory than the JVM is capable of and will at some point throw an OutOfMemory exception. In this case the Analyzer will stop processing, and the error will get logged to the analyzer.log. To resolve this problem either reduce the cache sizes in CacheSize.properties or increase the JVM heap size in Analyzer.properties.

Another possible memory related error is the overflow of the analysis caches. When this error occurs, the following error will be logged to the analyzer.log file:

```
TransactionVision Error(EventAnalyzeFailed): Failed to
analyze events from ('CSQ1' 'TVISION.EVENT.QUEUE') in
database ('TVISION'): TransactionVision
Error(CacheOverflow): Overflow of DB cache RelationLookup
in schema MQIMS
```

A cache overflow means that the amount of data for one or more transactions that the Analyzer is trying to store in memory exceeds the configured capacity of the caches. The caches most likely to overflow are "LocalTransaction" (the size of which may be configured by the 'transaction_based' parameter), "RelationLookup", and "EventRelation" (both of which may be configured by the 'event_based' size parameter).

The follow table summarizes possible causes of a cache overflow and includes instructions regarding how the problem may be corrected:

Cause of cache overflow	Corrective action required
The monitored transaction data is very complex and requires larger cache sizes.	Increase the appropriate cache size parameter in CacheSize.properties.
An erronous custom corrleation or transaction bean generates a huge amount of incorrect relational or transactional data for one event	Check the logic of any custom beans, especially the generation of custom relation lookup keys (see "Event and Transaction Correlation Problems" below for details)

Analyzer States

You can view Analyzer status in either of the following ways:

- Choose Administration > Analyzers to display the Analyzers page.
- Choose Current Project > Project Status to display the Project Status Page

The following table describes the status values:

Status	Description
COLLECTING EVENTS	The Analyzer is started and collecting events.
FAIL	TransactionVision cannot connect to the Analyzer; an error message is provided.
RECOVERY	The Analyzer is performing statistics recovery. This can happen when the Analyzer has been stopped abnormally (for example, the process has been killed), and not all event statistics have been flushed to disk. In this case the Analyzer will reprocess the last events to get the statistics up-to-date before it starts the normal processing.
QUIESCING	The Analyzer is shutting down all collection threads in response to a stop command. Once all collection threads are shut down, the status changes to NOT COLLECTING EVENTS.
NOT COLLECTING EVENTS	The Analyzer has been stopped and is not collecting events.

Status	Description
SWITCHING PROCESSING MODE	The Analyzer is switching the current processing mode (normal / failure mode). All event processing is currently halted, and will continue as soon as the switch is completed.
STATUS UNAVAILABLE – PREVIOUS COMMAND PENDING	The analyzer is still executing a previous command, and the current status can not be determined until this command completes.

Event and Transaction Correlation Problems

The Analyzer issues the following warnings when it detects potential problems correlating events into local transactions or correlating local transactions into business transactions.

Event Correlation

```
TransactionVision Warning(): Number of correlated events
exceeds threshold: event ID=’(1245,23)’, count=30.
```

The event with the specified ID has been correlated into a message path together with an unusually large number of related events. If you are using custom correlation beans, this warning could indicate that the logic in the custom beans does not work correctly.

If no custom correlation logic is in place, this warning could indicate that the message data in the events used for correlation are not well-suited for the standard correlation, and custom correlation may be necessary. For example, applications may re-use WebSphere MQ message IDs.

Transaction Correlation

```
TransactionVision Warning(): Number of local transactions
in one business transaction exceeds threshold: business txn
ID=’32’, count=1000.
```

The business transaction with the specified ID consists of an unusually large number of local transactions. If you are using custom analysis beans, this warning could indicate that the logic in the custom beans does not work correctly.

If no custom analysis logic is in place, this warning could indicate that the nature of the message data might not be well-suited for the standard analysis algorithms, and custom correlation/transaction logic may be necessary.

Batching Mulitple Listener Events in a Transaction

In environments where the WebSphere MQ channels have a non-zero BATCHINT (batch interval) parameter, events are batched up by the

WebSphere MQ listener process and committed after *n* events. This causes TransactionVision to group together business transactions that would normally be separate. To workaround this issue, a local transaction definition file can be defined that splits up listener messages into separate local transactions or unit of works(UOW), regardless of their actual commit point. The following is a sample definition file. Refer to the *TransactionVision Programmer's Guide* for more information about this file. The following rules may be further customized to include specific queues and queue managers.

```
<LocalTransactionDefinition>

   <LocalTransactionType dbschema="*" hasMultiTracking=
"false" >
    <Match xpath="/Event/StdHeader/TechName" operator=
"EQUAL" value="MQSERIES"/>
    <Match xpath="/Event/StdHeader/ProgramName" operator=
"EQUAL" value="AMQRMPPA"/>

    <LocalTransactionAttributes>

            <Attribute name="LookupKey">
                <Path>/LocalTransaction/LookupKey</Path>

                <ValueRule name="SetLookupKey">

                    <Value type="XPath">/Event/EventID/
@programInstID</Value>

                    <Value type="Constant">-</Value>

                    <Value type="XPath">/Event/EventID/
@sequenceNum</Value>

            </ValueRule>

        </Attribute>

        </LocalTransactionAttributes>

  </LocalTransactionType>

</LocalTransactionDefinition>
```

Event Queue Cleanup

There may be times when messages that are not being collected by a TransactionVision project accumulate on the event queue. These events may be targeted for invalid schemas or communication links, or they may be erroneous messages. In either case, you may use the **`ManageQueue`** utility to remove or replay these messages.

To view a snapshot of the messages on an event queue (TVISION.EVENT.QUEUE on queue manager QMGR1 in this example), enter the following command:

```
ManageQueue.sh -qm qmgr1 -input_queue TVISION.EVENT.QUEUE
-show_event_ids
```

For complete information about **`ManageQueue`**, see “ManageQueue” in Appendix A.

Invalid Schema and Communication Link IDs

Events are targeted for a specific database, schema, and communication link identified within TransactionVision by a unique ID. If a schema is deleted or a communication link is changed, the unique ID no longer exists, and any events still on the event queue that targeted for that schema or communication link are no longer valid.

To display all schema and commlink IDs, enter the following command:

```
EventQueueCleanup -showids
```

To delete events targeted for database schemas or communication links which no longer exist from the queue TVISION.EVENT.QUEUE on the queue manager QMGR1, enter the following command:

```
ManageQueue.sh -show_db_ids
```

You can also use **`ManageQueue`** to replay events targeted for invalid schema or communication link IDs to a new schema and communication link so they can be processed by the Analyzer:

```
ManageQueue.sh -qm tv.qmgr -input_queue TVISION.EVENT.QUEUE
-output_queue TVISION.EVENT.QUEUE -move 2 11 -verbose
```

In this example, the schema ID for the new schema is 2 and the communication link ID for the new communication link is 11.

Erroneous Messages

Erroneous messages are messages on the event queue that do not appear to be TransactionVision event messages. Erroneous messages could include messages generated from other applications or WebSphere MQ COA report messages used by communication link time skew tests.

To remove erroneous messages from TVISION.EVENT.QUEUE on queue manager TransactionVision.qmgr, enter the following command:

```
ManageQueue.sh -qm tv.qmgr -input_queue TVISION.EVENT.QUEUE
-delete -erroneous -orphaned -verbose
```

Events Not Pulled from Event Queue

Event queues can be shared across Analyzers, projects, and communication links. Therefore, events have to be retrieved from the queue based on a specific message ID (correlation ID in the case of Java Sensor events).

The following diagram shows is the layout of the message ID (correlation ID in the case of Java Sensor events) on TransactionVision events:

12 Bytes Database Name	4 Bytes Database Host IP	4 Bytes CommLink ID	4 Bytes Schema ID

Given an assigned communication link, an Analyzer will get events only by a specific message ID/correlation ID. Therefore, it is possible to have events on the event queue which may never be removed from the queue. Different scenerios can cause this.

Dropped Database

If a database is dropped and never created again, events intended for projects that were previously on the dropped database may exist on the event queue.

Deleted Schema

If a project schema is deleted, events intended for the schema may exist on the event queue. Recreating the schema will not reassign these events on the event queue to the newly created schema because a new unique ID is always assigned to a created schema, even if it is given the same name as the previous.

Deleted or Changed Commlink

If a communication link is deleted from a project or deassigned from the Analyzer in a project, events intended for that communication link may exist on the event queue. If the communication link has just been deassigned, simply reassigning it to the Analyzer will allow the Analyzer to retrieve the pending events on the event queue. However, if the communication link has been deleted from the project, recreating the communication link (even if created from a communication link template) will not provide the means to retrieve the events left on the event queue. This is because every time a communication link is created, it is assigned a unique ID. In addition, if a communication link is changed, a new unique id is assigned to it, and old events will remain on the event queue.

WebSphere MQ Anomalies

TransactionVision events are not the only kinds of messages that may appear on a event queue.

TransactionVision uses WebSphere MQ Confirmation of Arrival (COA) messages to determine time skew across communication links. This means that a COA request message is sent to the configuration queue, and the COA report is sent back on the event queue.

If a remote (using multiple queue managers) communication link is being used, the COA report has to travel across a WebSphere MQ channel to reach the final event queue destination. If there are problems in the WebSphere MQ environment (for example, the channel is down), the Analyzer may timeout waiting for a COA report message. If the WebSphere MQ problem is later fixed, the COA report message may finally arrive in the event queue. This COA report message will never be removed from the event queue, because the analyzer has given up on it.

There is also the possibility of other WebSphere MQ applications maliciously or accidently putting messages on the TransactionVision event queue. The Analyzer simply ignores these because they will most likely not have a matching message ID/correlation ID it is looking for, and therefore will remain on the event queue indefinitely.

Problems Importing System Tables into a Database

Oracle

The referential constraints of TransactionVision system tables will prevent Oracle data import utility from loading data into existing tables. The Oracle data import utility returns an error similar to the following example:

```
IMP-00019: row rejected due to ORACLE error 2291
IMP-00003: ORACLE error 2291 encountered
ORA-02291: integrity constraint (TVISION.FK1_FILTER)
violated - parent key not found
Column 1 17
Column 2 Collect All
Column 3 16
Column 4
00540001020C00000001000000010000001 79F0700008ADC00...
0 rows imported
```

If you encounter this error, disable the constraints, import the data, and then re-enable the constraints.

For more information, see the following Oracle document: http://download-west.oracle.com/docs/cd/A91202_01/901_doc/ server.901/a90192/ ch02.htm#1005094

Disabling Referential Contraints

To disable the referential contraints, use the following SQL commands:

```
ALTER TABLE TVISION.ANALYZER_PROJ_COMMLINK DISABLE
CONSTRAINT FK2_ANLZ_PROJ_LINK;

ALTER TABLE TVISION.ANALYZER_SCHEMA DISABLE CONSTRAINT
FK2_ANLZ_SCHEMA;

ALTER TABLE TVISION.COMMLINK_FILTER DISABLE CONSTRAINT
FK1_LINK_FILTER;

ALTER TABLE TVISION.COMMLINK_FILTER DISABLE CONSTRAINT
FK2_LINK_FILTER;

ALTER TABLE TVISION.FILTER DISABLE CONSTRAINT FK1_FILTER;

ALTER TABLE TVISION.PROJECT DISABLE CONSTRAINT FK1_PROJECT;

ALTER TABLE TVISION.PROJECT_COMMLINK DISABLE CONSTRAINT
FK1_PROJ_LINK;

ALTER TABLE TVISION.QUERY DISABLE CONSTRAINT FK1_QUERY;
```

Re-enabling Referential Contraints

To re-enable the referential constraints after importing the data, use the following SQL commands:

```
ALTER TABLE TVISION.ANALYZER_PROJ_COMMLINK ENABLE
CONSTRAINT FK2_ANLZ_PROJ_LINK;

ALTER TABLE TVISION.ANALYZER_SCHEMA ENABLE CONSTRAINT
FK2_ANLZ_SCHEMA;

ALTER TABLE TVISION.COMMLINK_FILTER ENABLE CONSTRAINT
FK1_LINK_FILTER;

ALTER TABLE TVISION.COMMLINK_FILTER ENABLE CONSTRAINT
FK2_LINK_FILTER;

ALTER TABLE TVISION.FILTER ENABLE CONSTRAINT FK1_FILTER;

ALTER TABLE TVISION.PROJECT ENABLE CONSTRAINT FK1_PROJECT;

ALTER TABLE TVISION.PROJECT_COMMLINK ENABLE CONSTRAINT
FK1_PROJ_LINK;

ALTER TABLE TVISION.QUERY ENABLE CONSTRAINT FK1_QUERY;
```

DB2

When importing system tables into a DB2 database, some tables may be placed in a Check Pending state. To resolve this problem, disable the constraints, import the data, and then re-enable the constraints.

Disabling Referential Contraints

To disable the referential contraints, use the following SQL commands:

```
alter table tvision.analyzer_proj_commlink alter FOREIGN
KEY fk2_anlz_proj_link NOT ENFORCED;

ALTER TABLE TVISION.ANALYZER_SCHEMA alter FOREIGN KEY
FK2_ANLZ_SCHEMA NOT ENFORCED;

ALTER TABLE TVISION.ANALYZER_SCHEMA alter FOREIGN KEY
FK1_ANLZ_SCHEMA NOT ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK1_LINK_FILTER NOT ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK2_LINK_FILTER NOT ENFORCED;

ALTER TABLE TVISION.FILTER alter FOREIGN KEY FK1_FILTER NOT
ENFORCED;

ALTER TABLE TVISION.PROJECT alter FOREIGN KEY FK1_PROJECT
NOT ENFORCED;

ALTER TABLE TVISION.PROJECT_COMMLINK alter FOREIGN KEY
FK1_PROJ_LINK NOT ENFORCED;

ALTER TABLE TVISION.QUERY alter FOREIGN KEY FK1_QUERY NOT
ENFORCED;

ALTER TABLE TVISION.STORAGE alter FOREIGN KEY FK1_STORAGE
NOT ENFORCED;

ALTER TABLE TVISION.REPORT_PARAMETERS alter FOREIGN KEY
FK1_REP_PARMS NOT ENFORCED;

ALTER TABLE TVISION.JOB_STATUS alter FOREIGN KEY FK1_JOB_ID
NOT ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK1_LINK_FILTER NOT ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK2_LINK_FILTER NOT ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK3_LINK_FILTER NOT ENFORCED;
```

```
ALTER TABLE TVISION.ANALYZER_PROJ_COMMLINK alter FOREIGN
KEY FK1_ANLZ_PROJ_LINK NOT ENFORCED;

ALTER TABLE TVISION.ANALYZER_PROJ_COMMLINK alter FOREIGN
KEY FK2_ANLZ_PROJ_LINK NOT ENFORCED;
```

Re-enabling Referential Contraints

To re-enable the referential constraints after importing the data, use the following SQL commands:

```
alter table tvision.analyzer_proj_commlink alter FOREIGN
KEY fk2_anlz_proj_link ENFORCED;

ALTER TABLE TVISION.ANALYZER_SCHEMA alter FOREIGN KEY
FK1_ANLZ_SCHEMA ENFORCED;

ALTER TABLE TVISION.ANALYZER_SCHEMA alter FOREIGN KEY
FK2_ANLZ_SCHEMA ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK1_LINK_FILTER ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK2_LINK_FILTER ENFORCED;

ALTER TABLE TVISION.FILTER alter FOREIGN KEY FK1_FILTER
ENFORCED;

ALTER TABLE TVISION.PROJECT alter FOREIGN KEY FK1_PROJECT
ENFORCED;

ALTER TABLE TVISION.PROJECT_COMMLINK alter FOREIGN KEY
FK1_PROJ_LINK ENFORCED;

ALTER TABLE TVISION.QUERY alter FOREIGN KEY FK1_QUERY
ENFORCED;

ALTER TABLE TVISION.STORAGE alter FOREIGN KEY FK1_STORAGE
ENFORCED;

ALTER TABLE TVISION.REPORT_PARAMETERS alter FOREIGN KEY
FK1_REP_PARMS ENFORCED;

ALTER TABLE TVISION.JOB_STATUS alter FOREIGN KEY FK1_JOB_ID
ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK1_LINK_FILTER ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK2_LINK_FILTER ENFORCED;

ALTER TABLE TVISION.COMMLINK_FILTER alter FOREIGN KEY
FK3_LINK_FILTER ENFORCED;
```

```
ALTER TABLE TVISION.ANALYZER_PROJ_COMMLINK alter FOREIGN
KEY FK1_ANLZ_PROJ_LINK ENFORCED;

ALTER TABLE TVISION.ANALYZER_PROJ_COMMLINK alter FOREIGN
KEY FK2_ANLZ_PROJ_LINK ENFORCED;
```

Chapter 11

Configuring the CICS, WMQ Batch, and WMQ-IMS Bridge Sensor

Once the TransactionVision CICS Sensors are installed, you must configure and then start the Sensors.

Overview

CICS, WMQ Batch, and WMQ-IMS Bridge Sensor on z/OS provides a common framework to control the operation of multiple Sensors to allow them to collect and record transaction events asynchronously. The Sensor is implemented as a base component—the TransactionVision Manager—and several additional components to implement the specific Sensors--the WMQ Batch Sensor and the WMQ-IMS sensor.

TransactionVision Manager (TVM)

TVM is an authorized program that runs as a started task. It controls the other components and provides common routines and structures used by all Sensors. After TVM is started, you issue MVS modify commands to the TVM started task job name to request it to start, stop, query, or control Sensors. The available commands are listed in the “Sensor Commands” section. You issue the MVS stop command to shutdown TVM, in which case all Sensors under its control are also shutdown. See the “TransactionVision Manager Startup Procedure” section below for more information.

Common Sensor Components

Sensor Manager

There are two sensor managers, one for WebSphere MQ Sensors and one for the CICS Sensor, but both conform to a generic model and perform common functions required by all sensors. The Sensor manager is started as a result of a start Sensor command to TVM and runs as a subtask of

TVM. Startup parameters identify the Sensor type and the target application set to be monitored. The Sensor manager type is MQBATCH, WMQ-IMS, or CICS.

For WMQ-IMS and CICS Sensor types, you must also specify the IMSID or CICS SYSID of the IMS or CICS system to be monitored. You must start a separate sensor manager for each WMQ-IMS or CICS system to be monitored.

The Sensor manager creates a buffer queue data space to store WebSphere MQ or CICS events and starts the sensor driver component. A single Sensor handles the events generated by all the applications in all the dependent regions for a WMQ-IMS system.

Sensor Driver

There are two Sensor drivers, one for WebSphere MQ Sensors and one for the CICS Sensor, but both conform to a generic model and perform common functions required by all Sensors. The Sensor driver is an unauthorized program that runs as a started task in its own address space.

The Sensor driver is automatically started by the Sensor manager when it starts up and terminated when it shuts down. A parameter on the start Sensor command specifies the procedure to be used to start the driver. See the “Sensor Driver Startup Procedures” section below for more information.

The Sensor driver communicates with the TransactionVision Analyzer via WebSphere MQ. In response to configuration messages from the Analyzer, the driver indicates to the Sensors which event types to capture and what filtering criteria to apply. It also retrieves the captured events from the buffer queue data space and, subject to the filtering criteria, sends them to the Analyzer.

Sensor Event Capture Components

Each sensor has a unique event capture component that runs in the application environment to intercept transaction activity and store the associated event data into the buffer queue.

WebSphere MQ Sensors

Batch and IMS programs to be monitored must be linked to a TransactionVision stub program, which replaces the WebSphere MQ stub as follows:

WebSphere MQ Stub	Replacement Stub	Description
CSQBSTUB	SLDPSTBB	Batch
CSQBRRSI	SLDPSTBB	Batch RRS

WebSphere MQ Stub	Replacement Stub	Description
CSQBRSTB	SLDPSTBB	Batch RRS
CSQQSTUB	SLDPSTBB	IMS

CICS Sensor Commands

The command to start and stop the TransactionVision Manager are standard MVS start and stop commands.

Start TransactionVision Manager (TVM)

```
START procname[.jobname],TVID=tvid
```

where

- procname is the name of a cataloged procedure to start TVM.
- jobname is the MVS jobname to be assigned to the started task. If not specified the jobname defaults to the procedure name.
- tvid is the unique system id of this instance of TVM, consisting of four or fewer characters. Note that TVID may be an optional parameter, depending on the procedure definition. See the "TransactionVision Manager Startup Procedure" section.

Example:

```
S TVISION, TVID=TV01
```

The TransactionVision Manager component is started. The following messages will be displayed:

```
SLDS434I TVISION Bristol TransactionVision for z/OS – V5.0.0
SLDS400I TVISION TransactionVision Manager startup in progress.
SLDS401I TVISION TV01 TransactionVision Manager startup complete.
```

Stop TransactionVision Manager (TVM)

```
STOP jobname
```

where

- *jobname* is the MVS jobname specified or defaulted on the start command for the TVM job to be stopped.

Example:

```
P TVISION
```

The TransactionVision Manager component is stopped. Any Sensors that have been started within the stopped TVM are also stopped. The following messages will be displayed:

```
SLDS402I TVISION TV01 STOP command received.
SLDS404I TVISION TV01 TransactionVision Manager termination in
progress.
SLDS405I TVISION TV01 TransactionVision Manager termination
complete.
```

If Sensors are running within the TVM, their shutdown messages will also be displayed.

Note: All other Sensor commands are issued as standard MVS modify commands. Most of the command and operand names can be abbreviated to as few characters as required to make the name unique. If the abbreviation is not unique, the alphabetically first command or operand name that fits is assumed. However, some names are reserved for future use.

Start Sensor

```
MODIFY tvm_jobname,START sensortype [SYSID(sysid) |
IMSID(imsid)]
[DRVRPROC(drvrproc)]
[QMGR(qmgr)] [CONFIGQ(configq)]
[QBLKSIZE(qblksize)] [MAXQBLKS(maxqblks)]
```

where

- *tvm_jobname* is the MVS jobname specified or defaulted on the start command for the TVM job that will control the started Sensor.
- START is the command name and is required.
- *sensortype* is the Sensor type and is required. Specify MQBATCH, MQIMS, or CICS.

  If the *sensortype* is MQBATCH, do **not** specify either IMSID or SYSID.
- SYSID is required when the *sensortype* is CICS. *sysid* must specify the SYSID of the CICS region to be monitored.
- IMSID is required when the *sensortype* is MQIMS. *imsid*must specify the IMSID of the IMS system to be monitored.
- DRVRPROC is optional. *drvrproc* specifies the name of the cataloged procedure to start the Sensor driver. See “Sensor Driver Startup Procedure” on page 203 for more information. The default name is TVISIONC.
- QMGR is optional. *qmgr* specifies the name of the Websphere MQ queue manager through which the Sensor driver component will communicate with the TransactionVision Analyzer. The default is specified as a parameter in the Sensor driver startup procedure. See “Sensor Driver Startup Procedure” on page 203 for more

information on the relationship of this parameter with the Sensor driver startup procedure.

- CONFIGQ is optional. *configq* specifies the name of the Websphere MQ queue from which the Sensor driver component will receive configuration messages from the TransactionVision Analyzer. The default is specified as a parameter in the Sensor driver startup procedure. See “Sensor Driver Startup Procedure” on page 203 for more information on the relationship of this parameter with the Sensor driver startup procedure.
- QBLKSIZE is optional. *qblksize* specifies the size, in megabytes, of each block in the buffer queue data space. The minimum and default value for *qblksize* is 1; the maximum is 100. See “Buffer Queue Considerations” on page 202 for more information.
- MAXQBLKS is optional. *maxqblks* specifies the maximum number of buffer queue blocks that the Sensor is allowed to allocate in its data space. Each queue block is the size specified or defaulted by the *qblksize* parameter. The minimum value for *maxqblks* is 3; the maximum is 2046, and the default is 10. See “Buffer Queue Considerations” on page 202 for more information.

Example 1:

```
F TVISION,S MQB DR(TVISIONM) QM(CSQ1)
    CO(TVISION.CONFIGURATION.QUEUE)
```

The WebSphere QM Batch Sensor is started: a Sensor manager subtask of TVM is started and a Sensor driver task is started in a separate address space. The following messages will be displayed:

```
SLDS400I TVISION MQBATCH TransactionVision sensor startup in
progress.

SLDS401I TVISION MQBATCH TransactionVision sensor startup
complete.

IEF403I TVISIONM - STARTED […and other MVS messages issued
when starting a job]

+SLMS278I : TransactionVision Sensor: WMQ **** Sensor Driver
startup completed. QMGR=CSQ1,
CONFIGQ=TVISION.CONFIGURATION.QUEUE.
```

Example 2:

```
F TVISION,S MQI IMSID(IVP1) DR(TVISIONM) QM(CSQ1)
    CO(TVISION.CONFIGURATION.QUEUE)
```

The WebSphere QM IMS Sensor is started: a Sensor manager subtask of TVM is started and a Sensor driver task is started in a separate address space. The following messages will be displayed:

```
SLDS400I TVISION MQIMS IVP1 TransactionVision sensor startup
in progress.

SLDS401I TVISION MQIMS IVP1 TransactionVision sensor startup
complete.

IEF403I TVISIONM - STARTED […and other MVS messages issued
when starting a job]

+SLMS278I : TransactionVision Sensor: WMQ IVP1 Sensor Driver
startup completed. QMGR=CSQ1,
CONFIGQ=TVISION.CONFIGURATION.QUEUE.
```

When starting the CICS Sensor, the following TransactionVision error SLDS499S might occur:

```
SLDS499S TVISION CICS xxxx TVISION system error. Diagnostic
data follow:
SLDS499S 01 07050224 19472077 0000000C 00000034
SLDS499S 02 00E00080 00000000 0000000C 6C000611
```

If the last two values on the third line are as listed in this message, the error is due to an insufficient number of SCOPE=COMMON data spaces available in the current system. Increase the value of the MAXCAD parameter in the appropriate IEASYS*nn* member of SYS1.PARMLIB and then IPL the MVS image. For a detailed description of MAXCAD parameter tuning, please refer to the IBM *MVS Initialization and Tuning Reference* manual.

Stop Sensor

```
MODIFY tvm_jobname,STOP sensortype [SYSID(sysid) |
IMSID(imsid)]
```

where

- *tvm_jobname* is the MVS jobname specified or defaulted on the start command for the TVM job that controls the Sensor to be stopped.
- STOP is the command name and is required.
- *sensortype* is the Sensor type and is required. Specify MQBATCH, MQIMS, or CICS.

  If the *sensortype* is MQBATCH, do **not** specify either SYSID or IMSID.

- SYSID is required if *sensortype* is CICS. *sysid* must specify the same SYSID that was specified on the start Sensor command for this Sensor.
- IMSSID is required if *sensortype* is MQIMS. *imsid* must specify the same IMSID that was specified on the start Sensor command for this Sensor.

Example 1:

```
F TVISION,STO MQB
```

The WebSphere MQ Batch Sensor manager and Sensor driver are stopped. The following messages will be displayed:

```
SLDS404I TVISION MQBATCH TransactionVision sensor termination in
progress.
SLDS443I TVISION MQBATCH sensor quiescing: 14 events in buffer
queue.
…
SLDS445I TVISION MQBATCH Sensor quiesce completed.
SLDS448I TVISION MQBATCH Sensor statistics:
  Events in queue:                 0
  Events collected:              474
  Events dispatched:             474
  Events_lost:                     0

+SLDS27BI : TransactionVision Sensor: MQBATCH Sensor Driver is
ending
IEF404I TVISIONM - ENDED […and other MVS messages issued when
stopping a job]
SLDS405I TVISION MQBATCH TransactionVision sensor termination
complete.
```

Example 2:

```
F TVISION,STO MQI IMSID(IVP1)
```

The WebSphere MQ Batch Sensor manager and Sensor driver are stopped. The following messages will be displayed:

```
SLDS404I TVISION MQIMS IVP1 TransactionVision sensor termination
in progress.
SLDS443I TVISION MQIMS IVP1 sensor quiescing: 14 events in buffer
queue.
…
SLDS445I TVISION MQIMS IVP1 Sensor quiesce completed.
SLDS448I TVISION MQIMS IVP1 Sensor statistics:
  Events in queue:                 0
  Events collected:              474
  Events dispatched:             474
  Events_lost:                     0

+SLDS27BI : TransactionVision Sensor: MQIMS IVP1 Sensor Driver is
ending
IEF404I TVISIONM - ENDED […and other MVS messages issued when
stopping a job]
SLDS405I TVISION MQIMS IVP1 TransactionVision sensor termination
```

```
complete.
```

Inquire

```
MODIFY tvm_jobname,INQUIRE STATISTICS [sensortype]
[SYSID(sysid) | IMSID(imsid)]
```

where

- *tvm_jobname* is the MVS jobname specified or defaulted on the start command for the TVM job to which the inquire is directed.
- INQUIRE is the command name and is required.
- *sensortype* is the Sensor type and is required. Specify MQBATCH, MQIMS, or CICS. If *sensortype* is omitted, all Sensor types are queried.
- IMSID or SYSID may be specified to identify the MQIMS or CICS Sensor of which you wish to inquire. If IMSID and SYSID are omitted, all Sensors of the specified type are queried.

Example:

```
F TVISION,I ST
```

The inquire statistics command will display the following:

```
SLDS448I TVISION MQBATCH Sensor statistics:
    Events in queue:              56
    Events collected:            530
    Events dispatched:           474
    Events_lost:                   0
SLDS448I TVISION MQIMS IVP1 Sensor statistics:
    Events in queue:             175
    Events collected:           1068
    Events dispatched:           893
    Events_lost:                   0
```

Sensor Operations

1. The TransactionVision Manager must be started before any Sensors are started.
2. The TransactionVision Manager is started with a TVID parameter that uniquely identifies the instance. Multiple concurrent TransactionVision Managers may be started, which may be desirable for test and production environments, for example. However, within the same environment, resources will be most efficiently utilized and operations simplified by running multiple Sensors under control of one TransactionVision Manager.

3. Only one Sensor at a time is allowed to use a particular IMSID or SYSID.
4. The prohibition of IMSID/SYSID resule will be enforced across all instances of the TransactionVision Manager, so you cannot start a Sensor to monitor a specific IMS system or CICS region if a Sensor is already monitoring that that IMS system or CICS region regardless of which TransactionVision Manager instances are involved. Also, only one TransactionVision Manager at a time can monitor WebSphere MQ batch jobs.
5. The TVID must not be the same value as the IMSID or SYSID value of any Sensor. For future considerations, it is highly recommended that the TVID be unique among all TransactionVision Manager TVIDs, CICS SYSIDs, IMS IDs, and all MVS subsystem IDs at your site.
6. Stopping the TransactionVision Manager will automatically stop all the Sensors under its control.
7. When a Sensor is stopped, the Sensor manager will signal its corresponding Sensor application environment component to cease further data capture, then enter quiesce mode until the Sensor driver retrieves all the events in the buffer queue. When all events have been retrieved, which may take some time, the Sensor driver will terminate, then the Sensor manager will terminate.
8. TransactionVision Manager termination will not complete until all Sensors under its control have terminated.
9. If you cancel the TransactionVision Manager, all Sensors under its control will immediately terminate and all remaining events in the buffer queue will be discarded. Furthermore, canceling the TransactionVision Manager leaves some common storage control blocks in place with the result that the first subsequent WebSphere MQ call from a running batch or IMS applications that is bound to a TransactionVision WebSphere MQ stub will cause a sensor error message to be displayed. The application, itself, is otherwise unaffected; the WebSphere MQ call will proceed normally—as it would have without the Sensor. All subsequent calls to the stub within the same job will not generate the error message. The Sensor disables itself and simply passes through all calls to WebSphere MQ. Running subsequent jobs or restarting the IMS dependent regions without fixing the problem will again result in an error message on the first call by an application. Restarting the TransactionVision Manager cleans up the leftover control blocks and avoids any subsequent errors in the Sensors. Alternatively,

you may run a reset procedure that cleans up the control blocks without starting the TransactionVision Manager. A sample reset procedure is provided in the TVISIONR member of the hlq.SSLDPROC library.

Buffer Queue Considerations

To minimize the overhead of Sensor components in the application environments, the Sensors store all captured transaction events in a data space referred to as the buffer queue. Each Sensor has exclusive use of a data space.

The buffer queue is configured as a number of queue blocks of a certain size. Both of these dimensions are specified in parameters on the start Sensor command. MAXQBLKS specifies the maximum number of queue blocks and QBLKSIZE specifies the size of each queue block in megabytes. The maximum size of the data space used, in megabytes, is the product of MAXQBLKS and QBLKSIZE and must not exceed 2 GB. The default MAXQBLKS is 10 and the minimum is 3, and the default and minimum QBLKSIZE is 1. Therefore, the minimum data space size requirement is 3MB, which would be suitable only for low volume testing.

The correct size of the buffer queue varies widely depending on the transaction throughput of the monitored application environment; the number, types, and sizes of events collected; the throughput of the Sensor driver; and the responsiveness of the buffer queue management functions in the Sensor manager. These variables will be discussed in more detail later, but before attempting laborious calculations using what may be mere guesses as your parameters, consider taking a trial and error approach. In any event, understanding TransactionVision’s use of the buffer queue is necessary.

At Sensor startup, three queue blocks are allocated. When the TransactionVision application environment components are run, they store events into the first queue block and then to the next, etc. Concurrently, the Sensor driver is retrieving events from the buffer queue in the same sequential order that they were stored (FIFO). The buffer queue management functions are invoked every hundredth of a second to check the state of the buffer queue. If the queue block currently receiving events is the last queue block allocated, an additional queue block is allocated provided that the total number allocated doesn't exceed the MAXQBLKS specification. Any queue block that has had all its events retrieved is freed, reducing the total number of allocated blocks. Therefore, the size of the buffer queue expands and contracts as traffic dictates and, regardless of the maximum allowed, no more space is used than is required-beyond the minimum of three queue blocks. A generous allocation at startup can compensate for a lack of precision in estimating the event workload while not costing any extra overhead.

TransactionVision Manager Startup Procedure

When you start the TransactionVision Manager (TVM) you must assign it a TVID that is unique among all concurrent instances of TVM. The TVID is passed as the single parameter to the main program, SLDPTVM. A sample procedure, TVISION, is provided to start TVM as follows:

```
//TVISION  PROC TVID=TV01,TVHLQ=TVISION
//TVISION  EXEC PGM=SLDPTVM,TIME=1440,PARM='&TVID'
//STEPLIB  DD   DISP=SHR,DSN=&TVHLQ..SSLDAUTH
//         PEND
```

TVM requires one parameter, a four-character TVID value that is unique for all concurrently running instances of TVM. The TVID must also be different from the ids assigned to any concurrently running sensor. For future considerations, it is highly recommended that the TVID be unique among all TVMs, CICS SYSIDs, IMSIDs, and all MVS subsystem IDs at your site.

The TVID is defined as a procedure keyword parameter and defaults to TV01. A START TVISION operator command will start TVM with a TVID of TV01. A START TVISION,TVID=TV02 operator command will start TVM with a TVID of TV02. If both commands are issued two instances of TVM are started and both have the same jobname, TVISION.

To stop TVM or to start and stop Sensors under control of TVM requires issuing STOP or MODIFY commands specifying the jobname of the TVM to which the command is directed. If multiple TVMs are started with the same jobname, the command is directed to all of them. To avoid this problem specify a unique jobname on the START command. It is recommended to use the TVID as the jobname. For example:

```
START TVISION,JOBNAME=TV01,TVID=TV01
START TVISION,JOBNAME=TV02,TVID=TV02
```

Sensor Driver Startup Procedure

When you issue a start Sensor command to TVM, the Sensor driver component is started in a separate address space. The Sensor manager automatically starts the Sensor driver using the procedure specified on the start Sensor command (see the “Sensor Commands” section). The following parameters from the start Sensor command are passed to the Sensor driver procedure: SYSID, QMGR, CONFIGQ.

The DRVRPROC parameter on the start Sensor command specifies the procedure to be invoked to start the Sensor driver. The default procedure names are TVISIONM for WebSphere MQ Sensors and TVISIONC for the CICS Sensor, samples of which are provided in the hlq,SSLDPROC library as follows:

```
//TVISIONM PROC SYSID=,QMGR=CSQ1,
//             CONFIGQ=TVISION.CONFIGURATION.QUEUE,
//             TVHLQ=TVISION,MQHLQ=CSQ520
//TVISIONM EXEC PGM=SLDPMDR,TIME=1440,
//             PARM='&SYSID &QMGR &CONFIGQ'
//STEPLIB  DD  DISP=SHR,DSN=&TVHLQ..SSLDLOAD
//         DD  DISP=SHR,DSN=&MQHLQ..SCSQAUTH
//         PEND

//TVISIONC PROC SYSID=,QMGR=CSQ1,
//             CONFIGQ=TVISION.CONFIGURATION.QUEUE,
//             TVHLQ=TVISION,MQHLQ=CSQ520

//TVISIONC EXEC PGM=SLDPCDR,TIME=1440,
//             PARM='&SYSID &QMGR &CONFIGQ'
//STEPLIB  DD  DISP=SHR,DSN=&TVHLQ..SSLDLOAD
//         DD  DISP=SHR,DSN=&MQHLQ..SCSQAUTH
//         PEND
```

The SYSID, QMGR, and CONFIGQ are defined as procedure keyword parameters with the indicated defaults. Remember that this procedure is automatically invoked by the Sensor manager; you should not invoke this procedure by any other means. For example, you should not issue a START TVISIONM command.

You may customize this procedure or create multiple procedures according to the communications links between the Sensor drivers and TransactionVision Analyzers.

The Websphere MQ queue manager (QMGR) and configuration queue (CONFIGQ) parameters determine which Analyzer(s) communicate with the Sensor drivers. In the sample procedure, the QMGR and CONFIGQ parameters can be overridden by specification of the same parameters on the start Sensor command and the SYSID parameter must be supplied from the start Sensor command. The SYSID, QMGR, and CONFIGQ parameters are passed to the Sensor driver main programs, SLDPMDR or SLDPCDR, as space-delimited positional parameters, which allows the omission of only the last parameter, CONFIGQ. If you omit this parameter, it defaults to TVISION.CONFIGURATION.QUEUE. When customizing these procedures or creating your own Sensor driver procedures, you should observe the following conventions:

- Always specify all three parameters—SYSID, QMGR, and CONFIGQ—as procedure parameters.
- Always specify a SYSID parameter default of null.

- Always specify a non-null default QMGR parameter.
- Always pass at least the SYSID value and the QMGR value in the PARM field to SLDPCDR.

Note: The SYSID parameter in the Sensor driver procedures is used generically—as a SYSID or an IMSID.

Chapter 12
Extending TransactionVision Sensors

The Sensor library provides two types of extension APIs. One provides custom trace settings to the TransactionVision views. The other enables you to implement user exits for each WebSphere MQ API called by the Sensor.

Custom Trace Settings

The **BTTRACE** function can be called by applications to provide custom trace messages to the TransactionVision analysis views. These messages appear in the Event Analysis and Transaction Analysis views. The calling application must link against the Sensor library to use this facility. On z/OS CICS, the application program must be link-edited with the Sensor CICS stub program SLMCSTUB. The sample in the Sensor samples directory or library demonstrates custom trace messages as well as how to link your application against the Sensor. It also includes a project file and makefiles for supported platforms.

To implement custom tracing, the application program must call **BTGETHMQ** to get a **BTTRACE** handle, then call **BTTRACE** once for each message to be logged, and then call **BTRELH** to release the handle when all tracing by that program is completed.

A sample C program and header file are provided in the samples directory or library. The sample file is SLMTSAMP on CICS and bttsamp.c on other platforms. The header file is BTTRACE.

BTGETHMQ — Get BTTRACE Handle

The **BTGETHMQ** call initializes **BTTRACE** operations and provides a handle, which is used by the application on subsequent **BTTRACE** calls.

Synopsis

```
BTGETHMQ(Hconn, BTHandle)
```

Parameters

`Hconn` (MQHCONN) - input
Connection handle representing the connection to the WebSphere MQ queue manager. This handle is provided by the **MQCONN** or **MQCONNX** calls. ON z/OS CICS and OS/400 platforms, this parameter is ignored.

`BTHandle` (BTHANDLE) - output
The **BTTRACE** handle, which must be specified on all subsequent calls to **BTTRACE**.

C Language Invocation

```
BTGETHMQ(Hconn, &BTHandle);
```

Declare the parameters as follows:

```
MQHCONN Hconn                   /* Connection handle /
BTHANDLE BTHandle                   / BTTRACE handle */
```

COBOL Language Invocation (z/OS)

```
CALL BTGETHMQ USING HCONN, BTHANDLE.
```

Declare the parameters as follows:

```
**  Connection handle
01  HCONN PIC S9(9) BINARY.
**  BTTRACE handle
01  BTHANDLE PIC S9(9) BINARY.
```

PL/1 Language Invocation (z/OS)

```
call BTGETHMQ(Hconn, BTHandle);
```

Declare the parameters as follows:

```
dcl Hconn fixed bin(31);                          /*
Connection handle /
dcl BTHandle fixed bin(31);                       /
BTTRACE handle */
```

System/390 Assembler-language Invocation (z/OS Only)

```
CALL BTGETHMQ,(HCONN,BTHANDLE)
```

Declare the parameters as follows:

```
HCONN           DS  F       Connection handle
BTHANDLE            DS  F       BTTRACE handle
```

BTTRACE — Log Trace Message

The **BTTRACE** call logs a trace message to be sent to the TransactionVision views.

Synopsis

```
BTTRACE(BTHandle, Severity, MsgTypeSize, MsgType, MsgSize,
Message)
```

Parameters

`BTHandle` (BTHANDLE) - input
The **BTTRACE** handle returned by the **BTGETHMQ** call.

`Severity` (32-bit unsigned integer) - input
A message severity level that may be used to filter trace events. The following severity levels and values are defined:

TVISION_SEVERITY_CRITICAL	0
TVISION_SEVERITY_ERROR	1
TVISION_SEVERITY_WARNING	2
TVISION_SEVERITY_INFO	3
TVISION_SEVERITY_DEBUG	4

`MsgTypeSize` (32-bit unsigned integer) - input
The length of the MsgType parameter.

`MsgType` (character) - input
A message type composed of any text, which may be used to filter trace events.

`MsgSize` (32-bit unsigned integer) - input
The length of the Message parameter.

`Message` (character) - input
The text of the message to be logged.

C Language Invocation

```
BTTRACE(BTHandle, Severity, nMsgTypeSize, pchMsgType,
nMsgSize, pchMessage);
```

Declare the parameters as follows:

```
BTHANDLE BTHandle                           /* BTTRACE
handle /
int Severity                            / Message severity
/
unsigned int nMsgTypeSize                          /
Message type size */
const char * pchMsgType                       /* Message
type /
unsigned int nMsgSize                         / Message
size */
```

```
const char * pchMessage                         /* Trace
message text */
```

COBOL Language Invocation (z/OS)

```
CALL BTTRACE USING BTHANDLE, SEVERITY, MSGTYPESIZE,
MSGTYPE, MSGSIZE, MESSAGE.
```

Declare the parameters as follows:

```
**  BTTRACE handle
01  BTHANDLE PIC S9(9) BINARY.
**  Message severity
01  SEVERITY PIC S9() BINARY.
**  Message type size
01  MSGTYPESIZE PIC S9(9) BINARY.
**  Message type
01  MSGTYPE PIC X(n).
**  Message size
01  MSGSIZE PIC S9(9) BINARY.
**  Trace message text
01  MESSAGE PIC X(n).
```

PL/1 Language Invocation (z/OS)

```
call BTTRACE(BTHandle, Severity, MsgTypeSize, MsgType,
MsgSize, Message);
```

Declare the parameters as follows:

```
dcl BTHandle fixed bin(31);                           /*
BTTRACE handle /
dcl Severity fixed bin(31);                           /
Message severity /
dcl MsgTypeSize fixed bin(31)
  / Message type size /
dcl MsgType char(n);                              /
Message type /
dcl MsgSize fixed bin(31);                            /
Message size /
dcl Message char(n);                              / Trace
message text */
```

System/390 Assembler-language Invocation (z/OS Only)

```
CALL BTTRACE,(BTHANDLE,SEVERITY,MSGTYPESIZE,MSGTYPE,  X
    MSGSIZE,MESSAGE)
```

Declare the parameters as follows:

```
BTHANDLE            DS  F       BTTRACE handle
SEVERITY            DS  F       Message severity
MSGTYPESIZE         DS  F       Message type size
MSGTYPE         DS  CL(n)       Message type
MSGSIZE         DS  F       Message size
MESSAGE         DS  CL(n)       Trace message text
```

BTRELH — Release BTTRACE Handle

The **BTRELH** call releases the **BTTRACE** handle. This function should be called when the application has completed tracing.

Synopsis

```
BTRELH (BTHandle)
```

Parameters

`BTHandle` (BTHANDLE) - input
The **BTTRACE** handle to be released.

C Language Invocation

```
BTRELH(BTHandle);
```

Declare the parameter as follows:

```
BTHANDLE BTHandle                   /* BTTRACE handle */
```

COBOL Language Invocation (z/OS)

```
CALL BTRELH USING BTHANDLE.
```

Declare the parameter as follows:

```
**  BTTRACE handle
01  BTHANDLE PIC S9(9) BINARY.
```

PL/1 Language Invocation (z/OS)

```
call BTRELH(BTHandle);
```

Declare the parameter as follows:

```
dcl BTHandle fixed bin(31);                          /*
BTTRACE handle */
```

System/390 Assembler-language Invocation (z/OS Only)

```
CALL BTRELH,(BTHANDLE)
```

Declare the parameter as follows:

```
BTHANDLE            DS  F       BTTRACE handle
```

User Exits for WebSphere MQ APIs

During typical TransactionVision operation, WebSphere MQ APIs called by an application are intercepted by the Sensor, which collects event information about the API and then forwards the API to the WebSphere MQ library. However, you may configure the Sensor library to call a predefined API for each WebSphere MQ API on exit. These exit APIs will have access to parameter information from the API as well as the message buffer (if applicable).

An example application of user exits would be to encrypt the data on each end of the message flow without interfering with the application code itself.

Important! User exits are supported on all platforms except IBM z/OS.

User exits are implemented in the `btmqexit` library. If this shared library exists in the library search path, the Sensor will load it dynamically, enabling you to implement user exits without changing application source code.

To implement user exits for the Sensor implementation of WebSphere MQ APIs, perform the following steps:

1. Implement desired exit behavior in `btmqexit` source code.
2. Build the `btmqexit` library.
3. Add `btmqexit` to your library search path.

Important! The OS/400 platform does not support dynamic library loading with **`dlopen()`**, so user exits are supported in a different manner. On the OS/400 platform, perform the following steps to implement user exits for WebSphere MQ APIs:

1. Set the environment variable TVISION_USEREXIT to true to use the TransactionVision crossing exit.
2. Create the service program BTMQEXIT using the binder source file /SRC/BTMQEXITBN provided with TransactionVision.
3. Overwrite `/qsys.lib/tvsensor.lib/BTMQEXIT.SRVPGM` with the newly created one

Implementing Exit Behavior

The `btmqexit` library implements a pre-defined API associated with each WebSphere MQ API. The following table shows the relationship between these APIs:

WebSphere MQ API	Associated btmqexit API
MQBACK	BTBACK
MQBEGIN	BTBEGIN
MQCLOSE	BTCLOSE
MQCMIT	BTCMIT
MQCONN	BTCONN

WebSphere MQ API	Associated btmqexit API
MQCONNX	BTCONNX
MQDISC	BTDISC
MQGET	BTGET
MQINQ	BTINQ
MQOPEN	BTOPEN
MQPUT	BTPUT
MQPUT1	BTPUT1
MQSET	BTSET

The following files are provided with your TransactionVision installation:

- `btmqexit.c`, located in `<install_directory>/TVision/src`
- `btmqexit.h`, located in `<install_directory>/TVision/include`
- •`btmqexit.exp`, located in `<install_directory>/TVision/src`, is an export file needed to create the `btmqexit` library on the AIX platform.

`btmqexit.c` provides a stub implementation of each pre-defined API. Copy this file and modify it to implement the desired action for each API. In the example located in `<install_directory>/TVision/samples/btmqexit`, the code for each API has been modified as follows to print the API completion code and reason code upon return of each WebSphere MQ API:

```
static void BTCONN(BTCMQA *pCMQA, PMQCHAR pQMgrName,
  PMQHCONN pHconn, PMQLONG pCompCode, PMQLONG pReason)
{
  if (!pCMQA || !pCMQA->pXPB)
    return;

  if (pCMQA->pXPB->ExitReason == MQXR_BEFORE)
  {
    fprintf(stderr,”BTMQEXIT: Calling MQCONN\n”);
  }
  else
  {
    if (pCompCode && pReason)
        fprintf(stderr,”BTMQEXIT: MQCONN Returned:
Completion Code: %ld “
            “Reason Code: %ld\n”,*pCompCode,*pReason);

        }
        pCMQA->pXPB->ExitResponse = MQXCC_OK;
     }
```

Important! When implementing user exits, note that you cannot link with WebSphere MQ or the Sensor on any platforms because of the potential for recursive exit calls.

Building the Exit Library

The `btmqexit` sample directory also contains sample project files and makefiles for building the sample library on supported platforms. The following table shows the target library name for each platform:

Platform	Target Library Name
HP-UX	`libbtmqexit.sl`
IBM AIX	`libbtmqexit.a`
Solaris	`libbtmqexit.so`
Windows 2000	`BTMQEXIT.DLL`

Adding the Library to the Library Search Path

For the Sensor to load the `btmqexit` library, you must add its directory location to an environment variable setting on the computer where the monitored application runs before starting the application. The following table shows the appropriate environment variable to set for each distributed platform.

Platform	Environment Variable
Windows 2000	PATH
Sun Solaris	LD_LIBRARY_PATH
HP-UX	SHLIB_PATH
IBM AIX	LIBPATH
RedHat Linux	LD_LIBRARY_PATH
Compaq Tru64	LD_LIBRARY_PATH

Appendix A
Utilities Reference

CreateLdapEntries

Location:

```
TVISION_HOME/bin/CreateLdapEntries.[sh|bat]
```

Purpose:

Create entries required by TransactionVision in the LDAP server.

Syntax:

```
CreateLdapEntries [-h] [-u] [-n<dn>] [-p<passwd>]
[-a<auth>] [-d<dn>] [-c<dn>]
```

Options:

Option	Description
-h	Print the usage message.
-u	Create a default administration user under the tvision group location.
-n<dn>	Use <dn> as the distinguished name for authentication.
-p<passwd>	Use <passwd> as the password for authentication.
-d<dn>	Create the default tvision group at this location.
-a<auth>	Use <auth> as the authentication mechanism. The default is “simple” if <dn> is specified; otherwise, “none”.
-c<dn>	Create the default root suffix (for example, co=bti,c=us).

Examples:

Create authentication with name as “cn=root” and password as “secret”. Create default tvision group as “ou=TVision” at location “o=bti;c=us” and create a default administration user under the tvision group location:

```
CreateLdapEntries[.bat|.sh] -u “-ncn=root” -psecret
“-do=bti,c=us”
```

CreateSqlScript

Location:

```
TVISION_HOME/bin/CreateSqlScript.[sh|bat]
```

Purpose:

Allow the user to create and optionally execute a SQL script to create, drop, import or export a TransactionVision system tables or project tables.

Important! The TransactionVision Analyzer and web application need to be stopped before performing any database imports or exports. This is to avoid causing the database import/exports to fail because of database locks held by the Analyzer or web application. If a schema is dropped, make sure that there are no active projects or users logged in that are using that schema.

Syntax:

```
CreateSqlScript
  {-create(-c) | -drop(-d) | -import(-i) | -export(-ex) | -
resetseq(-r)}
  {-system(-s) | -project(-p) SCHEMA | -table(-t) TABLE
SCHEMA}
  [[-noscript(-n)] -execute(-e)]
  [-tablespace(-ts) TABLESPACE]
  [-fileType(-f) IXF|DEL] [-lobPath(-lp) PATH]
  [-dbproperties(-db) FILE]
```

Options:

Option	Description
`-drop (-d)`	Drop tables
`-create (-c)`	Create tables
`-execute (-e)`	Execute script
`-noscript (-n)`	No script generation
`-system (-s)`	Create/drop system tables
`-project (-p) SCHEMA`	Create/drop project tables in schema SCHEMA
`-table (-t) TABLE SCHEMA`	Create/drop table TABLE in schema SCHEMA.
`-tablespace (-ts) TBSPC`	Use tablespace TBSPC. See “Notes” for information about using this option with an Oracle database.
`-dbproperties (-db) FILE`	Use Database.properties file FILE.

Option	Description
`-import (-i)`	Generates a database import script. To run database scripts, use the command `db2 -n -t -f <sql script filename>`. For a DB2 database, you can combine this option with the `-fileType` and `-lobPath` options to customize the data format and the location of LOB. You may NOT combine this option with the `-noscript` or `-execute` options.
`-export (-ex)`	Generates a database export script. To run database scripts, use the command `db2 -n -t -f <sql script filename>`. For a DB2 database, you can combine this option with the `-fileType` and `-lobPath` options to customize the data format and the location of LOB. You may NOT combine this option with the `-noscript` or `-execute` options.
`-resetseq (-r)`	Resets the sequence start number to match to match the imported data.

`-fileType (-f)`
`IXF|DEL`
	Specify the DB2 data output file format used for importing/exporting data. The default type is IXF. For the IXF file type, the import/export script uses the LOBFILE option for rows that contain greater than 32K data. For the DEL type, the import/export script exports LOBFILEs into a single file (requires FixPack 8).

`-lobPath (-lp) PATH`	Specifies the directory for DB2 LOBFILEs. The default value is the current directory.
`-noLob (-nl)`	Do not generate DB2 export/import SQL with LOBINFILE option. This option will truncate LOB data to the first 32K bytes.

Examples:

1. Create system tables with schema as TVISION and execute the procedure without generating SQL script:

```
CreateSqlScript –e –n –c –s
```

2. Generate SQL script for creating project tables with schema as PROJECT without executing the procedure:

```
CreateSqlScript –c –p PROJECT
```

3. Drop table EVENT in schema PROJECT and execute the procedure without generating SQL script:

   ```
   CreateSqlScript -e -n -d -t EVENT PROJECT
   ```

Notes:

For the Oracle database, when using CreateSqlScript script, if a different tablespace is specified (using -ts), the quota is not set for the specified tablespace. To workaround this, follow the steps below:

1. Generate the SQL file, `create_project_tables.sql`, using the CreateSqlScript program, without using the -e option.
2. Modify the SQL statements in `create_project_tables.sql` from:

   CREATE USER “TEST” PROFILE “DEFAULT” IDENTIFIED BY “TEST” DEFAULT TABLESPACE “TESTTBS” TEMPORARY TABLESPACE “TEMP” QUOTA UNLIMITED ON USERS ACCOUNT LOCK;

   to:

   CREATE USER “TEST” PROFILE “DEFAULT” IDENTIFIED BY “TEST” DEFAULT TABLESPACE “TESTTBS” TEMPORARY TABLESPACE “TEMP” QUOTA UNLIMITED ON TESTTBS ACCOUNT LOCK;

   where TESTTBS should be changed to the tablespace you are using, TEST should be changed to the schema being created.

DB2RunStats

Location:

```
TVISION_HOME/bin/DB2RunStats.[sh|bat]
```

Description:

Updates statistics about the physical characteristics of a table and the associated indexes. These characteristics include number of records, number of pages, and average record length. The optimizer uses these statistics when determining access paths to the data.

This command is called when a table has had many updates, such as when data is continuously collected into DB2 by the TransactionVision Analyzer. It could result in large performance gains in queries made by TransactionVision views and reports, as well as queries made internally by the TransactionVision Analyzer to correlate events.

This script can be set up to run as a scheduled batch job using either the UNIX **`cron`** facility or the Windows scheduler.

Important! While this script is running, TransactionVision Analyzer processing slows down.

This script typically should be run daily, though the frequency of execution could be higher for higher message rates.

Important! This script needs to be customized based on your system to set the correct DB2 installation location and the correct TVISION_HOME location.

Important! If user has additional tables defined for the project schema, new RUNSTATS statements must be added to cover the additional tables.

Syntax:

```
DB2RunStats user_name passwd database_name schema_name [-
v7]
```

Options:

Option	Description
`user_name`	The user account that has privilege to execute RUNSTATS and make database connections
`passwd`	The password associated with *user_name*
`database_name`	The name of the database to connect to

Option	Description
`schema_name`	The name of the schema that the project reads and writes data to
`-v7`	Use in a DB2 7.x environment. The default operatin is for DB2 8.1.

DeleteEvents

Location:

```
TVISION_HOME/bin/DeleteEvents.[sh|bat]
```

Purpose:

Allow the user to delete events in EVENT tables and clean up contents in other project tables related to deleted events.

The utility (by default) does only delete the event data. In order to clean up other related table data like system model objects and transaction data, use the options -deletePiis and -deleteTxns described below. If you have deleted event data without these options, you can clean up the remaining data by running the DeleteEvents utility again with the option -cleanup.

Syntax:

```
DeleteEvents
-query QUERY -project PROJECT
  [-keepPiis] [-keepTxns] [-interationcount EVENTS]
  [-commit COUNT] [-timeout MINUTES][-force]
  [loglevel LOGLEVEL]

-from TIME -to TIME | -older TIME | -newer TIME] [-minage HOURS]
  [-project PROJECT | -schema SCHEMA]
  [-timezone TZID][-businesstxns[-state STATE][-result RESULT]]
  [-keepPiis] [-keepTxns]
  [-deleteStats [topology][business]][-commit COUNT]
  [-timeout MINUTES] [-force] [-loglevel LOGLEVEL]
  [-threadcount THREADS] [-nosplit]

-cleanup
  [-sysmodel][-transactions]
  [-commit COUNT][-timeout MINUTES][-force]
  [-loglevel LOGLEVEL]
```

Options:

Option	Description
`-project (-p) PROJECT`	Specifies the project name.
`-query (-q) QUERY`	Specifies the name of the query.
`-commit(-c) COUNT`	Commit database transactions after the specified COUNT. The default interval is 1000.
`-from(-f) STARTTIME`	Specifies the start time (Time format = mm/dd/yyyy hh:mm:ss.SSS, event time in the time zone you set (your local time zone by default) or, for relative time, n[hr|min])

Option	Description
`-to(-t) ENDTIME`	Specifies the end time (Time format = mm/dd/yyyy hh:mm:ss.SSS, event time (your local time zone by default) or, for relative time, n[hr|min])
`-older (-o) TIME`	Deletes events older than the specified time.
`-newer (-n) TIME`	Deletes events newer than the specified time.
`-minage (-m) HOURS`	By default, the **`DeleteEvents`** utility does not allow deleting events from the last 48 hours. Use this option to override the default. No events from the last number of hours specified by the HOURS value will be deleted.
`-schema(-s) SCHEMA`	Database schema for where events are stored.

`-businesstxns (-bt)`
`[-state STATE]`
`[-result RESULT]`
	Deletes only events of transactions with the specified transaction state or result.
	State values:
	-1=UNKNOWN
	0=PROCESSING
	1=COMPLETED
	Result values:
	-1=UNKNOWN
	0=FAILED
	1=SUCCESS

`-deleteStats (-ds)`
`[topology(t)]`
`[business(b)]`
	Deletes statistics data from the topology or business transaction statistics table. This is optional. The time period specifies the time slices for which statistics are deleted.

`-timezone (-z) TZID`	Timezone ID (for example, GMT, EST, etc.)
`-help(-h)`	Displays the usage message.
`-keepPiis (-kp)`	Do not delete program instance or CICS task objects from the system model table (DEFAULT: off; objects will get deleted).
`-keepTxns (-kt)`	Do not delete transactions from the transaction tables (DEFAULT: off; transactions will get deleted).

Option	Description

`-cleanup (-cl)`
`-sysmodel (-sys)`
`-transactions (-txns)`
	Cleans up the system model tables (removes all program instance objects which are no longer referenced) or transaction tables (removes all transaction objects which are no longer referenced). You must specify either system model tables or transactions.

`-iterationcount (-it) EVENTS`	Maximum number of events to process before cleaning out the system model and transaction tables. The default is 1000.
`-timeout (-ti) MINUTES`	Force deletion to end after the specified time. The default is 60 minutes.
`-force (-fc)`	Force deletion to stop immediately after a cancel or timeout. This option is always is effect in timestamp deletion mode (for example, with the `-older` option).
`-loglevel (-log) LOGLEVEL`	Log output level. The default is 0.
`-threadcount (-tc) THREADS`	Number of deletion threads (only applicable if using -older). The default is 4.
`-nosplit`	Disables deletion of the same table by multiple concurrent threads.

Notes:

Modes

This utility operates in three modes: deleting by query mode, deleting by time mode, and cleaning up tables. Therefore, the options are grouped into three sets.

- Deleting by time options include: -from, -to, -older, -newer, -timezone, -keepPiis, -keepTxns, -deleteStats, -businesstxns, -state, -result (and -threadcount, -nosplit if using -older). The -force option is always in effect when deleting by time.
- Deleting by query options include: -query, -keepPiis, -keepTxns
- The cleanup mode options include: -cleanup, -sysmodel, -transactions

Options that can be used in all three modes include: -c, -ti, -fc, -log. Otherwise, these sets of options may not be mixed. For example, the following commands are INVALID and will result in errors:

```
DeleteEvents -project MYPROJECT -query MYQUERY -business
DeleteEvents -project MYPROJECT -query MYQUERY -older
05/15/2003 03:00:00.000
```

Deleting Events While the Analyzer is Running

Execution of the **`DeleteEvents`** utility while the Analyzer is processing events is not recommended. However, sometimes it may not be feasible to shut down the Analyzer while **`DeleteEvents`** is running. In that case, make sure that you do **not** delete transactions for which events are likely to come in.

On many systems, deleting events from 2 days to a week in the past can ensure this scenario does not occur. However, you need to consider the duration of your business transactions to determine a period beyond which events can be deleted. For example, if your business transactions can span a day, do not delete events in the last day, if your business transactions can span a week, do not delete events in the last week while the Analyzer is running. The utility will (by default) not delete any events that are younger than 48 hours. If you are sure that no transaction duration will ever exceed a certain value, you can override this behavior by specifying the option –`minage` *`n`*, where *n* is the time buffer to exclude in hours.

Performance

Deleting by time mode provides better performance results than deleting by query. The performance of the deletion options can be ordered in the following way:

1. Deletion by query (low performance)
2. Deletion by time with options -from/to or -newer (medium performance)
3. Deletion by time with option -older (high performance)

The deletion by time with option -older is able to take advantage of timestamp columns present in the tables and achieves much higher performance than the other methods. Also, it can execute the deletion process with multiple threads (option -threadcount), where each thread will delete different portions of the tables at the same time. The default number of threads is 4. You should adjust this option to the number of CPUs (or higher) in your system.

The following conditions may also affect the performance of the **`DeleteEvents`** utility:

- Make sure your database log space is sufficient, and adjust the number of uncommitted database operations (option -commit) accordingly; otherwise, the deletion process will fail running out of logspace. Usually a larger commit count will yield better deletion performance.

- On DB2, you could encounter deadlocks if the deletion is using multiple threads and your database lock storage is low. In that case, please adjust the value of LOCKLIST and MAXLOCKS accordingly. On Oracle this is of no concern because Oracle will never escalate row locks to table locks. Alternately, use the option -nosplit to DeleteEvents. This disables the concurrent deletion of a single table by multiple threads.

Time Formats

Time formats may be absolute format or relative format. Absolute times are specified as mm/dd/yyyy hh:mm:ss.SSS. Relative times are specified as n[hr|min]. Relative time is offset to the time you run the script. For example “12 hr” means “12 hours before the current time.” You can specify the time in any of the following ways. The descriptions assume that the script was run at 9:00 a.m.

Example	Description
-f 2 hr -t 1 hr	Deletes events from 7:00 a.m. to 8:00 a.m.
-o 1 hr	Deletes events that came into the system before 8:00 a.m.
-n 1 hr	Deletes events within the last hour.

Examples:

1. Delete everything (event and related data) from project PROJECT which is older than 72 hours using 2 threads and commit database transactions after 10000 operations:

```
DeleteEvents -project PROJECT -older 72 hr -kp -kt
-ds b t -tc 2 -c 10000
```

2. Delete events from project PROJECT using query QUERY and commit the database transaction after deletion of every 10 events:

```
DeleteEvents –project PROJECT –query QUERY –c 10
```

3. Delete events from GMT time 11:00AM, July 10, 2003 to GMT time 8:00PM, July 11, 2003:

```
DeleteEvents –from 07/10/2003 11:00:00.000 –to
07/11/2003 20:00:00.000 –z GMT
```

4. Delete events collected before 10 minutes together with statistic data from topology table:

```
DeleteEvents –older 1 hr -minage 1 –statistics t
```

FlushStatusUtil

Location:

```
TVISION_HOME/bin/FlushStatusUtil.[sh|bat]
```

Description:

Shows and cleans the flush status of transaction analysis data and cached statistics for the Static Component Topology Analysis view. The status is stored in the database and determines whether recovery is needed when the Analyzer starts.

For cached statistics, the status contains the IDs of the events for which statistics and analysis data are missing in the database.

This utility obtains database connection information from the TransactionVision `Database.properties` file.

Syntax:

```
FlushStatusUtil –schema SCHEMA [-clean]
```

Options:

Option	Description
`-schema`	The name of the database schema to show or clean the flush status for.
`-clean`	Clean the current flush status of the analysis data and statistics (default action is ‘show’). The Analyzer will start up in a “clean” state without recovery, even though data might be missing in the database. Use this option with extreme caution.

Example Output:

The following output indicates that IDs 7916-8084 and the set of additional IDs are missing statistics and analysis data and need to be recovered at the next startup time:

```
Last written sequential_id in EVENT_LOOKUP: 8084

DBCACHE flush status:
Last flushed sequential_id: 7915
Additional ids not flushed: 7912,7911,7901,7892,7870,7872
```

```
STATISTICS flush status:
Last flushed sequential_id:7915
Additional ids not flushed: 7912,7911,7901,7892,7870,7872
```

The following output indicates that all statistics and analysis data has been flushed; no recovery is needed:

```
Last written sequential_id in EVENT_LOOKUP: 9640

DBCACHE flush status:
Last flushed sequential_id: 9640

STATISTICS flush status:
Last flushed sequential_id: 9640
```

ManageQueue

Location

```
TVISION_HOME/bin/ManageQueue.[sh|bat]
```

Description:

Use this multipurpose tool to manipulate and maintain TransactionVision event queues. This utility allows you to copy, move, and delete messages (usually TransactionVision related, but not limited to) from a queue. The messages can be transferred from the queue to another queue or archived into a jar file that can later be extracted and copied into a queue.

This utility also provides a means to query project related database IDs and summarize the contents of an event queue (or other queues).

The utility takes five different types of options, most of which are optional with the exception to the Action. In addition to the Actions, there are Queue Connection Options which provide information needed to connect to a given queue manager if needed.

Input and Output options are used to copy, move, or delete from a queue or jar file. An output option is only needed if there is a copy or move action performed.

Input Message Selection Options are special options only used in conjunction with the `-input_queue` option. This provides a means for processing the Action on only a subset of the messages on the queue. See Notes for more details.

Miscellaneous Options provide additional functionality. The `-verbose` option shows additional information during message processing to show progress status, and displays a summary of what was processed at the end of execution. The `-count` option allows you to process only the first given number of events from the Input.

Syntax:

```
ManageQueue [Queue Connection Options] [Message Selection
Options] <Action> [Input/Output Options] [Miscellaneous
Options]
```

Options:

Actions

Option	Description
`-show_db_ids`	Display all schema and communication link IDs from the database defined in `Database.properties`.
`-show_event_ids`	Display all TransactionVision event IDs from a given Input.
`-copy [SCHEMA COMMLINK]`	Copy messages from Input to Output using Message Selection Options. Optionally targets the messages to a new SCHEMA and COMMLINK. If no SCHEMA and COMMLINK are specified, all messages are copied using their original message IDs.
`-move [SCHEMA COMMLINK]`	Move messages from Input to Output using Message Selection Options. Optionally targets the messages to a new SCHEMA and COMMLINK. If no SCHEMA and COMMLINK are specified, all messages are moved using their original message IDs.
`-delete`	Deletes messages from Input using Message Selection Options.

Queue Connection Options

Option	Description
`-qm QUEUEMANAGER`	Queue manager to connect to
`-host (.h) HOST`	Host name for client connection to queue manager
`-port (-p) PORT`	Listener port for client connection to queue manager
`-channel (-c) CHANNEL`	Client connection channel to queue manager

Input/Output Options

Option	Description
`-input_file (-if) FILE`	Input file
`-input_queue (-iq) QUEUE`	Input queue
`-output_file (-of) FILE`	Output file
`-output_queue (-oq) QUEUE`	Output queue

Input Queue Message Selection Options

Option	Description
`-commlink ID|NAME`	All TransactionVision events targeted to a given link ID or name
`-schema ID|NAME`	All TransactionVision events targeted to a given schema ID or name
`-db_name NAME`	All TransactionVision events targeted to a given database name
`-db_host IP|HOST`	All TransactionVision events targeted to a given database host (IP or name)
`-erroneous`	All messages not recognized as TransactionVision events
`-alltv`	All messages recognized as TransactionVision events
`-otherdbs`	All TransactionVision events targeted to databases other than the one defined in `Database.properties`
`-orphaned`	All TransactionVision events targeted to schema and/or communication link IDs which no longer exist
`-valid`	All TransactionVision events targeted to valid schema and communication link IDs

Miscellaneous Options

Option	Description
`-count COUNT`	Process a specified limited number of messages.
`-verbose (-v)`	Print verbose output.
`-help`	Print usage.

Notes:

Showing Event IDs

With the use of `-show_event_ids`, you can display a summary listing of all TransactionVision events on a given Input Queue. **`ManageQueue`** summarizes them by showing a count of each message and which database, schema, and communication link they are targeted for.

The `-show_event_ids` option also determines whether the messages are TransactionVision events with a valid destination (valid target schema and communication link on the defined database) and reports them as “Valid.”

Events which are targeted to a schema and/or communication link which no longer exist are shown as "Orphaned." And events targeted to another database which may or may not be valid are shown as "Other DB."

The `-show_event_ids` option also shows a count of events not recognized as TransactionVision events as "Erroneous Messages."

Input and Output

Input and Output can be combinations of queues and/or jar files. The following limitations apply to Input Files:

- You cannot use `-show_event_ids` with Input Files.
- You cannot use `-move` with Input Files. Use `-copy` instead.
- You cannot use `-delete` with Input Files.

When using an Input Queue and/or Output Queue, you must provide Queue Connection Options. If only a queue manager is specified (`-qm`), server binding is used. For client connections, use `-host`, `-port`, and `-channel`. The `-port` option is optional as the default port is 1414 when using the `-host` and `-channel` options.

`ManageQueue` only supports connection to one queue manager. If there is a need you transfer messages from a queue on one queue manager to a queue on a different queue manager, use a remote queue for the destination queue, or transfer the messages to an Output File. Then transfer them from the file to the destination queue.

Message Selection

When using an Input Queue, you can specify Message Selection Options to process only a subset of the messages on the specified Input Queue. There are two types of message selection:

- Discrete Selectors
- `-commlink`
- `-schema`
- `-db_name`
- `-db_host`
- Validity Selectors
- `-erroneous`
- `-alltv`
- `-otherdbs`
- `-orphaned`
- `-valid`

In you use any Discrete Selectors, all Validity Selectors are ignored, with the exception of `-erroneous` because it does not apply to TransactionVision events. Discrete Selectors are ANDed so all Discrete Selectors specified must match in order for the message to be processed.

If no Discrete Selectors are used, the specified Validity Selectors are ORed. All messages matching any of the specified Validity Selectors will be processed.

If no selectors are used, **all** messages are processed.

Schemas and Communication Links

Any option that requires the user to specify a schema and/or communication link can take either the database ID or name. Surround names containing spaces with quotation marks.

Copying and Moving Messages

When copying or moving messages to a queue, it may be necessary to specify new targeted schema and communication link IDs or names. This is especially useful when the messages have been orphaned (the targeted schema and/or communication link does not exist anymore). If no schema and communication link is specified, each message's original event information is used.

When copying or moving messages to a jar file, new schema and communication link IDs or names are not required. If they are specified, they are ignored by **`ManageQueue`**.

Examples:

Example 1:

Remove all messages on the event queue which are not being processed. This includes non-TransactionVision (erroneous) messages and events that are targeted to a schema and/or communication link which no longer exists (orphaned):

```
ManageQueue.sh -qm tv.qmgr -input_queue TVISION.EVENT.QUEUE
-delete -erroneous -orphaned -verbose
```

Example 2:

Show all messages on the event queue:

```
ManageQueue.sh -qm tv.qmgr -input_queue TVISION.EVENT.QUEUE
-show_event_ids
```

This command results in output similar to the following:

```
Count    Database Name   Database Host IP   CommLink ID  Schema ID    Validity
```

```
-----    -------------    ----------------    -----------   ---------     --------
  284    TVISION          172.22.22.46                  2           1     Other DB
   22    TVDB             172.22.22.106                 6           1     Orphaned
    7    TVDB             172.22.22.106                 1           1     Valid
   17    TVDB             172.22.22.106                 3           2     Valid
```

Example 3:

Show all Database IDs:

```
ManageQueue.sh -show_db_ids
```

This command results in output similar to the following:

```
Schemas:
  1: TVISION
  2: TEST

Communication Links:
  1: TVision - tv.qmgr
  3: Test - TransactionVision.qmgr
```

Example 4:

Move all TransactionVision events from the TransactionVision Exception Queue to the event queue. Target them to the TVISION schema and the TVision – TransactionVision.qmgr comunication link.

```
ManageQueue.sh -qm tv.qmgr -input_queue
TVISION.EXCEPTION.QUEUE -output_queue TVSISION.EVENT.QUEUE
-move “TVISION” “TVISION - tv.qmgr” -alltv
```

or

```
ManageQueue.sh -qm tv.qmgr -input_queue
TVISION.EXCEPTION.QUEUE -output_queue TVISION.EVENT.QUEUE -
move 1 1 -alltv
```

Example 5:

Retarget all events not being collected because they are currently targeted to a schema and/or communication link which no longer exists (orphaned):

```
ManageQueue.sh -qm tv.qmgr -input_queue TVISION.EVENT.QUEUE
-output_queue TVISION.EVENT.QUEUE -move 1 1 -verbose
```

or

```
ManageQueue.sh -qm tv.qmgr -input_queue TVISION.EVENT.QUEUE
-output_queue TVSION.EVENT.QUEUE -move “TVISION” “TVision -
tv.qmgr” -verbose
```

Example 6:

Move all TransactionVision events from the TransactionVision Exception Queue to their respective event queue. This example assumes that the schema TVISION uses the communication link “TVision – tv.qmgr” which in turn uses TVISION.EVENT.QUEUE, and schema TVISION2 uses communication link “Test – tv.qmgr” which in turn uses TVISION.TEST.QUEUE.

```
ManageQueue.sh –qm tv.qmgr –input_queue
TVISION.EXCEPTION.QUEUE –output_queue TVISION.EVENT.QUEUE
-move –schema “TVISION” –commlink “TVision – tv.qmgr”

ManageQueue.sh –qm tv.qmgr –input_queue
TVISION.EXCEPTION.QUEUE –output_queue TVISION.TEST.QUEUE –
move –schema “TEST” –commlink “Test – tv.qmgr”
```

Example 7:

Archive all messages on the event queue into a jar file while leaving them on the queue:

```
ManageQueue.sh –qm tv.qmgr –input_queue TVISION.EVENT.QUEUE
–output_file events.jar –copy –verbose
```

Example 8:

Replay all events stored in a jar file for the TVISION schema to the “TVision – tv.qmgr” communication link:

```
ManageQueue.sh –qm tv.qmgr –input_file events.jar
-output_queue TVISION.EVENT.QUEUE –copy “TVISION’ “TVision
– tv.qmgr” -verbose
```

or

```
ManageQueue.sh –qm tv.qmgr –input_file events.jar –
output_queue TVISION.EVENT.QUEUE –copy 1 1 -verbose
```

OracleRunStats

Location:

```
TVISION_HOME/bin/OracleRunStats.[sh|bat]
```

Description:

Important! Oracle 10g has a built-in job scheduler that automatically collects statistics. You do not need to run this script for version 10g.

Updates statistics about the physical characteristics of a table and the associated indexes. These characteristics include number of records, number of pages, and average record length. The optimizer uses these statistics when determining access paths to the data.

This command is called when a table has had many updates, such as when data is continuously collected into Oracle by the TransactionVision Analyzer. It could result in large performance gains in queries made by TransactionVision views and reports, as well as queries made internally by the TransactionVision Analyzer to correlate events.

This script can be set up to run as a scheduled batch job using either the UNIX **`cron`** facility or the Windows scheduler.

Important! While this script is running, TransactionVision Analyzer processing slows down.

This script typically should be run daily, though the frequency of execution could be higher for higher message rates.

Run this script from a user account that has privileges to perform database operations. This script must be run under an Oracle user account.

Important! This script needs to be customized based on your system to invoke the correct environment initialization script like .profile or .bashrc, and to set the correct Oracle installation location and the correct TVISION_HOME location. Additionally, the file `OracleRunStats.sql` must be in the current directory when running this script.

Syntax:

```
OracleRunStats user_name passwd database_name schema_name
```

Options:

Option	**Description**
`user_name`	The Oracle user account to run the script under.

Option	Description
`passwd`	The password associated with *user_name*
`database_name`	The name of the database to connect to
`schema_name`	The name of the schema that the project reads and writes data to

ServicesManager

Location:

```
TVISION_HOME/bin/ServicesManager.[sh|bat]
```

Purpose:

Manage the TransactionVision Analyzer service. The Analyzer uses an embedded RMI registry so that Analyzers may be controlled by the TransactionVision web user interface running on remote hosts.

Syntax:

```
ServicesManager
 {(-start [-project (-proj) PROJECTNAME]) |
  (-stop [-quiesce][-project (-proj) PROJECTNAME]
[-keepcollect]) |
  (-exit [-quiesce][-keepcollect]) |
  (-status [-project (-proj) PROJECTNAME]) |
  (-killserver) |
  (-reconfig {classification | logging | analyzer}) |
  (-versioninfo)
  ([-host HOST][-rmiregp PORTNUMBER][-debug])
```

Options:

Option	Description
`-start`	Starts the Analyzer process if it is not already running.
`-stop`	The Analyzer stops collecting event data.
`-exit`	The Analyzer stops collecting event data, then the process exits.
`-quiesce`	The default behavior of the Analyzer on a stop or exit is to immediately close down collection. If this flag is set, the Analyzer clears out any pending events in the event queue before stopping or exiting. Note that if there is a large event backlog, the Analyzer may take some time to stop or exit.
`-keepcollect`	Do not send stop message to Sensor. Used in combination with the –stop or –exit option so that the Sensor keeps collecting.
`-status`	Reports the current Analyzer status.

Option	Description
`-reconfig`	Reloads Analyzer configuration settings (classification/logging/all settings) without stopping event collection. ● `classification` - Re-initializes the classfication rule engine and reloads the Analyzer classification files reading in any changes that may have been made to that file. ● `logging` - Reloads the log4j XML configuration files in the directory <TVISION_HOME>/config/logging. ● `analyzer` - Re-initializes the Analyzer by reloading most Analyzer settings in the Analyzer.properties file, all beans described in the Beans.xml file, re-initializing logging and all XML based rule files. Settings in the"Collection Properties" section of the `Analyzer.properties` file, except the write_to_buffer_table property, are not reloaded by the Analyzer with the `-reconfig` option.
`-versioninfo`	Returns Analyzer version information.
`-killserver`	Shuts down the Analyzer immediately. This flag is not recommended; -exit is the preferred method for shutting down the Analyzer cleanly.
`-project (-proj) PROJECTNAME`	Name of the project for the specified command. If the project name contains a space, enclose the project name in double quotation marks (for example, `-proj “Project Name”`). The project must have a communication link in order for the Analyzer to process events. Only the -start, -stop, and -status commands be performed on a single project. This option cannot be used in combination with the -host or -rmiregp options. When the -project option is used, the Analyzer host and port is looked up from the database.
`-host HOST`	Name of the host where the Analyzer runs. Can be either name or IP address. Local host is used if not specified.

Option	Description
`-rmiregp PORTNUMBER`	Port number on which the Analyzer listens for RMI connections. The default value is the value specified by the analyzer_port property in the `Analyzer.properties` file. This option only takes effect when communicating with an Analyzer that is already running; the Analyzer always uses the value specified in `Analyzer.properties` when starting up.
`-debug`	Start the Analyzer process in debug mode.

Examples:

1. Start project PROJECT:

   ```
   ServicesManager -start -proj PROJECT
   ```

2. Stop Analyzer on host HOST:

   ```
   ServicesManager -stop -host HOST
   ```

TimeServer

Location:

`TVISION_HOME/bin/TimeServer.[sh|bat]`

Purpose:

In TIBCO and generic JMS environments, TransactionVision is unable to determine time skew across a communication link using a COA as it can with WebSphere MQ JMS. Instead, a time server reports the current time on the host where it is running. Any TransactionVision component can connect to it via TCP/IP and get the time skew from the current host to the host running the time server.

The Analyzer itself can act as a time server, or it can be run on a different host. To run the time server within the Analyzer, modify the `Analyzer.properties` file as follows:

- Set the `time_server` property to `on`
- Optionally, set `time_server_port` to the listening port you would like it to use. The default port is 9037.

Use the **`TimeServer`** utility to run the time server stand-alone.

The time server is configured per communication link found on the Time Server page in the Communication Link Wizard and under the Time Server Definition in the Edit Communication Link page. This definition tells the Analyzer and Sensors where the tie server is in order to calculate time skew.

Syntax:

```
TimeServer[.sh|.bat] [PORT]
```

Options:

Option	Description
PORT	Optionally, specify the listening port for the time server to use. The default is 9037.

ValidateXml

Location:

```
TVISION_HOME/bin/ValidateXml.[sh|bat]
```

Description:

Validates TransactionVision XML configuration files. Currently only the files `TransactionDefinition.xml`, `EventCorrelationDefinition.xml`, and `LocalTransactionDefinition.xml` can be validated. It is necessary to edit the XML file and remove the comments around the DTD declaration.

Syntax:

```
ValidateXML XML_filename
```

Appendix B
Technical References

- IBM OS/390 or z/OS MVS Initialization and Tuning Reference
- MVS Initialization and Tuning Reference
- IBM DB2 Administration Guide
- WebSphere MQ Application Programming Guide (SC33-0807-08)
- Managing WebLogic Security

Appendix C
Sensor Messages

Sensors log error messages in the system log of the computer where they are installed. UNIX system log, the Windows event log, the z/OS operator console log, or the OS/400 user job log. In the messages below, %s and %1-n represent text strings that are filled in with appropriate information at runtime.

```
SLMS101E: TransactionVision Sensor: failed to allocate space for %s
```
Out of memory error. Contact Bristol Support.

```
SLMS102E: TransactionVision Sensor: failed to reallocate space for %s
```
Out of memory error. Contact Bristol Support.

```
SLMS103E: TransactionVision Sensor: failed to create mutex lock
```
Contact Bristol Support.

```
SLMS104E: TransactionVision Sensor: failed to lock mutex
```
Contact Bristol Support.

```
SLMS105E: TransactionVision Sensor: failed to unlock mutex
```
Contact Bristol Support.

```
SLMS106E: TransactionVision Sensor: failed to destroy mutex lock
```
Contact Bristol Support.

```
SLMS107E: TransactionVision Sensor: error processing %s
```
Error processing given field within a configuration message.

```
SLMS108E: TransactionVision Sensor: Cannot connect to configuration queue
          manager %s: %s
```
The specified WebSphere MQ error occurred. See WebSphere MQ documentation for explanation.

```
SLMS109E: TransactionVision Sensor: Cannot open configuration queue %s on
          queue manager %s: %s
```

The specified WebSphere MQ error occurred. See WebSphere MQ documentation for explanation.

`SLMS10AE: TransactionVision Sensor: Cannot reconnect to queue manager %s after user’s MQDISC call: %s`

The specified WebSphere MQ error occurred. See WebSphere MQ documentation for explanation.

`SLMS10BE: TransactionVision Sensor: Cannot reopen configuration queue %s on queue manager %s after user’s MQDISC call: %s`

The specified WebSphere MQ error occurred. See WebSphere MQ documentation for explanation.

`SLMS10CE: TransactionVision Sensor: Cannot connect event queue manager %s: %s`

The specified WebSphere MQ error occurred. See WebSphere MQ documentation for explanation.

`SLMS10DE: TransactionVision Sensor: Cannot open event queue %s on queue manager %s: %s`

The specified WebSphere MQ error occurred. See WebSphere MQ documentation for explanation.

`SLMS10EE: TransactionVision Sensor: %d unsuccessful attempts were made to send an event message to queue (‘%s’ ‘%s’): %s Continuing to retry every %d ms...`

Sensor was unable to put an event message to the given event queue. Often, this is a result that occurs if the event queue becomes full if the Sensor is producing event messages faster than the Analyzer can pull them off the queue. The Sensor will continue to try to put to the event queue while the Analyzer is catches up. For information about configuring retry attempts, see page 84.

`SLMS10FE: TransactionVision Sensor: Timed out (%d s) attempting %u times to put event message to queue (‘%s’ ‘%s’)”`

Sensor was unable to put an event message to the given queue after the stated number of attempts. Often the is a result that occurs if the event queue is full. For information about configuring retry attempts, see page 84.

`SLMS110I: TransactionVision Sensor: successfully put an event message on queue (‘%s’ ‘%s’) after %d unsuccessful attempts`

Informational message stating that the Sensor has successfully put an event message on the event queue after it had to retry multiple times. For information about configuring retry attempts, see page 84.

`SLMS111E: TransactionVision Sensor: tried to use invalid handle for putting to event queue (‘%s’ ‘%s’)`

An invalid handle was used to try to put to the event queue. This can occur if an application corrupts or passes a bad Hconn value to subsequent WebSphere MQ calls. The result is no event is sent to the Analyzer.

SLMS112E: `TransactionVision Sensor: Event message too big for queue (‘%s’ ‘%s’) max message length. This error is reported only once per event queue and could be occurring more than once. Please increase max message length setting on the event queue.`

The event queue max message length size is too small for an event message. For information about setting maximum message length, see “Edit a Communication Link or Template” on page 89.

SLMS113W: `TransactionVision Sensor: attempt to disable crossing exit sensor failed”`

An internal error has occurred. Contact Bristol Support.

SLMS114W: `TransactionVision Sensor: crossing exit sensor has been disabled since both are active”`

If the standard TransactionVision WebSphere MQ Sensor library is active, the Crossing Exit Sensor is automatically disabled. Only one type of WebSphere MQ Sensor can be active at any time.

SLMS115W: `TransactionVision Sensor: unexpected internal error - Sensor turned off.`

An internal error has occurred. The WebSphere MQ application will continue to run, but events will no longer be reported. Contact Bristol Support.

SLMS116W: `TransactionVision Sensor: failed to close %s queue ‘%s’ ‘%s’`

The specified WebSphere MQ error occurred. See WebSphere MQ documentation for explanation.

SLMS117W: `TransactionVision Sensor: failed to get %s`

The specified WebSphere MQ error occurred. See WebSphere MQ documentation for explanation.

SLMS118W: `TransactionVision Sensor: error removing configuration message from queue (‘%s’ ‘%s’): %s`

Failed to destructively get an expired or invalid configuration message from the configuration queue because of the specified WebSphere MQ error.

SLMS119W: `TransactionVision Sensor: cannot extract %s from configuration message`

Failed to extract a given field from a configuration message. Possibly an invalid configuration message.

`SLMS11AE: TransactionVision Sensor: error in communication infrastructure %s: %s`

An error occurred with the TransactionVision communication infrastructure. A WebSphere MQ error is included with the error.

`SLMS11BI: TransactionVision Sensor: errors on queue manager (‘%s’) will be supressed until successful communication resumes for this connection.”`

Informational message indicating that the Sensor will discontinue logging errors on the specified queue manager until it is able to communicate with the queue manager once again.

`SLMS11CI: TransactionVision Sensor: Successful communication has been made to the queue manager (‘%s’).  Logging will resume.”`

Informational trace message indicating that the Sensor is able to communication with the specified queue manager. Error logging had been supressed for the queue manager while the Sensor was unable to communicate with it, but will now resume.

`SLMS11DI: TransactionVision Sensor: errors on configuration queue (‘%s’ ‘%s’) will be supressed until successful communication resumes”`

Informational message indicating that the Sensor will discontinue logging errors on the specified configuration queue until it is able to communicate with the queue once again.

`SLMS11EI: TransactionVision Sensor: Successful communication has been made to the configuration queue (‘%s’ ‘%s’).  Logging will resume.”`

Informational trace message indicating that the Sensor is able to communication with the specified configuration queue. Error logging had been supressed for the queue while the Sensor was unable to communicate with it, but will now resume.

`SLMS11FW: TransactionVision Sensor: failed to unmarshall configuration message`

The Sensor failed to unmarshall a configuration message. Possibly an invalid configuration message.

`SLMS120W: TransactionVision Sensor: invalid %s version`

An invalid version of a given WebSphere MQ structure has been encountered when constructing the event message.

`SLMS121W: TransactionVision Sensor: invalid message on configuration queue (‘%s’ ‘%s’) (not minimum configuration message size) (putting to dead letter queue)`

An invalid configuration message has been encountered on the configuration queue. The Sensor will put the invalid message on the exception message queue.

```
SLMS122W:TransactionVision Sensor: invalid message on configuration queue
         (‘%s’ ‘%s’) (configuration length does not match message length)
         (putting to dead letter queue)”
```

An invalid configuration message has been encountered on the configuration queue. The Sensor will put the invalid message on the exception message queue.

```
SLMS123W:TransactionVision Sensor: invalid message on configuration queue
         (‘%s’ ‘%s’) (product name incorrect in configuration message)
         (putting to dead letter queue)”
```

An invalid configuration message has been encountered on the configuration queue. The Sensor will put the invalid message on the exception message queue.

```
SLMS124W: TransactionVision Sensor: unsupported configuration message
          version found on (‘%s’ ‘%s’) (putting to dead letter queue)
```

An invalid configuration message has been encountered on the configuration queue. The Sensor will put the invalid message on the exception message queue.

```
SLMS125W:TransactionVision Sensor: failed to remove configuration message
          from configuration queue (‘%s’ ‘%s’) and put to dead letter
          queue (‘%s’ ‘%s’): %s”
```

The Sensor was unable to remove a configuration message from the configuration queue and place it on the exception message queue. A WebSphere MQ error accompanies this message.

```
SLMS126W: TransactionVision Sensor: invalid data range value in
          configuration message
```

Contact Bristol Support.

```
SLMS127W: TransactionVision Sensor: missing expected token separator in
          configuration message when parsing %s
```

Contact Bristol Support.

```
SLMS128W: TransactionVision Sensor: missing expected space separator in
          configuration message when parsing %s
```

Contact Bristol Support.

```
SLMS129W: TransactionVision Sensor: missing expected subsection separator
          in configuration message when parsing %s
```

Contact Bristol Support.

```
SLMS12AW: TransactionVision Sensor: missing expected section separator in
          configuration message when parsing %s
```

Contact Bristol Support.

```
SLMS12BW: TransactionVision Sensor: missing expected data range dash in
          configuration message
```

Contact Bristol Support.

```
SLMS12CE: TransactionVision Sensor: bad checksum for %s
```

Contact Bristol Support.

```
SLMS12DI: TransactionVision Sensor: opening configuration queue ‘%s’ ‘%s’
```

Informational trace message.

```
SLMS12EI: TransactionVision Sensor: opening event queue ‘%s’ ‘%s’
```

Informational trace message.

```
SLMS12FI: TransactionVision Sensor: got configuration message from ‘%s’
          ‘%s’
```

Informational trace message.

```
SLMS130I: TransactionVision Sensor: invalidating all previous
          configuration messages on ‘%s’ ‘%s’ from source analyzer
```

Informational trace message. Invalidating and removing all configurations from a given Analyzer previous to the configuration message currently being processed.

```
SLMS131I: TransactionVision Sensor: invalidating specified configuration
          message on ‘%s’ ‘%s’ from source analyzer
```

Informational trace message. Invalidating and removing a given configuration message from a given Analyzer specified by the configuration message currently being processed.

```
SLMS132I: TransactionVision Sensor: removing invalidated configuration
          message from ‘%s’ ‘%s’ MsgId: %s CorrelId: %s
```

Informational trace message.

```
SLMS133I: TransactionVision Sensor: removing expired configuration message
          from ‘%s’ ‘%s’ current GMT: %s expire time:  %s MsgId: %s
          CorrelId: %s
```

Informational trace message.

```
SLMS134I: TransactionVision Sensor: already have this configuration
          message from ‘%s’ ‘%s’
```

Informational trace message. A duplicate configuration message has been found on the configuration queue.

```
SLMS135I: TransactionVision Sensor: event message (%u bytes) too large for
          event queue. Removing user data to make event message smaller.
```

The event will be included in the project, but the user data buffer will not be available.

```
SLMS136I: TransactionVision Sensor: this host (‘%s’) does not appear in
          filter rule
```

The host the Sensor is running on does not match the collection filter criteria for hosts.

```
SLMS137I: TransactionVision Sensor: this user name (‘%s’) does not appear
          in filter rule
```

The user name associated with the message does not match the collection filter criteria for user names.

```
SLMS138I: TransactionVision Sensor: this program (‘%s’) does not appear in
          filter rule
```

The program name of the program using the Sensor does not match the collection filter criteria.

```
SLMS139I: TransactionVision Sensor: current time is out of filter
          start/stop time range:   current GMT: %s start time:      %s
          stop time: %s
```

The current time does not match the collection time specified in the collection filter.

```
SLMS13AI: TransactionVision Sensor: this CICS SYSID (‘%s’) does not appear
          in filter rule
```

The CICS SYSID does not match the collection filter criteria.

```
SLMS13BI: TransactionVision Sensor: this CICS transaction id (‘%s’) does
          not appear in filter rule
```

The transaction id does not match the collection filter criteria.

```
SLMS13CI: TransactionVision Sensor: this job name (‘%s’) and step (‘%s’)
          pair does not appear in filter rule
```

The z/OS Batch job name and step combination does not match the collection filter criteria.

```
SLMS13DI: TransactionVision Sensor: the job name (‘%s’) does not appear in
          filter rule
```

The OS/400 job name does not match the collection filter criteria.

```
SLMS13EI: TransactionVision Sensor: the IMS identifier (‘%s’) does not
          appear in filter rule
```

The IMS identifier does not match the collection filter criteria.

```
SLMS13FI: TransactionVision Sensor: the IMS region type (‘%s’) does not
          appear in filter rule
```

The IMS region type does not match the collection filter criteria.

```
SLMS140I: TransactionVision Sensor: the IMS region identifier (‘%s’) does
          not appear in filter rule
```

The IMS region identifier does not match the collection filtering criteria.

```
SLMS141I: TransactionVision Sensor: the IMS transaction name (‘%s’) does
          not appear in filter rule
```

The IMS transaction name does not match the collection filtering criteria.

```
SLMS142I: TransactionVision Sensor: the IMS PSB name ('%s') does not
          appear in filter rule
```

The IMS PSB name does not match the collection filtering criteria.

```
SLMS143I: TransactionVision Sensor: API name ('%s') does not appear in
          filter rule
```

The WebSphere MQ API does not match the collection filter criteria.

```
SLMS144I: TransactionVision Sensor: completion code (%u) does not appear
          in filter rule
```

The WebSphere MQ API completion code does not match the collection filter criteria.

```
SLMS145I: TransactionVision Sensor: reason code (%u) does not appear in
          filter rule
```

The WebSphere MQ API reason code does not match the collection filter criteria.

```
SLMS146I: TransactionVision Sensor: technology ('%s') in configuration
          does not match this technology ('%s')
```

The event technology does not match the collection filter criteria.

```
SLMS147I: TransactionVision Sensor: queue manager does not appear in
          filter rule:      '%s'"
```

The queue manager does not match the data collection filter criteria.

```
SLMS148I: TransactionVision Sensor: queue manager and/or object name does
          not appear in filter rule: (Conn: '%s') '%s' '%s'
```

The queue manager or WebSphere MQ object name does match the collection filter criteria.

```
SLMS149I: TransactionVision Sensor: ReplyTo queue manager and/or queue
          name does not appear in filter rule: '%s' '%s'"
```

The ReplyTo queue manager or queue name does not match the collection filter criteria.

```
SLMS14AI: TransactionVision Sensor: severity (%d) does not appear in
          filter rule
```

The BTTRACE severity does not match the collection filter criteria.

```
SLMS14BI: TransactionVision Sensor: collection mask does not match %s for
          %s
```

The specified entity does not match the collection filter criteria.

```
SLMS14CI: TransactionVision Sensor: this MQSI broker name ('%s') does not
          appear in filter rule
```

The MQSI broker name does not match the collection filter criteria.

```
SLMS14DI: TransactionVision Sensor: this MQSI message flow name ('%s')
          does not appear in filter rule
```

The MQSI message flow name does not match the collection filter criteria.

`SLMS14EI: TransactionVision Sensor: MQCMIT has been filtered out because all other events in the unit of work have been filtered out”`

The MQCMIT was filtered out as specified in the collection filter criteria.

`SLMS14FI: TransactionVision Sensor: Exit part of MQDISC has been filtered out”`

The MQDISC exit was filtered out as specified in the collection filter criteria.

`SLMS150I: TransactionVision Sensor: browsing MQGET has been filtered out`

The “Do not send browsing MQGET” option is selected in the collection filter criteria.

`SLMS151I: TransactionVision Sensor: ignoring unmatched configuration message from ‘%s’ ‘%s’`

Ignoring a configuration message because a standard collection filter criteria did not match with the running Sensor.

`SLMS152I: TransactionVision Sensor: creating filter rule from matched configuration message from ‘%s’ ‘%s’ expire time:  %s MsgID: %s CorrelId: %s`

The Sensor matches the standard collection filter criteria of a given configuration message.

`SLMS153I: TransactionVision Sensor: removing expired filter rule from memory current GMT: %s expire time:   %s`

A configuration message that has already been retrieved from the configuration queue has expired.

`SLMS154I: putting event message on event queue (‘%s’ ‘%s’) MsgId: %s CorrelId: %s`

Informational trace message.

`SLMS155I: Management Initiated for MQSeries API Crossing Exit`

Informational trace message.

`SLMS156I: TransactionVision Sensor: Disabling MQSeries API Crossing Exit`

Informational trace message.

`SLMS157I: TransactionVision Sensor: Enabling MQSeries API Crossing Exit`

Informational trace message.

`SLMS158I: TransactionVision Sensor: SLMC Exiting`

Informational trace message.

```
SLMS159I: TransactionVision Sensor: The Sensor is being used with another
          TransactionVision component. Please remove the Sensor path from
          the library search path before starting the analyzer or Java
          sensor.”
```

The system library path environment variable has been set to load the Sensor instead of the real WebSphere MQ library. This library path should be set only for applications being monitored, but not for the Analyzer or the Servlet, JMS, or EJB Sensors.

```
SLMS15AE: TransactionVision Sensor: An unexpected error occured in an API
          exit.  The sensor will be turned off."
```

An internal error has occurred. Contact Bristol Support.

```
SLMS15BE: TransactionVision Sensor: An unexpected error occured.  The
          sensor will be turned off."
```

An internal error has occurred. Contact Bristol Support.

```
SLMS15CE: TransactionVision Sensor: An unexpected error occured.  The
          sensor will be turned off.  Please contact Bristol Technology
          with the stack trace that follows. %s"
```

An internal error has occurred. Contact Bristol Support, providing the stack trace information that follows the error message.

```
SLMS15DE: TransactionVision Sensor: An unexpected error occured.  The
          sensor will be turned off.  A failure occured while trying to
          produce a stack trace: %s%u"
```

An internal error has occurred. Contact Bristol Support.

```
SLMS15EE: TransactionVision Sensor: An unexpected error occured.  The
          sensor will be turned off.  A failure occured while trying to
          produce a stack trace: %s"
```

An internal error has occurred. Contact Bristol Support.

```
SLMS15FE: TransactionVision Sensor: invalid pointer passed to API exit
          ('%s'): %s"
```

An internal error has occurred. Contact Bristol Support.

```
SLMS160E: TransactionVision Sensor: NULL parameter passed to API exit”
```

An internal error has occurred. Contact Bristol Support.

```
SLMS161E: TransactionVision Sensor: NULL exit parameters passed to API
          exit
```

An internal error has occurred. Contact Bristol Support.

```
SLMS162E: TransactionVision Sensor: NULL exit user area passed to API exit
```

An internal error has occurred. Contact Bristol Support.

```
SLMS163E: TransactionVision Sensor: failed to register API exit: %d”
```

An internal error has occurred. Contact Bristol Support.

SLMS164E: TransactionVision Sensor: failed to allocate space for %s, package size=%d,package count=%d,max size=%d.”

The Sensor was unable to alloacte sufficient space for the event package because the package size exceeds the maximum size.

SLMS165E: TransactionVision Sensor: Failed to connect to queue manager ('%s') for WebSphere MQ object resolution: (%d) %s"

The Sensor was unable to connect to the specified queue manager.

SLMS166E: TransactionVision Sensor: Failed to disconnect from queue manager ('%s') for WebSphere MQ object resolution: (%d) %s"

The Sensor was unable to disconnect from the specified queue manager.

SLMS201E: TransactionVision Sensor: cannot initialize MQSeries library

A general error reporting that the loading and initialization of the real WebSphere MQ library failed. WebSphere MQ may not be properly installed, or the library may not be in the library search path.

SLMS251E: TransactionVision Sensor: could not connect to queue manager: ‘%s’”

The Sensor was unable to connect to the queue manager (a WebSphere MQ message is supplied). For information about setting connection retry attempts, see “Edit a Communication Link or Template” on page 89.

SLMS252E: TransactionVision Sensor: could not connect to queue manager ‘%s’: %s The Sensor will attempt to reconnect after %d seconds. Events may not be collected during this time.”

The Sensor was unable to connect to the queue manager (a WebSphere MQ message is supplied). It will attempt to reconnect, but no events will be collected until it succeeds. For information about setting connection retry attempts, see “Edit a Communication Link or Template” on page 89.

SLMS253E: TransactionVision Sensor: Error marshalling event data: null pointer ‘%s’”

Contact Bristol Support.

SLMS254E: TransactionVision Sensor: Unknown error occurred (type=%d), Event Dispatcher is shutting down.”

Contact Bristol Support.

SLMS255I: TransactionVision Sensor: The routine that generated abend in Event Dispatcher is ‘%.80s’, and offset is %08X. Please contact Bristol Support with dump information.”

Contact Bristol Support.

SLMS256E: TransactionVision Sensor: Wrong number of parameters. Please specify Queue Manager name only.”

Too many parameters were specified; specify the Queue Manager name only.

`SLMS257E: TransactionVision Sensor: Input queue manager name (%s) length is bigger than %d (MQ limit).”`

The queue manager name is too long.

`SLMS258E: TransactionVision Sensor: Event Dispatcher initialization failed.”`

Contact Bristol Support.

`SLMS259I: TransactionVision Sensor: Event Dispatcher initialization completed.”`

Informational trace message.

`SLMS25AI: TransactionVision Sensor: Event Dispatcher is ending as requested by TVISIONB.”`

Informational trace message.

`SLMS25BE: Unknown function ID."`

Contact Bristol Support.

`SLMS25CE: TransactionVision Sensor: Unknown return code from SLMXGNE."`

Contact Bristol Support.

`SLMS271E: WrongNumberOfParameters: E: "%s%03XE %s:TransactionVision Sensor: wrong number of parameters."`

The Sensor command contains an incorrect number of parameters. See the “Configuring the CICS Sensor,” chapter in the *TransactionVision Administration Guide* for instructions on starting and stopping the CICS Sensor.

`SLMS272E: TransactionVision Sensor: input queue manager name (%s) length is bigger than %d (MQ limit)."`

The specified queue manager name exceeds the allowed length.

`SLMS273E: TransactionVision Sensor: Failed to allocate memory for SLDI."`

Out of memory error. The CICS Sensor will fail to initialize and stop. Please try to restart CICS Sensor, if the same problem happens, contact Bristol support.

`SLMS274E: TransactionVision Sensor: Failed to allocate memory for config table."`

Out of memory error. The CICS Sensor will fail to initialize and stop. Please try to restart CICS Sensor, if the same problem happens, contact Bristol support.

`SLMS275E: TransactionVision Sensor: Unknown error occurred (type=%d), %s Sensor Driver is shutting down."`

Please contact Bristol Support.

```
SLMS276I: TransactionVision Sensor: The routine that generated abend is
          '%.80s', and offset is %08X. Please contact Bristol Support with
          the dump information."
```

Please contact Bristol Support and report the diagnostic information included in the message.

```
SLMS277E: TransactionVision Sensor: %s %s Sensor Driver startup failed.
          QMGR=%s, CONFIGQ=%s."
```

CICS Sensor driver program failed to initialize due to error(s) previous shown.

```
SLMS278I: TransactionVision Sensor: %s %s Sensor Driver startup completed.
          QMGR=%s, CONFIGQ=%s."
```

Informational message indicating the CICS Sensor Driver startup completed successfully.

```
SLMS279E: TransactionVision Sensor: Unknown event type (type=%d), skip
          this event."
```

The event type is not collectable by the CICS Sensor, and the event is skipped.

```
SLMS27AI: TransactionVision Sensor: %s %s Sensor Driver is ending, return
          code = %d."
```

Informational message indicating the CICS Sensor Driver is ending.

```
SLMS27BI: TransactionVision Sensor: this terminal id ('%s') does not
          appear in filter rule"
```

The terminal ID does not match the collection filter criteria.

```
SLMS27CI: TransactionVision Sensor: this API type ('%s') does not appear
          in filter rule"
```

The API type does not match the collection filter criteria.

```
SLMS27DI: TransactionVision Sensor: this API ('%s') does not appear in
          filter rule"
```

The API does not match the collection filter criteria.

```
SLMS27EI: TransactionVision Sensor: this file ('%s') does not appear in
          filter rule"
```

The CICS file name does not match the collection filter criteria.

```
SLMS27FI: TransactionVision Sensor: this TD queue ('%s') does not appear
          in filter rule"
```

The TD queue does not match the collection filter criteria.

```
SLMS280I: TransactionVision Sensor: this TS queue ('%s') does not appear
          in filter rule"
```

The TS queue does not match the collection filter criteria.

```
SLMS281I: TransactionVision Sensor: this EIBRESP ('%d') does not appear in
```

filter rule"
The response code does not match the collection filter criteria.

SLMS282E: TransactionVision Sensor: Null pointer detected for the structure '%s'."
Contact Bristol Support.

SLMS283E: TransactionVision Sensor: Sturcture ID '%s' does not match the expected value '%s'."
Contact Bristol Support.

SLMS284E: TransactionVision Sensor: Internal error. This function '%s' should never be called. Please contact Bristol Support."
Contact Bristol Support.

SLMS301I: TransactionVision WMQI Sensor: %s
Informational message regarding the WebSphere MQ Integrator-enabled Sensor.

SLMS302I: TransactionVision WMQI Sensor: inserting attribute ‘%s’
Informational message regarding the WebSphere MQ Integrator-enabled Sensor.

SLMS303I: TransactionVision WMQI Sensor: inserting %s terminal entry for terminal ‘%s’
Informational message regarding the WebSphere Business Integration-enabled Sensor.

SLMS304I: TransactionVision WMQI Sensor: getting attribute by index %d
Informational message regarding the WebSphere Business Integration-enabled Sensor.

SLMS305I: TransactionVision WMQI Sensor: getting attribute ‘%s’
Informational message regarding the WebSphere Business Integration-enabled Sensor.

SLMS306I: TransactionVision WMQI Sensor: setting attribute ‘%s’ to ‘%s’
Informational message regarding the WebSphere Business Integration-enabled Sensor.

SLMS307E: TransactionVision WMQI Sensor: failed to allocate space for %s
Out of memory error. Contact Bristol Support.

SLMS308E: TransactionVision WMQI Sensor: failed to initialize %s
Contact Bristol Support.

SLMS309E: TransactionVision WMQI Sensor: invalid data type for %s
Contact Bristol Support.

SLMS30AE: TransactionVision WMQI Sensor: failure terminal does not exist
Contact Bristol Support.

```
SLMS30BE: TransactionVision WMQI Sensor: out terminal does not exist
```

Contact Bristol Support.

```
SLMS30CE: TransactionVision WMQI Sensor: out terminal is not attached
```

Contact Bristol Support.

```
SLMS30DE: TransactionVision WMQI Sensor: unknown attribute ‘%s’
```

Contact Bristol Support.

```
SLMS30EE: TransactionVision WMQI Sensor: attribute index %d not found
```

Contact Bristol Support.

```
SLMS30FE: TransactionVision WMQI Sensor: %s terminal ‘%s’ not found
```

Contact Bristol Support.

```
SLMS310I: TransactionVision WMQI Sensor: loaded TransactionVision Sensor
```

Informational message regarding the WebSphere Business Integration-enabled Sensor.

```
SLMS311E: TransactionVision WMQI Sensor: failed to load TransactionVision
          Sensor
```

Ensure that the Sensor is properly installed. See the *TransactionVision Sensor Installation and Configuration Guide* for installation instructions.

```
SLMS312I: TransactionVision WMQI Sensor: TransactionVision Sensor
          successfully loaded
```

Informational message regarding the WebSphere Business Integration-enabled Sensor.

```
SLMS313E: TransactionVision WMQI Sensor: Could not find Path value in the
          registry. Ensure that the TransactionVision Sensor is properly
          installed.
```

Ensure that the Sensor is properly installed. See the *TransactionVision Sensor Installation and Configuration Guide* for installation and configuration instructions.

```
SLMS314E: TransactionVision WMQI Sensor: Could not open TransactionVision
          Sensor key in registry. Ensure that the TransactionVision Sensor
          is properly installed.
```

Ensure that the Sensor is properly installed. See the *TransactionVision Sensor Installation and Configuration Guide* for installation and configuration instructions.

```
SLMS315E: TransactionVision WMQI Sensor: could not load TransactionVision
          Sensor library (‘%s’): %s
```

Ensure that the Sensor is properly installed. See the *TransactionVision Sensor Installation and Configuration Guide* for installation and configuration instructions.

`SLMS400I: TVISIONB startup in progress.`

Informational message. TVISIONB has been started and startup is in progress. This message should be followed by SLMS401I when startup is complete.

`SLMS401I: TVISIONB startup complete.`

Informational message. TVISIONB startup is complete and the MQSeries-IMS bridge Sensor server component is ready to receive events from the bridge.

`SLMS402I: STOP command received.`

Informational message. The MQSeries-IMS bridge Sensor server component is shutting down. Bridge monitoring is disabled to prevent the sending of further events from the OTMA Input/Output Edit exit routine in the IMS control region(s) and all tasks in the TVISIONB address space are terminated. This message should be followed by SLMS403I when termination is complete. There may be a delay while in-flight events are dispatched.

`SLMS403I: TVISIONB termination complete.`

Informational message. All tasks in the MQSeries-IMS bridge Sensor server component have been terminated. The TVISIONB and TVISIOND address spaces have been terminated.

`SLMS4041: TVISIONB termination in progress.`

TVISIONB is terminating in response to a STOP command or due to an error condition.

`SLMS4051: TVISIONB dispatching remaining events in buffer queue.`

TVISIONB is in quiesce mode in response to a STOP command. When all events in the buffer queue have been dispatched, TVISIONB termination will complete. The SLMS415I message follows to report the number of events in the buffer queue.

```
SLMS4061: Immediate TVISIONB termination requested. Events in buffer queue
          will be lost.
```

TVISIONB is terminating in response to a STOP IMMED command issued while there are events in the buffer queue. The SLMS415I message follows to report the number of events in the buffer queue.

`SLMS410I: TVISIONB MQIMSBDG monitoring disabled.`

Response to a DISABLE MQIMSBDG command. MQSeries-IMS bridge monitoring is disabled regardless of Analyzer requests.

```
SLMS411W: TVISIONB configuration messages have requested MQIMSBDG
          monitoring, which has been disabled by the system operator.
          Monitoring will not resume until enabled by the operator.
```

Warning message issued when configuration messages from an Analyzer request MQSeries-IMS bridge monitoring but monitoring has been disabled by a DISABLE MQIMSBDG command.

`SLMS412I: TVISIONB MQIMSBDG monitoring already disabled.`

Response to a DISABLE MQIMSBDG command when MQSeries-IMS bridge monitoring has already been disabled by a previous DISABLE MQIMSBDG command.

`SLMS413I: TVISIONB MQIMSBDG monitoring enabled.`

Response to an ENABLE MQIMSBDG command. MQSeries-IMS bridge monitoring is enabled.

`SLMS414I: TVISIONB MQIMSBDG monitoring already enabled.`

Response to an ENABLE MQIMSBDG command when MQSeries-IMS bridge monitoring is already enabled.

`SLMS419E: TVISIONB unable to process command.`

An invalid command format or unknown command has been issued or TVISIONB encountered a system error attempting to process a command. If the command is correct, please contact Bristol Support and report the diagnostic data included in the message.

`SLMS420W: Possible TVISIONB stall condition detected. Some requested events may be not be collected.`

The TVISIONB event recording function is not responding in a timely manner. This condition may be caused by a full TransactionVision event queue because the queue has been defined too small or no Analyzer service is running to relieve the queue. If the event queue is full, expand its size and/or assure that an Analyzer is running. Otherwise, please contact Bristol Support.

`SLMS421S: The event dispatcher task has unexpectedly terminated. TVISIONB will terminate.`

TVISIOND is terminating due to an error condition.

`SLMS430E: TVISIONB already started.`

An second instance of TVISIONB has been started. Only one instance is allowed. The second instance will be terminated.

`SLMS431E: The MQSeries queue manager name missing. Please specify as follows: S TVISIONB,QMGR=CSQ1, for example.`

The WebSphere MQ queue manager, to which TVISIONB connects to access its configuration and event queues, must be identified at startup.

`SLMS432E: The MQSeries queue manager name specified on the S TVISIONB command contains more than the maximum of 4 characters.`

WebSphere MQ queue manager names on z/OS are limited to four characters.

`SLMS433E: The MAXQ size specified on the S TVISIONB command is less than the minimum requirement of 3.`

At least 3MB of storage are required for TVISIONB to manage its buffer queue.

`SLMS434E: The MAXQ size specified on the S TVISIONB command is greater than the maximum allowed of 2046.`

The maximum amount of storage that TVISIONB can use to manage its buffer queue is 2046MB (2GB less 1MB).

`SLMS435E: The MAXQ size specified on the S TVISIONB command contains non-numeric characters.`

The TVISIONB MAXQ parameter must be numeric.

`SLMS436E: The MAXQ size specified on the S TVISIONB command contains too many characters.`

The TVISIONB MAXQ parameter must contain a maximum of 15 characters.

`SLMS438E: The event dispatcher startup procedure name contains more than the maximum of 8 characters.`

The EDPROC parameter on the TVISIONB startup command or procedure is incorrect.

`SLMS440E: Invalid TVISIONB command entered.`

An invalid command format or unknown command has been issued.

`SLMS441E: Unknown target of TVISIONB DISABLE command.`

A DISABLE command has been issued but the object name specified is unknown. In this version of TransactionVision, the only supported object is MQIMSBDG.

`SLMS442E: Unknown target of TVISIONB ENABLE command.`

A ENABLE command has been issued but the object name specified is unknown. In this version of TransactionVision, the only supported object is MQIMSBDG.

`SLMS450S: TVISIONB ENQ error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS451S: TVISIONB unable to allocate required storage. Diagnostic data follow:`

This may be caused by an too small REGION size for TVISIONB, which requires an address space size of the MAXQ specification plus 1MB. If the REGION size is sufficient, please contact Bristol Support and report the diagnostic data included in the message.

`SLMS452S: TVISIONB unable to release obtained storage. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

```
SLMS453S: TVISIONB ATTACH error. Diagnostic data follow:
```

This may be caused by a required program module missing from STEPLIB or SSLMLOAD libraries specified in the TVISIONB startup procedure. Please assure that all the modules listed in the installation instructions are located in the appropriate libraries and those libraries are specified in the TVISIONB startup procedure. If the setup is correct, please contact Bristol Support and report the diagnostic data included in the message.

```
SLMS454S: TVISIONB LINK error. Diagnostic data follow:
```

This may be caused by a required program module missing from STEPLIB or SSLMLOAD libraries specified in the TVISIONB startup procedure. Please assure that all the modules listed in the installation instructions are located in the appropriate libraries and those libraries are specified in the TVISIONB startup procedure. If the setup is correct, please contact Bristol Support and report the diagnostic data included in the message.

```
SLMS455S: TVISIONB LOAD error. Diagnostic data follow:
```

This may be caused by a required program module missing from STEPLIB or SSLMLOAD libraries specified in the TVISIONB startup procedure. Please assure that all the modules listed in the installation instructions are located in the appropriate libraries and those libraries are specified in the TVISIONB startup procedure. If the setup is correct, please contact Bristol Support and report the diagnostic data included in the message.

```
SLMS456S: TVISIONB DELETE error. Diagnostic data follow:
```

Please contact Bristol Support and report the diagnostic data included in the message.

```
SLMS457S: TVISIONB OPEN error. Diagnostic data follow:
```

Please contact Bristol Support and report the diagnostic data included in the message.

```
SLMS458S: TVISIONB CLOSE error. Diagnostic data follow:
```

Please contact Bristol Support and report the diagnostic data included in the message.

```
SLMS459S: TVISIONB BLDL error. Diagnostic data follow:
```

Please contact Bristol Support and report the diagnostic data included in the message.

```
SLMS460S: TVISIONB ASCE error. Diagnostic data follow:
```

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS461S: TVISIONB ASEXT error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS472S: TVISIONB IEANTCR error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS473S: TVISIONB IEANTRT error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS474S: TVISIONB IEANTDL error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS475S: TVISIONB ESTAEX error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS485S: Insufficient storage available for TVISIONB queue requirements. Diagnostic data follow:`

This may be caused by a too small REGION size for TVISIONB, which requires an address space size of the MAXQ specification plus 1MB. This error occurs when TVISIONB attempts to allocate its initial buffer queue space of 2MB during startup. TVISIONB is terminated. If the REGION size is sufficient, please contact Bristol Support and report the diagnostic data included in the message.

`SLMS486W: Insufficient storage available for TVISIONB queue expansion requirements. Events may be lost.`

This may be caused by a too small REGION size for TVISIONB, which requires an address space size of the MAXQ specification plus 1MB. This error occurs when TVISIONB attempts to allocate 1MB to expand its buffer queue space within the MAXQ limitation specified at TVISIONB startup. When all already-allocated queue space is exhausted, subsequent events will be discarded. This condition may be caused by a full TransactionVision event queue because the queue has been defined too small or no Analyzer service is running to relieve the queue. If the event queue is full, expand its size and/or assure that an Analyzer is running. If the event queue is not full and the REGION size is sufficient, please contact Bristol Support.

`SLMS487W: Insufficient storage available for TVISIONB queue expansion requirements. MAXQ limit reached. Events may be lost.`

TVISIONB has used almost all of the buffer queue space allowed by the MAXQ limitation specified at TVISIONB startup. When all allowed queue space is exhausted, subsequent events will be discarded. This condition may be caused by a full TransactionVision event queue because the queue has been defined too small or no Analyzer service is running to relieve the queue. If the event queue is full, expand its size and/or assure that an Analyzer is running. Otherwise, increase the MAXQ specification.

`SLMS488S: TVISIONB system stall condition detected. Queued events will be lost.`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS498S: TVISIONB system error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLMS499S: TVISIONB system error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

`SLDS272E: TransactionVision Sensor: wrong number of parameters.”`

The Sensor command contains an incorrect number of parameters. See the “Configuring the CICS Sensor,” chapter in the *TransactionVision Administration Guide* for instructions on starting and stopping the CICS Sensor.

`SLDS273E: TransactionVision Sensor: input queue manager name (%s) length is bigger than %d (MQ limit).”`

The specified queue manager name exceeds the allowed length.

`SLDS274E: FailMemCDC: E: “%s%03XE %s:TransactionVision Sensor: Failed to allocate memory for SLDI.”`

Out of memory error. The CICS Sensor will fail to initialize and stop. Please try to restart CICS Sensor, if the same problem happens, contact Bristol support.

`SLDS275E: FailMemCCT: E: “%s%03XE %s:TransactionVision Sensor: Failed to allocate memory for config table.”`

Out of memory error. The CICS Sensor will fail to initialize and stop. Please try to restart CICS Sensor, if the same problem happens, contact Bristol support.

`SLDS276E: TransactionVision Sensor: Unknown error occurred (type=%d), CICS Sensor Driver is shutting down.”`

Please contact Bristol Support.

`SLDS277I: TransactionVision Sensor: The routine that generated abend in CICS Sensor Driver is ‘%.80s’, and offset is %08X. Please contact Bristol Support with the dump information.”`

Please contact Bristol Support and report the diagnostic information included in the message.

`SLDS278E: InitFailed: E: "%s%03XE %s: TransactionVision Sensor: CICS %s Sensor Driver startup failed. QMGR=%s, CONFIGQ=%s."`

CICS Sensor driver program failed to initialize due to error(s) previous shown.

`SLDS279I: TransactionVision Sensor: CICS %s Sensor Driver startup completed. QMGR=%s, CONFIGQ=%s."`

Informational message indicating the CICS Sensor Driver startup completed successfully.

`SLDS27AE: WrongEventType: E: "%s%03XE %s: TransactionVision Sensor: Unknown event type (type=%d), skip this event."`

The event type is not collectable by the CICS Sensor, and the event is skipped.

`SLDS27BI: TransactionVision Sensor: CICS %s Sensor Driver is ending, return code = %d."`

Informational message indicating the CICS Sensor Driver is ending.

`SLDS27CI: TransactionVision Sensor: this terminal id ('%s') does not appear in filter rule"`

The terminal ID does not match the collection filter criteria.

`SLDS27DI: TransactionVision Sensor: this API type ('%d') does not appear in filter rule"`

The API type does not match the collection filter criteria.

`SLDS27EI: TransactionVision Sensor: this API ('%d') does not appear in filter rule"`

The API does not match the collection filter criteria.

`SLDS27FI: TransactionVision Sensor: this file ('%s') does not appear in filter rule"`

The file does not match the collection filter criteria.

`SLDS280I: TransactionVision Sensor: this TD queue ('%s') does not appear in filter rule"`

The TD queue does not match the collection filter criteria.

`SLDS281I: TransactionVision Sensor: this TS queue ('%s') does not appear in filter rule"`

The TS queue does not match the collection filter criteria.

`SLDS282I: TransactionVision Sensor: this EIBRESP ('%d') does not appear in filter rule"`

The response does not match the collection filter criteria.

`SLDS400I: TVISION [TransactionVision Manager | CICS` *`sysid`* `TransactionVision sensor] startup in progress.`

Informational message issued in response to a start TransactionVision Manager command or a start Sensor command, where *sysid* is the SYSID of the CICS region to monitor.

SLDS401I: TVISION [TransactionVision Manager *tvid* | CICS *sysid* TransactionVision sensor] startup complete.

Informational message issued when TransactionVision Manager startup or Sensor startup is complete, where *tvid* is the TVID of the TransactionVision Manager and *sysid* is the SYSID of the CICS region to monitor.

SLDS402I: *tvid* STOP command received.

Informational message issued in response to a stop TransactionVision Manager command, where *tvid* is the TVID of the TransactionVision Manager.

SLDS404I: TVISION [TransactionVision Manager *tvid* | CICS *sysid* TransactionVision sensor] termination in progress.

IInformational message issued in response to a stop TransactionVision Manager command or a stop Sensor command, where *tvid* is the TVID of the TransactionVision Manager and *sysid* is the SYSID of the monitored CICS region.

SLDS405I: TVISION [TransactionVision Manager *tvid* | CICS *sysid* TransactionVision sensor] termination complete.

Informational message issued when TransactionVision Manager shutdown or Sensor shutdown is complete, where *tvid* is the TVID of the TransactionVision Manager and *sysid* is the SYSID of the monitored CICS region.

SLDS406E: No parameters specified on the START command. The TVID parameter is required.

A start TransactionVision Manager command was issued without the required TVID parameter.

SLDS407E: The TVID parameter is missing from the START command.

A start TransactionVision Manager command was issued without the required TVID parameter.

SLDS408E: The TVID specified on the START command contains more than the maximum of 4 characters.

A start TransactionVision Manager command specified an invalid TVID parameter.

SLDS409E: The SYSID parameter is missing from the START command.

An incorrect START command has been issued and the TransactionVision CICS A start sensor command was issued without the required SYSID parameter.

SLDS410E: The SYSID specified on the START command contains more than the maximum of 4 characters.

A start sensor command specified an invalid SYSID parameter.

SLDS411E: TVISION *tvid* TransactionVision Manager already started.

A start TransactionVision Manager command specified a TVID value that matches a running TransactionVision Manager, where *tvid* is the TVID specified.

SLDS412E: TVISION CICS *sysid* TransactionVision sensor already started.

A start Sensor command specified a SYSID value that matches a running sensor under control of the same TransactionVision Manager, where *sysid* is the SYSID specified.

SLDS413E: TVISION CICS *sysid* TransactionVision sensor already started by another TransactionVision Manager.

A start Sensor command specified a SYSID value that matches a running sensor under control of a different TransactionVision Manager, where *sysid* is the SYSID specified.

SLDS415E: TVISION The *parameter* value specified on the command is less than the required minimum of *min_value*.

A start Sensor command specified a parameter value less than the minimum required, where *parameter* is the parameter keyword and *min_value* is the minimum value allowed.

SLDS416E: TVISION The *parameter* value specified on the command is greater than the maximum allowed of *max_value*.

A start Sensor command specified a parameter value more than the maximum required, where *parameter* is the parameter keyword and *max_value* is the maximum value allowed.

SLDS418E: TVISION The *parameter* value specified on the command contains non-numeric characters.

A start Sensor command specified non-numeric characters for a parameter value that is required to be numeric, where *parameter* is the parameter keyword.

SLDS420E: TVISION Command name, *command_name*, invalid. Command ignored.

An invalid command was issued, where *command_name* is the command.

SLDS421E: TVISION Command operand, *operand_name*, invalid for *command_name* command. Command ignored.

An invalid command operand was specified, where *operand_name* is operand specified and *command_name* is the command.

SLDS422E: TVISION Operand value specified on command name or operand that takes no value specification. Command ignored.

A *name(value)* form was specified on a command when no value was expected for the command or operand name specified.

`SLDS423E: TVISION Syntax error - misplaced "(". Command ignored.`

Syntax error.

`SLDS424E: TVISION Syntax error - misplaced ")". Command ignored.`

Syntax error.

`SLDS425E: TVISION Command input is all spaces. Command ignored.`

Syntax error.

`SLDS427E: TVISION The sensor driver startup procedure name contains more than the maximum of 8 characters.`

The value of the DRVRPROC parameter on a start Sensor command is invalid.

`SLDS428E: TVISION The required operand value for the keyword operand,` *`operand_name`*`, is missing.`

A value was not specified for an operand that required a value, where *operand_name* is the operand name.

`SLDS429E: TVISION The required sensor type operand is missing.`

The Sensor type, CICS, was omitted from the command. In this release, CICS is the only Sensor type supported but subsequent releases will add other types.

`SLDS430E: TVISION Invalid sensor type specified.`

The only valid Sensor type in this release is CICS.

`SLDS431E: TVISION Unsupported sensor type specified.`

The only valid Sensor type in this release is CICS.

`SLDS432E: TVISION The required` *`command_name`* `command operand,` *`operand_name`*`, is missing.`

A required operand was not specified on the command, where *command_name* is the command and *operand_name* is the omitted operand.

`SLDS440E: TVISION The sensor specified on the STOP SENSOR command is not started.`

A stop Sensor command was issued for a Sensor that is not started.

`SLDS441S: TVISION Unable to allocate the minimum size buffer queue. Diagnostic data follow:`

This error probably results from an installation limit on the size of data spaces. If not, please contact Bristol Support and report the diagnostic data included in the message.

```
SLDS442W: TVISION The maximum number of allowed buffer queue blocks
          specified on the MAXQBLKS startup parameter has been reached.
          Events may be lost.
```

The Sensor required an additional queue block but the maximum allowed was already allocated. When the current queue block is full and the maximum is still allocated, events will be lost.

```
SLDS443I: TVISION Sensor quiescing: n events in buffer queue.
```

A stop Sensor command has been issued. The Sensor will wait until all events in the buffer queue have been retrieved before completing the shutdown.

```
SLDS445I: TVISION Sensor quiesce completed.
```

All events in the buffer queue have been retrieved in response to a Sensor stop command. The Sensor will complete the shutdown.

```
SLDS446E: TVISION The sensor manager component is not started.
```

This error may be caused by starting the Sensor driver manually. The Sensor driver is automatically started by the Sensor manager and should not be started any other way. If not the case, please contact Bristol Support.

```
SLDS448I: TVISION CICS CIC1 Sensor statistics:
          Events in queue:                  n
          Events collected:                 n
          Events dispatched:                n
          Events_lost:                      n
```

Informational message issued at Sensor shutdown or in reponse to an INQUIRE command.

```
SLDS449W TVISION Sensor events have been lost due to insufficient buffer
          queue storage.
```

The Sensor manager issues this message the first time an event is lost.

```
SLDS451S: TVISION CICS sysid TransactionVision sensor stall condition
          detected. Diagnostic data follow:
```

The Sensor manager is quiescing and detects that events are not being retrieved from the buffer queue by the Sensor driver, where *sysid* identifies the Sensor. The Sensor will exit quiesce mode and complete shutdown. Events in the buffer queue will be lost. Please contact Bristol Support and report the diagnostic data included in the message.

```
SLDS460I: TVISION Sensor exits manager started.
```

Informational message issued in response to an SLDS transaction or PLTPI processing.

```
SLDS461I: TVISION Sensor exits manager waiting for sensor startup.
```

The Sensor exits manager has been started but a corresponding Sensor manager has not.

`SLDS462I: TVISION Sensor startup completed.  Exits monitoring started.`

The Sensor exits manager has detected the startup of a corresponding Sensor manager.

`SLDS463W: TVISION The sensor exits manager is already started.  Request ignored.`

An SLDS transaction was invoked but the Sensor exits manager is already started.

SLDS464I: `TVISION` *`exit_name`* `exit [enabled | disabled].`

The Sensor exits manager has enabled or disabled an exit, where *exit_name* is the name of the exit.

`SLDS465I: TVISION Sensor exits manager terminated.`

An informational message issued when the Sensor exits manager completes shutdown as a result of an SLDP transaction, PLTSD processing, or the forced disablement of the program start exit.

`SLDS466W: TVISION The sensor exits manager is not started.  Request ignored.`

An SLDP or an SLDC transaction was invoked but the exits manager is not started.

SLDS467W: `TVISION The request (`*1st parm*`) was not En(able) or Dis(able).`

An SLDC transaction was invoked but the first parameter was invalid.

SLDS468W: `TVISION The request (`*2nd parm*`) was not: PS, KC, PC, IC, TD, TS, or FC.`

An SLDC transaction was invoked but the second parameter was invalid.

`SLDS469I TVISION The program start exit (PS) cannot be disabled.  The exit is stopped.`

An SLDC transaction specified disablement of the program start exit, which must remain enabled for the exits manager to run. The exit is stopped instead.

SLDS498S: `TVISION [TransactionVision Manager | CICS` *`sysid`* `TransactionVision sensor] system error: message handler unavailable. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

SLDS499S: `TVISION [TransactionVision Manager | CICS` *`sysid`* `TransactionVision sensor] system error. Diagnostic data follow:`

Please contact Bristol Support and report the diagnostic data included in the message.

Appendix D

List of APIs Monitored

CICS Sensor

The CICS Sensor collects events for five groups of CICS APIs: file control, temporary storage, transient data, interval control, and program control. In addition, the CICS Sensor collects Task Start, Task End and Program Start events as well.

File Control APIs

APIs: WRITE, REWRITE, READ, STARTBR, RESETBR, READNEXT, READPREV, ENDBR, DELETE, UNLOCK

Temporary Storage APIs

WRITEQ TS, READQ TS, DELETEQ TS

Transient Data APIs

WRITEQ TD, READQ TD, DELETEQ TD

Interval Control APIs

DELAY, START, ATTACH, CANCEL

Program Control APIs

LINK, XCTL, RETURN

WebSphere MQ Sensor

The WebSphere MQ library, API exit and the z/OS WebSphere MQ Sensors collect events from the following MQ APIs.

- MQBACK
- MQBEGIN

- MQCLOSE
- MQCMIT
- MQCONN
- MQCONNX
- MQDISC
- MQGET
- MQINQ
- MQOPEN
- MQPUT
- MQPUT1
- MQSET

WBI (MQSI) Sensor

- MQSI2TRACE. This is an event generated by the TransactionVision trace and failure nodes for WBI.

WebSphere MQ-IMS Bridge Sensor

- MQIMS_BRIDGE_ENTRY
- MQIMS_BRIDGE_EXIT

These are events generated by the WbSphere MQ-IMS Bridge Sensor when a MQ message is received by the MQ-IMS bridge and when a reply is generated by the WebSphere MQ-IMS bridge.

Servlet Sensor

The following servlet classes are instrumented:

- javax.servlet.http.HttpServlet
- org.apache.jasper.runtime.HttpJspBase
- com.ibm.servlet.PageListServlet

The servlet Sensor tracks the following methods:

```
void doGet(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)
```

```
void doPost(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)

void doPut(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)

void service(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)

void doDelete(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)

void doHead(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)

void doOptions(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)

void doTrace(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)

void init()

void init(javax.servlet.ServletConfig)

void destroy()

void _jspService(javax.servlet.http.HttpServletRequest,
javax.servlet.http.HttpServletResponse)

void jspInit()

void jspDestroy()
```

Important! The TRACE and OPTIONS requests are different from the other requests because the servlet container has the following default implementation of these two requests:

- For TRACE requests, the servlet container returns the whole request string made by the client.
- For OPTIONS requests, the servlet container returns the list of HTTP requests handled by that particular servlet.

If you do NOT override the **`doTrace`** and **`doOptions`** methods, TransactionVision is unable to trace these requests, although the client will still get the response.

JMS Sensor

The JMS Sensor tracks the following methods:

```
Class:: ConnectionFactory
    createConnection
    createXAConnection
```

```
Class:: TopicConnectionFactory
    createTopicConnection
    createXATopicConnection

Class:: QueueConnectionFactory
    createQueueConnection

Class:: Connection
    createConnectionConsumer
    createDurableConnectionConsumer
    createSession
    createXASession
    close
    start
    stop
    setExceptionListener

Class:: QueueConnection
    createQueueSession
    createXAQueueSession

Class:: TopicConnection
    createTopicSession
    createXATopicSession

Class:: Session
    createProducer
    createConsumer

Class:: TopicSession
    createDurableSubscriber
    createPublisher
    createSubscriber
    unsubscribe
    commit
    recover
    rollback
    close

Class:: QueueSession
    createBrowser
    createReceiver
    createSender
    commit
    recover
    rollback
    createTemporaryQueue
    close

Class:: MessageProducer

Class:: MessageConsumer

Class:: QueueSender
    send
    close
```

```
Class:: TopicPublisher
    publish
    close

Class:: QueueBrowser
    close
    getEnumeration

Class:: QueueEnumeration
    nextElement
    hasMoreElements

Class:: TopicSubscriber
    close
    receive
    setMessageListener

Class:: QueueReceiver
    close
    receive
    setMessageListener

Class::     Message
    acknowledge
```

EJB Sensor

The following EJB classes are instrumented:

- `javax.ejb.EntityBean`
- `javax.ejb.SessionBean`
- `javax.ejb.MessageDrivenBean`
- `javax.ejb.EnterpriseBean` (parent interface of all three above)

In addition to all business methods defined in public interfaces, the following methods will be instrumented:

- `ejbCreate()`
- `ejbPostCreate()`
- `ejbRemove()` (session/entity/message driven bean)
- `ejbLoad()` (entity bean)
- `ejbStore()` (entity bean)
- `onMessage()` (message driven bean)

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