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WebSphere® Commerce V6

Troubleshooting

Welcome to the WebSphere Commerce V6 presentation. This presentation describes the troubleshooting and performance monitoring tools in WebSphere Commerce V6.

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Unit objectives

- Configure WebSphere Commerce logging

- Enable trace of different WebSphere Commerce components

- Analyze log files to troubleshoot problems

- Measure performance of WebSphere Commerce components

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This presentation discusses how to configure WebSphere Commerce logging, enable trace of different components, analyze log files to troubleshoot problems, and measure performance of WebSphere Commerce components.

When troubleshooting a WebSphere Commerce system, it is important to realize that many different components are involved. Each component has its own logging and tracing facilities and requires a separate base of knowledge. Troubleshooting a complex, federated environment as seen in the diagram requires skills beyond basic WebSphere Commerce knowledge. The diagram on the slide is highly simplified. You can have firewalls, multiple Web servers, load dispatchers and other components as part of your architecture. In addition, requests to a WebSphere Commerce system can come from multiple places, for example, a Web request from a customer browser, Web service request, WebSphere MQ, or other vendor integration.

Logging

Each component has its own logging capabilities which can be useful when troubleshooting.

- Installation and configuration logs
  - ▸ Useful to verify if a component was configured correctly
  - ▸ Useful to identify and resolve problems

- Error logs and trace files

- Access or transaction logs
  - ▸ Useful for monitoring usage and performance

During the lifetime of the WebSphere Commerce system, many log files are used. It is important to categorize the log files so you know which ones are most useful.

There are three basic groups of log files.

The first group contains installation and configuration logs. The logs record the output and status of the installation or configuration process and are useful to verify configuration. They are not normally appended to when the product is running, but they may be appended to when you apply fixes or reconfigure components.

The second group includes error logs and trace files. The files record information about how the server initializes and processes requests. These are the most useful log files for problem determination.

The third group contains access or transaction logs. The logs record information about requests that have been received and processed. Normally, these logs are used for site analysis, although they may occasionally help during problem determination.

Web server and plug-in logging

- IBM HTTP Server log files are in
  <WCS_HOME>\instances\<instance_name>\httplogs directory:
  - ▸ error.log - server or module errors
  - ▸ access.log - browser hits
- To configure IBM HTTP Server logging, edit
  <WCS_HOME>\instances\<instance_name>\httpconf\httpd.conf
  - ▸ Errorlog - set error log file name
  - ▸ LogLevel - change log level (default=warn)
  - ▸ LogFormat - define access log formats
  - ▸ CustomLog - set access log name and format
- Plug-in log file in <PLUGINS>\logs\<SERVER> directory:
  - ▸ http_plugin.log -WebSphere Application Server plug-in log
- To configure plug-in log, edit <PLUGINS>\config\<SERVER>\plugin-cfg.xml

The plug-in configuration file can be viewed through the WebSphere Application Server administrative console. Click Server and then Web servers. Then select your Web server and click Plug-in properties. On the Plug-in properties page, select view beside the name of the plug-in configuration file. This view is read only; however, through the Additional Properties link it is possible to change some of the values in this file.

IBM HTTP Server creates two log files by default: error.log and access.log. Error logging can be configured using the Errorlog and LogLevel directives in the httpd.conf file. Possible values for LogLevel include: debug, info, notice, warn, error, crit, alert, and emerg. The default is warn. Access logging can be configured using the LogFormat and CustomLog directives. You may need to change the log format used by the server to enable the logs to be used with analysis tools.

The WebSphere Application Server plug-in running in the Web server uses log file http_plugin.log. The logging level for the WebSphere Application Server plug-in can be configured in the plugin-cfg.xml file. The log value can be trace, warn, or error. The default is error.

The two main logs for DB2 diagnostic purposes are the **administration notification log** and **diagnostic log**. The administration notification log is the main log intended for database and system administrators. On the Windows platform, it is found in the event log and can be reviewed through the Windows Event Viewer as seen in the picture on the slide. On other operating systems, this text log is called <db2instance>.nfy

The diagnostics log (db2diag.log) is intended for use by DB2 customer support for troubleshooting purposes.

DB2 provides a number of diagnostic tools and monitors. A comprehensive overview of these is beyond the scope of this course. More information can be found in the DB2 Information Center.

WebSphere Commerce logging

- WebSphere Commerce logs can be found at:
  - Installation: <WCS_HOME>/logs
  - activity.log:
    <WAS_HOME>/profiles/<instance_name>/logs
  - SystemOut.log:
    <WAS_HOME>/profiles/<instance_name>/logs/server1
  - trace.log:
    <WAS_HOME>/profiles/<instance_name>/logs/server1

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WebSphere Commerce logs are the most useful for debugging WebSphere Commerce specific problems. WebSphere Commerce uses the WebSphere Application Server logging facilities for logging and tracing. Configuration of WebSphere Commerce logging and tracing settings are done in WebSphere Application Server administrative console.
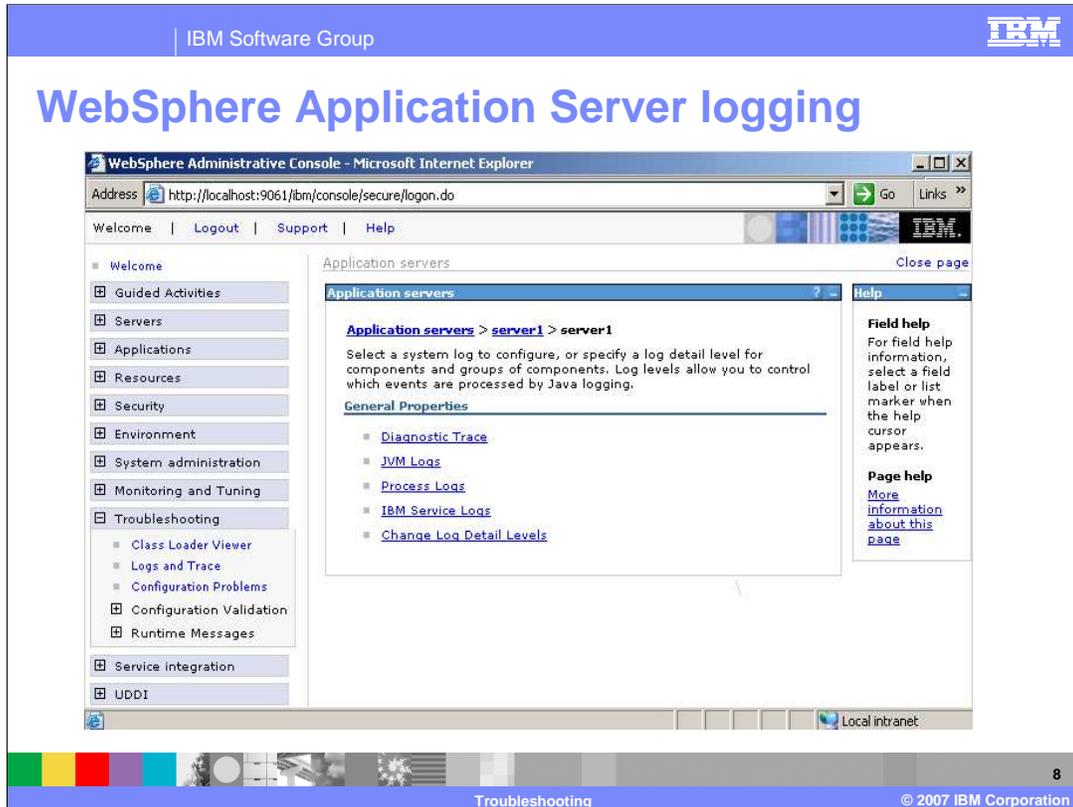
To access the WebSphere Commerce logs through the administrative console click on **Troubleshooting**, then on **Logs and Trace**, and then on application server name. IBM Service Logs correspond to activity.log from the previous slide. JVM logs correspond to SystemOut.log and SystemErr.log logs. Diagnostic trace corresponds to trace.log.

The JVM logs are named SystemOut.log and SystemErr.log in the <WAS_HOME>/profiles/<profile_name>/logs/<server_name>directory. These logs contain not only exceptions but also all logged events that may occur. They are among the most useful for checking whether the server has started up correctly and looking for exceptions. WebSphere Commerce application exceptions are logged here.

Diagnostic trace

Configuration | Runtime

General Properties

☑ Enable Log

Trace Output

○ Memory Buffer
* Maximum Buffer Size
8   thousand entries

⦿ File
* Maximum File Size
20   MB
* Maximum Number of Historical Files
1
* File Name
${SERVER_LOG_ROOT}/trace.log

Trace Output Format
Basic (Compatible) ▾

Apply | OK | Reset | Cancel

Additional Properties

▪ Change Log Detail Levels

The diagnostic trace page allows enabling the logging and setting required log detail level. The **Enable Log** box is selected by default. However, the log detail level is set to *=info and so there is no trace output. Log detail level and trace strings are configured on the page accessed by clicking **Change Log Detail Levels** under Additional Properties.

In general, tracing entries should not be written during normal runtime operation. Tracing carries significant overhead, which will affect the performance of the system.

Log detail levels

| Configuration | Runtime |

Example trace string:
`com.ibm.websphere.commerce.WC_SERVER=all`

General Properties

Change Log Detail Levels

Components

Groups

ℹ️ IMPORTANT: To view log events that are below the Detail Level, you must enable the Diagnostic Trace Service. Log events that are at Detail Level or above can be viewed in the SystemOut log, IBM Service Log (when enabled), or the Diagnostic Trace Service (when enabled).

*=info

* [All Components]
ConfigError
ConnLeakLogic
DetailSleeperThreadPool
JaasWCCMHelper
ORBRas
RRAMORE
SASRas

- off
- fatal
- severe
- warning
- audit
- info
- config
- detail
- fine
- finer
- finest
- all

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The log detail levels page is used to configure both logging and tracing. Trace strings can be manually entered by typing them into the detail box or can be entered graphically by clicking the component in the list below and selecting a log detail level. Tracing is enabled from levels **fine** to **all**. Everything between the **off** and **detail** levels is considered logging.

Logging and tracing are conceptually similar but have different purposes. Logging messages are informational records intended for users, system administrators, and support personnel. The text of the message should be clear, concise, and interpretable by a user. Trace entries are informational records intended for service engineers or developers. These records are generally more complex, verbose, and detailed than a log message entry.

IBM service log

- To view the IBM service log use:
  - showlog.bat (text format)
  - wcslogbr.bat (graphical user interface)
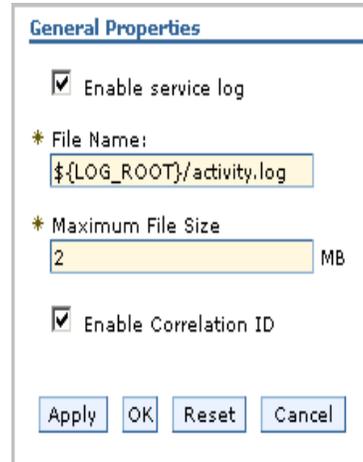
General Properties

☑ Enable service log

* File Name:
`${LOG_ROOT}/activity.log`

* Maximum File Size
`2` MB

☑ Enable Correlation ID

Apply OK Reset Cancel

The IBM service log, also known as the activity log, is a binary log of activity in the WebSphere servers running on a node and their node agent, if present. You can format the log using the showlog.bat program or the Log Analyzer tool. A filter can be put in place in order to trace only certain kind of messages (Errors, Warnings, and All Messages).
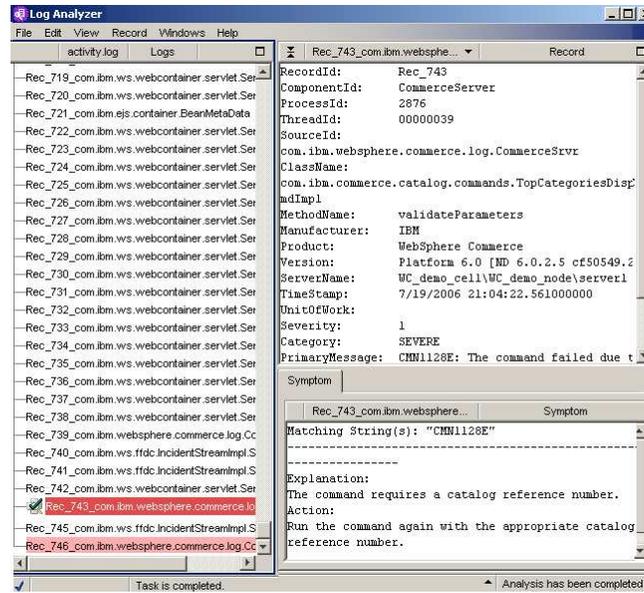
Log analyzer is a tool to sort and filter log records from your IBM service logs. It can sort chronologically, by severity, by product (for example, WebSphere Application Server and WebSphere Commerce), and so forth. In addition to displaying records in an easy to read format, the log analyzer can analyze records based on symptom databases. These symptom databases show an explanation and user action to resolve the problem.

You can automatically refresh symptom databases from WebSphere Commerce and WebSphere Application Server support site. The symptom databases are updated as WebSphere Commerce development personnel and support personnel find useful information about specific log entries.

WebSphere Commerce messages

- WebSphere Commerce messages are provided in the message catalog and symptom database

- Example
  - Cmn0522e
    - **Explanation:** one or more attribute values in the request are prohibited. The prohibited characters in the attribute values have been specified in the configuration.
    - **Action:** ensure the characters in attribute values that are currently prohibited are not regularly used attribute values.

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The message catalog consists of over 1300 WebSphere Commerce specific system messages including installation and configuration messages. To view explanations and recommended actions, click on a specific message.

The message catalog is available in a number of places for easy access.

The system message database works with WebSphere Application Server and the log analyzer. This database combines WebSphere Commerce and WebSphere Application Server messages.

The WebSphere Commerce online help system also contains the message catalog.

Anatomy of a log entry

- Basic format
  - ▶ <Timestamp><threadId><shortName><eventType>[className] [methodName]<message>

- Advanced format
  - ▶ <Timestamp><threadId><eventType><UOW><source=longName> [className][methodName]<organization><product><component> [thread=threadName]<message>

When   **Who**

[7/18/06 12:11:29:994 EDT] 00000055 CommerceSrvr I
com.ibm.commerce.struts.BaseAction executeView
CMN0203E: Command not found: "servlet".

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The slide shows the anatomy of a log entry. Notations in brackets are optional and will be included if they can be determined. The example on the slide is in the basic log format, which is the default.

Performance monitoring

- WebSphere Application Server supports performance data collection using Performance Monitoring Infrastructure (PMI)
- Use Administrative Console to configure PMI for a server

Monitoring and Tuning
- Performance Monitoring Infrastructure (PMI)
- Request Metrics
- Performance Viewer

Performance Monitoring Infrastructure (PMI) > server1

Configuration and Runtime Settings for Performance Monitoring Infrastructure (PMI)

Runtime | Configuration

General Properties

☑ Enable Performance Monitoring Infrastructure (PMI)

☐ Use sequential counter updates

Currently monitored statistic set

○ None
No statistics are enabled

⊙ Basic
⊞ Provides basic monitoring (J2EE + Top statistics)

○ Extended
⊞ Provides extended monitoring (Basic + WebSphere components)

○ All
⊞ All statistics are enabled

○ Custom
Provides fine-grained control to selectively enable statistics

Apply | OK | Reset | Cancel

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In addition to the WebSphere Application Server logging and tracing facilities, WebSphere Commerce also makes use of the WebSphere Application Server performance monitoring capabilities.

Performance Monitoring Infrastructure (PMI) is the core-monitoring infrastructure for WebSphere Application Server and WebSphere family products like WebSphere Commerce. The performance data provided by WebSphere PMI helps to monitor and tune the application server performance. WebSphere Application Server collects data on run time and applications. For example, PMI provides database connection pool size, servlet response time, Enterprise JavaBeans (EJB) method response time, Java virtual machine (JVM) garbage collection time, processor usage, and so on. This performance data can be monitored and analyzed with a variety of tools that support PMI, including Tivoli Performance Viewer, which is included in WebSphere Application Server.

Use the WebSphere Application Server administrative console in order to configure PMI for a server. PMI is enabled by default with basic statistics. There is always overheard when running any kind of monitoring tool. Basic setting overhead is less than two percent.

WebSphere Commerce provides additional monitoring counters, which can be viewed using Tivoli performance viewer. WebSphere Commerce counters are available for task and URL commands. Statistics are accessed and captured using the same tools. The WebSphere Commerce counters are disabled by default and must be enabled using a custom monitoring level before statistics will be gathered. These counters are enabled on the **runtime** tab.

Tivoli Performance Viewer

- Displays PMI data collected from local and remote application servers
  - ▸ Summary reports show key areas of contention
  - ▸ Views of raw PMI data can be shown in graphical or tabular form
  - ▸ Collected PMI data can be optionally saved to logs
- Provides configuration advice using performance advisor section
- Integrated into WebSphere administrative console

Tivoli Performance Viewer

Server selection for Tivoli Performance Viewer.

⊞ Preferences

| Start Monitoring | Stop Monitoring |

Select	Server ⬥	Node ⬥	Version ⬥	Collection Status ⬥
☐	server1	WC_demo_node	6.0.2.5	Monitored

Total 1

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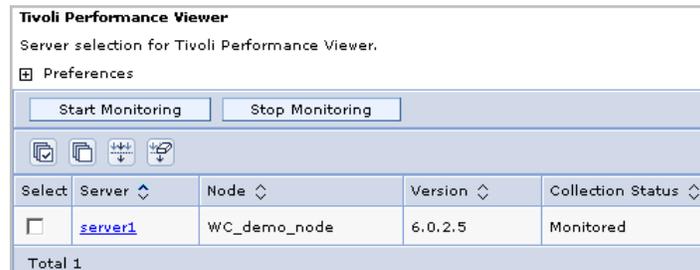
To view the graphical reports, you may need a scalable vector Graphics (SVG) plug-in for your browser. If needed, a viewer can be downloaded from www.adobe.com/svg.

Tivoli Performance Viewer (TPV) is capable of connecting directly to a base application server or to the deployment manager in a Network Deployment configuration.

WebSphere Commerce performance counters

Counter ◊	Type ◊	Description ◊
AverageResponseTime	TimeStatistic	Average time to complete a request
LastTime	TimeStatistic	The amount of time the last request took.
MaxTime	TimeStatistic	The maximum amount of time to complete a request
MinTime	TimeStatistic	The minimum amount of time to complete a request
RequestCount	CountStatistic	Number of requests
StdDevTime	TimeStatistic	The standard deviation of request times.
TotalTime	TimeStatistic	The total amount time to complete requests.

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The counters on the slide are included for each task, URL, or view in the WebSphere Commerce counter group.

IBM Support Assistant

- Search
  - IBM software support documents
  - IBM DeveloperWorks and forums
  - Product Information Center
  - Google Web search
- Product information
  - Home page
  - Support page
  - IBM Education Assistant
- Problem determination tools
- Service
  - Automated system and symptom based collector
  - Problem submission tool

Support Assistant

Welcome | Search | Product Information | Tools | Service

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The IBM Support Assistant is a tool that helps you investigate and resolve problems by making it easier to find and access many different resources. If you do need to contact IBM support for additional assistance, the IBM support assistant helps you submit your problem to IBM software support. It allows you to open a problem management record electronically, and collects logging and configuration information to make the overall process run smoother.

Installing IBM support assistant

- Download from IBM support Web site:
  http://www.ibm.com/software/support/isa

- Install IBM support assistant

- Install product plug-ins using updater tool

Features Upgrades New Products and Tools

☐ 🔧 New Products and Tools (46 new features found)
⊞ ☐ 📁 DB2
⊞ ☐ 📁 Lotus
⊞ ☐ 📁 Others
⊞ ☐ 📁 Rational
⊞ ☐ 📁 Tivoli
⊟ ☐ 📂 Websphere
  ⊞ ☐ 🖥 WebSphere Application Server V5.0 (3.0.0.20060426)
  ⊞ ☐ 🖥 WebSphere Application Server V5.1 (3.0.0.20060426)
  ⊞ ☐ 🖥 WebSphere Application Server V6.0 (3.0.0.20060426)
  ⊞ ☐ 🖥 WebSphere Application Server V6.1 (3.0.0.20060614)
  ⊞ ☑ 🖥 WebSphere Commerce 6.0 (3.0.0.20060510)
  ⊞ ☐ 🖥 WebSphere Commerce Developer 6.0 (3.0.0.20060510)
  ⊞ ☐ 🖥 WebSphere MQ v6 (3.0.0.20060421)

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The IBM support assistant is a stand-alone Web application that is installed separately from other IBM products. Plug-ins for specific products are then installed using an updater tool.

You can download IBM support assistant from www.ibm.com/software/support/isa.

Recommended courses

Formal education exists for this product and you can find information on recommended training paths and certification tests at these links.

- Application developer for WebSphere Commerce V6
  http://www-304.ibm.com/jct03001c/services/learning/ites.wss/us/en?pageType=page&c=a0011792

- Business user for WebSphere Commerce V6
  http://www-304.ibm.com/jct03001c/services/learning/ites.wss/us/en?pageType=page&c=a0011793

- System administrator for WebSphere Commerce V6
  http://www-304.ibm.com/jct03001c/services/learning/ites.wss/us/en?pageType=page&c=a0011794

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