J2EE Start-Up Issues – Troubleshooting Guide

Applies to:

This article applies to anyone working with J2EE.

Summary

This is a general troubleshooting guide to assist you in solving J2EE engine start-up problems. It details the common problems and outlines the best places to look in order to pinpoint the cause of failure.

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Created on: 23 November 2007

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Start-Up Procedure

Start-Up Procedure

	EP 6.0 on Web AS 6.20 JAVA	EP 6.0 on Web AS 6.40 JAVA
Startup Tools	J2EE Startup & Control Framework ■ startsap or MMC Unixdaemon/ NT-Services Go-Sripts R/3startup service	J2EE Startup & Control Framework ■ startsap on UNIX ■ start via MMC ■ Transaction SMICM for Web AS 6.40 JAVA AddIn Installation
Shutdown Tools	J2EE Startup & Control Framework ■ stopsap or MMC Unixdaemon -stop Telnet Connection / Console Command "shutdown" Shutdown Tool	J2EE Startup & Control Framework ■ stopsap on UNIX ■ start via MMC ■ Transaction SMICM for Web AS 6.40 JAVA AddIn Installations

- There are different methods of starting the J2EE in NetWeaver '04 depending on the installation type the user has.
- With a J2EE-Only installation the user will use the start-up Framework to start the Engine. This is done via the SAP MMC on the Windows server. There are slight differences in the way this works in windows and UNIX installations.
- On a UNIX box, the System is started and stopped by running the 'startsap' and 'stopsap' scripts. These are located in the /usr/sap/<SID>/ SYS/exe/run directory

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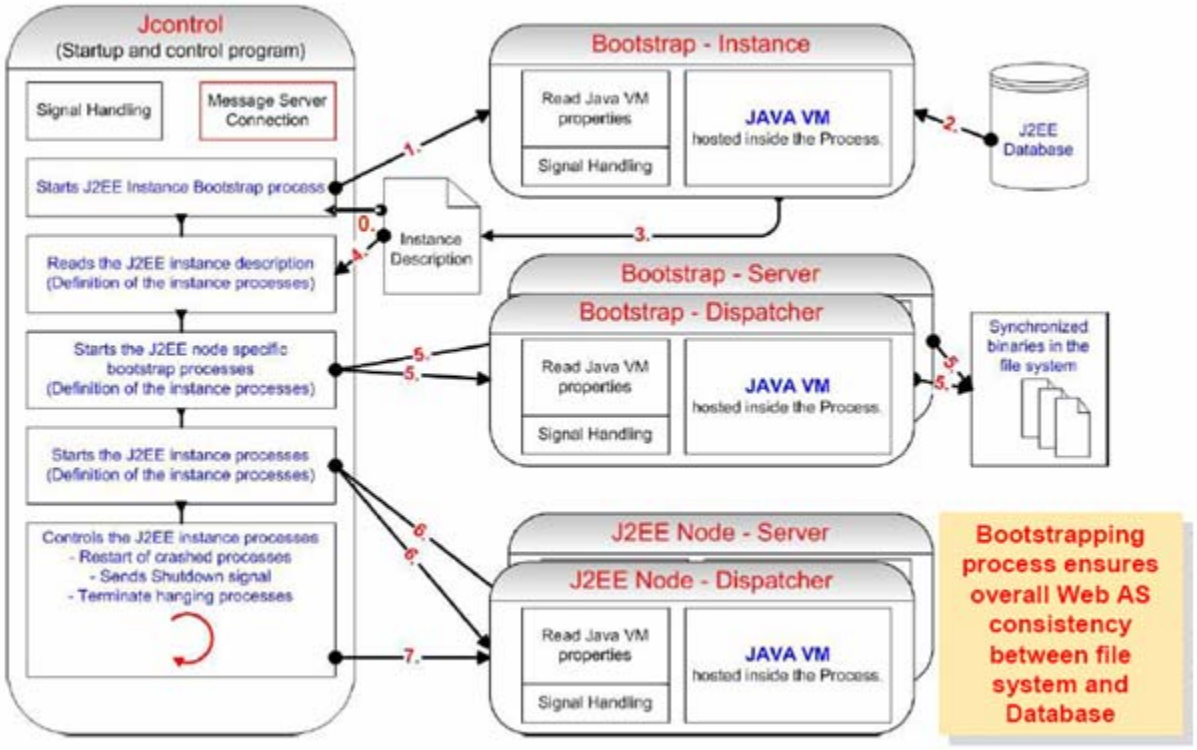
Start-Up Procedure (continued)



- The above diagram illustrates the start-up procedure of the J2EE Engine.
- The start-up Framework or the UNIX scripts launch ‘Jcontrol’ which reads profiles located in /usr/sap/<SID>/ SYS/profile for parameters required to start the Instance. ‘Jcontrol’ is in essence, the master program. In Windows, the System is started from the SAP MMC which should be present on the servers desktop. When started this way, the profiles are also read from the same location as they are with the UNIX installation. There are important profile files that should be present in this directory. These profiles are detailed on the next page.

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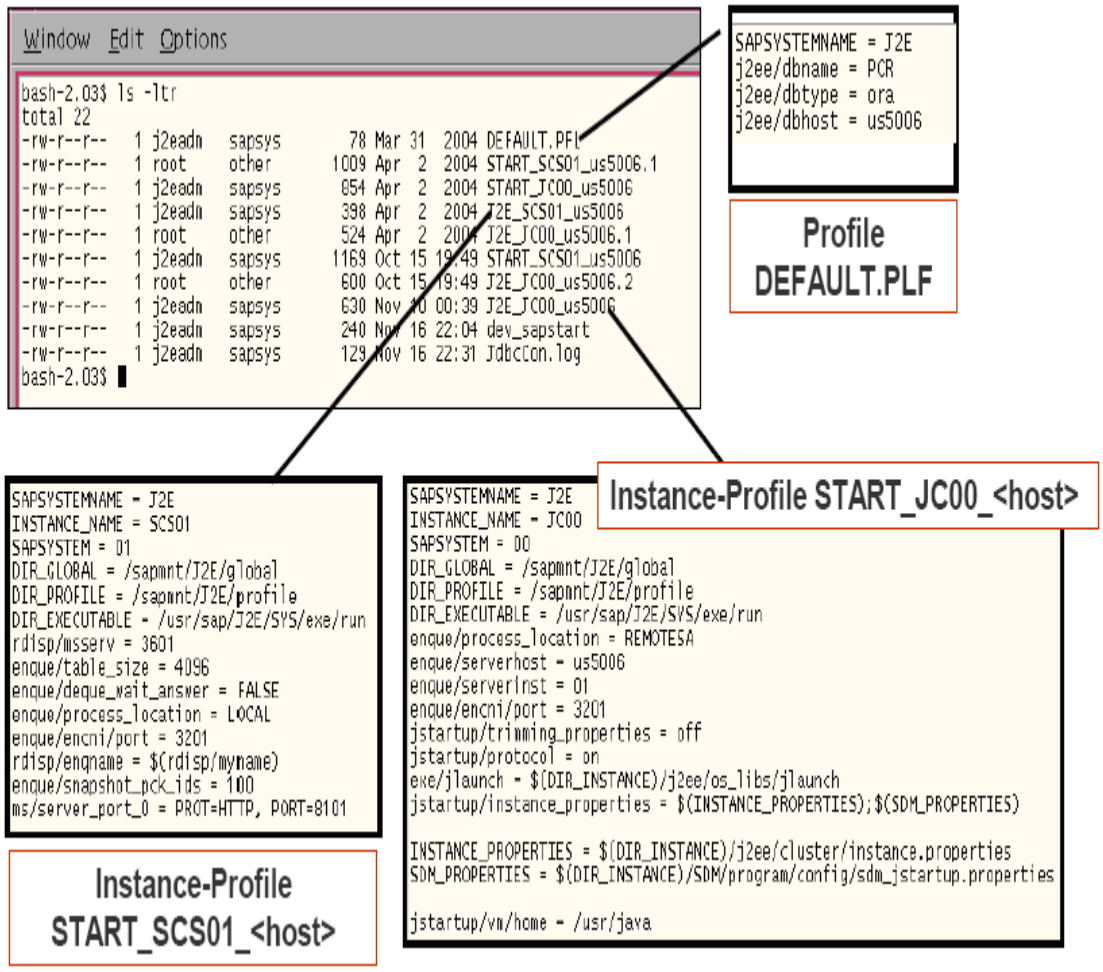
Start-Up Profiles



- DEFAULT.PFL - This contains the SAPSYSTEMNAME, the dbname, the dbtype and the dbhost.
- START_SCS<InstanceNumber>_<host> e.g. START_SCS01_us4025. This sets global variables and starts the Messaging Service and Locking Service (Enqeue Server)
- <SID>_SCS<InstanceNumber>_<host> e.g. J2E_SCS01_us4025. This contains parameters for the messaging service and enqeue service.
- START_JC<InstanceNumber>_<host> e.g. START_JC00_us4025. This sets Global Variables and start the J2EE (J2EE Engine)
- <SID>_JC<InstanceNumber>_<host> e.g. J2E_JC00_us4025. This profile contains information on where to find instance properties and sdm properties. This file also contains the location of 'jlaunch' which is required to start the J2EE Engine. 'Jlaunch' is normally located in the /usr/sap/<SID>/JC<InstanceNumber>/j2ee/os_libs directory

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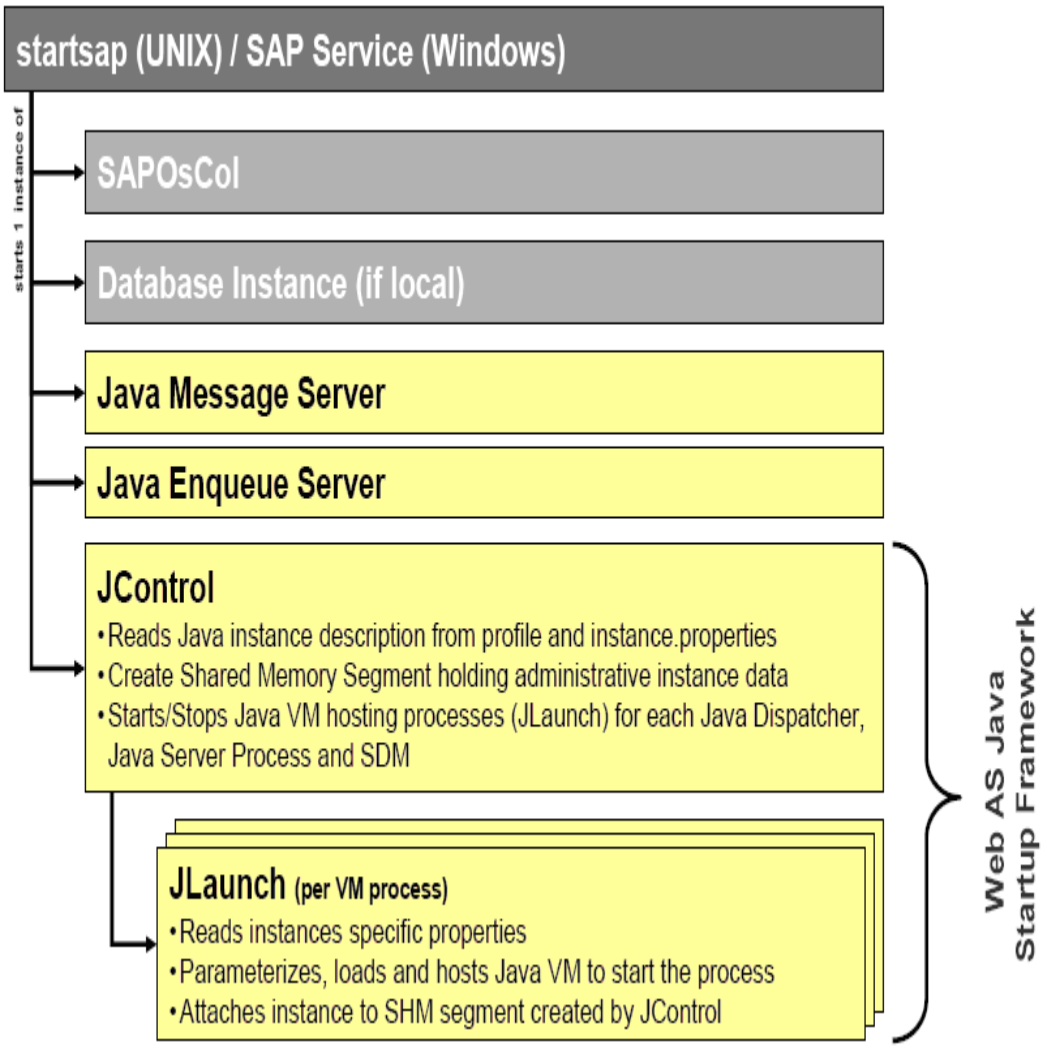
Start Up Process



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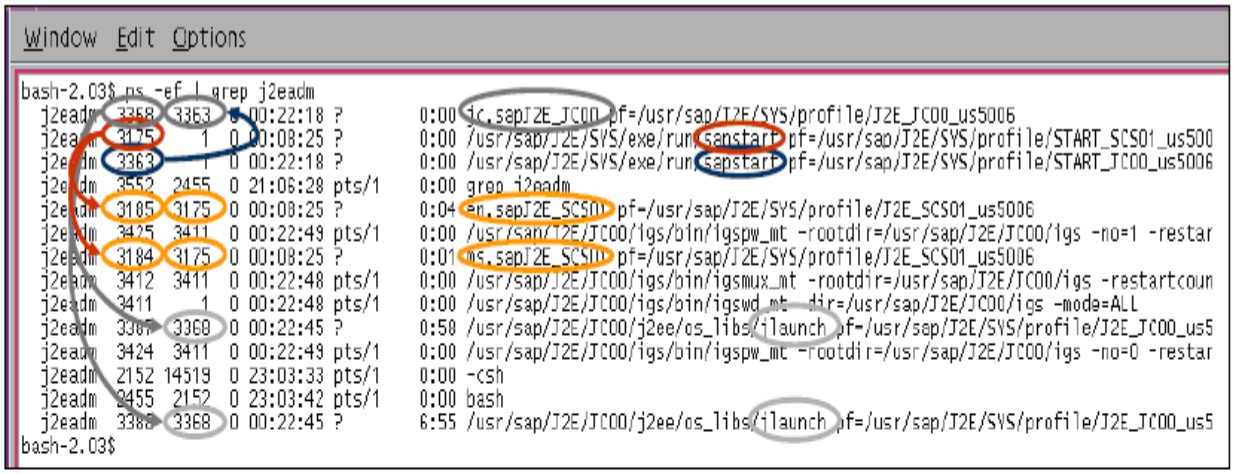
Processes in Unix



Example of startup of OS processes:

Startup of sapstart (PID 3175) => Reading Start-Profile of SCS-Instance

⇒ Starting of Message Server => startsap (PID 3175) is parent (ms.sapJ2E_SCS01= PID 3184)

⇒ Starting of Enqueue Server => startsap (PID 3175) is parent (en.sapJ2E_SCS01= PID 3185)

Startup of sapstart (PID 3363) => Reading Start-Profile of JC00-Instance

⇒ Starting of jcontrol => startsap (PID 3363) is parent (jc.sapJ2E_JC00 = PID 3368)

⇒ Starting of jlaunch => jcontrol (PID 3368) is parent (jlaunch = PID 3387)

⇒ Starting of jlaunch => jcontrol (PID 3368) is parent (jlaunch = PID 3388)

⇒ Starting of jlaunch => jcontrol (PID 3368) is parent (jlaunch = PID xxxx)

Dispatcher & Server SDM is currently stopped

Startup of igswd_mt (PID 3411) => Starting the Internet Graphics Server

- On a UNIX box, if the Engine has started properly, then the processes should appear as shown below. They can be view by using the following commands:
- ps –ef|grep jlaunch and ps –ef|grep sapstart etc.

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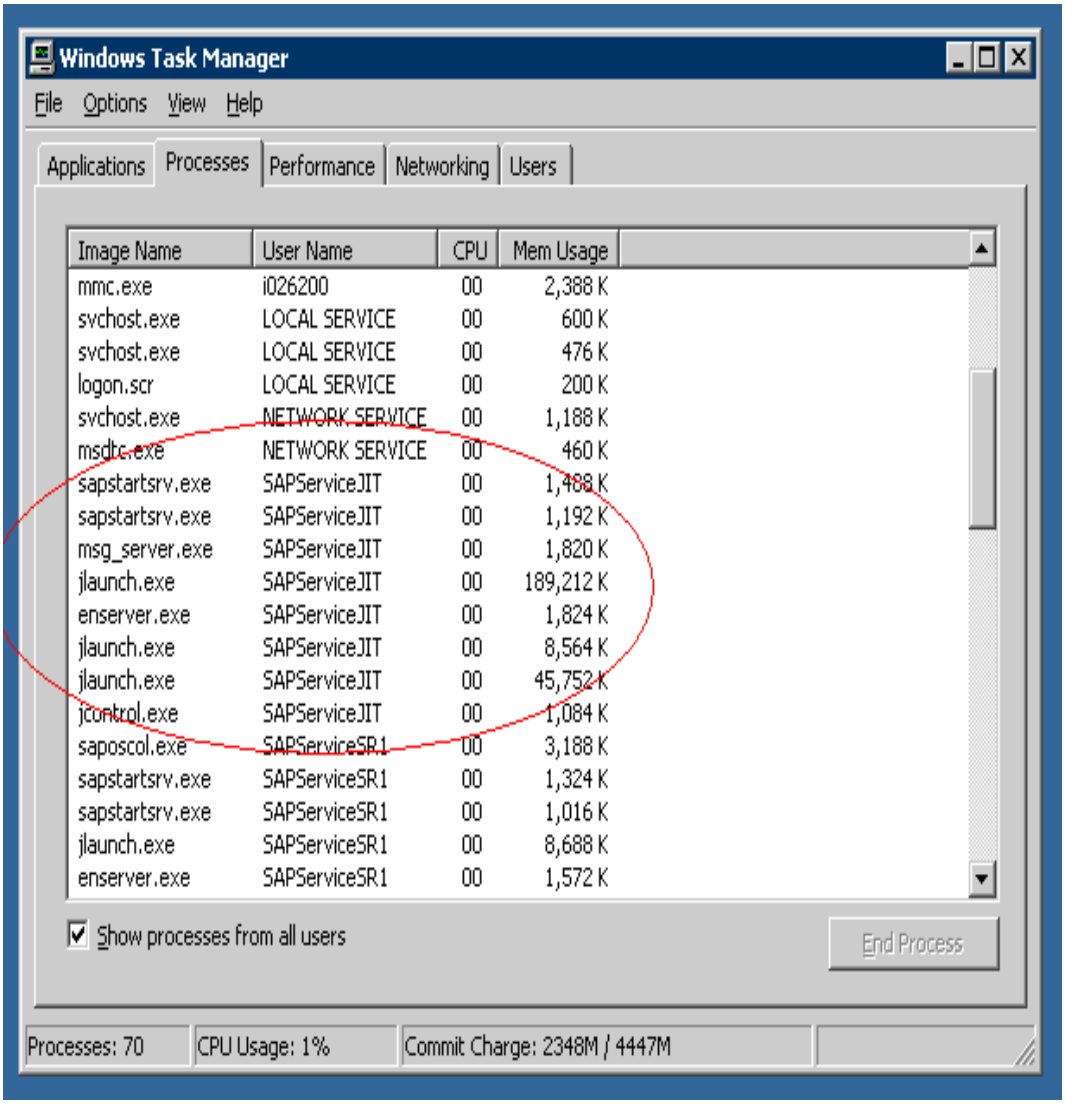

On Windows, you can use TaskManager. As illustrated on the dialgram above, the various processes are clearly visible when the J2EE is up and running.

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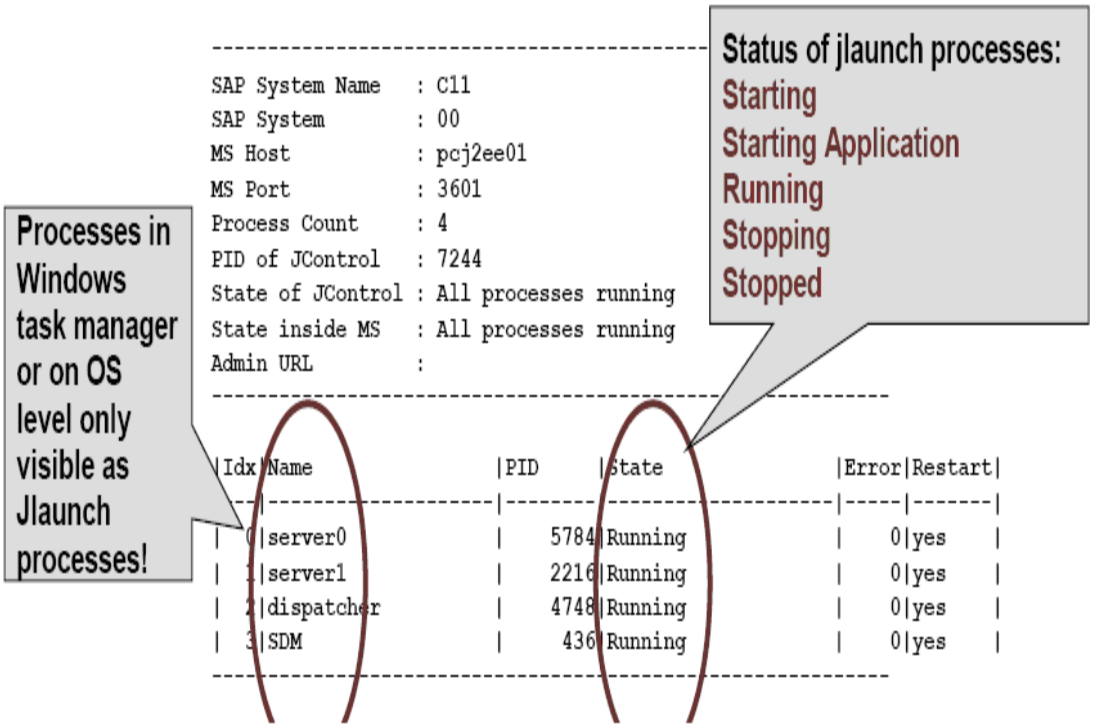

- There is also a tool called JCMon that can be used to analyze the condition of the J2EE after Start-Up. As seen in the screenshot above, this tool tells us the state of each of the nodes. Therefore, if one wants to know if the dispatcher starts successfully, they can use this tool. This can be started in the following manner:
- jcmon “pf=/usr/sap/<SID>/sys/profile/<SAPSID>_<INSTANCE_ID>_<HOST>”
- Example:
- jcmon pf=/usr/sap/C11/sys/profile/C11_JC00_testpc.
- More information on this tool can be found at this location:
- http://help.sap.com/saphelp_nw04/helpdata/en/d3/4d074147c1f06fe10000000a1550b0/frameset.htm

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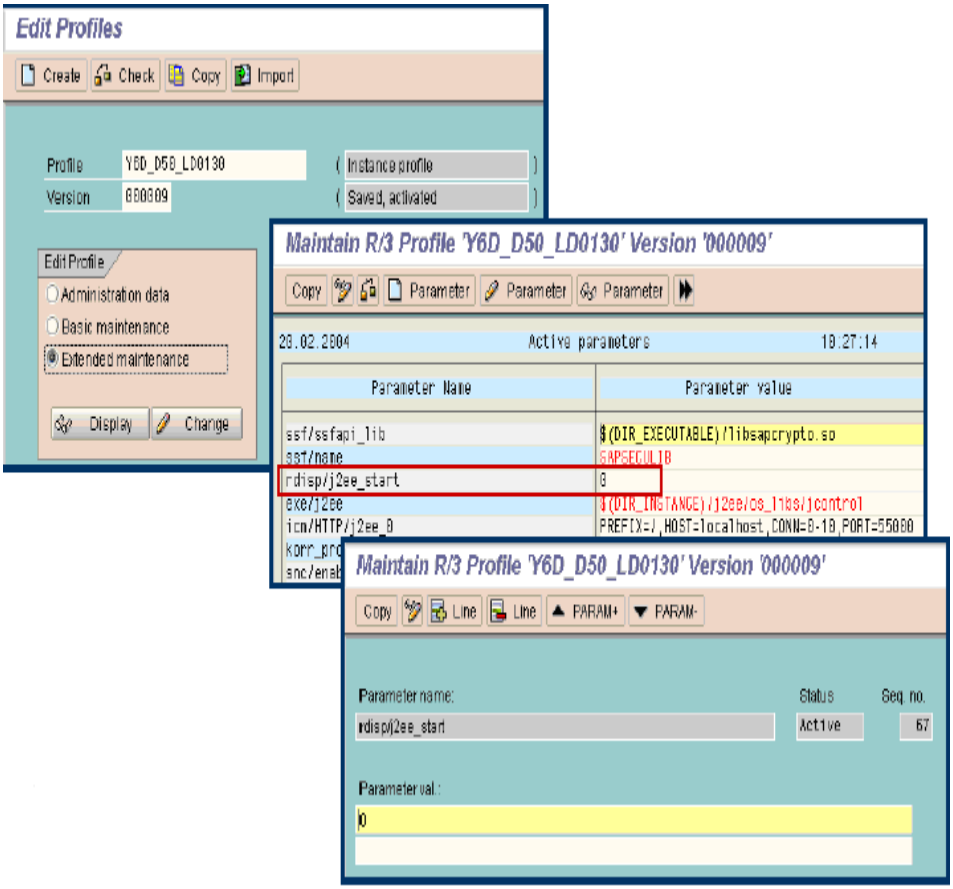

- As mentioned, in the J2EE Add-In Installation, the J2EE can also be started using the SMICM transaction in the R/3. In cases where the J2EE is not starting up in this manner, there are a number of parameters that can be checked. On the R/3 System, open transaction RZ10 and choose the profile of the SAP WebAS. Check the parameter rdisp/j2ee_start is set to 1. You should also check the patches to the Start-Up Framework.
- Missing J2EE Settings in R/3 : 741289

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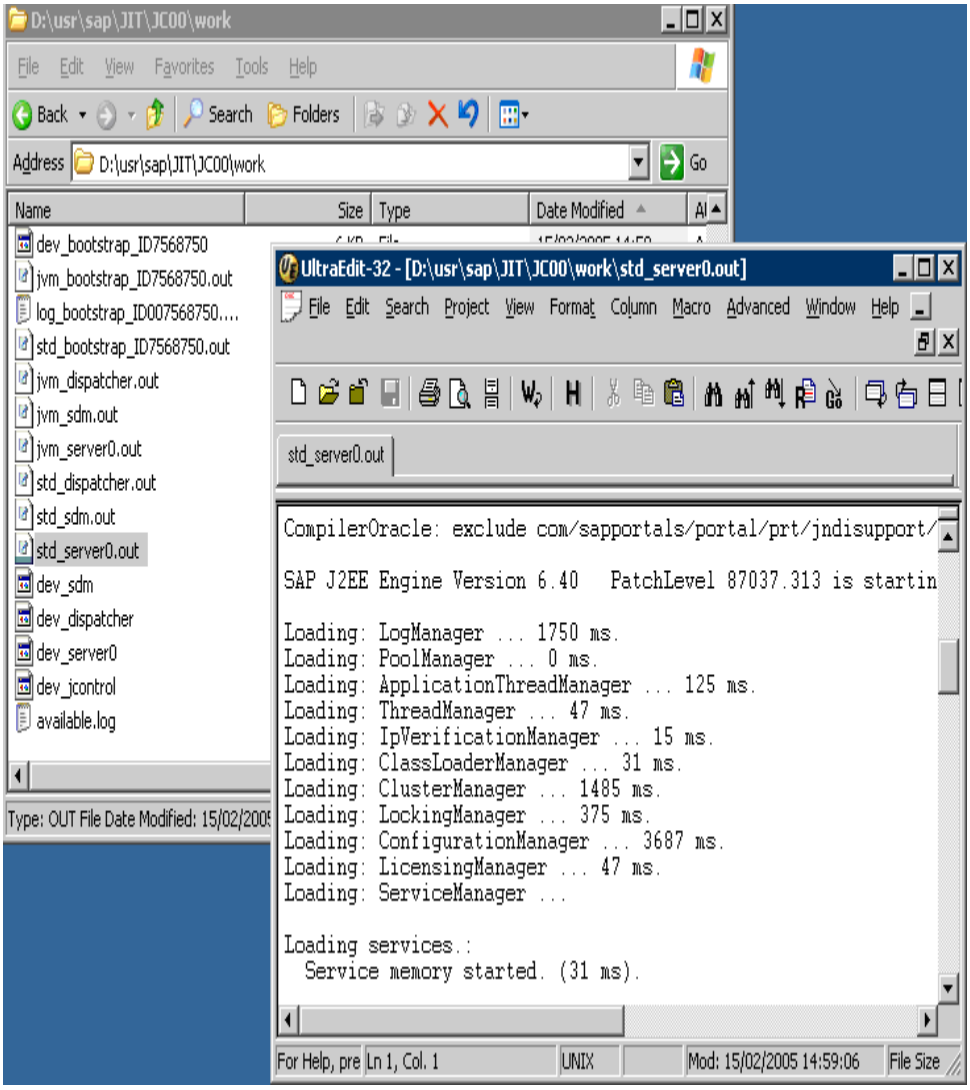
D:\usr\sap\JIT\JC00\work
File Edit View Favorites Tools Help
Back Search Folders
Address D:\usr\sap\JIT\JC00\work
Go
Name Size Type Date Modified
dev_bootstrap_ID7568750
jvm_bootstrap_ID7568750.out
log_bootstrap_ID007568750....
std_bootstrap_ID7568750.out
jvm_dispatcher.out
jvm_sdm.out
jvm_server0.out
std_dispatcher.out
std_sdm.out
std_server0.out
dev_sdm
dev_dispatcher
dev_server0
dev_jcontrol
available.log
Type: OUT File Date Modified: 15/02/200
UltraEdit-32 - [D:\usr\sap\JIT\JC00\work\std_server0.out]
File Edit Search Project View Format Column Macro Advanced Window Help
std_server0.out
CompilerOracle: exclude com/sapportals/portal/prt/jndisupport/
SAP J2EE Engine Version 6.40 PatchLevel 87037.313 is startin
Loading: LogManager ... 1750 ms.
Loading: PoolManager ... 0 ms.
Loading: ApplicationThreadManager ... 125 ms.
Loading: ThreadManager ... 47 ms.
Loading: IpVerificationManager ... 15 ms.
Loading: ClassLoaderManager ... 31 ms.
Loading: ClusterManager ... 1485 ms.
Loading: LockingManager ... 375 ms.
Loading: ConfigurationManager ... 3687 ms.
Loading: LicensingManager ... 47 ms.
Loading: ServiceManager ...
Loading services.:
Service memory started. (31 ms).
For Help, pre Ln 1, Col. 1 UNIX Mod: 15/02/2005 14:59:06 File Size

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Tools for Start-Up Analysis

Work Directory

On a standalone is located at: /usr/sap/<SID>/JC<Instance Number>/work

On a Add-In, it is located at /usr/sap/<SID>/DVEMBGS<Instance Numbers>/work

On a dialog, it is located at /usr/sap/<SID>/J<Instance Number>/work

The first thing to ask the customer for is the complete work directory. Just ask them to archive (Zip) it up and attach it to the message

Because files are over written at each start-up, sometimes it is best that you ask the customer to restart the J2EE once more before attaching the logs. Then you have a fresh set of logs to look at.

Dev_jcontrol

This is the trace for the Jcontrol process.

It will tell you how far the start-up process has progressed and approximately where it has failed.

Example 1

Dev_Jcontrol

[Thr 3316] JControlICheckProcessList: process server0 started (PID:3972)

N.B. The memory settings are included in the dev_jcontrol

Bootstrap Logs

There are a number of logs/traces for each bootstrap

- Main bootstrap for instance
- Bootstraps for each Node

Example 2

Dev_bootstrap

[Thr 3420] Wed Jan 24 14:41:34 2007

[Thr 3420] JLaunchIExitJava: exit hook is called (rc=0)

[Thr 3420] JLaunchCloseProgram: good bye (exitcode=0)

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Dev_server & Dev_dispatcher

These are the trace files of the JLaunch processes

Useful for checking the JVM parameters for each process

- Memory settings, etc.

Also useful for checking at which stage the start-up process failed if it gets this far

- [Waiting for start (1)] to [Starting (2)]
- [Starting (2)] to [Starting applications (10)]

Example 3

Dev_server0

[Thr 4788] Wed Jan 24 14:46:41 2007

[Thr 4788] JLaunchISetState: change state from [Starting applications (10)] to [Running (3)]

Std_server & Std_dispatcher

Output of the JVM

Shows which services failed during start-up

Core Services (e.g. Security - com.sap.security.core.ume.service) are required for successful start-up

Example 4

Std_dispatcher0.out

ServiceManager started for 16303 ms.

Framework started for 25666 ms.

SAP J2EE Engine Version 6.40 PatchLevel 100627.313 is running!

PatchLevel 100627.313 December 14, 2005 20:06 GMT

DefaultTrace.X.trc

DefaultTrace for the server is located at: /usr/sap/<SID>/<Instance>/j2ee/cluster/serverX/log

Useful for determining if the problem is actually within an application starting up

Check if the customer can load the ‘Default’ page

- http://<J2EE_Host>:<port>

If so, it is a problem with the application starting and check the defaultTrace

Also in the dev_serverX, never goes from:

- [Starting applications (10)] to [Running (3)]

If it seems to hang/get stuck between ‘Starting Applications’ and ‘Running’ it is useful to trigger thread dumps

#

- If it seems to hang/get stuck between ‘Starting Applications’ and ‘Running’ it is useful to trigger thread dumps.
- Such cases are common with XI start-Ups. From the thread dumps we can often see that there are not enough Application Threads allocated

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Common Problems

Message Server Connection

Jcontrol cannot connect to the Message Server host/port

Often the actual port number is wrong

Check what port the MS is listening on in:

- /usr/sap/<SID>/SCS<Inst>/work/dev_ms
- I listen to internal port 3900 (3900)

Compare with the port that Jcontrol tries to connect to in the Dev_jcontrol

- Instance properties
- -> ms host : usilap34
- -> ms port : 3601

If incorrect, they need to change this in the configtool

Make sure that they Save any changes and Restart

Memory Fragmentation

In the Std_bootstrap:

Error occurred during initialization of VM. Could not reserve enough space for object heap

Fixed through Note 835704

Must start jlaunch in this Note and this may not be possible.

Solution:

Reduce the value of the MaxHeapSize property of the server node via the configtool, navigate to Instance_ID# -> Server_ID# -> Bootsrtap (256Mb)

Restart Jlaunch and Rebase

Increase XMX again if required

Note 940893

JDK Detection Issues (One not mentioned)

- JStart-upIGetJDKInfo: Cannot find Java class
- Permission issue

Java VM Shared library issues

Java VM Initialization Issues

Java Terminated with a Non-zero Exit code

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