This presentation covers troubleshooting the ODWEK servlet.

ODWEK servlet troubleshooting topics

- Known installation issue
- Initialization and deployment errors
  - Accessing the ODWEK servlet returns a 500 Internal Server Error
  - Accessing the ODWEK servlet returns a 404 error
- Abends
- Hang

This module covers an installation issue, initialization and deployment errors on the ODWEK servlet, servlet abends and hang situations.

ODWEK known installation issue

- Running the ODWEK V8.3 InstallShield installer on AIX® might not update the ODM if using Java 1.4.1
  - Flash:

http://www-1.ibm.com/support/docview.wss?rs=129&context=SSEPCD&context=SSEPC6&context=SS3U2Y&dc=D600&uid=swg21243190&loc=en_US&cs=utf-8&lang=en

  - Ensure Java 1.4.2 is installed when running the ODWEK V8.3 InstallShield installer
  - The InstallShield installer will look for Java 1.4.2 without the System Administrator having to specify environment variables/configuration to do so
  - In V8.4, OnDemand/ODWEK InstallShield installers now ship with a built-in JVM™ for use during installation

If ODWEK is installed on V8.3 of AIX the ODM might not be updated if using Java V1.4.1. The solution is to use Java V1.4.2

In V8.4, a JVM™ is built into the installer, preventing these issues from occurring in the future.

ODWEK servlet returns a 500 internal server error

- Check the application server's SystemOut.log for specific ODWEK initialization error messages
  - SystemOut.log and other server logs are located in $WAS_HOME/profiles/$profile_name/logs/$WAS_server_name
- Ensure all steps were followed in the Copying Files section of the ODWEK Implementation Guide:

http://publib.boulder.ibm.com/infocenter/cmod/v8r4m0/topic/com.ibm.ondemand.mp.doc/ars1y37152.htm

  - ODWEK V7.1.2.7 and later, step two should use ArsSVTInterface.class instead of ArsWWWInterface.class
  - ODWEK V8.4 and later, step three should reference libarswwwsl32 or arswwwsl32 native libraries
  - Optionally: steps one and two specify these files/directories in the application server's CLASSPATH instead

For situations where the ODWEK servlet returns a 500 Internal server error:

Check the application server's SystemOut.log for specific ODWEK initialization error messages.

Ensure all steps were followed within the copying files section of the ODWEK Implementation Guide.

Within ODWEK V7.1.2.7 and later, step two should use the ArsSVTInterface.class instead of the ArsWWWInterface.class.

For ODWEK V8.4 and later, step three should reference libarwwwsL32 or arswwwsL32 native libraries.

Optionally steps one and two specify these files and directories in the application server's CLASSPATH instead.

ODWEK servlet returns a 500 internal server error

- Confirm that the ConfigDir parameter is set correctly in the web.xml
  - Directory containing arswww.ini
  - Ensure the ConfigDir parameter is named correctly
    - Example: 'Config Dir' is incorrect
  - ConfigDir parameter and value can be found:
    - WebSphere Administration Console-> Enterprise Applications-> $ODWEK_app_name-> Web Modules-> $ODWEK_war-> View Deployment Descriptor
  - web.xml is located:
    - $WAS_HOME/profiles/$profile_name/config/cells/$node_name/applications/$ODWEK.ear/deployments/$ODWEK_app_name/$ODWEK.war//WEB-INF/web.xml

Additionally confirm that the ConfigDir parameter within the web.xml is configured correctly. It must point to the directory containing the arswww.ini file. Also, check that the ConfigDir is named correctly. The parameter "ConfigDir" cannot contain spaces, dashes or underlines.

The ConfigDir parameter and value can be found in the WebSphere Administration Console/Enterprise Applicatins/$ODWEK_app_name/Web Modules/$ODWEK.war/View Deployment Descriptor. The web.xml can be obtained from the path indicated.

ODWEK servlet returns a 500 internal server error

- Ensure TemplateDir, CacheDir, TempDir, and TraceDir are valid directories in the arswww.ini
- Permissions for the UNIX® or Windows® account running the ODWEK application
  - CacheDir, TempDir, TraceDir - read/write/execute permissions
  - arswww.ini and TemplateDir - read access
  - ODWEK program files - read and execute permissions

Ensure that the TemplateDir, CacheDir, TempDir and TraceDir are valid directories in the arswww.ini file.

Check the permissions for the UNIX/Windows account running the ODWEK application. CacheDir, TempDir and TraceDir must have read/write/execute permissions. The arswww.ini and TemplateDir must have read access and the ODWEK program files must have read and execute permissions.

Accessing the ODWEK servlet returns a 404 error

- Can the ODWEK servlet be invoked directly using the application server's built in HTTP server?
  - To test
    - Specify the host name
    - HTTP server port of the application server
      - default for WebSphere Application Server is 9080

When accessing the ODWEK servlet, it returns a 404 error.

Can the ODWEK servlet be invoked directly using the application server's built in HTTP server?

To test, specify the host name, the HTTP server port of the application server, the servlet's context-root, and the servlet mapping's URL pattern that was specified during the assembly and deployment of the servlet.

Accessing the ODWEK servlet returns a 404 error

- servlet's context-root
- servlet mapping's URL pattern that was specified during the assembly and deployment of the servlet
  - Example: OnDemandWEKWeb is the context-root and /od/* is the servlet mapping's URL pattern. Specify the URL below to invoke the ODWEK servlet directly:
    - http://host name:9080/OnDemandWEKWeb/od
  - The return output should be 'Internet Connection Version X.X.X.X The argument '_function' was not specified'
    - X.X.X.X is the ODWEK version

The default for WebSphere Application Server is 9080. For example, where OnDemandWEKWeb is the context-root and /od/* is the servlet mapping's url-pattern, specify the URL below to invoke the ODWEK servlet directly:

http://host name:9080/OnDemandWEKWeb/od

The return output should be 'Internet Connection Version X.X.X.X The argument '_function' was not specified'. Where X.X.X.X is the ODWEK version.

Accessing the ODWEK servlet returns a 404 error

- WebSphere's internal HTTP server port can be found at:
  - WebSphere Administration Console-> Application Servers-> $WAS_server_name-> Web Container Settings-> Web container transport chains-> WcInboundDefault port
- Context-root can be found at:
  - WebSphere Administration Console-> Enterprise Applications-> $ODWEK_app_name-> View Deployment Descriptor

    WebSphere Administration Console-> Enterprise Applications-> $ODWEK_app_name-> Web Modules-> $ODWEK_war-> View Deployment Descriptor

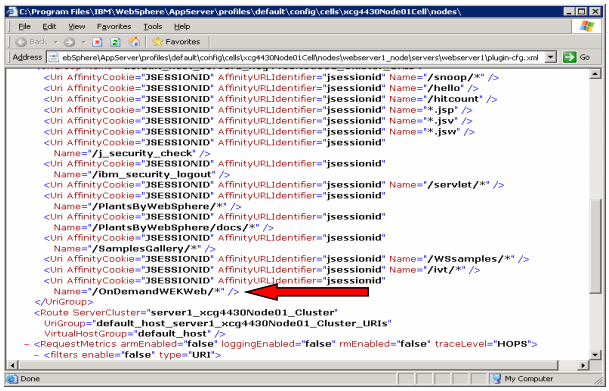
- If the servlet can be invoked directly, configure and refresh the WebSphere HTTP server plug-in
  - Open the external HTTP server's configuration file $http_server_base/conf/httpd.conf, find and open the referenced plugin-cfg.xml

WebSphere's internal HTTP server port, the Context-root and the servlet mapping's URL pattern can be found by the paths specified.

If the servlet can be invoked directly, the problem is in the WebSphere HTTP server plug-in.

Accessing the ODWEK servlet returns a 404 error

- Make sure that the context-root of the ODWEK application is specified within the plugin-cfg.xml (see example below)
  - Regenerate the plugin-cfg.xml through the WebSphere Administration Console if ODWEK's context root is missing
  - Restart the HTTP server for the new plugin-cfg.xml to be used



Plugin-cfg.xml file

Ensure that the context-root of the ODWEK application is specified in the plugin-cfg.xml

The plugin-cfg.xml can be regenerated through the WebSphere Administration Console if ODWEK's context root is missing.

The HTTP server must be restarted for the new plugin-cfg.xml to be used.

Accessing the ODWEK servlet returns a 404 error

- If the servlet cannot be invoked directly, the problem is in the deployment of the ODWEK servlet
  - Ensure the servlet was deployed to the correct WebSphere server
  - Confirm all default deployment options were used
  - IBM Software Support can provide assembled working servlet for testing
  - IBM Software Support might ask for your ODWEK servlet to test in their lab

If the servlet can't be invoked directly, the problem lies within the deployment of the ODWEK servlet. Ensure the servlet was deployed to the correct WebSphere server and all default deployment options were used. IBM Software Support can provide an assembled working servlet for testing. Your ODWEK servlet might be requested to test in an IBM lab environment.

ODWEK servlet abend

- When ODWEK abends, the JVM and application server will also abend
  - IBM Javacore (javacore*.txt) or Sun HotSpot error report file (hs_err*.log) is generated when JVM abends
  - core dump file is generated as ODWEK has a native shared library
    - It is within the ODWEK design to abend if it is unable to allocate sufficient native heap
    - Due to the system being in an unstable state, attempting to avoid an abend will make troubleshooting more difficult

When ODWEK abends, the JVM and application server will always abend.

When JVM abends an IBM Javacores (javacore*.txt) or Sun HotSpot error report file (hs_err*.log) is generated. A corresponding core dump file is created as ODWEK has a native shared library. ODWEK can abend if it can't allocate sufficient native heap. The system is considered in an unstable state, attempting to avoid an abend will make troubleshooting the unstable state more difficult.

ODWEK servlet abend

- If the ODWEK servlet abends, the best source of diagnostic information is the native stack trace from the core dump and ODWEK trace=4 output
  - The core file's call stack provides the most information
  - The Java current thread output is not useful
    - Review the Java current thread output to verify the abend was in ODWEK
    - Review the Java maximum and minimum heap settings to ensure sufficient native heap was configured

If the ODWEK servlet abends, the best source of diagnostic information is the native stack trace from the core dump and ODWEK trace=4 output.

Since the servlet does almost all processing in the native shared library, the core file's call stack will provide the most information.

The Java current thread output will almost always look the same and is not useful.

Review the Java current thread output to verify the abend was in ODWEK. The Javacore is useful in this case to review the Java maximum and minimum heap settings, to ensure sufficient native heap was configured.

ODWEK servlet abend

- Typical current thread stack trace from Javacore (below)
  - core dump shows more than Javacore's native stack
  - Example below indicates abend is in the main method of ODWEK's ArsSVTInterface class
    - Native stack trace indicates abend is in the native getData method

```
1XMCURTHDINFO Current Thread Details
NULL  ----------------
3XMTHREADINFO "WebContainer : 141" (TID:0x5025F460, sys_thread_t:0x40524AA0, state:R, native ID:0x2F1F) prio=5
4XESTACKTRACE  at com.ibm.edms.od.ArsSVTInterface.main(Native Method)
4XESTACKTRACE  at com.ibm.edms.od.ArsSVTInterface.processRequest(ArsSVTInterface.java(Compiled Code))
4XESTACKTRACE  at com.ibm.edms.od.ArsWWWServlet.doRequest(ArsWWWServlet.java(Compiled Code))
4XESTACKTRACE  at com.ibm.edms.od.ArsWWWServlet.doGet(ArsWWWServlet.java(Compiled Code))
...
3XHNATIVESTACK Native Stack
NULL  ---------
3XHSTACKLINE  at 0xD7FC03DC in _getData__12OutputDriverFPPcPUli
3XHSTACKLINE  at 0xD7FB3718 in Java_com_ibm_edms_od_ArsSVTInterface_main
3XHSTACKLINE  at 0x3E94DDF0 in
```

Thread stack trace from Javacore

Following is a typical current thread stack trace from Javacore.

Java stack traces almost always look the same, the native stack shows the most information.

Core dumps will show more or the same information as the native stack.

The example below shows the abend is in the main method of ODWEK's ArsSVTInterface class.

The native stack trace show more information and that the abend is in the native getData method.

ODWEK servlet abend

- Most abends are caused by exhausted native memory (see ODWEK - Enabling tracing, logging and requirements module)
  - Javacore and core dump in this situation almost always show an abend in document retrieval
  - Reasons for exhausted native memory:
    - Very large documents being retrieved at one time

You will find that most abends are caused by an exhaustion of the native memory. This information is covered in the Enabling Tracing/Logging and Requirements module.

The Javacore and core dump created in this situation almost always show that the abend was caused during document retrieval.

This situation is typically caused by very large documents being retrieved at one time, mis-configuration of the Java max heap or the volume of users has outgrown the system capacity.

If a document is larger then 1MB (default specified by DocSize arswww.ini parameter), ODWEK will write the document data to a temp file in the TempDir, then read the whole document into native heap for processing.

ODWEK servlet abend

- Example ODWEK trace=4 statements showing document file sizes:
  - INFO,ArsWWW_retrieve,Document segment written to file [27629619] bytes
  - INFO,ArsWWW_retrieve,Document data written to memory [850] bytes
  - INFO,ArsWWW_retrieve,Compressed DocData Size is [2921]
  - INFO,ArsWWW_retrieve,Uncompressed DocData Size is [6283]
  - INFO,ArsWWW_retrieve,Compressed ResData Size is [11157]
  - INFO,ArsWWW_retrieve,Uncompressed ResData Size is [35271]
- Native stack trace will show ODWEK is in a document retrieval method (retrieve, getData, output driver)

- Mis-configuration of Java max heap
- Volume of users outgrown system capacity

Review ODWEK trace at the time of abend to confirm the ODWEK activity that caused the abend, and the size of document or resource being retrieved.

To check the configuration of the Java max heap, check the Xmx setting in the Javacore to ensure there is sufficient native heap.

ODWEK servlet abend

- Example native stack trace from an ODWEK core dump showing an abend in one of ODWEK's document retrieval methods

```
core 'core' of 13680:          /local/WebSphere5/AppServer/0/java/bin/java -server -Dwas.status.socke
----------- lwp# 1569 / thread# 1569 ----------
ff31f6c8 _lwp_kill (6, 0, 0, ffffffff, ff3403c4, 0) + 8
ff2b5a54 abort (ff33c008, 1, 1, ff167ff9, 1, 3fb670) + 100
ff0a2c5c __1cCosFabort6Fi_v_ (1, ff167ff9, 1, 7efefeff, 81010100, ff00) + 54
ff108228 __1cHVMErrorOreport_and_die6M_v_ (ff17e308, ff17e317, ff17e327, ff3a06f0, cc47b130, cc47ae78) + 980
fedda908 JVM_handle_solaris_signal (ff3a06f0, ff3a06f0, ff167afd, 1, 0, 0) + a18
ff384f94 __sighndlr (b, cc47b130, cc47ae78, fedd9ebc, 0, 0) + c
ff37eb80 call_user_handler (ff273600, 621, ff3977a0, cc47ae78, cc47b130, b) + 254
ff37ed4c sigacthandler (ff273600, cc47b130, cc47ae78, ff396000, cc47b130, b) + 64
--- called from signal handler with signal -14207488 (SIG Unknown) ---
ff3a06f0 memcpy (c094a960, c9fc6ff0, 26e95, 50, 50, c9da6ac0) + ec
cdb7d0d8 __1cPArsWWW_retrieve6FpnH_CONFIG_pnI_SESSION__i_ (cde4261c, c0c437a8, 1700, bf80e548, c83a38f0, 16fc) + 4d98
cdb70094 __1cVArsWWW_ProcessRequest6FpnH_CONFIG_pnI_SESSION__i_ (cde4261c, c0c437a8, 8, 1400, cdced44c, d0820000) + 7e0
cdb56ce4 Java_com_ibm_edms_od_ArsSVTInterface_main (c9777d78, cc47e99c, cc47e998, cc47e994, cc47e990, cc47e98c) + 344
```


In this example of a native stack trace from an ODWEK core dump, it shows an abend during one of ODWEK's document retrieval methods.

ODWEK servlet abend

- Specific user operation causes a servlet abend
  - Reproduce in test environment if issue is isolated to a specific operation
    - Review the ODWEK trace=4 output to help in re-create
  - Provide all diagnostic data for review
    - Send information to IBM Support if further assistance is necessary

If a specific user operation causes a servlet abend, attempt to re-create in a test environment if the issue can be isolated to a specific operation.

Reviewing the ODWEK trace=4 output will help to re-create the problem.

Refer to the Collecting Data for Servlet module and provide all diagnostic data for review. Send information collected to IBM Software Support if further investigation is necessary.

ODWEK servlet hang/performance degradation

- ODWEK hang issues are typically caused by slow OnDemand server response
  - ODWEK is a client to the OnDemand server and will wait indefinitely until a response or error is received from the OnDemand server
    - No configurable method within ODWEK to timeout an operation
      - Can the problem be re-created using the OnDemand Windows Client?
        - If recreatable, eliminates ODWEK as the culprit
        - Investigate the OnDemand server

ODWEK hang issues are typically caused by slow OnDemand server response. ODWEK is a client to the OnDemand server and will wait indefinitely for a response or error from the OnDemand server. There isn't a configurable method in which to timeout an operation within ODWEK, so ODWEK will wait indefinitely.

Test to see if the hang or performance issue can be re-created using the OnDemand Windows Client. If the problem can be re-created, ODWEK is not the culprit and investigation of the OnDemand server should be performed in this situation.

ODWEK servlet hang/performance degradation

- JVM reports hung threads after 10 minutes
  - Thread can still be in a healthy running state
  - Check if ODWEK threads complete eventually
    - JVM reports when a reported hung thread has completed and length of time to complete
      - If thread eventually completes, indication is not a hang, but slow execution/response from OnDemand server
  - Provide all diagnostic data for review
    - Send information to IBM Support if further assistance is necessary

JVM reports hung threads after 10 minutes, although the JVM thread can still be in a healthy running state. Check to see if all ODWEK threads complete eventually. JVM reports when a hung thread has completed and the length of time it takes to complete. If the hung thread eventually completes, this is an indication that the servlet isn't hung, but slow performance on the OnDemand server.

Refer to Collecting Data for Servlet module and provide all diagnostic data for review. Send information to IBM Software Support if further investigation is necessary.

ODWEK servlet additional information

- ODWEK Servlet functions and parameters

http://publib.boulder.ibm.com/infocenter/cmod/V8r4m0/topic/com.ibm.ondemand.mp.doc/ars1y371173.htm

- Running an ODWEK Java API application and the ODWEK servlet in the same WebSphere Application Server causes a JVM abend

http://www-1.ibm.com/support/docview.wss?rs=0&q1=1303470&uid=swg21303470&loc=en_US&cs=utf-8&cc=us&lang=en

For further information regarding ODWEK Servlet functions and parameters, refer to the link provided.

There is additional information regarding a known issue when running an ODWEK Java API application and the ODWEK servlet in the same WebSphere Application Server in the second link.

ODWEK additional information

- ODWEK Implementation Guide

http://publib.boulder.ibm.com/infocenter/cmod/V8r4m0/topic/com.ibm.ondemand.mp.doc/ars1y371.htm

- ODWEK trace return codes
  - See chapter 13.1.5

http://www.redbooks.ibm.com/abstracts/sg247646.html

- arswww.ini parameter descriptions

http://publib.boulder.ibm.com/infocenter/cmod/V8r4m0//topic/com.ibm.ondemand.mp.doc/ars1y37158.htm

The links provided here will give additional information regarding ODWEK implementation, trace return codes, arswww.ini parameter descriptions, and some known ODWEK problems.

ODWEK additional information

- Scrolling or repeatedly opening an AFP document in the AFP Web Viewer Plug-in causes a browser abend

http://www-1.ibm.com/support/docview.wss?rs=0&q1=1295357&uid=swg21295357&loc=en_US&cs=utf-8&cc=us&lang=en

- OnDemand Web Enablement Kit (ODWEK) and OnDemand server performance slows during high usage

http://www-1.ibm.com/support/docview.wss?rs&uid=swg21223757

The links provided here gives you additional information regarding known ODWEK problems.

Feedback

Your feedback is valuable

You can help improve the quality of IBM Education Assistant content to better meet your needs by providing feedback.

- Did you find this module useful?
- Did it help you solve a problem or answer a question?
- Do you have suggestions for improvements?

Click to send e-mail feedback:

mailto:iea@us.ibm.com?subject=Feedback_about_Troubleshooting_Servlet.ppt

This module is also available in PDF format at: ../Troubleshooting_Servlet.pdf

You can help improve the quality of IBM Education Assistant content by providing feedback.

Trademarks, copyrights, and disclaimers

IBM, the IBM logo, ibm.com, and the following terms are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both:

AIX Current WebSphere

If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of other IBM trademarks is available on the Web at "Copyright and trademark information" at http://www.ibm.com/legal/copytrade.shtml

Windows, and the Windows logo are registered trademarks of Microsoft Corporation in the United States, other countries, or both.

Java, JVM, and all Java-based trademarks and logos are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

Product data has been reviewed for accuracy as of the date of initial publication. Product data is subject to change without notice. This document could include technical inaccuracies or typographical errors. IBM may make improvements or changes in the products or programs described herein at any time without notice. Any statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only. References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business. Any reference to an IBM Program Product in this document is not intended to state or imply that only that program product may be used. Any functionally equivalent program, that does not infringe IBM's intellectual property rights, may be used instead.

THE INFORMATION PROVIDED IN THIS DOCUMENT IS DISTRIBUTED "AS IS" WITHOUT ANY WARRANTY, EITHER EXPRESS OR IMPLIED. IBM EXPRESSLY DISCLAIMS ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT. IBM shall have no responsibility to update this information. IBM products are warranted, if at all, according to the terms and conditions of the agreements (for example, IBM Customer Agreement, Statement of Limited Warranty, International Program License Agreement, etc.) under which they are provided. Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products in connection with this publication and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products.

IBM makes no representations or warranties, express or implied, regarding non-IBM products and services.

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents or copyrights. Inquiries regarding patent or copyright licenses should be made, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

Note to U.S. Government Users - Documentation related to restricted rights-Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract and IBM Corp.