



IBM Software Group

Troubleshooting WebSphere Application Server Start/Stop Issues

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WebSphere® Support Technical Exchange



Agenda

- Overview – Server Start/Stop options
- Anatomy of a Server Start
- Introduction to Server logs
- Troubleshooting
- Questions and Answers



Overview – Server Start/Stop options



Application Server Start - Different Options

- From Profile Root Command line
 - ▶ <PROFILE_HOME>\bin\startServer server1
- From Install Root Command line for AppServer specifying profile name
 - ▶ <INSTALL_HOME>\bin\startServer -profileName AppSrv01 server1
- Windows® Start menu
 - ▶ Start → Programs → IBM WebSphere → Application Server V7.0 → Profiles → <Profile> → Start the Server
- If Server was registered as Windows Services
 - ▶ Registration using WASService.exe or at the time of creating the profile
 - ▶ Control Panel → Administrative Tools → Services

Starting/Stopping Dmgr and Node Agent

- Start/Stop Deployment Manager from AppServer Install Root
 - ▶ startManager -profileName <dmgr Profile Name>
 - ▶ startServer - profileName <dmgr Profile Name> dmgr
 - ▶ stopManager -profileName <dmgr Profile Name>
 - ▶ stopServer - profileName < <dmgr Profile Name> dmgr
- Start/Stop Node from AppServer Install Root
 - ▶ startNode -profileName <Managed Node Profile Name>
 - ▶ startServer - profileName <Managed Node Profile Name> nodeagent
 - ▶ stopNode -profileName <Node Profile Name>
 - ▶ stopServer - profileName <Managed Node Profile Name> nodeagent
- Administrative Console
 - ▶ DMGR and Nodeagent START - NO
 - ▶ For running Node Agent re-start and stop – YES
- Additional start/stop options for Windows OS
 - ▶ From Windows services
 - ▶ From Start menu

Anatomy of a Server Start



What happens when a server is started

- `<PROFILE_HOME>\bin\startServer server1`
- Two JVMs are actually launched.
- The first JVM is the Systems Management server launch utility.
Launches Application Server specified by `<serverName>`
 - ▶ Loads all bootstrap classes, `server.xml`, `serverindex.xml` files and construct JVM Arguments.
 - ▶ Spawn the second JVM
- The second JVM is the actual server process specified by `<serverName>`
 - ▶ Actual JVM, starts all components. Ex WebContainer, WebContainer, Security Components and Applications.

What happens when a server is stopped

- `<PROFILE_HOME>\bin\stopServer server1`
 - ▶ Creates new JVM to read configuration and send message to server to shutdown
 - ▶ By default, the stopServer utility does not return control to the command line until the server completes shutdown
 - ▶ Unless invoked with the “nowait” option, it will not return until the server is fully stopped.
 - ▶ User ID and password required to stop a secure Application Server

Introduction to Server logs



Introduction to Server logs

- Process logs
 - ▶ Native code, including Java™ virtual machines (JVM), might write data to these process streams. By default, the stdout and stderr streams are redirected to log files at application server startup. By default, these files are stored as `profile_root /logs/server_name/native_stderr.log` and `profile_root /logs/server_name/native_stdout.log`.
- Java virtual machine (JVM) log settings
 - ▶ The System.out log is used to monitor the health of the running application server. The System.err log contains exception stack trace information that is useful when performing problem analysis.
- startServer and stopServer creates respective logs at `profile_root/logs/server_name/`
- The first failure data capture (FFDC) log file saves information that is generated from a processing failure. `profile_root /logs/ffdc`

Troubleshooting



Failure with error in SystemOut.log

- SystemOut.log file is created
 - ▶ Do you see open for e-business message ?
 - ▶ Is there any exception in the log file ?
 - ▶ No Exception and No open for e-business message?
 - ▶ variables.xml, virtualHosts.xml FileNotFoundException exceptions can be ignored.
 - ▶ Most of the warning messages can be ignored including FFDC messages.



No SystemOut.log created



Troubleshooting Cont ..

- SystemOut.log file is not created
 - ▶ Look for native_stderr.log and native_stdout.log file
 - If you find any exception or warning message, most likely JVM classpath, classes folder or generic JVM argument causing the problem.
 - ▶ Start the server server with `-trace` option to get more information in the startServer.log file.



Debugging the Server Launcher



Debugging the Server Launcher

- Start the server with `–script` option and then use the launch script to start the server.
 - “-script” option creates a launch script for server1, does not start the server.
 - `startServer server1 –script launchServer1.sh`
 - Launch Scripts can be used to start the server (JVM)
 - Reduces start time by not parsing configuration files
 - If the JVM settings are changed, create a new launch script

When Server Start /Stop Hangs

When Server Start/Stop Hangs

- What may look like a hang?
 - ▶ Deadlock, Infinite loop and Resource issue (LDAP, Database)

- How to isolate the problem?
 - ▶ If it is a start issue , disable all the application and try to start just the AppServer JVM
Disabling an Enterprise Application from starting when WebSphere Application Server starts
<http://www-01.ibm.com/support/docview.wss?uid=swg21140292>
 - ▶ If it is auto shutdown then enabling com.ibm.ws.runtime.dumpShutdown will generate threaddump automatically.
Process to get a thread dump or javacore during server shutdown
<http://www-01.ibm.com/support/docview.wss?&uid=swg21304559>

- What do we need?
 - ▶ Javacore on IBM JVMTM
 - ▶ Generated by signal
 - ▶ Summarizes the state of the JVM

- Troubleshooting Guide for WebSphere Application Server -Performance
<http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg27005324>

- Hung thread detection policy – 6.1.0.19 onwards
http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/ttrb_confighangdet.html

Common issues

- Port Conflict.
- Invalid or wrong argument in genericJVMArgument.
- Missing or Corrupted config files.
- Running server as non-root user. Permission issues.
- Server hang - > related to database or HAManager.
- Security related exceptions.
- Too many open files. File descriptor/uLimit.
- Windows Service issues.
- Classloader or Runtime issues.

When All Else Fails



When All Else Fails

- **MustGather: Application Server, dmgr, and nodeagent start and stop problems**

[http://www.ibm.com/support/docview.wss?
rs=180&uid=swg21201014](http://www.ibm.com/support/docview.wss?rs=180&uid=swg21201014)



Additional WebSphere Product Resources

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- View a webcast replay with step-by-step instructions for using the Service Request (SR) tool for submitting problems electronically:
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Questions and Answers