TIBCO® Data Virtualization

Monitor Guide

Version 8.1

Last Updated: *February 26, 2019*

Two-Second Advantage®

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Preface

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- https://docs.tibco.com

Product-Specific Documentation

The following documents form the TIBCO® Data Virtualization(TDV) documentation set:

- *TIBCO TDV and Business Directory Release Notes* Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.
- TDV Installation and Upgrade Guide
- TDV Administration Guide
- TDV Reference Guide
- TDV User Guide
- TDV Security Features Guide
- TDV Business Directory Guide
- TDV Application Programming Interface Guide
- TDV Tutorial Guide
- TDV Extensibility Guide
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- TDV Adapter Guide
- TDV Discovery Guide
- TDV Active Cluster Guide
- TDV Monitor Guide
- TDV Northbay Example

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Documentation for TIBCO Data Virtualization is available on https://docs.tibco.com/products/tibco-data-virtualization-server.

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- For an overview of TIBCO Support, visit https://www.tibco.com/services/support.
- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support portal at https://support.tibco.com.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to https://support.tibco.com. If you do not have a user name, you can request one by clicking **Register** on the website.

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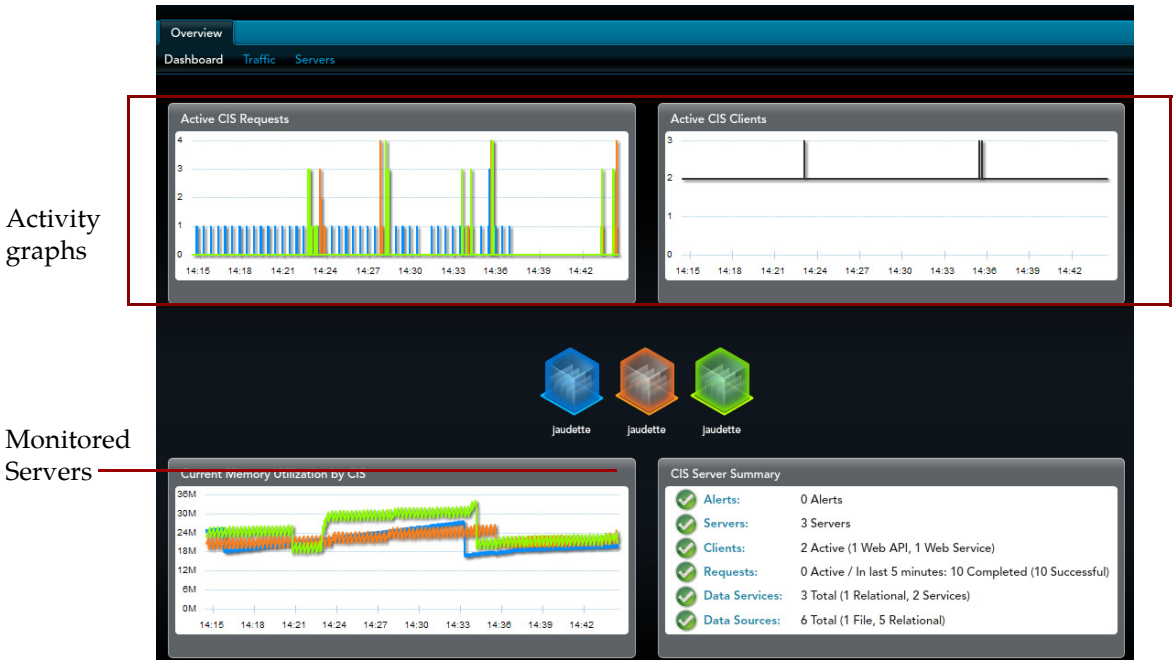
Introducing Monitor

This topic describes the features and architecture of Monitor.The following topics are covered:

Overview of Monitor

Monitor supports continuous real-time monitoring of the activity and health of your TIBCO® Data Virtualization(TDV) instances and clusters using an Internet browser. Access Manager from Monitor to get more information about the specific TDV instances you are monitoring.



Activity Graphs

Three activity graphs each allow you to select one of 32 graph types to display the information you want to monitor. Every server in the cluster is represented in each graph. The lines are color-coded so that you can easily differentiate between servers.

Monitored Servers

An icon for each of the monitored servers is displayed in a different color to help match the server activity and health with the server. Hovering your cursor over a server displays details about that server. You can display activity and health for one of the monitored servers or for all servers.

TDV Server Summary Panel

The panel on the lower right summarizes the status of the TDV instances being monitored including the number of recent alerts, the number of servers being monitored, the number of active clients, and so on.

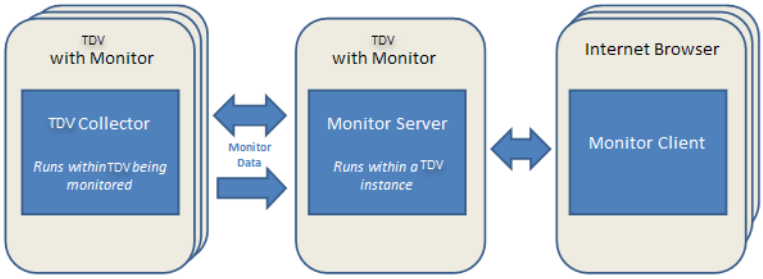
Monitor Key Features

Monitor provides the facility to:

- Monitor a local or a remote TDV instance or cluster.
- Graphically display TDV system health and activity.
- Display the current activity in real time.
- Alert you when a TDV instance is down or has problems.
- Help you focus on the health and activity of particular TDV systems.
- Help you easily get additional information about a particular instance or cluster from Manager.

Monitor Architecture

This section provides an overview of Monitor.



TDV Collector

The TDV Collectors are hosted within the TDV instances to be monitored. They periodically take a snapshot of the current state of the host TDV server and send this data to the Monitor Server. The TDV Collectors also keep track of general activity within the host TDV, such as requests, sessions, transactions, and events. All of the data capturing for monitoring purposes is optional and may be turned off.

Monitor Server

The Monitor Server is the main process that gathers TDV state data from the TDV Collectors. The Monitor Server simultaneously calculates the aggregate cluster state and pushes it to all Monitor Clients attached to the Monitor Server. The Monitor Server may be hosted within the same TDV instance with the TDV Collector from which it is collecting information, unless it is monitoring a cluster. The Monitor Server monitoring a TDV cluster cannot be a member of that TDV cluster.

Monitor Client

The Monitor Client is an Adobe Flash-based Web application that is hosted by the Monitor Server. The Monitor Client user logs into the Monitor Server using the same credentials required by the TDV that hosts Monitor Server.

TDV Monitor Daemon

A TDV Monitor Daemon resides on the machine of each instance of the TDV server. It restarts the TDV server. The TDV Monitor Daemon is the process that is also known as the TDV Monitor which is responsible for tracking and controlling TDV server life cycle events such as startup and shutdown. It is referred to here as TDV Monitor Daemon to help avoid confusion with the Monitor.

Monitor Concepts and Modes of Operation

This section describes concepts that are important to understand when using Monitor.

What Is a TDV Client?

A TDV client is an aggregate of TDV sessions that share host, client type, user name, and domain name. This allows similar sessions from TDV nodes in a cluster or connectionless sessions, such as those created by Web services, to appear as one logical TDV client for monitoring purposes.

What Is a Monitor Client?

A Monitor Client is the Monitor user interface running a browser and connected to a Monitor Server.

What Is the Monitor Server?

The Monitor Server is a server installed and running with a TDV instance.

What Modes of Operation Does Monitor Support?

- Single TDV—Monitor Server listens to a remote TDV Collector in a separate TDV instance.
- TDV Cluster—Monitor Server listens to a remote set of TDV Collectors in separate TDV instances, which are all part of a cluster.

The TDV host of Monitor cannot be a member of a cluster it is monitoring.

Security with Monitor

Monitor allows you to enforce various types of security using its configuration facility. You can:

- Force the Monitor Client to connect with the Monitor Server using SSL (HTTPS).
- Allow or disallow saving of user names and passwords at login time.

Users and Access Rights

The Monitor Client user must have the READ_ALL_STATUS and ACCESS_TOOLS rights to log in.

Monitor adds a new built-in "monitor" system user to TDV. This is the default user that the Monitor Server uses to create a connection with the TDV Monitor Daemon and TDV Collector. Its password is "monitor" by default. The monitor system user has the following rights:

- ACCESS_TOOLS
- MODIFY_ALL_CONFIG
- READ_ALL_CONFIG
- READ_ALL_RESOURCES
- READ_ALL_STATUS
- READ_ALL_USERS

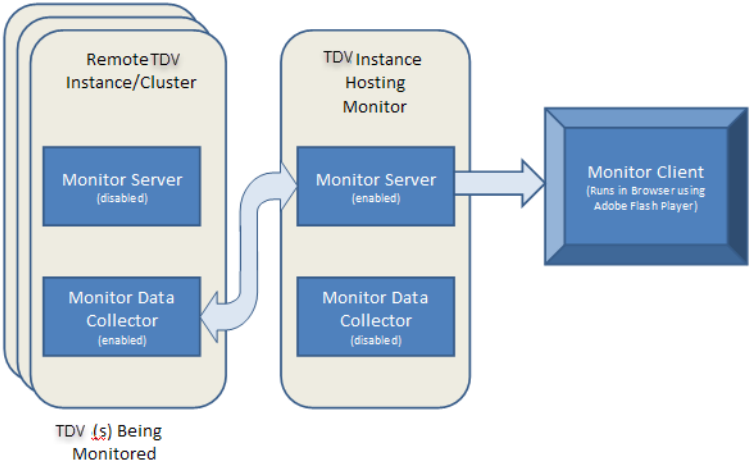
Configuring Monitor

This chapter describes how to configure Monitor to watch over an individual TDV system or a TDV cluster. If you plan to monitor a TDV cluster, you must install and run Monitor on a TDV instance that is not a member of the cluster.

The following topics are covered:

About Monitor Options

Monitor is configured to monitor a single remote TDV instance or a remote TDV cluster. Monitor must run in a different TDV instance than the TDV instance or cluster you are monitoring.



You must configure the following information in both the TDV hosting Monitor and the remote TDV to be monitored:

- The connection information for the remote system in the TDV hosting Monitor. See Configuring the Remote TDV to Be Monitored, page 13.
- Whether you want a secure connection between the Monitor Client and the Monitor Server.

- Whether you want to enable or disable the Data Collector and the Monitor Server.

The following table summarizes how to configure Monitor. The values in angle brackets *(< >)* are those that you must change. In some cases, like the TDV Password or other settings as noted, the changes are recommended but not required.

		Production Mode/Single TDV		Production Mode/TDV Cluster	
Configuration Parameter	Default	TDV Hosting Monitor Server	TDV Instance to Be Monitored	TDV Hosting Monitor Server	TDV Cluster to Be Monitored
TDV Host	localhost	<host name>	N/A	<host name>	N/A
TDV Port	0	<port number>	N/A	<port number>	N/A
TDV Password	monitor	<new password>	N/A	<new password>	N/A
Require SSL	False	True	True	True	True
Enable Data Collection	True	False (see first bullet below)	True	False (see first bullet below)	True
Enable Monitor Server	True	True	False	True	False (see second bullet below)

- Data Collection can be left True if the hosting TDV is dedicated to the Monitoring function, because the performance impact of data collection should not normally affect the Monitor Server processing.
- By default, the Monitor Server is configured to monitor the TDV that contains it. Additionally it is automatically disabled if the Monitor Server is a member of the cluster being monitored. Therefore, you do not need to explicitly change the Enable Monitor Server setting to False for TDV clusters in Production Mode.

Configuring Monitor

Monitor uses Studio's configuration facility to manage various aspects of Monitor operation. This section includes:

On the Traffic page, you can also configure how resources are labeled and sorted. See Configuring the Traffic Page, page 36.

Enabling or Disabling Monitor

You need to enable or disable the Monitor Server and set data collection parameters.

- Whether user names and passwords can be saved at login time.
- Whether the Monitor client must connect to the Monitor server using a secure HTTPS connection.

To enable or disable Monitor

1. Run Studio.
2. From the Administration menu, choose Configuration.
3. Change Enable Monitor Server to True to run Monitor Server or False to stop Monitor Server.
4. Expand the Data Collection branch and change Enable Data Collection to True to enable data collection or False to disable data collection.

Configuring the Remote TDV to Be Monitored

Monitor is configured to monitor the local TDV with which it was installed. To monitor a single remote TDV or a TDV cluster You need to specify the connection information and security. If you are monitoring a cluster, note that:

- The TDV that is hosting Monitor cannot be a member of the cluster.

- You can configure Monitor to connect to any member of the cluster and the entire cluster will be monitored (unless you change the Force Single Server Monitoring configuration parameter.)

To configure the remote TDV you want to monitor

1. Run Studio.
2. From the Administration menu, choose Configuration.
3. Specify the remote TDV connection information using these parameters:
   - TDV Host—The name of the remote TDV host to monitor. To monitor a cluster, specify any member of the cluster.
   - TDV Port—The number of the TDV port for the specified TDV Host.
   - TDV Password—The password for the system user named monitor within the composite domain, who wants to connect with the remote TDV.

   See Configuring the Monitor Server, page 16 for other connection parameters that you might want to adjust.

Configuring the Monitor Client

Monitor configuration parameters let you control:

- Whether user names and passwords can be saved at login time.
- Whether the Monitor client must connect to the Monitor server using a secure HTTPS connection.

To specify the Monitor client connection configuration

1. Run Studio.
2. From the Administration menu, choose Configuration.
3. Change the Connection settings as necessary. (Default settings are shown in *italics*.)

Monitor Client Parameter	Use
Allow Recent User Names	Allow the Monitor Client to save up to seven user names at login time. *True*—User names can be saved, and the Store User and Domain checkbox is displayed at login. False—User names cannot be saved.

Monitor Client Parameter	Use
Allow Recent Passwords	Allow the Monitor Client to save the password for the current user at login time. True—User passwords can be saved and the Store Password checkbox is displayed at login. (Allow Recent User Names must also be True.) *False*—User passwords cannot be saved.
Require SSL	Require that the Monitor Client use a secure HTTPS connection to connect to the Monitor Server. True—Only HTTPS connections are allowed. This setting is recommended for Production Mode. *False*—Allow either an HTTP or an HTTPS connection.

Configuring Monitor Data Collection

Monitor's Data Collection configuration parameters let you control:

- Whether or not data collection is enabled.
- The frequency with which different types of data are collected.

To specify the Monitor data collection configuration

1. Run Studio.
2. From the Administration menu, choose Configuration.
3. Under Monitor, expand the Monitor > Data Collection folders.
4. Change the data collection settings as necessary.

Data Collection Parameter	Use
Enable Data Collection	Specify whether to collect data and events from the TDV instance being monitored. *True*—Data and events are collected from the monitored TDV instance and pushed to any listening Monitor server. False—TDV data is not available.

Data Collection Parameter	Use
Event Batch Send Period	Specify the period in milliseconds between snapshots of TDV events. Default: *1000 milliseconds* Minimum: 100 milliseconds
Resource Statistic Batch Send Period	Specify the period in milliseconds between snapshots of TDV resource statistics. Default: *1000 milliseconds* Minimum: 100 milliseconds
Snapshot Update Period	Specify the period in milliseconds between snapshots of TDV state. Default: *1000 milliseconds* Minimum: 100 milliseconds

Configuring the Monitor Server

Monitor's Monitor Server configuration parameters let you control:

- Whether or not the Monitor Server is enabled.
- The connection information for the remote TDV systems you want to monitor.
- The frequency at which TDV client data is monitored and purged.

To specify the Monitor Server configuration

1. Run Studio.
2. From the Administration menu, choose Configuration.
3. Change the Monitor Server settings as necessary.

Monitor Server	Use to...
Enable Monitor Server	Specify whether TDV should automatically run the Monitor Server. *True*—TDV runs the Monitor Server. False—TDV does not run the Monitor Server.

Monitor Server	Use to...
Idle Client Timeout	Specify the period in seconds that a TDV client needs to be idle before it is considered expired. The Monitor Server aggregates TDV sessions together which have the same host, client type, user name, and domain name into a single TDV client. This allows similar TDV sessions from TDV nodes in a cluster or connectionless sessions, such as those created by web services, to appear as one logical TDV client for monitoring purposes. Default: *300 seconds* Minimum: 1 second
Expired Client Purge Period	Specify the period in milliseconds between purges of expired TDV clients from the TDV Collector to Monitor Server. Default: *1000 milliseconds* Minimum: 100 milliseconds
Force Single Server Monitoring	Specify whether to monitor a single TDV member of the cluster or the entire TDV cluster. If the TDV system is not part of a cluster, or if the monitored TDV is localhost, this option has no effect and is treated as True. True—Monitor Server monitors the TDV as a single standalone instance. *False*—Monitor Server attempts to monitor the entire cluster to which the TDV instance belongs.
TDV Host	Specify the host name of the remote TDV connection. If monitoring a cluster, this can be any member of the cluster. Default: localhost
TDV Password	For the system user named monitor within the composite domain, specify the password to use for connecting with the remote TDV. Default: *monitor*
TDV Port	Specify the base port of the remote TDV you want to monitor. If this value is non-zero, then that port will be used. If this value is 0 and the TDV Host is "localhost", then the port of this TDV instance will be used; otherwise port 9400 will be used. See the effective port for the actual port that will be used. Default: *0* (that is, use the same port as the local TDV uses.

Monitor Server	Use to...
TDV Effective Port	The actual port for the remote TDV connection. This is a read-only value.
Reconnect Period	Specify the period, in seconds, the Monitor Server is to wait before attempting to reconnect with a TDV system if the connection is broken. Default: *10 seconds*

Running Monitor

This chapter describes how to run Monitor in your browser and understand the health and activity information that it provides.

The following topics are covered in this chapter:

Starting Monitor

Monitor runs as a web application in your Internet browser.

To start Monitor

1. Open a supported Internet browser and enter one of the URLs below according to the level of security you are using.

   — Connecting to the Monitor Server using the standard URL:

   http://<hostname>:<port>/monitor/

   For example, to monitor the local TDV instance, you might enter:

   http://localhost:9400/monitor/

   — Connecting to the Monitor Server using a secure SSL connection:

   https://<hostname>:<https-port>/monitor/

   The https-port number is 2 greater than the default TDV port. For example, if your TDV HTTP port is 9400, https-port is 9402.

   Optionally, if you are monitoring the TDV instance that is hosting Monitor, you can start Monitor by choosing Launch Monitor (Web) from Studio's Administration menu.

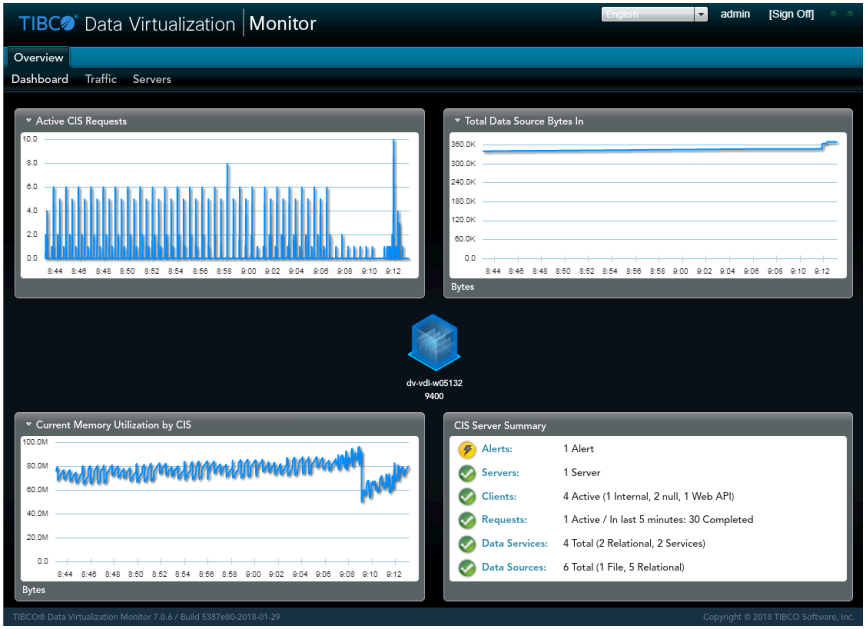
   Monitor opens in your browser and presents a login dialog.

2. Enter a valid TDV domain. The default is composite.
3. Enter a valid user name and password.

   The user must have these rights to log in: Access Tools, and Read All Status.
4. Optionally, if present, check the boxes to save this user name and password.

   Note: See Configuring the Monitor Client, page 14 if you would like to be able to store the user name and/or password for future use and these check boxes are not available. The default is to allow up to seven user names to be saved, but passwords cannot be saved. You can delete the list of saved user names using the Clear User Cache button.
5. Click Login to log into Monitor.

   Monitor presents its home page:



Initially, if you are using the default configuration, Monitor displays the activity and health of the TDV instance that hosts it.

Logging In and Out

After starting Monitor Server (as described in Starting Monitor, page 19), you can log out and log in at any time. When you log in, the Monitor Client logs into the Monitor Server. At login, you provide the credentials for accessing the TDV instance that hosts the Monitor Server to get data from the Monitor Server.

See these sections for more information:

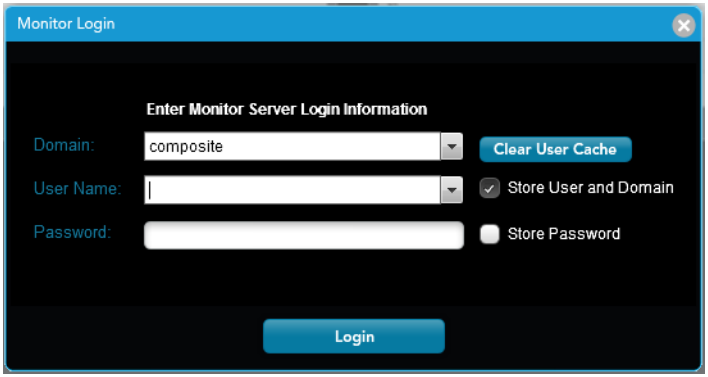
- Logging Into Monitor, page 21
- Logging Out of Monitor, page 21

Logging Into Monitor

When you run Monitor, the login dialog box appears automatically.

If you have logged out and want to log back in, the same login dialog appears when you click the orange Login button at the top of the window.

The options in this dialog depends on Monitor configuration. If the current configuration allows the saving of user names and passwords, the dialog box includes these options at login time as shown here.



Logging Out of Monitor

To log out of Monitor

1. In the Monitor main window, click the Sign Off button at the top of the page.

Monitor erases the graphic displays and stops monitoring the TDV instance to which you are connected.

Monitor Main Page

The Monitor home page displays the Monitor Dashboard, which shows the status and activity of the TDV instance you are monitoring. The header elements at the top of the Monitor display are the same for all tabs: Dashboard, Traffic, and Servers.

Three views of TDV activity and status are available:

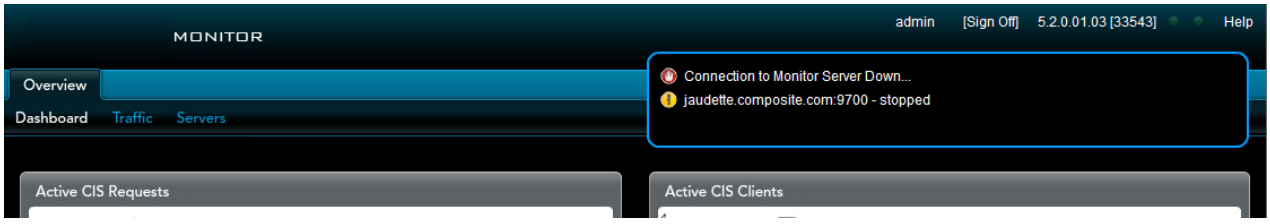
- Dashboard page—Displays the activity (real time requests and active clients) and health (memory use and server status) for the TDV instances you are monitoring. See Dashboard Page, page 23.
- Traffic page—Displays live TDV request activity between TDV clients, TDV servers, and data sources. See Traffic Page, page 33.
- Servers page—Displays the system servers and provides links to Manager for more information. See Servers Page, page 41.

For more information about features that affect these pages, see these sections:

- Getting Information and Alerts, page 22
- Manage the Display of TDV Servers , page 23

Getting Information and Alerts

Monitor displays alert and error messages in the upper right area of the page as shown in this example.



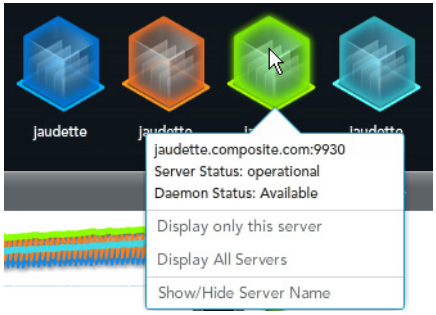
You can let the cursor hover over many page elements to display more information in pop-up boxes. For example, you can:

- Hover over a server icon in any of the displays to see details about it.
- Hover over the graph lines to see values.
- Hover over sessions or data sources in the traffic display to see details about them.

Manage the Display of TDV Servers

The server icons in the middle of the Dashboard and Traffic displays are identified by name and color-coded to match the lines in the graphs that indicate their activity or health.

You can get additional information about each server, such as its port number and status, by letting the cursor hover over a server icon.



The server pop-up displays the server's full host name and its port, whether it is operational, and the status of its daemon.

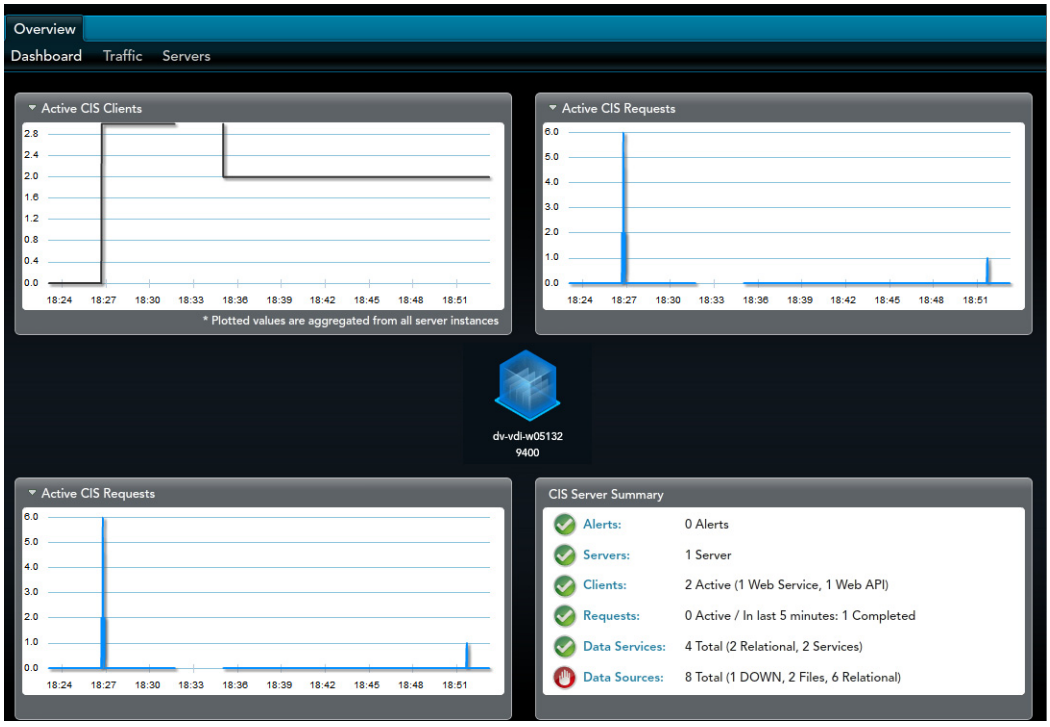
You can also use the server pop-up to change the server display to:

- Display only one server at a time.
- Display all servers.
- Show or hide the server name.

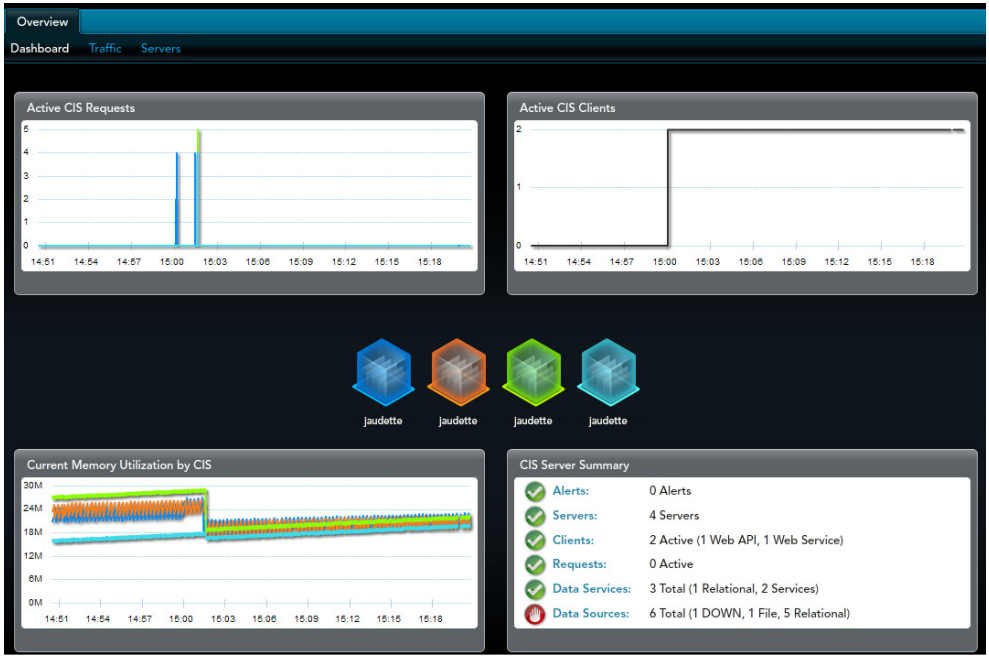
Dashboard Page

The Monitor Dashboard page displays real-time activity and health of one or more TDV instances, and provides a summary of TDV server status. It consists of four panels with icons for the servers being monitored.

By default, when monitoring a single TDV instance the Monitor Dashboard looks like this.



The following example shows the Monitor's Dashboard display for a four-node cluster.



Each color-coded line and matching server icon represent an individual TDV instance.

Note that you can change the frequency at which data is collected using the Snapshot Update Period configuration parameter. By default, data is collected every second. (See Configuring Monitor Data Collection, page 15 for more information.)

The X-axis scale in the graphs changes according to the frequency of data collection. You can view individual Y-axis values by letting the cursor hover over time points on the graph.

The contents of the two graphs on the top and the one on the lower left are selectable using the drop-down menu at the top of each graph. The available graph types are listed below. Whatever is selected persists between user sessions per machine (but not per user account).

Graph Type	Description
Active TDV Clients	The Monitor Active TDV Clients graph displays the current number of active TDV clients for the TDV instances being monitored. A TDV client consists of aggregated sessions where the host, client type, user name, and domain name match. The Y-axis shows the number of active clients for each time period.
Active TDV Requests	The Monitor Active TDV Requests graph displays the current number of TDV client requests per second (default; interval can be changed) for each TDV client being monitored. A TDV client consists of a connection where the host, client type, user name, and domain name match. The Y-axis shows the number of active TDV client requests for each time interval. The pop-up window identifies the client host and port number, and tells the number of requests at the time point where the cursor is hovering.
Active Data Source Request Count	The Monitor Active Data Source Requests Count graph displays the number of data source requests per second (default; interval can be changed) for each TDV being monitored. A TDV client consists of a connection where the host, client type, user name, and domain name match. The Y-axis shows the number of data source requests for each time interval. The pop-up window identifies the client host and port number, and tells the number of requests at the time point where the cursor is hovering.
Active Request Count	The Monitor Active Request Count graph displays the number of requests per second (default; interval can be changed) for each TDV being monitored. A TDV client consists of a connection where the host, client type, user name, and domain name match. The Y-axis shows the number of data source requests for each time interval. The pop-up window identifies the client host and port number, and tells the number of requests at the time point where the cursor is hovering.

Graph Type	Description
Active Session Count	The Monitor Active Session Count graph displays the number of session per second (by default) for each TDV being monitored. A TDV client consists of a connection where the host, client type, user name, and domain name match. The Y-axis shows the number of active sessions for each time interval. The pop-up window identifies the client host and port number and tells the number of requests at the time point where the cursor is hovering.
Available Managed Memory	The Monitor Available Managed Memory graph displays the amount of managed memory that is available per second (default; interval can be changed) for each TDV being monitored. A TDV client consists of a connection where the host, client type, user name, and domain name match. The Y-axis shows the amount of available managed memory, in bytes, for each time interval. The pop-up window identifies the client host and port number and tells the number of requests at the time point where the cursor is hovering.
Current Managed Memory Usage	The Monitor Current Managed Memory Usage graph displays the amount of managed memory used per second (default; interval can be changed) for each TDV being monitored. A TDV client consists of a connection where the host, client type, user name, and domain name match. The Y-axis shows the amount of managed memory, in bytes, used for each time interval. The pop-up window identifies the client host and port number and tells the number of requests at the time point where the cursor is hovering.
Current Memory Usage by TDV	The Monitor Current Memory Utilization graph displays the amount of memory being used by the Java virtual machine for each TDV instance. The Y-axis shows the amount of memory used, in megabytes, for each time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Percentage of Memory to Manage	The Monitor Percentage of Memory to Manage graph displays the percentage of memory to manage by the Java virtual machine for each TDV instance. The pop-up window tells the percentage of memory being used at the time point where the cursor is hovering.

Graph Type	Description
Privilege Cache Access Count	The Monitor Privilege Cache Access Count graph displays the number of times the cache was accessed by the Java virtual machine for each TDV instance. The Y-axis shows the number of times the cache was accessed for each TDV instance during each time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Privilege Cache Hit Count	The Monitor Privilege Cache Hit Count graph displays the number of times the cache was hit by the Java virtual machine for each TDV instance. The Y-axis shows the number of cache hits by the Java virtual machine for each TDV instance during each time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Privilege Cache Max Size	The Monitor Privilege Cache Max Size graph displays the maximum size of the cache for each TDV instance. The Y-axis shows the size of the cache, in entries, by TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Privilege Cache Size	The Monitor Privilege Cache Size graph displays the size of the cache for each TDV instance. The Y-axis shows the size of the privilege cache, in entries, by TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Resource Cache Access Count	The Monitor Resource Cache Access Count graph displays the number of times the resource cache was accessed by the Java virtual machine for each TDV instance. The Y-axis shows the number of times the resource cache was accessed for each time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.

Graph Type	Description
Resource Cache Hit Count	The Monitor Resource Cache Hit Count graph displays the number of times the resource cache was hit by the Java virtual machine for each TDV instance. The Y-axis shows the number of resource cache hits for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Resource Cache Max Size	The Monitor Resource Cache Max Size graph displays the maximum size of the resource cache for each TDV instance. The Y-axis shows the size of the resource cache, in entries, for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Resource Cache Size	The Monitor Resource Cache Size graph displays the size of the resource cache for each TDV instance. The Y-axis shows the size of the resource cache, in entries, for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Total Data Source Request Count	The Monitor Total Data Source Request Count graph displays the total number of data source requests for each TDV instance. The Y-axis shows the number of data source requests for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Total Request Count	The Monitor Total Data Source Request Count graph displays the total number of requests for each TDV instance. The Y-axis shows the number of requests for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Total Session Count	The Monitor Total Session Count graph displays the total number of sessions for each TDV instance. The Y-axis shows the number of sessions for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.

Graph Type	Description
Total Transaction Count	The Monitor Total Transaction Count graph displays the total number of transactions for each TDV instance. The Y-axis shows the number of transactions for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Total Trigger Count	The Monitor Total Trigger Count graph displays the total number of triggers that fired for each TDV instance. The Y-axis shows the number of triggers that fired for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Total Trigger Failures	The Monitor Total Trigger Failures graph displays the total number of triggers that failed for each TDV instance. The Y-axis shows the number of triggers that failed for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Transactions Active Count	The Monitor Transactions Active Count graph displays the total number of active transactions for each TDV instance. The Y-axis shows the number of active transactions for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Transactions Failed During Commit Count	The Monitor Transactions Failed During Commit Count graph displays the number of transactions that failed during commit for each TDV instance. The Y-axis shows the number of transactions that failed during commit for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Transactions Rolled Back Count	The Monitor Transactions Rolled Back Count graph displays the number of transactions that rolled back for each TDV instance. The Y-axis shows the number of transactions that rolled back for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.

Graph Type	Description
Unmanaged (Reserved) Memory	The Monitor Unmanaged (Reserved) Memory graph displays the amount of unmanaged reserved memory for each TDV instance. The Y-axis shows the amount of unmanaged reserved memory, in bytes, for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
User Cache Access Count	The Monitor User Cache Access Count graph displays the number of times the user cache was accessed by the Java virtual machine for each TDV instance. The Y-axis shows the number of user cache accesses for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
User Cache Hit Count	The Monitor User Cache Hit Count graph displays the number of times the user cache was hit by the Java virtual machine for each TDV instance. The Y-axis shows the number of user cache hits by for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
User Cache Max Size	The Monitor User Cache Max Size graph displays the maximum size of the user cache for each TDV instance. The Y-axis shows the maximum size of the user cache for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
User Cache Size	The Monitor User Cache Size graph displays the size of the user cache for each TDV instance. The Y-axis shows the user cache size, in bytes, for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.
Waiting Request Count	The Monitor Waiting Request Count graph displays the number of waiting requests for each TDV instance. The Y-axis shows the number of waiting requests for each TDV instance and time interval. The pop-up window tells the amount of memory being used at the time point where the cursor is hovering.

TDV Server Summary

The Monitor TDV Server Summary panel displays the status of the TDV servers.

Possible status levels for each category are as follows.

Category	Possible Status Levels
Alerts	OK—No alerts exist. WARNING—General alert. May require attention (like the daemon being inaccessible). ERROR—Critical alert. Probably requires immediate attention (like the TDV or Monitor Server being inaccessible).
Servers	OK—All servers are running. ERROR—At least one server is inaccessible.
Clients	OK—Clients always display as OK.
Requests	Based on the last five minutes of request activity: OK—No errors in the last five minutes. WARNING—A request was terminated in the last five minutes. ERROR—A request failed in the last five minutes.
Data Services	OK—Data services always display as OK.
Data Sources	OK—The data source is UP or NOT_TESTED. DISABLED—The data source is DISABLED. ERROR—At least one data source is DOWN.

If more that one status level exists for a category, the most severe one is displayed. The order of severity is:

- DISABLED (lowest)
- OK
- WARNING
- ERROR (highest)

For example, if there are 12 data sources—3 DISABLED, 3 UP, 5 NOT_TESTED, and 1 DOWN—the status is ERROR. With the same example, if none are DOWN or DISABLED, the status would be OK. If all are DISABLED, the status would be DISABLED.

To get more information about an alert or other issue like a data source that is down, open the Monitor Servers page (see Servers Page, page 41).

Traffic Page

The Monitor Traffic page displays request traffic traveling between TDV clients, TDV servers, and underlying data sources.

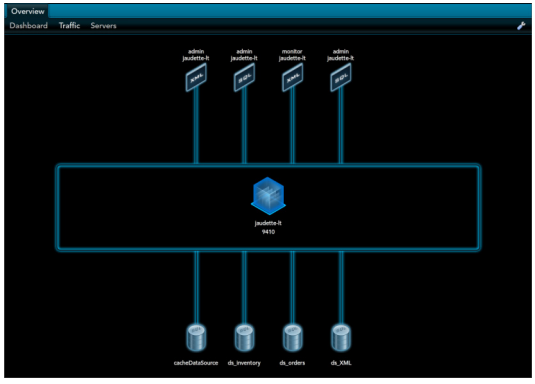
The upper part displays TDV clients as XML icons (Web services) or SQL icons (all other client types). Additional Information on the Traffic Page, page 35, describes the specific client types you can identify by letting the cursor hover over the icons. The middle part displays the servers being monitored. The bottom part displays data sources.

With default settings and monitoring a single TDV instance, the Traffic display will look similar to this.

TDV Clients

Server

Data Sources



A TDV client is a an aggregate of TDV sessions that have the same host, client type, user name, and domain name. This allows similar sessions from TDV nodes in a cluster or connectionless sessions, such as those created by Web services, to appear as one logical TDV client for monitoring purposes.

A TDV client appears when at least one TDV session exists on any TDV node in the cluster for a given set of host, client type, user name, and domain name. When all such TDV sessions are closed, the TDV client becomes idle and is displayed as disabled. If the TDV client is idle for longer than the Idle Client Timeout configuration parameter setting, it is removed the next time the Monitor Server purges expired clients. The timing of the purge is controlled by the Expired Client Purge Period configuration parameter setting.

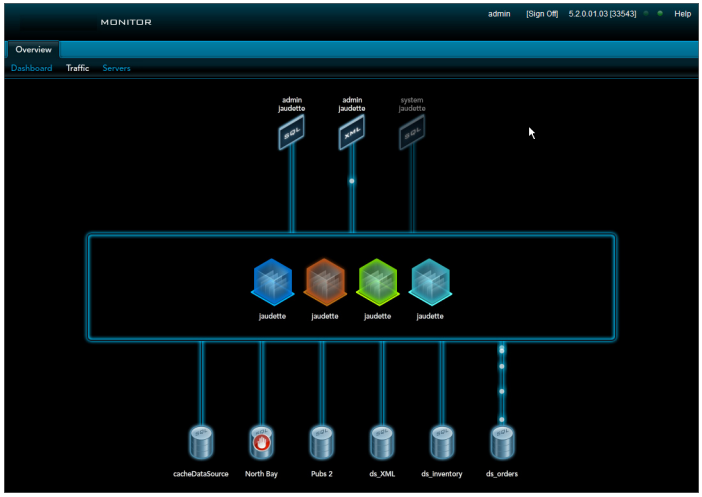
Note: See Configuring the Monitor Server, page 16, for more information on these configuration parameters.

Activity balls display client requests for data and data returning from data sources. For small numbers of requests, the number of activity balls represents the number of requests. If tens of requests are being made along a particular track, a second column of balls appear within the track. If hundreds of requests are being made, a third column appears, and so on.

The activity balls are color-coded: client requests or data source accesses are light blue; activity balls for completed requests move from the TDV server to the clients, green for successful, yellow for terminated, and red for failed.

In the example above, the activity balls illustrate Studio requesting data from a view that is based on two data sources.

The following example shows the Monitor's Traffic display of a four-node cluster.

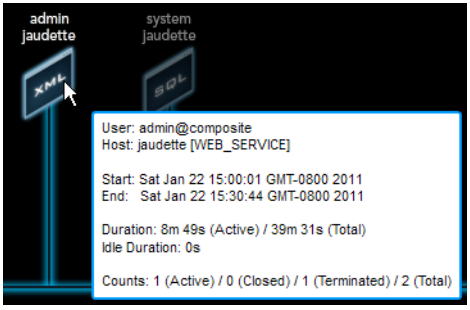


For more information about the Traffic page, see these sections:

- Additional Information on the Traffic Page, page 35
- Configuring the Traffic Page, page 36

Additional Information on the Traffic Page

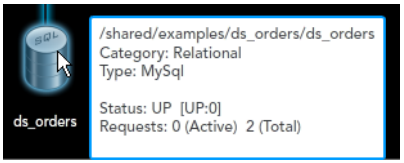
You can get additional information about the TDV clients at the top of the Traffic page by letting the cursor hover over the client icon.



The TDV client pop-up displays this information.

User	The TDV client's user name and domain.
Host	The TDV client's host name and client type (JDBC, ODBC, WEB_SERVICE, WEB_API, ADO.NET, or INTERNAL).
Start	The TDV client session start time.
End	The TDV client session end time.
Duration	The TDV session duration, both active and total.
Idle Duration	The duration of idle time.
Counts	The count of Active, Closed, Terminated, and Total TDV sessions. A TDV client is active as long as it has one open TDV session. It becomes idle when there are no open TDV sessions.

You can display further information about a data sources at the bottom of the Traffic page by letting the cursor hover over its icon.



The data source pop-up displays this information.

<data source name>	The full path and name of the data source in Studio.
Category	Relational or file.
Type	The data source type (Oracle, MySql, Sybase, FileCache, and so on)
Status	DISABLED, UP, NOT TESTED or DOWN. The format of the Status field is: <Overall Status> [<Status Type>:<Count of TDV Servers with this status for this data source>, ...] The counts show how many data sources with the same name and path have the same status across all TDV nodes in the cluster. Normally these should all be the same, but if a particular TDV instance was having a problem accessing a data source, for example, you might see something like this: Status: DOWN [UP:3, DOWN:1] The Overall Status is always the most severe status from all of the servers. If this happens, you could go to the Servers page and from there to the Manager to t determine which server is having issues.
Requests	The number of active requests, and total requests.

Note: The categories and types are the same as what you see in Studio Manager in the Data Source console.

Configuring the Traffic Page

You can configure several elements of the Monitor Traffic page:

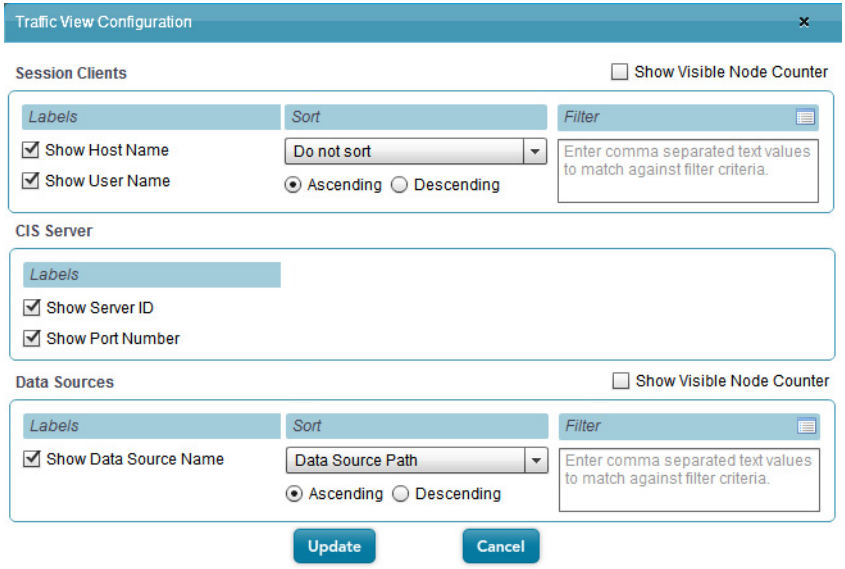
- Whether to display the host and user names for session clients.
- How to sort session clients and data sources.

- Whether to display the TDV Server ID and port number for the TDV Server.
- Whether to display the names of data sources.
- How to filter session clients: by host, user name, client name, or domain name. You can just list which clients to include.
- How to filter data sources: by name or by path. You can just list the data sources to include.

To configure the Traffic page

1. Run Monitor.
2. Click Traffic to display the Traffic page.
3. Click the Configuration button in the upper right corner of the page.

   Monitor displays the Traffic View Configuration dialog.

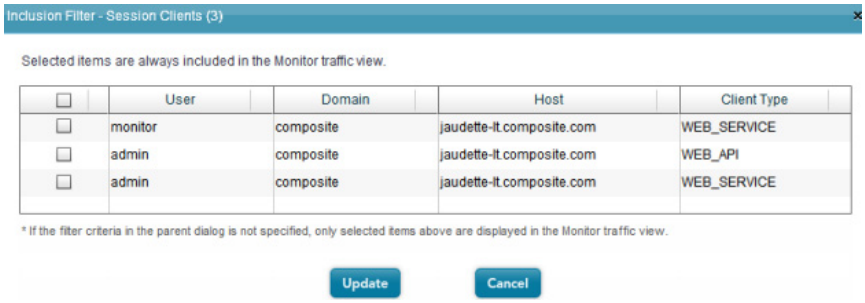


4. In the Traffic View Configuration dialog, select the display and sorting options as follows.

Option	Category	Description
Labels	Session Clients	• Show Host Name—Displays the host name when checked. • Show User Name—Displays the user name when checked.

Option	Category	Description
Sort	Session Clients	You can sort in ascending or descending order. Choose one of these options: • Do not sort • Host Name • User Name • Client Type • Domain Name
	Data Sources	• Data Source Name—Sorts the data sources in alphabetical order from left to right. • Data Source Path—Sorts the data sources according to the path.
Filter	Session Clients Data Sources	To use this option, enter a comma-separated list of text values to match full or partial host, user, client, or domain names of the session clients to include. For example, you might specify “sys, mon” to display only clients with these strings in their names.
Labels	TDV Server	• Show Server ID—Displays the host name when checked. • Show Port Number—Displays the port number when checked
Labels	Data Sources	• Show Data Source Name—Displays the data source name when checked.

5. Optionally, for the Session Clients Filter, click the Open Inclusion Filter button to specify which session clients you want to display on the Traffic page.



   a. Check the boxes for all session clients that you want to include on the Traffic page. Here are some details about how the inclusion filter works:

   — Next to Session Clients in the title bar is a number in parentheses. This shows the total number of session clients, whether selected or not.

   — To select or clear all session clients for display, click the check box at the top of the column.

   — If an entry is selected, it is displayed as long as the client is in the system.

   — This is an inclusion filter: if a row is not checked, it does not mean that it is not displayed. It still is displayed if the string match filter in the Traffic View Configuration Filter for session clients includes it.

   — Selected entries are displayed in addition to the clients specified in the string match filter in the Traffic View Configuration Filter for session clients.

   — If the string match filter in the Traffic View Configuration Filter for session clients is empty, only the selected clients in the Inclusion Filter are displayed. However, if the string match filter is empty and no client is selected in the Inclusion Filter, all clients are displayed.

   — Each column can be sorted by clicking on the column header. Multiple column sort is supported by clicking the sort arrow to the right section of the column header.

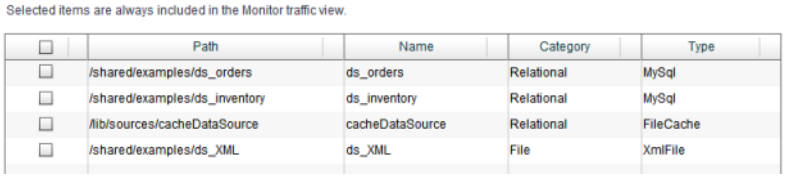
   b. Click Update.

   In the Traffic View Configuration dialog, a number in parentheses now appears next to the Open Inclusion Filter button that lets you know the number of session clients to include.

   Note: If you click Update and you used the Inclusion Filter, the list of selected session clients in the Inclusion Filter dialog is saved locally and used in the

filtering process. This list might become outdated: the number in parentheses next to Session Clients might not match the selected rows in the Inclusion Filter table, because the table shows only items currently available in the system.

6. Optionally, for the Data Sources Filter, click Open Inclusion Filter to specify which data sources you want to display in the Traffic page.



   a. Check the boxes for all data sources that you want to include on the Traffic page. To display all data sources, click the check box at the top of the column. Here are some details about how the inclusion filter works:

   — Next to Data Sources in the title bar is a number in parentheses showing the total number of data sources, whether selected or not.

   — To display all data sources, click the check box at the top of the column.

   — If an entry is selected, it is displayed as long as the data source is in the system.

   — This is an inclusion filter, so if a row is not checked, it does not mean that it is not displayed. This is because the string match filter in the Traffic View Configuration Filter for data sources might include them.

   — The selected entries are displayed in addition to the data sources specified in the string match filter in the Traffic View Configuration Filter for data sources.

   — If the string match filter in the Traffic View Configuration Filter for data sources is empty, only the selected data sources in the Inclusion Filter are displayed. However, if the string match filter is empty and no data source is selected in the Inclusion Filter, all data sources are displayed.

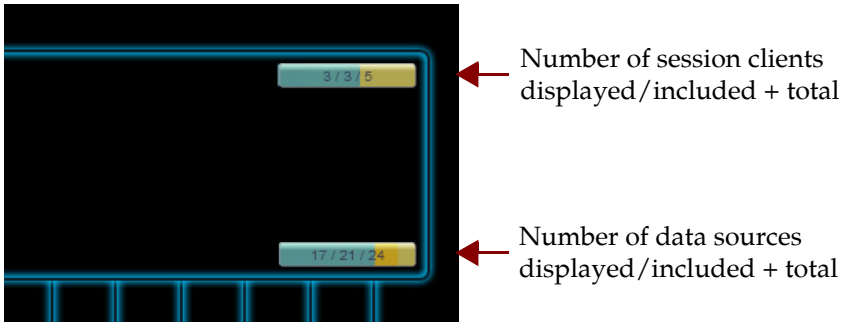
   — Each column can be sorted by clicking on the column header. Multiple column sort is supported by clicking the sort arrow to the right section of the column header.

   b. Click **Update**.

   In the Traffic View Configuration dialog, a number in parentheses now appears next to the Open Inclusion Filter button that lets you know the number of data sources to include.

Note: If you click Update and you used the Inclusion Filter, the list of selected data sources in the Inclusion Filter dialog is saved locally and used in the filtering process. This list might become outdated: the number in parentheses next to Data Sources might not match the selected rows in the Inclusion Filter table, because the table shows only items currently available in the system.

7. Optionally, for Session Clients or Data Sources, check the Show Visible Node Counter check box to show what is currently displayed on the Traffic page in the format Displayed/Filtered (included)/All.



This example shows a total of five client nodes in the system, three of which passed the filter; and 24 data sources, 21 of which passed the filter.

If the screen does not display all nodes, it is not large enough. You can see all of the nodes listed in the Inclusion Filter and make adjustments there to make sure the nodes you are interested in are visible in the Traffic panel.

The color bands relate to the counter values in the following way:

— Turquoise—Number of nodes displayed.

— Orange—Number of nodes included in the filter result but not displayed.

— Beige—Number of nodes not displayed because they were not in the filter result.

8. Click **OK** to save the new configuration.

Servers Page

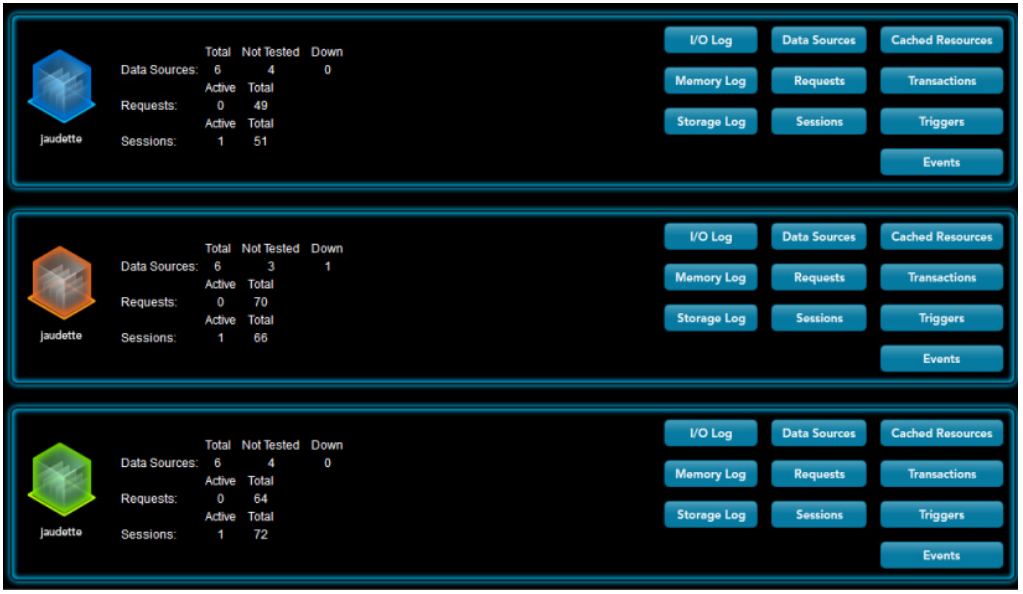
The Monitor Servers page displays a summary of each server's data sources, requests, and sessions. On the right side of each server panel are links to the Manager Web application where you can get more information.

To help determine which TDV node's Manager you would like to go to, use the summary data. For example, if one of the nodes of your cluster appears to be processing fewer requests than the others, you might go to that one to help determine why.

For information about using Manager, refer to the *TDV Administration Guide*.

By default, when monitoring a single TDV instance, the Servers display looks similar to this.

The following example shows the Monitor's Servers display for a four-node cluster.



In this example, the second server, displayed in orange, has a data source that is down. Clicking on the Data Sources button opens Manager. After you log in, you see the following page, which provides more information about this server's data sources.