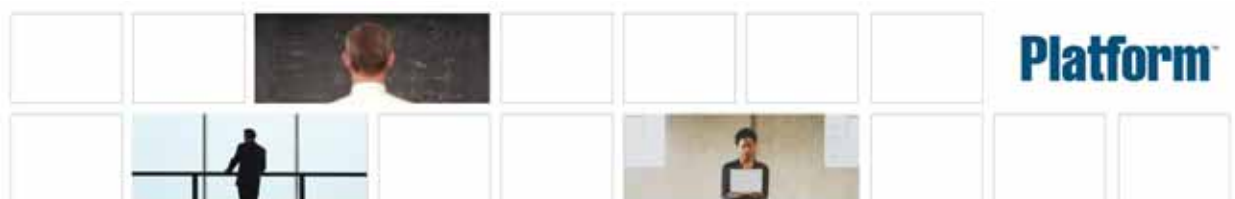


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# Enabling ARM Instrumentation for Platform™ LSF and Platform Process Manager for SAS

November 2006



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# Enabling ARM Instrumentation

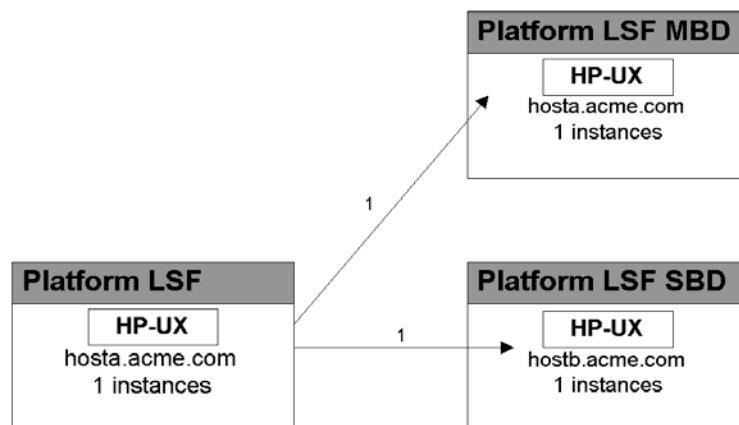
Platform Computing provides the ARM instrumentation capability for its SAS-integrated components Platform LSF and Platform Process Manager for SAS.

## ARM instrumentation and LSF

When ARM instrumentation is enabled, Platform LSF is represented by three ARM applications:

- ◆ Platform LSF
- ◆ Platform LSF MBD
- ◆ Platform LSF SBD

The following diagram shows an example of the instrumentation for LSF when one job is submitted:



In the above example, the LSF master host is running on HP-UX, as is the compute host.

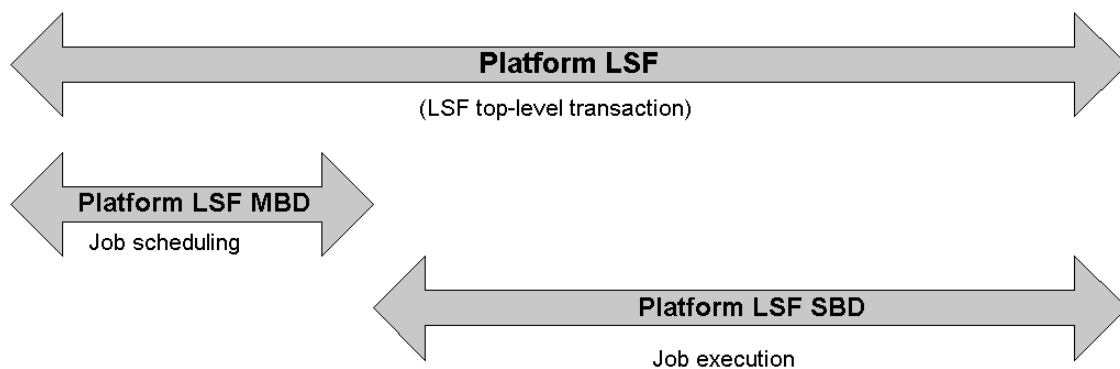
## LSF applications

Registered application name	Registered transaction name	Description	Indicators
Platform LSF	LSF job	The parent transaction that begins when a job is submitted to LSF and ends when the job is done, exited or killed.	See the transactions for Platform LSF MBD and Platform LSF SBD.

## Enable ARM instrumentation for LSF

Registered application name	Registered transaction name	Description	Indicators
Platform LSF MBD	LSF job scheduling	This transaction begins when a job is scheduled, and ends when the job is sent to the compute host to run.	If transaction times are long, it may indicate insufficient compute resources, or the LSF master host is overloaded.
Platform LSF SBD	LSF job execution	This transaction begins when a job starts to run on a host, and ends when the job is done, exited or killed.	If transaction times are long, it may indicate a problem with a compute host, or the job may have been suspended. If transaction times are too short, it may indicate a permission problem.

## LSF time lines



## LSF transaction classification

You can classify your LSF transactions at the top-level LSF transaction. You can classify the transactions with the following attributes:

- ◆ User ID
- ◆ Job name

## Enable ARM instrumentation for LSF

- 1 Ensure the appropriate ARM4 shared libraries are in the required location as specified for the following tested operating systems:

Operating System	Absolute Path of ARM4 Shared Library
AIX 5.3 (64 bit)	/usr/lib/libarm4.a
HP-UX B.11.11 (64 bit)	/usr/lib/libarm4.sl
SUSE9 Kernel 2.6, glibc2.3	/usr/lib/libarm4.so
Solaris 9 (64 bit)	/usr/lib/64/libarm4.so
Windows	%SystemRoot%\system32\libarm4.dll

For other operating systems, ensure the ARM4 shared libraries are in `/usr/lib/`.

**RESTRICTION:** The ARM4 library path can be a symbolic link, but the file itself must be owned by `root` or `bin` in UNIX, or by `Administrators` in Windows.

The file must not be writable by `group` or `other`.

The library is loaded during LSF initialization, so it must be in the specified location. If the library is not in the specified location, and ARM instrumentation is enabled, an error appears in the log file.

- 2 In the `lsf.conf` file, enable the instrumentation by adding the following parameter:

`LSB_ARM_ENABLE=y`

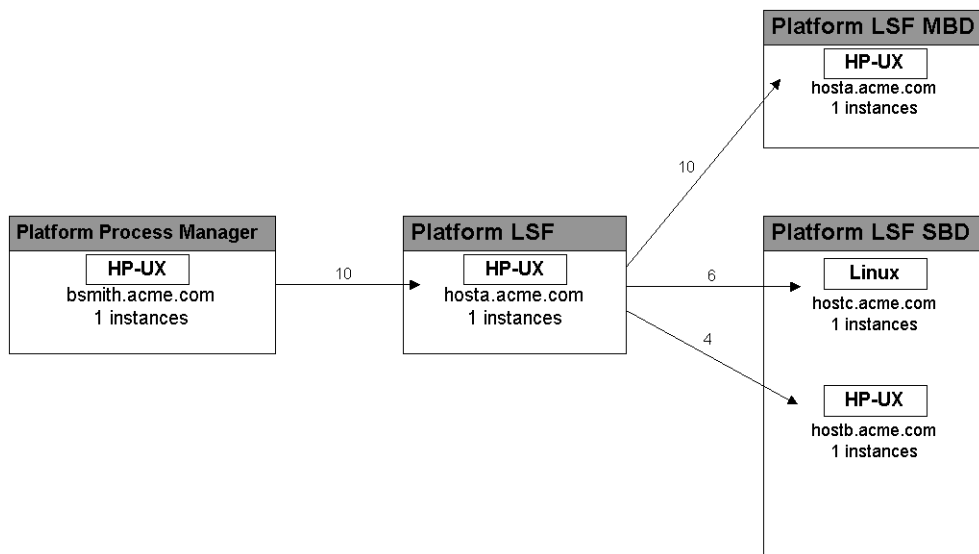
- 3 Restart LSF.

## ARM instrumentation and Process Manager

When ARM instrumentation is enabled for both Platform Process Manager for SAS and Platform LSF, the instrumentation is represented by four ARM applications:

- ◆ Platform Process Manager
- ◆ Platform LSF
- ◆ Platform LSF MBD
- ◆ Platform LSF SBD

The following diagram shows an example of the instrumentation for Process Manager when one flow containing 10 jobs is submitted:

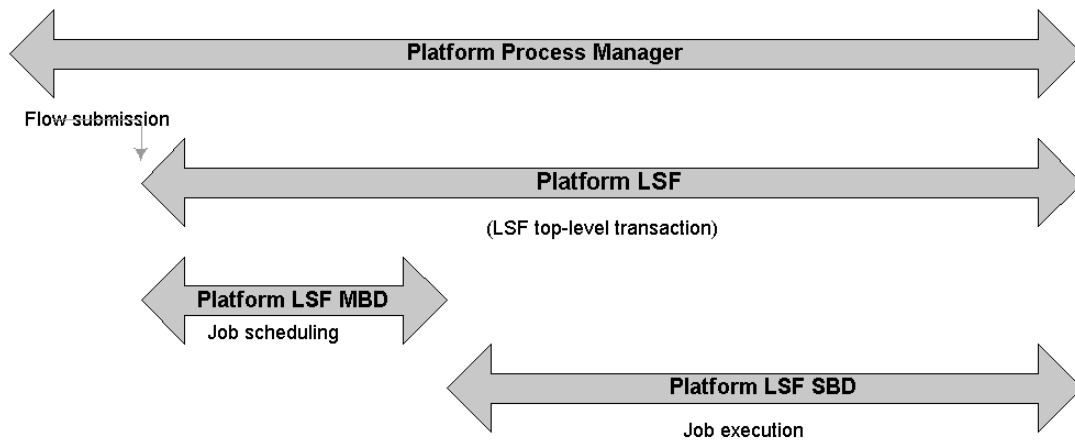


In the above example, Process Manager is running on HP-UX, the LSF master host is running on HP-UX, one compute host runs on Linux, and the other on HP-UX.

## Process Manager applications

Registered application name	Registered transaction name	Description	Indicators
Platform Process Manager	PM Jobflow	The parent transaction that begins when a flow is triggered, and ends when the last job in the flow is done, exited or killed.	If transaction times are long, it may indicate dependencies not met. Also see child transactions for Platform LSF MBD and Platform LSF SBD.
Platform LSF	LSF job	The parent LSF transaction that begins when a job is submitted to LSF and ends when the job is done, exited or killed.	See child transactions for Platform LSF MBD and Platform LSF SBD.
Platform LSF MBD	LSF job scheduling	This transaction begins when a job is scheduled, and ends when the job is sent to the compute host to run.	If transaction times are long, it may indicate insufficient compute resources, or the LSF master host is overloaded.
Platform LSF SBD	LSF job execution	This transaction begins when a job starts to run on a host, and ends when the job is done, exited or killed.	If transaction times are long, it may indicate a problem with a compute host, or the job may have been suspended. If transaction times are too short, it may indicate a permission problem.

## Process Manager time lines



## Process Manager transaction classification

You can classify your Process Manager transactions at the top-level transaction, Platform Process Manager. You can classify the transactions with the following attributes:

- ◆ User ID
- ◆ Flow name, in the form *user\_name:flow\_name*

## Enable ARM instrumentation for Process Manager

- 1 Ensure the appropriate ARM4 shared libraries are in the required location as specified for the following tested operating systems:

Operating System	Absolute Path of ARM4 Shared Library
AIX 5.3 (64 bit)	/usr/lib/libarm4.a
HP-UX B.11.11 (64 bit)	/usr/lib/libarm4.sl
SUSE9 Kernel 2.6, glibc2.3	/usr/lib/libarm4.so
Solaris 9 (64 bit)	/usr/lib/64/libarm4.so
Windows	%SystemRoot%\system32\libarm4.dll

For other operating systems, ensure the ARM4 shared libraries are in /usr/lib/.

**RESTRICTION:** The ARM4 library path can be a symbolic link, but the file itself must be owned by root or bin in UNIX, or by Administrators in Windows.

The file must not be writable by group or other.

The library is loaded during Process Manager initialization, so it must be in the specified location. If the library is not in the specified location, and ARM instrumentation is enabled, an error appears in the log file.

- 2 In the `js.conf` file, enable the instrumentation by adding the following parameter:  
`JS_ARM_ENABLE=true`
- 3 Restart Process Manager.

Enable ARM instrumentation for Process Manager