

Release Notes

SLAMD Distributed Load Generation Engine

Version 1.8.0

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Contents

1. New License and Distribution Mechanism.....	3
2. New Features.....	4
TCP Record and Playback Utilities.....	4
Test Job Parameters.....	4
PDF Report Generator.....	5
3. Updated Features.....	6
New Third-Party Component Versions.....	6
LDAPDecoder Script Generation.....	6
Hide Log Messages.....	7
Update Multiple Attributes in LDAP ModRate Jobs.....	7
4. New Jobs.....	8
TCP Replay Job.....	8
Identity Synchronization for Windows Jobs.....	8
5. Bug Fixes.....	9
Optimize Results Button.....	9
Exception in Read-Only Mode.....	9
Invalid LDAP Bind Password in Scripting Engine.....	9
Bugs When Using Non-Default Ports.....	10
6. Upgrading from Previous Versions.....	11
Upgrading the SLAMD Server.....	11
Upgrading the SLAMD Client and Resource Monitor Client.....	12
7. SLAMD License.....	13

New License and Distribution Mechanism

Previous releases of the SLAMD Distributed Load Generation Engine were available under a binary-only license. However, we have now received final approval from the Sun legal department and all other necessary parties to officially release SLAMD as an open source project. As of version 1.8.0, SLAMD is available under the Sun Public License, which is an OSI-approved open source license. The full text of this license is provided at the end of this document.

The official site for obtaining SLAMD is now <http://www.SLAMMD.com/>. This site provides news and information about SLAMD, and hosts precompiled versions of SLAMD and all of the documentation. It also hosts mailing lists that can be provided to receive notification of updates, and also general-purpose discussions.

SLAMD also has a java.net project page available at <http://slamd.dev.java.net/>. The CVS source code repository and issue tracking system are hosted on the java.net site, and that site also serves as an alternate location for downloading the precompiled SLAMD binaries and documentation.

New Features

TCP Record and Playback Utilities

SLAMD now includes a new command-line tool that can be used to record TCP traffic and save it so that it may be later replayed as part of the load generation process. There is also a command-line tool provided to replay this traffic, and a new job is also available that can replay the captured data.

The capture utility functions as a simple proxy application that listens on a given TCP port and will forward any traffic received on that port onto a specified backend server, and any data returned by the server will be transparently handed back to the client. Further, the requests coming from the client will be recorded in a capture file that may be read and played back using either the command-line replay tool or the TCP Replay job. The replay process can be performed using a single or multiple threads (or even multiple clients in the case of the replay job), and it can attempt to preserve the original timing or some multiple of that timing, or attempt to replay the requests as quickly as possible.

Note that while this utility can work well for many applications, it is not well-suited for more complex protocols like FTP that involve communication on multiple ports.

Test Job Parameters

SLAMD now offers the ability for a job to define a set of tests that can be executed at the time that the user is scheduling a new job for execution that makes it possible to test the validity of those parameters. For example, many of the jobs targeted at testing LDAP directory servers now offer the ability to determine whether it is possible to connect to the specified directory server, whether the

bind credentials are correct, and if the associated base DN is valid. These tests are performed by the SLAMD server system, and they can be used to detect mistakes in the provided job parameters before the job is scheduled for execution. Note, however, that these tests are not mandatory, and even if they are performed and one or more failures are encountered, then it will still be possible to schedule the job for execution with those parameters (this is necessary, for example, if the SLAMD server system is on a different network from the clients and cannot communicate with the application to place under load).

The specific set of tests to perform are defined by the job itself. Most of the jobs provided with SLAMD have been updated to provide this capability, but other jobs that do not provide these tests will continue to work without any problems. The SLAMD Job Developer's Guide has been updated with instructions for updating custom jobs to make use of this new capability.

PDF Report Generator

SLAMD is now provided with a report generator that can create PDF documents summarizing the information in one or more jobs. This was previously available as a separate class in source form that could be manually compiled and installed for use with SLAMD, but it is now included by default.

Updated Features

New Third-Party Component Versions

SLAMD relies on a number of third-party components to provide various capabilities and features. Many of these libraries have been updated in this release. The updates performed include:

- The Tomcat servlet engine is used to serve the SLAMD administrative interface. In previous releases, Tomcat version 4.0.4 was used. This has been updated to version 5.0.28.
- The LDAP SDK for Java is used for all interaction with the configuration directory, as well as for many of the jobs that require communication with LDAP directory servers. In previous versions, this a Sun-internal version based on the 4.16 release was provided. This has been updated so that it is now based on the Mozilla LDAP SDK for Java version 4.17.
- The Java Advanced Imaging library is used to generate the PNG-format images used when graphing job execution results. The previous version used was 1.1.1_01. This has been updated to version 1.1.2.

LDAPDecoder Script Generation

The LDAPDecoder tool provides a means of capturing and decoding LDAP communication, either interactively by serving as a simple proxy, or in offline mode by interpreting snoop or tcpdump capture files. In previous releases, this utility only offered the ability to decode that communication in a human-readable form. It has now been updated so that it can write the captured communication as a script that can be replayed using the SLAMD scripting engine, with or without

modification. This makes it very simple to create custom workloads based on real-world LDAP clients.

Hide Log Messages

During the course of job execution, the clients may choose to log messages about significant events that occur during that processing. In some cases (for example the Exec Job, which provides the ability to log everything sent to standard out and standard error) this could result in a large number of messages. When information about such jobs was viewed in the administrative interface, it could take a significant amount of time for some browsers to properly render the page because of the large amount of content.

To address this, the administrative interface has been updated so that when viewing information about a completed job, the page displayed will only include log output when there are fewer than twenty messages. For jobs with more than twenty log messages, a link will be provided to view the entire set of log messages in a separate browser window. This should dramatically improve the performance of some browsers when viewing jobs with a large number of log messages.

Update Multiple Attributes in LDAP ModRate Jobs

In earlier releases of SLAMD, the LDAP ModRate jobs only offered the ability to modify a single attribute. This has now been updated so that any number of attributes may be specified. For cases in which multiple attributes are to be modified, the SLAMD client will generate a random alphabetic string of a specified length and will use that string as the value for all attributes that are to be updated. This makes it possible, for example, to specify that both the `userPassword` and the `description` attributes should be modified, and when the directory server automatically obscures the password for the user via encryption or a one-way digest, it is still possible to know the new password because it will be available in clear text in the `description` attribute. This capability can be used by the LDAP AuthRate jobs to read the bind password from a specified attribute in the user's entry.

New Jobs

TCP Replay Job

A new job is included with SLAMD that provides the ability to replay TCP communication that was captured using the new TCPCapture command-line utility. This communication can be replayed using one or more clients, each of which can use one or more threads. It is possible to attempt to preserve the original timing recorded when the requests were captured, including using a multiplier to alter the rate at which the playback occurs. See the SLAMD Job Reference Guide for complete details on the features and usage of this job.

Identity Synchronization for Windows Jobs

SLAMD is now provided with a number of jobs that may be used to test the Sun Java System Identity Synchronization for Windows product. In particular, these jobs offer the ability to make changes in the Sun ONE Directory Server, or the Windows Active Directory or SAM registry and detect the average length of time required for those changes to appear in another repository.

These jobs were previously made available as an external job pack. However, they are now included as part of the base SLAMD server release, and they are fully documented in the SLAMD Job Reference Guide.

Bug Fixes

Optimize Results Button

When SLAMD was updated to provide the capability to use custom optimization algorithms in version 1.7.4, this interfered with the ability to use the "Optimize Results" button to schedule an optimizing job based on the parameters used for a completed job (in particular, when the form was displayed to schedule the optimizing job, it included the default values from all parameters rather than the parameters taken from the base job). This has now been corrected.

Exception in Read-Only Mode

Under certain circumstances, attempting to view information about a completed job while SLAMD was running in read-only mode could cause an exception to be thrown and displayed in the administrative interface. The underlying cause for this exception has been corrected and it should no longer occur.

Invalid LDAP Bind Password in Scripting Engine

The `LDAPConnection` variable type in the SLAMD scripting engine included a bug in which the `bind` method would use the value of the bind DN argument for both the DN and the password, which would cause the bind operation to fail. This has been fixed and now the correct bind password is used.

Bugs When Using Non-Default Ports

In previous releases, there were multiple bugs that could prevent SLAMD from functioning properly if an attempt was made to change the ports used for accepting connections from resource monitor clients or from clients reporting statistical data to the SLAMD server while jobs were in progress. This has now been corrected and it is possible to function properly when using non-default port numbers.

Upgrading from Previous Versions

For new installations of the SLAMD Distributed Load Generation Engine, follow the instructions in either the SLAMD Quick Start Guide or the SLAMD Administration and Usage Guide. However, if a previous version of SLAMD is already installed, then it may be upgraded to the latest release using the instructions provided below.

Upgrading the SLAMD Server

Due to updated versions of core libraries used in SLAMD version 1.8.0, it is not possible to perform an in-place upgrade such as was possible with earlier releases. However, it is possible to continue using the same configuration directory. The easiest way to accomplish this is by following the steps listed below:

1. Stop the existing SLAMD server using the `bin/shutdown.sh` script.
2. Back up the following files from the existing installation, as they can be restored once the new version is installed:
 - `bin/startup.sh`
 - `bin/shutdown.sh`
 - `webapps/slamd/WEB-INF/slamd.conf`
 - `webapps/slamd/WEB-INF/web.xml`
 - Any custom job classes or associated libraries that may have been installed under either `webapps/slamd/WEB-INF/classes` or `webapps/SLAMD/WEB-INF/lib`. However, do not include any of the job classes or libraries provided with SLAMD.
3. Remove the existing SLAMD server installation (e.g., by performing a recursive delete on the existing directory structure). However, do not remove the directory server used as the configuration directory.
4. Unpack the `SLAMD-1.8.0.tar.gz` archive into the same location as the previous installation.

5. Restore the files backed up in step 2 listed above.
6. Start the SLAMD server by executing the `bin/startup.sh` script.
7. In the SLAMD administrative interface, follow the "SLAMD Configuration" link in the navigation sidebar, then the "User Interface" link. Add a value of `"com.sun.slamd.report.PDFReportGenerator"`.

Upgrading the SLAMD Client and Resource Monitor Client

As with the SLAMD server, the SLAMD client and resource monitor client should not be upgraded in-place, but rather the important configuration files backed up, the new version of the client installed, and the original files restored. For the standard SLAMD client, this includes the `slamd_client.conf` file on UNIX-based systems or the `start_client.bat` file on Windows. For the resource monitor client, this includes the `slamd_monitor_client.conf` file on UNIX and the `start_monitor_client.bat` file on Windows, as well as all files in the `config` directory. Simply back up these files, remove the existing client installation, unpack the new version in the same location, and restore the files that were backed up from the previous install.

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