SafeNet Luna Network HSM 7.0

CUSTOMER RELEASE NOTES

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Contents

Product Description

The SafeNet Luna Network HSM secures your sensitive data and critical applications by storing, protecting and managing your cryptographic keys in a high-assurance, tamper-resistant, network-attached appliance that offers market-leading performance. The SafeNet Luna Network HSM meets compliance and audit needs for FIPS 140, HIPAA, PCI-DSS, eIDAS, GDPR, and others, in highly-regulated industries including Financial, Healthcare, and Government.

The SafeNet Luna Network HSM offers up to 100 HSM partitions, high-availability configuration options, remote management, PED, backup, and dual hot-swappable power supplies.

Release Description

SafeNet Luna Network HSM 7.0 is the first release of Gemalto's next-generation SafeNet Luna Network HSM. It includes a new cryptographic module that provides performance gains that are 10x faster than the previous version. Functionality is equivalent to SafeNet Luna Network HSM 6.x, with significant improvements as detailed in "New Features and Enhancements" below.

New Features and Enhancements

This section highlights what's new in SafeNet Luna Network HSM 7.0.

New SafeNet Luna Network HSM Appliance

The SafeNet Luna Network HSM 7.0 has a new chassis and offers enhanced installation, maintenance, security, and usability features, including the following:

- Optional sliding mounting rails provide simplified installation and improved access for performing maintenance tasks and accessing the network ports.
- A locking faceplate bezel restricts access to the front of the appliance for enhanced security.
- A new LCD display provides a quick view of the appliance network configuration and overall health.
- Four 1GB Ethernet interface ports with port bonding (eth0 and eth1 to bond0 and/or eth2 and eth3 to bond1), for redundancy and enhanced reliability.

Partition Security Officer

All application partitions now have a Partition Security Officer (PSO) role that is completely distinct from the HSM Security Officer (HSM SO) role. In this security model, the HSM SO is responsible only for initializing the HSM, setting HSM-level security policies, and creating and deleting partitions. After creating the partitions, the HSM SO has no access to the contents of the partitions. Partitions are owned by the PSO, who is responsible for initializing the partition, setting the partition-level security policies and initializing the cryptographic roles on the partition. This model permits a complete separation of roles on the HSM, providing a highly secure multi-tenant solution.

Best-in-Class Performance

SafeNet Luna Network HSM 7.0 provides cryptographic performance that is 10x faster than the release 5.x and 6.x SafeNet Luna HSMs.

Industry-Leading Security

SafeNet Luna Network HSM7.0 provides enhanced environmental failure protection and tamper resistance.

Improved Random Number Generation

The performance of SafeNet Luna Network HSM 7.0's AES-256 CTR DRBG random number generation is significantly increased from previous versions. The RNG is fully compliant with the latest entropy standards:

- SP800-90B
- SP800-90C
- BSI DRG.4

New Cryptographic Mechanism Support

SafeNet Luna Network HSM 7.0 adds support for the following cryptographic algorithms:

- SP800-108 HMAC (RSA & ECC)
- SP800-38F (KWP)
- Curve 25519
- AES-XTS - disk encryption standard

Increased Key Storage Capacity

SafeNet Luna Network HSM 7.0 provides up to 32 MB of cryptographic object storage (depending on the model).

Secure Transport Mode Redesigned

Secure Transport Mode (STM) in SafeNet Luna Network HSM 7.0 provides a simple, secure method for shipping an HSM to a new location and verifying its integrity upon receipt. When the HSM SO enables STM, it locks the HSM and its contents, and records the current configuration as a pair of unique strings. When the HSM is recovered from STM, the unique strings are redisplayed. If the strings match, the HSM has not been tampered or modified during transport.

Note: All SafeNet Luna Network HSMs are shipped from the factory in STM, and you are provided with the STM verification strings as part of the shipping materials. You must recover the HSM from STM before it can be initialized. The integrity check is optional - you can still recover from STM if the strings do not match.

REST API

The SafeNet Luna Network HSM REST API web application allows you to use a set of scriptable REST APIs to perform some LunaSH functions.

IPv6

The SafeNet Luna Network HSM 7.0 now supports IPv6, using static addressing, SLAAC, or DHCP.

Improved Serial Access

Serial access to the SafeNet Luna Network HSM is via an RJ45 serial port. A custom Prolific Technologies USB to RJ45 cable with a standard 8P8C modular connector is included. The cable requires the PL2303 driver, which you can download from http://www.prolific.com.tw. See the *Configuration Guide* for more information.

Enable Decommission on Tamper

A new capability, **Enable Decommission on Tamper**, allows you to set **HSM policy 40** to decommission the HSM in the event of a tamper.

Controlled Tamper Recovery

If **Policy 48: Do Controlled Tamper Recovery** is enabled (the default), the HSM SO must clear the tamper condition before the HSM is reset, to return the HSM to normal operation.

External Power Supply for SafeNet Luna Backup HSM

The SafeNet Luna Backup HSM ships with an external power supply.

Advisory Notes

This section highlights important issues you should be aware of before deploying this release.

STC over IPv6 is Unavailable

STC client-partition links are not available over an IPv6 network.

PED Upgrade Needed for Currently-Owned PEDs

If you have older PEDs that you intend to use with SafeNet Luna HSM 7.0 or later, you must upgrade to firmware 2.7.1 (or newer). The upgrade and accompanying documentation (007-012337-003_PED_upgrade_2-7-1-5.pdf) are available from the Gemalto Support Portal.

New USB-powered PED

Gemalto is pleased to announce the availability of SafeNet Luna HSM Pin Entry Device (PED) v2.8. The v2.8 PED contains new hardware that enables the PED to be USB-powered; there is no longer a requirement for an external DC power Adapter. PED v2.8 is functionally equivalent to your existing (pre-generation) PEDs and is compatible with HSM versions, 5.x, 6.x, and 7.x.

PED v2.8 ships with firmware 2.8.0. Note that you cannot upgrade existing PEDs to the 2.8.0 version; existing PEDs continue to need a separate DC power adapter for remote PED and upgrade use. The model number on the manufacturer's label identifies the refreshed PED: PED-06-0001.

To use the new USB-powered PED

1. Ensure the SafeNet Luna HSM Client software is installed on the Windows computer that will act as the PED Server to your SafeNet Luna HSM. Installing the Remote PED component of the SafeNet Luna HSM Client installs the required driver.
2. Connect the PED to the computer where you installed the Remote PED component of the SafeNet Luna client using the USB micro connector on the PED and a USB socket on your computer.
3. After you connect the PED to the host computer, it will take 30 to 60 seconds for initial boot-up, during which time a series of messages are displayed, as listed below:

   BOOT V.1.1.0-1

   CORE V.3.0.0-1

   Loading PED...

Entering...

4. After the boot process is complete, the PED displays **Local PED mode** and the **Awaiting command...** prompt. Your new PED is now ready for use.
5. To enter Remote PED mode, if needed, exit Local PED mode with the "< " key, and from the **Select Mode** menu, select option **7 Remote PED**.

Remote Backup Over IPv6 is Unavailable

Network connections from the SafeNet Luna Client to a Remote Backup Server must use IPv4.

Note: Network connections from the client to the HSMs you want to backup using RBS can use IPv6. Only the connection from the client to the RBS server requires IPv4.

Partition Policy Templates are Unavailable

Partition policy templates are not available in this release.

HA Groups Containing Members From Different Releases

You can configure an HA group containing release 7.0 and release 5/6.x partitions to easily migrate cryptographic objects to the new HSM.

Note: Failover and load-balancing performance during sustained application in a mixed-release HA group has not been fully characterized for all failure scenarios.

SafeNet Luna Backup HSM Firmware Upgrade 6.26.0 Limitations

You can apply firmware upgrade 6.26.0 to your existing SafeNet Luna Backup HSMs to increase their backup storage capacity from 15.5 MB to 32 MB. This allows you to fully back up a SafeNet Luna HSM 7.0 partition that takes advantage of the increased key storage capacity offered in this release.

Before upgrading your SafeNet Luna Backup HSMs to firmware 6.26.0, consider the following limitations:

- If you upgrade your Backup HSM to FW 6.26.0, it is no longer compatible with previous releases of SafeNet Luna HSM.
- If you are migrating from previous releases to SafeNet Luna HSM 7.0, we recommend that you do not upgrade to firmware 6.26.0. Note, however, that your backups will be limited to 15.5 MB. Therefore, if the objects in the partition you want to back up consume more than 15.5 MB, you will need to split the backup into two separate operations.
- If you are using only SafeNet Luna HSM 7.0, we recommend that you upgrade your SafeNet Luna Backup HSMs to firmware 6.26.0.

HSM Logs Sent to Messages Log

The **hsm.log** file is deprecated and has been removed from this release. The HSM logs are now sent to the **messages** log.

Note: Although it is ignored, the **hsm** option appears in the syntax for some **syslog** commands (such as **syslog tail -logfiles**).

Deprecated and Discontinued Features

The following features are deprecated or discontinued in this release. If you have been using any of these features, plan for a new configuration and workflow that does not make use of the feature:

- Host trust links (HTL)
- NTLS keys in hardware
- PKI bundle
- Small form factor (SFF) backup
- Watchdog, CPU Governor
- Time drift correction

Compatibility Information

This section lists the supported software, hardware, and optional upgrades for the HSM.

SafeNet Luna HSM Client

You can install the SafeNet Luna HSM Client 7.0 on the following operating systems:

Operating System	Version	64-bit client	32-bit applications on 64-bit OS	32-bit applications on 32-bit OS
Windows	10	Yes	Yes	No
	2012 R2	Yes	Yes	No
	2016	Yes	Yes	No
Redhat-based Linux (including variants like CentOS and Oracle Enterprise Linux)	6	Yes	Yes	Yes
	7	Yes	Yes	Yes
AIX **Note:** SafeNet Luna Network HSM client only - requires 7.1 client.	7.1	Yes	Yes	No
Solaris (SPARC/x86) **Note:** SafeNet Luna Network HSM client only - requires 7.1 client.	11	Yes	Yes	No

Remote PED Server

The Remote PED server software is included with the SafeNet Luna HSM client software. You must install the SafeNet Luna HSM client, with the PED server option, on each workstation used to host a remote PED. The Remote PED server software is supported on the following operating systems:

- Windows 10 (64-bit)
- Windows 2012 R2
- Windows 2016

Supported Cryptographic APIs

Applications can perform cryptographic operations using the following APIs:

- PKCS#11 2.20
- Java 7
- Java 8
- OpenSSL
- Microsoft CAPI
- Microsoft CNG

Known Issues

This section lists the issues known to exist in the product at the time of release. Workarounds are provided where available. The following table lists the defines the severity level assigned to each listed issue.

Table 1: Issue severity definitions

Severity	Classification	Definition
H	High	Reasonable workaround exists.
M	Medium	Medium severity problems.
L	Low	Low severity problems.

Table 2: List of known issues

Issue	Severity	Synopsis
LKX-2634	M	**Problem:** Cannot back up curve25519 key types to the SafeNet Luna Backup HSM. **Workaround:** Use cloning or HA to back up your curve25519 key types to another SafeNet Luna 7.0 HSM.
LUNA-853	M	**Problem:** On Linux, the SafeNet Luna HSM Client software fails to install to a directory with spaces in its name. **Workaround:** Remove spaces from the directory name before installing the Client.
LUNA-454	M	**Problem:** SafeNet Luna Network HSM appliance user names that begin with a non-alphanumeric character (period, dash, or underscore) may cause issues and/or potential system crashes. **Workaround:** Always use an alphanumeric character as the first character in the user name when creating appliance user accounts.
LUNA-264	M	**Problem:** On Linux, non-root users cannot initialize the STC token or create an STC client identity.

Issue	Severity	Synopsis
		Workaround: Start LunaCM as root with **sudo ./lunacm**.
LUNA-263	M	**Problem:** On Linux, non-root users cannot configure the RBS server. **Workaround:** As root, run the following commands: 1. **chown -R root:hsmusers /usr/safenet/lunaclient/rbs/** 2. **chmod g+w -R usr/safenet/lunaclient/rbs/**
LUNA-261	M	**Problem:** On Linux, non-root users cannot add a new HSM server after **CAfile.pem** has been created by the root user. **Workaround:** Use the same user account to create the certificate and register the server.
LUNA-169	M	**Problem:** In LunaSH, **network show** displays an incorrect IPv6 Mask prefix. **Workaround:** None. If set correctly, IPv6 works even though the wrong mask is displayed.
LUNA-166	M	**Problem:** Running **package verify** and **package update** with the **-useevp** option in LunaSH produces a CKR_SIGNATURE_INVALID error. **Workaround:** None
LUNA-163	M	**Problem:** When the HSM audit logs are full, **audit login** appears to succeed, but the user is not actually logged in and cannot perform operations. **Workaround:** Clear the audit logs by opening an SSH session as audit, and perform the following steps: 1. Tar the audit logs with the command **audit log tarlogs**. 2. Transfer the tar file out of the appliance. 3. Clear the audit log files to free up space on the audit log partition with the command **audit log clear**.
LUNA-132, CPP-2505	M	**Problem:** When configuring a network device for IPv6 using SLAAC or DHCPv6, the IPv6 address is retrieved, but the name server and search domain are not. **Workaround:** Configure the name server and search domain manually, using the LunaSH command **network dns add** {[**-nameserver** <ip_address>] | [**-searchdomain** <net_domain>]}.
CPP-3385	M	**Problem:** On Windows, a system crash can occur when you disconnect a SafeNet Luna Backup HSM from the computer while the PedClient service is running. **Workaround:** Stop the PedClient service before disconnecting the Backup HSM. From a command line, run **pedclient mode stop**.
CPP-3384	M	**Problem:** After zeroization or factory reset, the STC cipher option is set to NULL_ENC. Output from **hsm stc status** includes "Cipher Name: No Cipher". **Workaround:** Run the LunaSH command **hsm stc cipher enable -all** to enable all available STC ciphers.
CPP-3261	M	**Problem:** After performing **sysconf config factoryreset**, the appliance host name is not reset. **Workaround:** None.

Issue	Severity	Synopsis
CPP-3241	M	**Problem:** Untarred audit log files are not visible to the user. **Workaround:** Untarred audit log files will not appear in the list of log files generated by the LunaSH command **my file list**, but they can still be verified using **audit log verify -file** <filename> **-serialsource** <serialnum>.
CPP-3191	M	**Problem:** After rebooting the appliance, occasionally clients cannot see partitions on the first connection attempt. **Workaround:** Run the **vtl verify** command again. The second attempt should be successful.
CPP-3151	M	**Problem:** SafeNet Luna HSM Client will not install on Windows 2012 R2. **Workaround:** Ensure that your Windows machine has the Universal C Runtime in Windows (KB2999226) update installed on it. If you do not, obtain it from Microsoft Support. Refer to the *Installation Guide* for details.
CPP-3051	M	**Problem:** Multitoken crashes with mode **randgen** on an NTLS established slot when HSM policy 39:Enable STC is turned on. **Workaround:** If you are not using STC, do not turn on HSM policy 39.
CPP-2376	M	**Problem:** On the Backup HSM, the **hsm init** command with the **-iped** option fails after **hsm factoryreset**. **Workaround:** Run the **hsm init** command again. The second attempt should be successful.
CPP-2368	M	**Problem:** The **hagroup list** command returns an error. **Workaround:** Run the **hagroup list** command again. The second attempt should be successful.
CPP-1842	M	**Problem:** Secure NTP server connections using AutoKey authentication do not work. **Workaround:** Use Symmetric-Key authentication instead.
CPP-1348	M	**Problem:** Windows 10 occasionally crashes when trying to detect a serial port. This is a known issue with the Windows 10 PL2303 drivers. **Workaround:** If you experience trouble opening a serial connection using Windows 10, use another supported operating system. See "SafeNet Luna HSM Client" on page 7.
CPP-1339	M	**Problem:** The **sysconf config restore** command does not restore the SSH password for the admin user. If the password is not reset immediately, the admin user will be unable to login to the appliance in subsequent SSH sessions. **Workaround:** Use the **sysconf config clear** command to reset the admin password to the default. You must do this in the same session that you used to run the **sysconf config restore** command.
CPP-632	M	**Problem:** When using CKdemo with HA groups, an **Attribute type invalid** error is returned. **Workaround:** If you plan to use HA Groups, change your CKdemo settings to use legacy role logins. To do this, select **Role Support** from the **98) Options** in the **OTHERS** menu.
CPP-628,	M	**Problem:** Unable to add a member to an HA group if the Partition SO or Crypto Officer

Issue	Severity	Synopsis
LKX-554		is currently logged in to the primary member of the HA group. **Workaround:** Ensure that the Partition SO or Crypto Officer are not logged in to the primary HA member partition when adding a new member.
CPP-626, CPP-624	M	**Problem:** If you zeroize an HSM hosting an HA group member partition, all running cryptographic operations against the HA group fail. **Workaround:** Remove any member partition from the HA group before zeroizing the host HSM.
LUNA-339	L	**Problem:** Some appliance sensor information is missing or incorrectly reported via SNMP. **Workaround:** Use the LunaSH command **status sensors** to obtain this information.
LUNA-266	L	**Problem:** In LunaCM, **clientconfig deleteserver** deregisters the HSM server on the Client, but does not delete the HSM server certificate file from the <LunaClient_ dir>**/cert/server** directory. Attempts to re-register the same server with a regenerated certificate fail. **Workaround:** Manually delete the certificate from the **cert/server** directory.
LUNA-218	L	**Problem:** You cannot add a host or network route using the LunaSH **network route add** command without including the gateway value. **Workaround:** None.
LUNA-188	L	**Problem:** When using RBS to remotely backup a PED-authenticated STC partition greater than 30MB, the default idle timeout setting (30 minutes) may not be long enough to prevent the remote session from disconnecting. **Workaround:** Increase the idle timeout threshold for both PedClient and PedServer to at least 40 minutes (2400 s) before attempting remote backup.
LKX-2812	L	**Problem:** The HSM reports 3072-bit as the maximum allowed key size for the RSA 186-3 mechanisms (CKM_RSA_FIPS_186_3_AUX_PRIME_KEY_PAIR_GEN and CKM_RSA_FIPS_186_3_PRIME_KEY_PAIR_GEN), when it should report 4096-bit. **C_GetMechanismInfo** will report 3072 as the maximum size for these mechanisms. If your application uses **C_GetMechanismInfo** to query the maximum key size, it may prevent 4096 operations from working. **Workaround:** Ignore the reported limit. 4096-length keys will generate successfully.
CPP-3391	L	**Problem:** When trying to run the **HALogin.java** script, a CKR_UNKNOWN error is returned. **Workaround:** None. Do not use the **HALogin.java** sample.
CPP-3387	L	**Problem:** On a new Linux client, the Luna HSM Client uninstaller hangs when a SafeNet Luna Backup HSM is connected to the client machine. **Workaround:** Disconnect the SafeNet Luna Backup HSM from the client before uninstalling.
CPP-3326	L	**Problem:** Webserver appears to start but is not accessible when the SSL key file or certificate does not exist. **Workaround:** Create the certificate before starting the web service.

Issue	Severity	Synopsis
CPP-2960	L	**Problem:** LunaCM hangs on exit on Windows 2016. **Workaround:** End the LunaCM instance using the Task Manager.
CPP-2925	L	**Problem:** When the **cklog** library is configured, an **error.txt** file containing extraneous messages may be created. **Workaround:** None.
CPP-2820	L	**Problem:** The **hsmCriticalEvent** and **hsmNonCriticalEvent** counters incorrectly track HSM events. **Workaround:** None. SNMP **hsmCriticalEvent** and **hsmNonCriticalEvent** counters are not implemented in this release, and will always remain 0.
CPP-2576	L	**Problem:** Windows installer does not remove CSP and KSP registry entries for 32-bit setup when the Windows client is uninstalled. **Workaround:** No impact on service; registry entries may be deleted manually.
CPP-2488	L	**Problem:** Version 6.x and 7.x HSM role name abbreviations are not consistent. **Workaround:** Remember to use the full role name when logging in to Luna 6.x partitions.
CPP-2380	L	**Problem:** When running the **MiscCSRCertificateDemo.java** sample, a null pointer exception occurs. **Workaround:** None.
CPP-932	L	**Problem**: If the configured audit logging directory is not found, the **pedclient** service fails with error **LOGGER_init failed**. **Workaround**: Ensure that the directory you configure for audit logging exists.
CPP-902	L	**Problem:** DSA SSH keypair is not regenerated by **sysconf ssh regenkeypair**. **Workaround:** None. DSA keys are being deprecated in OpenSSH due to weakness. Use RSA keys for SSH instead.
CPP-3404	L	**Problem:** CMU may crash or report a memory allocation error when using a non-FIPS signing mechanism in FIPS mode. **Workaround:** Specify a FIPS-approved signing mechanism such as **sha256withRSA**.
CPP-3235	L	**Problem:** In LunaCM, the **partition clone** command fails the first time if the Partition SO is logged in to the target slot. **Workaround:** Run the **partition clone** command again. The second attempt should be successful.

Resolved Issues

This section lists issues that have been resolved for the current release.

Table 3: List of resolved issues

Issue	Severity	Synopsis
LKX-3204	H	**Problem:** Implementations of SSL/TLS 1.1 or earlier receive CKR_DATA_INVALID error when attempting to sign data with CKA_RSA_PKCS. **Fixed:** [Requires firmware 7.0.2]

Support Contacts

If you encounter a problem while installing, registering, or operating this product, please refer to the documentation before contacting support. If you cannot resolve the issue, contact your supplier or Gemalto Customer Support.

Gemalto Customer Support operates 24 hours a day, 7 days a week. Your level of access to this service is governed by the support plan arrangements made between Gemalto and your organization. Please consult this support plan for further information about your entitlements, including the hours when telephone support is available to you.

Customer Support Portal

The Customer Support Portal, at https://supportportal.gemalto.com, is where you can find solutions for most common problems. The Customer Support Portal is a comprehensive, fully searchable database of support resources, including software and firmware downloads, release notes listing known problems and workarounds, a knowledge base, FAQs, product documentation, technical notes, and more. You can also use the portal to create and manage support cases.

Note: You require an account to access the Customer Support Portal. To create a new account, go to the portal and click on the **REGISTER** link.

Telephone Support

If you have an urgent problem, or cannot access the Customer Support Portal, you can contact Gemalto Customer Support by telephone. Calls to Gemalto Customer Support are handled on a priority basis.

Region	Telephone number (Subject to change. An up-to-date list is maintained on the Customer Support Portal)
Global	+1 410-931-7520
Australia	1800.020.183
China	North: 10800-713-1971 South: 10800-1301-932
France	0800-912-857
Germany	0800-181-6374
India	000.800.100.4290

Region	Telephone number (Subject to change. An up-to-date list is maintained on the Customer Support Portal)
Israel	180-931-5798
Italy	800-786-421
Japan	0066 3382 1699
Korea	+82 2 3429 1055
Netherlands	0800.022.2996
New Zealand	0800.440.359
Portugal	800.863.499
Singapore	800.1302.029
Spain	900.938.717
Sweden	020.791.028
Switzerland	0800.564.849
United Kingdom	0800.056.3158
United States	(800) 545-6608

