WebSphere Commerce Fastpack documentation for Dynatrace

This document provides description of Dynatrace profile created for monitoring of WebSphere Commercel installations.

Version	Dynatrace Version	Created by	Created on
1	6.1.0 build 7888	Brian Wilson	April 9, 2015
2	6.1.0 build 7888	Brian Wilson	May 22, 2015

Table of Contents

WSCommerce Business UEM Dashboard
WSCommerce Database Performance

Measures

The WebSphere Commerce profile contains a set of custom measures, which are used either in Business Transactions, dashboards (graphs), incident definitions or to provide additional information when drilling down through one individual PurePath. Following section provides overview of the most important custom measures and their use.

Business Transaction measures

Many measures are used within the custom Business Transactions, either as filtres, splits or both at the same time.

As the front end user actions, or even URIs, can be customized to any environment, specific page sets/actions are identified by the existence of methods of different classes. This ensures that variations in the browser do not impact Dynatrace's ability to categorize a request properly.

Below is a list of the measures along with the class they are instrumenting. The measure is set to capture invocation count of the methods in the associated classes.

- Invocation BusinessObjectDocumentProcessor
  - com.ibm.commerce.foundation.server.command.bod.BusinessObjectDocumentProcessor
    - processBusinessObjectDocument
- Invocation CategoryDisplayCmd
  - com.ibm.commerce.catalog.commands.CategoryDisplayCmdImpl
    - performExecute
  - Identifies Category, List & Search pages
- Invocation MarketingSpotData
  - com.ibm.commerce.marketing.rest.resources.MarketingSpotData
    - <all methods>(*)
  - Identifies REST Handlers
    - We have not had an environment in which to refine this yet.
- Invocation OrderCalculateCmd
  - com.ibm.commerce.order.commands.PromotionEngineOrderCalculateCmdImpl
    - performExecute
  - Identifies a transaction where order calculation occurs
- Invocation OrderPrepareCmd
  - com.ibm.commerce.order.commands.OrderPrepareCmdImpl
    - performExecute
  - Identifies a transaction where order preparation occurs.
- Invocation OrderProcessCmd
  - com.ibm.commerce.order.commands.OrderProcessCmdImpl
    - performExecute
  - Identifies a completed order

- Invocation ProductDisplayCmd
    - com.ibm.commerce.catalog.commands.ProductDisplayCmdImpl
        - performExecute
    - Identifies a Product Detail page
- Invocation PromotionExecutionAgendaBuilder
    - com.ibm.commerce.marketing.promotion.runtime.PromotionExecutionAgendaBuilder
        - <all methods>(*)
        - We have not had an environment in which to refine this yet.
    - Used to identify time it takes to build a promotion agenda
- Invocation TopCategoriesDisplayCmd
    - com.ibm.commerce.catalog.commands.TopCategoriesDisplayCmdImpl
        - performExecute
    - Identifies the Home page

Business Transaction Evaluation/Filter/Splitting measures

The following measures are used to provide context beyond standard measures like response time, failure rate, or simple identification.

- Order Value

  This measure captures the 3rd argument, java.math.BigDecimal, from the method:

  payments.plugincontroller.beans._PluginController_Stub.createPayment

  This measure captures the order value of a purchase. It is used in the Total Sales business transaction to track the average order value. This measure can be re-used to create other business transactions involving order counts and value.

  If your deployment of WebSphere commerce is not using this method in the payment process, use this measure as an example to capture the same value and replace references to Order Value in the Total Sales Business Transaction with the new measure.

  This measure is used in the UEM settings to denote a conversion goal and calculate conversion rate based on customers completing an order. It is used in both the Default Application and WSCommerce UEM settings tabs.

- Username

  Username captures the username as passed through the Servlet Request Parameter logonId.

  To see where this is configured on Servlet, go to Sensor Configuration in the WebSphere Commerce Server agent group and click ‘Properties...’ next to the Servlets sensor pack.

  This is also configured to be captured on the IHS Server Web Server sensor.

This measure is used to tag visits when User Experience Management is employed.

Log Error and Exception Measures

The following Log and Exception messages have been identified by the WebSphere Commerce team as critical errors and have been elevated for visibility. Current severe thresholds have been set to 1 occurrence, but this threshold can be changed to meet your needs in the measure settings. Additionally, an alert incident has been created for them. Dynatrace automatically captures exceptions and log errors. This measure is simply used to be able to promote the exception types to a higher visibility.

Exceptions:

DYNA E & W Exceptions

- Promotes exceptions with a message that begin with DYNA and end with either E or W. For more information on these exceptions, see the corresponding documentation from IBM
- These exceptions are identified using the regex `DYNA.*[(E|W)]:(.*)` in the message field.
- Examples:
    - DYNA0003E: Not caching {0} due to misconfiguration
    - DYNA0064W: The size of cache entry is over limit {0} MB for cache name "{1}"

Exception Too many files open

- Promotes exceptions with a message that begins with “Too many files open”. For more information on these exceptions, see the corresponding documentation from IBM
- This exception is thrown when the proxy server seems to hang under stress and indicates that the file system descriptors might have become exhausted.

Logging

Log Error Too Many Files Open

- This measure is looking for the same error as described in Exception Too many files open, but in this case it’s looking for it being thrown in the logs by log methods.

Business Transactions

The profile contains custom Business Transaction which mainly serve as a way to classify PurePaths (with Web Requests) into various groups based on what operations they represent in WebSphere Commerce. Instead of basing them on URIs, which can vary from deployment to deployment, they are instead based on method invocation. If any of these business transactions do not work in your deployment, it could be due to some deep customization of the code used.

The custom of the Business Transactions use one or more custom Measures.

Page/Action Business Transactions

These business transactions are used to define specific business important page loads or actions in the commerce experience. There are two instances of each one, one for use with a standard dynatrace license, the other for use when a UEM license is added. The "Server" BT's measure the request from the servlet entry point. The UEM ones are Page Action business transactions, measuring the transaction from the user's browser. One of the many added benefits of the UEM version is that it measures the Page Action, which includes both the URI that triggers the identifying measure, but also all requests that make up the page load/action.

Category-List-Search pages Server/UEM

- Filtered on measure Invocation CategoryDisplayCmd

Home Page Server/UEM

- Filtered on measure Invocation TopCategoriesDisplayCmd

Order Calculation Server/UEM

- Filtered on measure Invocation OrderCalculateCmd

Order Preparation Server/UEM

- Filtered on measure Invocation OrderPrepareCmd

Order Processing Server/UEM

- Filtered on measure Invocation OrderProcessCmd

Product Detail Pages Server/UEM

- Filtered on measure Invocation ProductDisplayCmd

Other Business Transactions

While these business transactions are all based on pages/actions, they're used for a slightly different purpose than tracking the performance of the key user actions on the commerce site.

BOD Pages

- Tracks pages with Business Object Documents. This business transaction is used to track the worst performing BOD commands
- Filtered on measure Invocation BusinessObjectDocumentProcessor

Marketing Spot Rest Handler

- Tracks pages utilizing REST handlers. This business transaction is used to track the worst performing REST handlers.
- Filtered on measure Invocation MarketingSpotData

Promotion Agenda

- Tracks time take to build the promotion agenda.
- Filtered on measure Invocation PromotionExecutionAgendaBuilder

Total Sales

- This is very similar to the Order Processing business transaction, however, it has been configured to calculate the average order dollar amount based on the Order Value measure

Incidents

In addition to the standard out of the box incidents that come with Dynatrace, the incidents listed below have been added to the WebSphere Commerce profile. Incidents and the thresholds that trigger them should be reviewed to meet the organization's needs. Further configuration may be required if an action should be triggered, such as an email alert or snmp trap to send the incident to a different alerting system.

DYNA E & W Exception

- This incident is set to trigger when any one of the following measures exceeds a limit of 1 occurrence in a 10 second time frame.
    - DYNA E & W Exceptions measure.

Too Many Files Error

- This incident is set to trigger when any one of the following measures exceeds a limit of 1 occurrence in a 10 second time frame.
    - Log Error Too Many Files Open
        - or
    - Exception Too many files open

Sensor Packs

Sensor packs are used to add custom instrumentation that make most of the measures and business transactions possible. By adding instrumentation to information Dynatrace would normally pick up through auto-sensors, Dynatrace is able to do much more with the data. The additional instrumentation in these packs was recommended by the WebSphere Commerce team.

Commerce

All sensors in the Commerce sensor pack belong to com.ibm.commerce. This is where most of the instrumentation is.

- com.ibm.commerce.catalog.commands.ProductDisplayCmdImpl.performExecute
- com.ibm.commerce.order.commands.OrderProcessCmdImpl.performExecute
- com.ibm.commerce.order.commands.OrderPrepareCmdImpl.performExecute
- com.ibm.commerce.order.commands.PromotionEngineOrderCalculateCmdImpl.performExecute
- com.ibm.commerce.payments.plugincontroller.beans._PluginController_Stub.createPayment
- com.ibm.commerce.foundation.server.command.bod.BusinessObjectDocumentProcessor.processBusinessObjectDocument
- com.ibm.commerce.catalog.commands.TopCategoriesDisplayCmdImpl.performExecute
- com.ibm.commerce.catalog.commands.CategoryDisplayCmdImpl.performExecute

The following list of classes have been instrumented with wild cards. Dynatrace does not recommend wild card instrumentation unless it has been verified to be a limited set of methods, such as these:

- com.ibm.commerce.marketing.rest.resources.MarketingSpotData.*
- com.ibm.commerce.marketing.promotion.runtime.PromotionExecutionAgendaBuilder.*

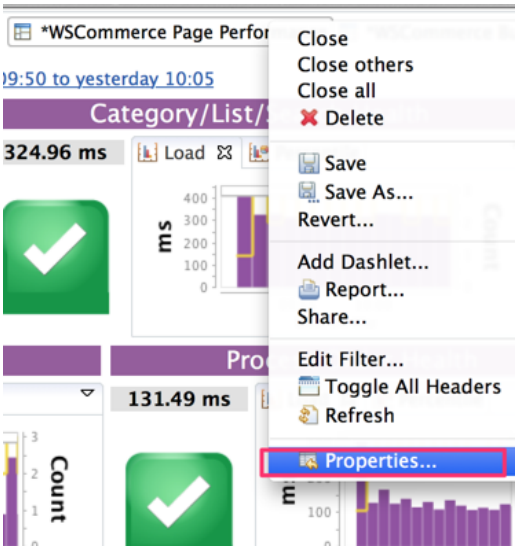
This last one in the Commerce pack is more specific and is used to collect the order value

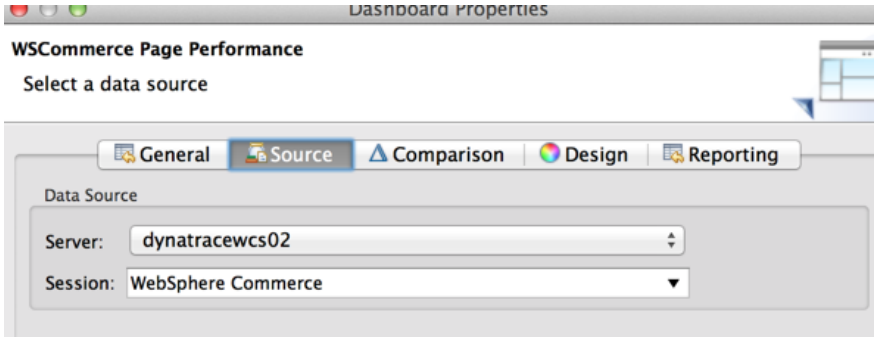
- payments.plugincontroller.beans._PluginController_Stub.createPayment
    - Specifically, it's capturing the argument java.math.BigDecimal

Dashboards

Following is a description of custom dashboards created for the purposes of Websphere Commerce monitoring. They are presenting the stock Dynatrace data together with custom Business Transactions and Measures.

Depending on your dynatrace deployment, you may need to change the source of the dashboard in order to see the data from your websphere instance. To do this, right click the dashboard in the top row of dashboard and select Properties





In the properties window, select Source and make sure your Dyntrace server is in the Server section and the WebSphere Commerce profile is selected for the Session. If you've renamed the WebSphere Commerce profile, be sure to select the newly named one.

WSCommerce Page Request Health

All metrics in the dashboard come from dynatrace JVM agents. There are no UEM metrics on this page.

The purpose of this dahboard is to provide an overall health view of important site actions in alongside the health of the hosts/jvms

Along the top of this dashboard are incident alerts for the Host and Commerce Server process. Most of these are out of the box incidents, but the two exception/error based ones have been added to Commerce Server Incidents.

- Too Many Files Error
- DYNA E & W Exception

The rest of this dashboard repeats the same pattern for the following Business Transactions.

- Web Page Requests (A built in Business transaction encompassing all web page requests)
- Home Page
- Catetogy/List/Search Page
- Product Display Page
- Order Process Page

Baseline Violations detects violations in the following areas for each BT:

- Response Time Degraded
- Response Time Degraded for Slow Requests
- High Over Failed Transaction Rate
- Failure Rate Too High

Numerical Metrics

- Requests/Hour
- Average Response Time
- Failure Rate
- Failure Count.

Graphs

- Load (Average Response time vs. Request Count)
- Percentile Response Time

WSCommerce Page Performance

All metrics in the dashboard come from dynatrace JVM agents. There are no UEM metrics on this page.

This dashboard provides a more detailed view of key site actions/pages including business transactions not included in the Page Request Health dashboard

The following business transactions are covered in the top half and are presented in terms of Average Response Time, Baseline Violation, Load and percentile graphs. One can also get a sense of where orders are dropping off with dashboard by following transaction count from home page through to Process Order. This data is presented for the following business transactions:

- Home Page
- Category/List/Search

- Product Display
- Calculate Order
- Prepare Order
- Process Order
- Promotion Engine Health

The bottom half of this dashboard is dedicated to the Top 20 slowest BOD Pages.
The left dashlet shows the 20 slowest web requests by average that invoke Business Object Document methods. The right dashlet shows an aggregate view of an API breakdown for the slowest twenty BOD pages, indicating in which API's time is spent.

WSCommerce Business UEM Dashboard

This dashboard relies on a User Experience Management (UEM) license being in place.

The Business UEM dashboard combines out of the box UEM dashlets with custom Websphere Commerce business transactions and measures.

Custom data used:

- Orders/Hour*
- Avg Order Value*

  * These two measures do not rely on UEM.
- UEM versions of the following Business Transactions
  - Home Page
  - Category/List/Search
  - Product Display
  - Process Order

Also covered in this dashboard are key UEM business metrics, including the following:

- Conversion Rate
- Bounce Rate
- Visit Rate
- Geographical User Satisfaction
- Action & Visit Counts
- Concurrent Visits
- User Actions per Visit
- User Experience Index

WSCommerce Database Performance

All metrics in the dashboard come from dynatrace JVM agents. There are no UEM metrics on this page.

This dashboard has been created from out of the box dashlets and measures. Right click to drill down to further detail on any item.

Database Hotspots:
This dashlet displays the Caller Breakdown Tree from the Database Hotspot dashlet. Select a database statement in the Database Hotspots table to display a detailed caller breakdown tree of the selected statement.

The selected database statement is displayed at the top of the tree. The executors are listed in the hierarchy below the statement. Because the caller breakdown is an aggregation of many paths, it is likely that the database statement is executed by many different call paths. The tree therefore consists of branches that are weighted according to the breakdown time contribution of each tree branch.

Database Time vs. Count
This graph plots the count of database executions against the average database time. Database time is a combination of connection acquisition time, preparation time and execution time.

Slow SQL Statements
Whereas the Database Hotspots focuses on the number of times a query is executed, Slow SQL statements displays the top twenty slowest SQL statements.