HP-UX Workload Manager Toolkits A.01.08 Release Notes for HP-UX 11i v1 and HP-UX 11i v2

Legal Notices

The information contained in this document is subject to change without notice.

Oracle is a registered trademark, and Oracle8 and Oracle9 are trademarks of Oracle Corporation.

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. , indicates USA registration.

The SNMP Toolkit uses a library written by CMU:

BEA, Tuxedo, and WebLogic are registered trademarks and BEA WebLogic Enterprise Platform, BEA WebLogic Server, BEA WebLogic Integration, BEA WebLogic Portal, BEA WebLogic JRockit, BEA WebLogic Platform, BEA WebLogic Express, BEA WebLogic Workshop, BEA WebLogic Java Adapter for Mainframe, BEA Liquid Data for WebLogic and BEA eLink are trademarks of BEA Systems, Inc.

1   HP-UX WLM Toolkits (WLMTK) Release Notes

This release notice contains the following information about HP-UX Workload Manager Toolkits Version A.01.08:

- Announcement
- What's in this version
- Known problems and workarounds
- Compatibility information and installation requirements
- Patches and fixes in this version
- Software availability in native languages
- What manuals are available
- Toolkit updates
- Providing feedback
- Training

Announcement

WLMTK Version A.01.08 supports HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23). It enhances functionality provided by HP-UX Workload Manager (WLM) and simplifies using WLM with other products.

WLM provides goal-based workload management. This management enables automatic resource allocation and application performance management through the use of prioritized service-level objectives (SLOs). It provides this functionality by automating features of HP Process Resource Manager (PRM), HP-UX Virtual Partitions, nPartitions, and processor sets.

WLMTK consists of several toolkits:

ApacheTK   WLM Apache Toolkit facilitates the management and prioritization of Apache-based workloads

The ApacheTK white paper illustrates how to:

- Separate Apache from Oracle database instances
- Separate Apache from batch work
- Isolate a resource-intensive CGI workload
- Isolate a resource-intensive servlet workload
- Separate all Apache Tomcat workloads from other Apache workloads
- Separate two departments' applications using two Apache instances
- Separate module-based workloads with two Apache instances
- Manage Apache allocation by performance goal

DMTK   WLM Duration Management Toolkit allows users to specify a desired duration for an application

DMTK offers the ability to:

- Increase an application's CPU resources if it may not complete in time
- Decrease an application's CPU resources if it is completing too quickly

ODBTK   WLM Oracle Database Toolkit provides an easy mechanism for feeding Oracle database metrics into HP-UX WLM

ODBTK offers the ability to:

- Keep response times for your transactions below a given level by setting response-time SLOs

- Increase an instance's available CPU when a particular user connects to the instance

- Increase an instance's available CPU when more than n users are connected

- Increase an instance's available CPU when a particular job is active

- Give an instance n percent of the CPU for each process in the instance (This feature is available only with HP-UX WLM Version A.01.02 and later.)

- Give an instance n percent of the CPU for each user connection to the instance (This feature is available only with HP-UX WLM Version A.01.02 and later.)

PPUTK   The WLM Pay Per Use Toolkit has been deprecated.

A simpler, more robust solution is available using `wlmpard`. For more information, see the section "HOW TO USE wlmpard TO OPTIMIZE TEMPORARY INSTANT CAPACITY AND PAY PER USE SYSTEMS" in the wlmpard(1M) man page.

SASTK   WLM SAS Toolkit provides enhancements to DMTK specifically for SAS users

SASTK offers:

- A SAS macro for instrumenting jobs to provide "percent complete" data to WLM for improved duration management

- Example scripts showing how to manage the duration of SAS jobs

SNMPTK WLM SNMP Toolkit provides a data collector called `snmpdc` that fetches values from an SNMP agent for use as metrics in your WLM configuration. For more information, see snmpdc(1M).

     SNMPTK offers the ability to retrieve metrics from sources such as:

- PRM data

- Pay Per Use data

     for use in your WLM configuration.

WebLogicTK WLM BEA WebLogic Server Toolkit provides a data collector called `wlmwlsdc` that tracks metrics indicating how busy WebLogic Server instances are.

     WebLogicTK offers the ability to:

- Manually provide a single instance an increasing amount of CPU resources in the form of a dynamic PSET (processor set) for benchmarking

- Separate an instance from other workloads, as well as from other instances, while automatically maintaining performance using a dynamic PSET based on:

  — Group CPU usage

  — Server instance queue metrics

     For more information, see wlmwlsdc(1M) and the white paper *Using HP-UX Workload Manager with BEA WebLogic Server*, which offers various use cases. This paper is available at /opt/wlm/toolkits/weblogic/doc/weblogic_wlm_howto.html.

The new features of these toolkits are described in the next section.

What's in this version

WLMTK Version A.01.08 provides the toolkits ApacheTK, DMTK, ODBTK, PPUTK, SASTK, SNMPTK, and WebLogicTK. The new functionality of the individual toolkits is described below.

- Terminology change: The Instant Capacity on Demand (iCOD) product is now known as Instant Capacity, or iCAP. Given WLM's integration with this product, Instant Capacity is mentioned in a number of places in the WLM product and documentation.

- Pay Per Use Toolkit being deprecated

  The toolkit, including its `utilitydc` command, are being deprecated. Support for the command will be removed in a future release. In the meantime, for documentation, see the utilitydc(1M) man page.

  The `utilitydc` command does not work with any version of Instant Capacity after version 6.

  Please begin upgrading to the simpler and more robust solution provided by `wlmpard` and the new keyword `utilitypri`. For information on the new solution and keyword, see the wlmpard(1M) and wlmparconf(4) man pages.

Known problems and workarounds

This section discusses problems and workarounds.

ODBTK: No control of instance on start-up

Issue

> Assume a database instance is managed by HP-UX WLM. If WLM starts before that instance, it sets the CPU allocation for the instance's workload group based on the `mincpu` and `maxcpu` values in the WLM configuration file. The instance's workload group remains at that initial CPU allocation until the instance starts, allowing `wlmoradc` to gather metrics on it and pass the metrics to WLM.

Workaround

>Try to minimize the time between WLM start-up and instance start-up.

ODBTK: Problematic SQL statements

Issue

>`wlmoradc` provides minimal checking of the SQL it passes to SQL*Plus. If SQL*Plus finds problems with the SQL statements, messages are sent to syslog or stderr. In some cases, SQL*Plus cannot execute the statements, resulting in a warning and a reported execution time (walltime) of 0 seconds.

Workaround

>To avoid such events, always verify your SQL by hand before finalizing your WLM and `wlmoradc` configuration files.

ODBTK: Debug `clean_exit` code is not useful

Issue

>If `wlmoradc` detects a command-line error and debugging is enabled, the code reported by `clean_exit` may not be useful. For example:

```
Mar 26 22:57:16 mytestmachine WLMTK: wlmoradc[p8686] INFO starting
wlmoradc
Mar 26 22:57:16 mytestmachine WLMTK: wlmoradc[p8686] ERROR bad oracle home
passed to -h or --home argument
Mar 26 22:57:16 mytestmachine WLMTK: wlmoradc[p8686] INFO ending wlmoradc
Mar 26 22:57:16 mytestmachine WLMTK: wlmoradc[p8686] DEBUG clean_exit
with exit value:Not a typewriter
```

Workaround

>If the ERROR message and the DEBUG message disagree, ignore the DEBUG message.

ApacheTK: Elapsed time reported may not be for a successful page fetch

Issue

>If you use the ApacheTK tool `time_url_fetch` with a URL that Apache cannot serve (such as http://mytestmachine/misspellllled_url.htm) the `ab` tool and `time_url_fetch` report the elapsed time for Apache to serve up a "Not found" msg. Neither tool considers this an error, although an individual trying to access this URL might.

Workaround   Always check your target URL by hand with your browser, the `ab` tool, and/or the `time_url_fetch` tool to ensure you are really getting a page fetch.

ApacheTK: Errors with the pig.pl workload in the white paper

Issue   In the "Using HP-UX Workload Manager with Apache" white paper, in section 13.4.0.7, the step using pig.pl to generate load, namely:

> Then visit (several times, if necessary)
> http://mymachine:8090/cgi-bin/pig.pl while watching the output of
> `wlminfo group`.

may produce error messages and not generate the desired load. The errors in /opt/hpws/apache/logs/error_log or /opt/hpws/apache/logs/error_log2 are of the form:

```
[Sun Dec 14 16:03:08 2003] [error] 13441: ModPerl::Registry: No
comma allowed after filehandle at /opt/hpws/apache/cgi-bin/pig.pl
line 26.
```

or possibly:

```
[Sun Dec 14 18:02:40 2003] [error] 14688: ModPerl::Registry: Can't
locate Apache.pm in @INC
<reminder of message removed>
```

These errors indicate that the Apache environment has issues with the example mod_perl workload pig.pl.

Workaround   Use a different mod_perl workload that you know works with your Apache environment. Alternatively, focus on the .cgi and .php example workloads used in the same section of the white paper.

WebLogicTK: javax/security/auth/callback/CallbackHandler error

Issue

Monitoring a WebLogic instance with `wlmwlsdc` can produce a javax/security/auth/callback/CallbackHandler error.

In particular, running the `wlmwlsdc` data collector with a single argument:

```
% /opt/wlm/toolkits/weblogic/bin/wlmwlsdc \
/home/wladmin/wlm/myinstA.props
```

on a version of WebLogic other than 7.0 can produce the following error:

```
Exception in thread "main" java.lang.NoClassDefFoundError:
javax/security/auth/callback/CallbackHandler
    at weblogic.jndi.Environment.getContext(Environment.java:164)
    at weblogic.jndi.Environment.getInitialContext(Environment.java:143)
    at weblogic.management.Helper.getMBeanHomeForName(Helper.java:94)
    at weblogic.management.Helper.getMBeanHome(Helper.java:59)
    at
com.hp.wrm.tk.weblogic.ExecQueueFetcher.connect2localhome(ExecQueueFetche
r.java:328)
    at
com.hp.wrm.tk.weblogic.ExecQueueFetcher.fetch(ExecQueueFetcher.java:224)
    at com.hp.wrm.tk.DataCollector.run(DataCollector.java:355)
    at com.hp.wrm.tk.DataCollector.run(DataCollector.java:434)
    at
com.hp.wrm.tk.weblogic.ExecQueueDataCollector.main(ExecQueueDataCollector
.java:67)
```

This message occurs when the `WL_HOME` environment variable has been set to override `wlmwlsdc`'s default, but `wlmwlsdc` is using a `JAVA_HOME` variable set to /opt/java1.3, which is not supported by WebLogic 8.1.

Workaround

Provide a setting for both `JAVA_HOME` and `WL_HOME` when using WLS 8.1.

There are two ways for settings these variables, as explained below.

• Use a custom shell file

You can provide custom environment variables in a new file specified when you invoke `wlmwlsdc`:

```
% /opt/wlm/toolkits/weblogic/bin/wlmwlsdc \
    /home/wladmin/wlm/myinstA.props \
    my_custom_env_settings.sh
```

The file my_custom_env_settings.sh contains the lines:

```
JAVA_HOME=/opt/java1.4
WL_HOME=/opt/bea/weblogic81
```

To invoke `wlmwlsdc` with this file inside a WLM configuration file, your `coll_argv` statement would be as follows:

```
coll_argv = {
            wlmrcvdc
              /opt/wlm/toolkits/weblogic/bin/wlmwlsdc
                /home/wladmin/wlm/myinstA.props
                my_custom_env_settings.sh
          }
```

* Use an existing setEnv.sh file

  You can provide the custom environment variables using an existing setEnv.sh file, which you specify when invoking `wlmwlsdc` as follows:

```
% /opt/wlm/toolkits/weblogic/bin/wlmwlsdc \
    /home/wladmin/wlm/myinstA.props \
    /opt/bea/user_projects/domains/mydomain/setEnv.sh
```

  The /opt/bea/user_projects/domains/mydomain/setEnv.sh file is produced when the instance is created with the WebLogic tools.

  To invoke `wlmwlsdc` with the setEnv.sh file inside a WLM configuration file, your `coll_argv` statement would be as follows:

```
        coll_argv = {
            wlmrcvdc
              /opt/wlm/toolkits/weblogic/bin/wlmwlsdc
                /home/wladmin/wlm/myinstA.props
                /opt/bea/user_projects/domains/mydomain/setEnv.sh
          }
```

For more information on the possible settings and security considerations for this shell file, see the white paper *Using HP-UX Workload Manager with BEA WebLogic Server*, section "12.1.4 wlmwlsdc POSIX environment variable scripts". The paper is available from the web site http://www.hp.com/go/wlm in the "information library" and is installed on your system at /opt/wlm/toolkits/weblogic/doc/weblogic_wlm_howto.html.

Compatibility information and installation requirements

The following product is now available for HP 9000 servers running HP-UX 11i v1 (B.11.11). It is also available for either HP 9000 servers or HP Integrity servers running HP-UX 11i v2 (B.11.23):

- HP-UX WLMTK Version A.01.08 (T1302AA)

    Includes media, manual, and release notes.

Also available: *HP-UX Workload Manager Toolkits User's Guide* (T1302-90028)

The table below presents the requirements for WLMTK's component toolkits.

Table 1-1   Component toolkits and their installation requirements

Component toolkit	Supported with
ODBTK	• HP-UX WLM Version A.03.00 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.03.03 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.02 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01.01 on HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01 on HP-UX 11i v1 (B.11.11) • HP-UX WLM Version A.01.02 on HP-UX 11i v1 (B.11.11) • Oracle 8.0.x, Oracle 8.1.5, Oracle 8.1.6, Oracle 8.1.7, and Oracle 9.0.1

Table 1-1   **Component toolkits and their installation requirements**

Component toolkit	Supported with
PPUTK	• HP-UX WLM Version A.03.00 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.03.03 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.02 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01 on HP-UX 11i v1 (B.11.11) • HP-UX WLM Version A.01.02 on HP-UX 11i v1 (B.11.11) • Pay Per Use versions up to and including B.04.01 • iCOD versions B.04.x, B.05.x, and B.06.x

ApacheTK	The *Using HP-UX Workload Manager with Apache* white paper was written using the following packages:
	
	• HP-UX Workload Manager (WLM) Version A.02.02 (B8843CA)
	
	   However, you can use other versions (starting at WLM Version A.01.01) in most circumstances to accomplish the management outlined in the paper.
	
	• HP-UX Apache-based Web Server B.1.0.09.01 based on Apache version 2.0.47; HP-UX Apache-based Web Server B.1.0.10.03
	
	   However, the techniques from the paper can be applied to many versions and configurations of Apache. (For techniques for use with Apache 1.3.x, see the "Information library" available from http://www.hp.com/go/wlm.)
	
	• HP's perl B.5.6.1.C or later, available from http://software.hp.com/

Table 1-1   **Component toolkits and their installation requirements**

Component toolkit	Supported with
DMTK	• HP-UX WLM Version A.03.00 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.03.03 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.02 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01.01 on HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01 on HP-UX 11i v1 (B.11.11) • HP-UX WLM Version A.01.02 on HP-UX 11i v1 (B.11.11)
SASTK	• HP-UX WLM Version A.03.00 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.03.03 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.02 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01.01 on HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01 on HP-UX 11i v1 (B.11.11) • HP-UX WLM Version A.01.02 on HP-UX 11i v1 (B.11.11) • Base SAS software Version 8.1 and later
SNMPTK	• HP-UX WLM Version A.03.00 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.03.03 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.02 on HP-UX 11i v1 (B.11.11) and HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01.01 on HP-UX 11i v2 (B.11.23) • HP-UX WLM Version A.02.01 on HP-UX 11i v1 (B.11.11) • HP-UX WLM Version A.02.00 on HP-UX 11i v1

Table 1-1   **Component toolkits and their installation requirements**

Component toolkit	Supported with
WebLogicTK	The *Using HP-UX Workload Manager with BEA WebLogic* white paper was written using the following packages: • HP-UX WLM Version A.02.02 on HP-UX 11i v1 (B.11.11) Processor sets (PSETs), which are available starting with HP-UX 11i v1 (B.11.11), are used as workload containers. • BEA WebLogic Server 7.0, BEA WebLogic Server 8.1

NOTE   HP-UX WLM Version A.01.02 is the first version to offer the `cpushares` keyword. With ODBTK, this keyword allows you to give an instance n percent of the CPU per some metric, such as "user connection".

Compatibility with WLM's virtual partition, nPartition, and PSET management

Do not use the PPUTK command `utilitydc` when using WLM's virtual partition or nPartition management. Also, do not use it when you have PSET-based workload groups.

Disk and memory requirements

This version of HP-UX WLMTK requires:

• 3 Mbytes of disk space in /opt/wlm/toolkits/

Memory requirements for the individual toolkits are as follows:

• ApacheTK requires no more than 1 Mbyte of memory

• DMTK/SASTK require no more than 1 Mbyte of memory

• ODBTK requires 6 Mbytes of memory

• PPUTK requires 5 Mbytes of memory (Deprecated)

• SNMPTK requires no more than 1 Mbyte of memory

• WebLogicTK requires no more than 1 Mbyte of memory

Installation procedure

WLMTK is installed when you install WLM. To install or update WLMTK separately, run the SD-UX `swinstall` command. It will invoke a user interface to lead you through the installation.

To install/update HP-UX WLMTK Version A.01.08:

Step 1. Load product T1302AA.

Step 2. If you are not also installing HP-UX WLM, update the file /etc/MANPATH to include both of the following:

- /opt/wlm/share/man/%L

- /opt/wlm/share/man

Step 3. If you are going to use ODBTK (`wlmoradc`, `smooth`) or WebLogicTK (`expsmooth`), or ApacheTK (`wlm_watch.cgi`):

The `wlmoradc`, `smooth`, `wlm_watch.cgi`, and `expsmooth` utilities all require /opt/perl/bin/perl.

Starting with WLM A.02.02, WLM offers a `cntl_smooth` configuration file keyword. It is recommended that you use the `cntl_smooth` WLM keyword instead of the `smooth` tool and the `expsmooth` tool. For information on `cntl_smooth`, see the wlmconf(4) man page. If you adopt `cntl_smooth` and are not using `wlmoradc` or `wlm_watch.cgi`, you do not need perl and you can skip the rest of this step.

If perl is not already installed, you can install it from the quarterly Application Release (AR) CD-ROM, using the following `swinstall` line:

/usr/sbin/swinstall -s *depot_path* **perl**

If you already have perl version 4.0.1.8 (or newer) installed in a location other than /opt/perl/bin/ and you prefer to use your perl, either:

- Ensure there is a symbolic link from /opt/perl/bin/perl to your perl

or

- Invoke `wlmoradc`, `smooth`, and `expsmooth` with your installed perl.

    The following examples illustrate this idea for perl installed in /usr/contrib/ instead of /opt/perl/, with the invocation on the command line:

    # **/usr/contrib/bin/perl /opt/wlm/lbin/coll/wlmoradc** *arguments*

    # **/usr/contrib/bin/perl /opt/wlm/lbin/coll/smooth** *arguments*

    # **/usr/contrib/bin/perl /opt/wlm/lbin/coll/expsmooth** *arguments*

    The next examples perform the same functions as the above lines, but with the invocation inside the WLM configuration file using the `coll_argv` keyword (line breaks are permitted in the configuration file):

coll_argv = /usr/contrib/bin/perl /opt/wlm/lbin/coll/wlmoradc *arguments* **;**

coll_argv = /usr/contrib/bin/perl /opt/wlm/lbin/coll/smooth *arguments* **;**

coll_argv = /usr/contrib/bin/perl /opt/wlm/lbin/coll/expsmooth *arguments* **;**

Use the `coll_stderr` keyword in your WLM configuration to catch perl incompatibilities, toolkit errors, and errors in your data collectors.

The following table indicates where the WLM toolkits are installed.

Table 1-2   Installation paths for WLM toolkits

Toolkit	Installation path
ApacheTK	/opt/wlm/toolkits/apache
DMTK	/opt/wlm/toolkits/duration
ODBTK	/opt/wlm/toolkits/oracle
PPUTK (Deprecated)	/opt/wlm/toolkits/utility
SASTK	/opt/wlm/toolkits/sas
SNMPTK	/opt/wlm/toolkits/snmp
WebLogicTK	/opt/wlm/toolkits/weblogic

For more information about installation procedures and related issues, refer to the following documentation:

- *Managing HP-UX Software with SD-UX*

- swinstall (1M) man page

Patches and fixes in this version

HP-UX WLMTK Version A.01.08 consists of various toolkits. There are no patches or fixes to a previous version of any of the toolkits.

For the latest information on WLM patches however, visit the "Patches / support" page available from http://www.hp.com/go/wlm.

The www.hp.com/go/wlm site also provides information on WLMTK's support policy and patch policy. These policies indicate the time periods for which this version of WLMTK is supported and patched.

Software availability in native languages

The man pages are available only in English. The release notes and user's guide are available in English and Japanese.

What manuals are available

Several related manuals are available. These manuals can be accessed at http://docs.hp.com, unless otherwise noted.

Specific HP-UX WLMTK information can be found in:

* *HP-UX Workload Manager Toolkits User's Guide* (T1302-90028)
  Also available at /opt/wlm/toolkits/doc/WLMTKug.pdf

Specific HP-UX WLM information can be found in:

* *HP-UX Workload Manager User's Guide* (B8844-90008)
  Also available at /opt/wlm/share/doc/WLMug.pdf

Information about HP-UX system administration and Logical Volume Manager can be found in:

* *Managing Systems and Workgroups* (B2355-90742)

Toolkit updates

For updates of WLMTK, visit:

http://www.hp.com/go/wlm

Providing feedback

*   Email your feedback to the HP-UX WLMTK development team at the following address:

    wlmfeedback@rsn.hp.com

*   For a forum with other HP-UX WLM users, visit the IT Resource Center's forum for HP-UX Workload/Resource Management:

    http://forums.itrc.hp.com/cm/

*   For the latest patch information, white papers, and documentation, visit the HP-UX Workload Manager web page:

    http://www.hp.com/go/wlm/

Training

HP offers a course in HP-UX resource management using WLM. For information, including a course outline, visit:

http://www.hp.com/education/courses/u5447s.html