Sentinel RMS

SafeNet

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About This Document

This document contains details about the features and installation of the Sentinel RMS SDK 8.5.1 release on Linux (32-bit and 64-bit). This is a service pack release and replaces any previous release.

Product Overview

Sentinel RMS is a software licensing SDK for your applications. It increases revenue by authorizing the use of your applications and offers a variety of licensing schemes to boost your product sales. It also provides tools that system administrators can use to track and manage licenses in a network.

What's New in This Release?

Aggregate Licenses to Cater to Peak Usage Periods

Prior to this release, multiple licenses of the same feature-version combined with each other in either an exclusive or additive way. With the 8.5.1 release, a third property to govern the combination of licenses has been introduced, known as *aggregate licenses*.

With aggregate licenses, multiple license strings can be combined to form an aggregated hard and soft limit, yet the start and expiry dates of the individual license strings are maintained in an independent manner. The aggregated hard limit can be used to fulfill the sudden increase in demand during the *peak usage period*.

Below are the related highlights and enhancements:

- The hard and soft limits defined within the individual licenses will be summed. Therefore, the maximum number of allowed license tokens (or seats) is defined by the combined hard limit at any given point.

- Such licenses must have same license properties, except the following properties that could be same or different:
  - Start date
  - End Date
  - Hard Limit
  - Soft Limit
  - Client lock criteria/information
  - License output type (encrypted/concise readable/expanded readable)

- A token which is issued to an application will always hold the earliest start date and the latest expiry date (end date) defined within all of the combined licenses.

- The License Manager v8.5.1 must be deployed in order to allow license aggregation.

- An aggregate license has a lower priority than an exclusive license, but a higher priority than an additive license.

- You can use the lscgen utility or the license generator library included in this release to generate aggregate licenses.

- In case you are using the license code generator library, call the new API VLScgAllowAggregateLicense to verify the combining property value for aggregate licenses.

Loading Future Date Aggregate Licenses

Earlier, licenses with start dates in future could not be loaded in the License Manager. Now, aggregate licenses with start date in future can be loaded in an inactive state. Later, when their corresponding start dates are reached, these licenses seamlessly participate in the license request and service process. Hence, future date aggregate licenses can bring around additional value when they are deployed in anticipation of a hike in software demand.

Note: Aggregate licenses which have start dates set in the future can still be loaded onto the License Manager, however, they cannot be requested or aggregated until their start date has been reached.

Custom User Information for Clients

You can set custom user information using a new client side API VLSsetCustomData. This information is passed to the License Manager when a license request API or its variant is called. It can then be retrieved through the:

- License Manager usage logs (in the user and host name fields of the log file)

- Query APIs (VLSgetClientInfo and VLSgetHandleInfo)

- lsmon (a License Manager monitoring utility)

Refer to the topic "Setting Custom Client Information" in the Appendix - Customization Features of the *Sentinel RMS SDK API Reference Guide.*

Anonymous User Information in Usage Logs

The system administrators on the customers' site can now hide the real usernames and host names saved in the License Manager usage logs. Using any of the following ways, anonymous information (which are SHA-256 based unique hashes) will be used instead of the real information:

Using the New Environment Variable

In this release, a new environment variable LS_LOG_ANONYMITY is introduced. The system administrators can set this on the License Manager host system to allow creation of anonymous logs.

Using the New License Manager Start-up Option

Alternatively, the `-log-anonymity` option can be used.

Refer to the *Sentinel RMS System Administrator's Guide* for details on how to configure the License Manager start up options and set environment variables.

Note: To map the anonymous user information with the real details, an XML file will be generated along with the usage log file. It would be kept at the same location, having the same name as the usage log file and the *.xml* extension.

Perpetual Licenses Renamed to Repository Licenses

Now, perpetual licenses are renamed to repository licenses. This change would have no impact on the existing implementations.

Refer to the "Chapter - Repository Licenses" in the *Sentinel RMS SDK Developer's Guide* for details about repository licenses.

Support for Ubuntu Linux Distribution (WT# 85020)

The RMS SDK is now also available on Ubuntu Linux distribution. See *"System Requirements" on page 14*.

Note: The Computer ID key (used for hardware based license locking) and meter key (used for license generation) are not supported on Ubuntu.

Enhancements In Miscellaneous Documents

The following documentation sections are updated:

- Added information in the *Sentinel RMS API Reference Guide* about the various macro functions.

- Added information in the *Sentinel RMS System Administrator's Help* about the various transaction types recorded in the usage log.

- Rebranded the RMS License Server to RMS License Manager throughout the documentation.

Problems Corrected in This Release

In this release, the following problems are corrected:

WT/Task Ref#	Problem Description	To be Documented in Main Docs?
85249	When the reverse DNS lookup failed for subnet locked licenses, an error was encountered in calling the LSrequest API. To resolve this issue, instead of returning an error, the hostname is looked into the machineID structure (obtained from the client). *Note:* Use of this workaround is recommended under situations when the reverse lookup is failing.	No
85137	In the case of subnet locked licenses, the IP address was not shown correctly in lsmon. The incorrect IP led to failure of license request. The problem is corrected in this release.	No
85102	In the case of stand-alone licensing, an unknown internal error was encountered when the system initialization was not performed on a system. The problem is corrected in this release. Now, error VLS_PERSISTENCE_CONFIGURATION_ERROR (164) is shown.	No
85236	The redundant License Manager pool stopped responding when the leader was restarted after dynamic addition of a license in the pool. The problem is corrected in this release.	No
85012	The License Manager returned VLS_REHOST_BUFFER_TOO_SMALL error during network license revocation when the number of tokens to be revoked and\or the number of tokens remaining were in 5 digits (9999+). Also, no revocation ticket was generated even when the licenses were revoked successfully. The problems are corrected in this release. Now, the error is not returned (when the above-mentioned limits are reached) and a revocation ticket is generated.	No
85158	In a scenario, access rights to a license file on the License Manager were modified before calling the VLSdeletelicensefromFile API. However, after the API was called, the access rights were regained. The problem is corrected in this release, and now the access rights are not modified when the VLSdeletelicensefromFile API is called.	No
84924	An expired commuter license maintained priority over a normal stand-alone valid license.This behavior was incorrect. In the 8.5.0 release, the rules of license prioritization got changed due to introduction of aggregate licenses. As a result, the expired licenses were automatically placed after valid licenses.	No
84902	Inconsistent value of ImagePath was observed, across various Windows operating systems, in the following system registry entry: "HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Sentinel RMS License Manager" On certain systems, the entry was not found to be enclosed under double quotes. The problem is corrected in this release, and now the ImagePath entry would always be enclosed under double quotes.	No
84377	Up to the 8.5.0 release, the VLScontrolRemoteSession allowed enabling and disabling of terminal services in stand-alone licensing environments. In the 8.5.1 release, this check has been extended to RDP connections as well. Two new flags are added in the VLScontrolRemoteSession API to control the RDP connections.	Refer to the API Reference Guide for the updated documentation of VLScontrolRemoteSession flags.

WT/Task Ref#	Problem Description	To be Documented in Main Docs?
85215	The Ishost file contained same settings as the LSHOST environment variable. However, the licensed application failed to follow the settings defined in the Ishost file in the required order. The problem is corrected in this release. Now, the behavior is same as the LSHOST environment variable.	No
85056	The VLSisVirtualMachine API returned an incorrect error VLS_INTERNAL_ERROR when the License Manager was of version earlier than 8.4.0 and the application was licensed using libraries of version later than 8.4.0. Now, the correct error VLS_NOT_SUPPORTED is returned.	No
85395	The License Manager crashed under few scenarios when many tokens were requested and checked out. The problem is corrected in this release.	No
85406	The Sentinel RMS License Manager failed to create further usage logs when 101 log files were created. Beyond this, the 101st usage log file fails to be renamed to <usagelogfilename>.00 (overwriting the original .00 file). As a result, the usage log operation gets suspended. This problem (WT#84571) was corrected in the v8.4.0 Windows release and validated on Windows 2003 R2 x64 platform. Now, when the maximum size of the 101st file is reached, the 102nd file will be created by renaming 101st file to existing <usagelogfilename>00.log file.	No
85079	Cleaning up of commuter information on the license server is required when tokens are checked out for maximum duration and client machine has crashed. The problem is corrected in this release. To restore the checked out tokens on the license server, a cleaning option has been provided through the VLScleanNetworkPersistenceInfo API.	Yes Refer to the documentation of the VLScleanNetworkPersistenceInfo API in the *Sentinel RMS SDK API Reference Guide*.
85062	License revocation failed when the vendor ID contained in the permission ticket (PT) and license mismatched. The problem is corrected in this release.	No
84945	An application linked with the MSVS2008 RMS licensing library crashed when a stand-alone license was installed on the system that already had a grace license of the same feature-version. The problem is corrected in this release. Now, the application does not crash in this scenario.	No
84952 84989	The Isdecode utility and\or the decode library (the VLScgDecodeLicenseExt API) crashed intermittently when a truncated license string was provided. The problem is corrected in this release. Now, the error VLS_INVALID_LICENSE is returned.	No
84993	Delayed response was received when a client switched to the broadcast mode after it could not find a non-existent license on a particular license server. Since the client did not have a grace license installed, it should have returned the error VLS_NO_SUCH_FEATURE immediately, rather than broadcasting for a license in the subnet. The problem is corrected in this release. Now, the error is returned immediately under this scenario.	No
85051	The token sharing problem in case of group reservation is corrected in this release.	No

WT/Task Ref#	Problem Description	To be Documented in Main Docs?
84987	The VLScgPrintError API crashed when the license generator DLL was used. A new API VLScgPrintErrorExt has been introduced that should be used when the license generator DLL is used. *Note:* You may still call the VLScgPrintError API when the static version of the license generator library is being used.	Yes Refer to the documentation of the VLScgPrintErrorExt API in the *Sentinel RMS SDK API Reference Guide*.
84997 **85098**	The RMS packet transmission failures (time outs) caused to by large payload are corrected in this release. The transmission is now optimized for packet sizes smaller than 1432 bytes. The RMS CodeCover has also been compiled with the new licensing libraries to reflect this change.	No
85003	The message written to CLEAN.LOG by *lsclean.exe* had a typo. The problem is corrected in this release.	No
85001	The Ishost file contained same settings as the LSHOST environment variable. However, the licensed application failed to follow the settings defined in the Ishost file in the required order. The problem is corrected in this release. Now, the behavior is same as the LSHOST environment variable.	No
85004	In the case of stand-alone licensing, settings in the VLSsetFileName API should be given preference over the license file name specified using the LSERVOPTS environment variable. This behavior is checked in this release.	No

Known Problems

This section contains the known problems for the product:

Known Problem	Workaround
A group reservation file generated in Windows uses a CRLF sequence, whereas in UNIX it uses only CR or LF. This may create a problem in Linux platforms when CRLF is read as two different characters.	Modify the group reservation file name generated using following command: `perl -pi -e 's/\r\n/\n/g' lsreserv`
Under certain scenarios, the rlftool tool may corrupt while saving the redundant server's configuration file. The settings specified are lost and the error will be returned only in the next execution.	You can run the rlftool again and save the file back by making necessary modifications.
A redundant license is being requested like any other normal license from the follower servers when it has been removed from the leader server.	None
A permission ticket generated in Windows uses a CRLF sequence, whereas in UNIX it uses only CR or LF. This may create a problem in Linux platforms when CRLF is read as two different characters.	Modify the ticket "permission_tkt" generated using following command: `perl -pi -e 's/\r\n/\n/g' permission_tkt`
The *lastTime* parameter used in the VLSgetServInfo API[a] shall always be 0 if the contacted server is Linux.	None

a. Actually, *lastTime* is the data member of VLStimeTamperInfo structure. This structure is a part of the VLSservInfo structure filled by the above API call (VLSgetServInfo).

Compatibility and Upgrade Information

Introduced Version 14 Licenses

Due to the introduction of aggregate licenses, a higher version of RMS licenses—version 14—is introduced.

Backward Compatibility

The License Manager, client, and license generator libraries are backward compatible. However, applications licensed using RMS client libraries earlier than 8.5.1 will not be able to query or request version 14 aggregate licenses from the License Manager v8.5.1 (or later).

Installation Information

Before You Install...

Before you begin installing the RMS SDK, note the following:

Administrator Privileges

You must have Administrator privileges (root user) to successfully install all the components.

RMS SDK Serial Number

You require a valid serial number provided by SafeNet. The installer prompts you to enter the serial number specific to you.

If Installing the SDK in the Same Directory...

If you are installing the SDK in the same directory where you installed a previous version, then note the following points:

- The installer will overwrite the files if the installation location on the system contains a previous version of the RMS Linux SDK.

- The root directory of the new installation will take the same directory structure as that of the previous (installed) SDK.

- Any new files (such as the lib64 directory) will be copied on the installation location.

- Any file in use will not be updated. For example, you must stop the Sentinel RMS License Manager if running from the same installation directory. Else, the installer will not upgrade it.

Check the Firewall Settings

Allow the Sentinel RMS License Manager through the system firewall.

System Requirements

To use Sentinel RMS SDK, the minimum hardware and software requirements are:

Hardware Requirements	Software Requirements
❑ **Processor** x86 ❑ **Monitor and its Settings** VGA monitor with 800 x 600 resolution (1024 x 768 resolution recommended) ❑ **Hard Disk Space** 200 MB free hard disk space ❑ **RAM** 128 MB RAM ❑ **Disk Drive** CD\DVD-ROM drive (required only if you received the RMS SDK installer on a CD\DVD)	❑ **Operating Systems (for client and server)** - Red Hat Enterprise Linux 4.x (Kernel Version 2.6.9) - Red Hat Enterprise Linux 5.x (Kernel Version 2.6.18) - Red Hat Enterprise Linux 6.x (Kernel Version 2.6.32) - SuSe 10.x (Kernel Version 2.6.18) - Suse 11.x (Kernel Version 2.6.25) - Open Suse 10.x (Kernel Version 2.6.34) - Open Suse 11.x (Kernel Version 2.6.34) - Ubuntu 11.x (Kernel Version 3.0.0) ❑ **Compilers** For RHEL and SuSe - GCC Compiler v3.3.2 (32-bit) - Cross Compiler v3.3.6 (64-bit) - Glibc v 2.3.2 (32bit, 64bit) ❑ **For Ubuntu** - GLIBC version: v2.13 - dev packages: ia32-libs, gcc, ldd, make ❑ **Java Runtime Environment** Java Runtime Environment (v1.5 or higher) for the Java interface

Installation Instructions

1. Insert the Sentinel RMS media in the appropriate drive of your computer.

2. Now, mount it using the mount command.

3. The Software is packed in a .tar archive . Extract files from the archive as follows:

   ```
   $tar -xvf slm_0851_linux_combo_cdrom.tar
   ```

4. Change the directory where the installation script install.sh exists. Afterward, type `sh install.sh` to start the installation.

5. Accept the license agreement to proceed with the installation.

6. You will be required to specify the RMS SDK serial number-included with the product packaging to complete the installation.

Tip: Sentinel RMS is self-contained in the installation directory. To uninstall, remove the directory. Do stop the Sentinel RMS License Manager before uninstalling.

Installing Sentinel Unix Driver (SUD)

Sentinel Unix Driver (SUD) needs to be installed for making use of the hardware keys (for CID based locking and license generation). To install SUD on your system:

Note: The RMS License Manager included with this release supports version 7.5.0 of the Sentinel UNIX Driver. On Linux 32-bit, both USB and parallel drivers are provided. On Linux 64-bit, only USB driver is provided.

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1. Extract the SUD installer from its compressed tar image placed at *linux/lm841/SUDInstaller tar.gz* location on the DVD by giving the following command:

   `$tar -xvzf SUDInstaller.tar.gz`

2. Change directory to SUDInstaller.

3. To install SUD parallel driver on kernel version 2.4.x,

   - ❑ Change directory to parallel/2.4.x.

   - ❑ Run command `rpm -i --force sntl-sud-parallel-7.1.0-0.i386.rpm` to install the driver.

   To install SUD parallel driver on kernel version 2.6.x,

   - ❑ Change directory to parallel/2.6.x.

   - ❑ Run command `rpm -i --force sntl-sud-paralleldrv-7.1.3-0.i386.rpm` to install the driver.

   To install SUD USB driver (both 32-bit and 64-bit)

   - ❑ Change directory to usb. Run command `rpm -i --force sntl-sud-7.5.0-0.i386.rpm` to install usb driver.

Installed Directories

The contents of installation are described in the table below:

Directory or File Name	Description
bin	Contains program files and utilities.
examples	Examples that illustrate the various features of Sentinel RMS.
include	The include files, which provide the prototypes for various Sentinel RMS library functions.
lib	The 32-bit licensing and system initialization libraries.
lib64	The 64-bit licensing and system initialization libraries.
Java	Contains the Java interface and related sample files.
Manuals	Contains the Sentinel RMS documentation.

Technical Support

If you have questions or need additional assistance, please contact Technical Support using this information:

Customer Connection Center (C3)	
http://c3.safenet-inc.com Existing customers with a Customer Connection Center account can log in to manage incidents, get latest software upgrades and access the complete SafeNet Knowledge Base repository.	
Support and Downloads	
http://www.safenet-inc.com/Support Provides access to knowledge base and quick downloads for various products.	
E-mail-based Support	
support@safenet-inc.com	
Telephone-based Support	
United States	(800) 545-6608, (410) 931-7520
France	0825 341000
Germany	01803 7246269
United Kingdom	0870 7529200, +1 410 931-7520
Australia and New Zealand	+1 410 931-7520
China	(86) 10 57810666
India	+1 410 931-7520