THALES

SafeNet Luna PCIe HSM 7.1

INSTALLATION GUIDE

Document Information

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Revision History

Revision	Date	Reason
Rev. A	13 December 2019	Initial release.

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Table 1: Third-party software used in this product

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Regulatory Compliance

This product complies with the following regulatory regulations. To ensure compliancy, ensure that you install the products as specified in the installation instructions and use only Thales-supplied or approved accessories.

USA, FCC

This equipment has been tested and found to comply with the limits for a "Class B" digital device, pursuant to part 15 of the FCC rules.

Canada

This class B digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.

Europe

This product is in conformity with the protection requirements of EC Council Directive 2014/30/EU. This product satisfies the CLASS B limits of EN55032.

CONTENTS

PREFACE:
About the Installation Guide

This document describes how to install the SafeNet Luna HSM hardware and the SafeNet Luna Client software. Refer to the following chapters to install the hardware and software components applicable to you:

SafeNet Luna HSM hardware installation

> "SafeNet Luna PCIe HSM Hardware Installation" on page 11

SafeNet Luna Client software installation

> "SafeNet Luna HSM Client Software Installation" on page 26

SafeNet Luna PED installation and configuration

> "SafeNet Luna PED Received Items" on page 23

> For instructions on setting up the SafeNet Luna PED, see "PED Authentication" on page 1 in the *Administration Guide*.

Document information

This preface also includes the following information about this document:

> "Customer Release Notes" below

> "Audience" below

> "Document Conventions" on the next page

> "Support Contacts" on page 9

For information regarding the document status and revision history, see "Document Information" on page 2

Customer Release Notes

The customer release notes (CRN) provide important information about this release that is not included in the customer documentation. Read the CRN to fully understand the capabilities, limitations, and known issues for this release. You can view or download the latest version of the CRN from the Technical Support Customer Portal at https://supportportal.gemalto.com.

Audience

This document is intended for personnel responsible for maintaining your organization's security infrastructure. This includes SafeNet Luna HSM users and security officers, key manager administrators, and network administrators.

All products manufactured and distributed by Thales Group are designed to be installed, operated, and maintained by personnel who have the knowledge, training, and qualifications required to safely perform the tasks assigned to them. The information, processes, and procedures contained in this document are intended for use by trained and qualified personnel only.

It is assumed that the users of this document are proficient with security concepts.

Document Conventions

This document uses standard conventions for describing the user interface and for alerting you to important information.

Notes

Notes are used to alert you to important or helpful information. They use the following format:

> **NOTE** Take note. Contains important or helpful information.

Cautions

Cautions are used to alert you to important information that may help prevent unexpected results or data loss. They use the following format:

> **CAUTION!** Exercise caution. Contains important information that may help prevent unexpected results or data loss.

Warnings

Warnings are used to alert you to the potential for catastrophic data loss or personal injury. They use the following format:

> ****WARNING**** **Be extremely careful and obey all safety and security measures. In this situation you might do something that could result in catastrophic data loss or personal injury.**

Command Syntax and Typeface Conventions

Format	Convention
bold	The bold attribute is used to indicate the following: > Command-line commands and options (Type **dir /p**.) > Button names (Click **Save As**.) > Check box and radio button names (Select the **Print Duplex** check box.) > Dialog box titles (On the **Protect Document** dialog box, click **Yes**.) > Field names (**User Name**: Enter the name of the user.) > Menu names (On the **File** menu, click **Save**.) (Click **Menu** > **Go To** > **Folders**.) > User input (In the **Date** box, type **April 1**.)
italics	In type, the italic attribute is used for emphasis or to indicate a related document. (See the *Installation Guide* for more information.)
<variable>	In command descriptions, angle brackets represent variables. You must substitute a value for command line arguments that are enclosed in angle brackets.
[**optional**] [<optional>]	Represent optional **keywords** or <variables> in a command line description. Optionally enter the keyword or <variable> that is enclosed in square brackets, if it is necessary or desirable to complete the task.
{a|b|c} {<a>|<b>|<c>}	Represent required alternate **keywords** or <variables> in a command line description. You must choose one command line argument enclosed within the braces. Choices are separated by vertical (OR) bars.
[a|b|c] [<a>|<b>|<c>]	Represent optional alternate keywords or variables in a command line description. Choose one command line argument enclosed within the braces, if desired. Choices are separated by vertical (OR) bars.

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 Thales Customer Support.

Thales 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 Thales 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.thalesgroup.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

The support portal also lists telephone numbers for voice contact (Contact Us).

CHAPTER 1:
SafeNet Luna PCIe HSM Hardware Installation

This chapter describes how to install and connect a SafeNet Luna PCIe HSM. To ensure a successful installation, perform the following tasks in the order indicated:

1. Ensure that you have all of the required components, as listed in "SafeNet Luna PCIe HSM Required Items" on the next page

2. Install and connect the hardware, as described in "Installing the SafeNet Luna PCIe HSM Hardware" on page 16

3. The SafeNet Luna PCIe HSM uses a 3.6V non-rechargeable lithium battery to provide backup power to its memory. If you need to replace this battery, see "Replacing the SafeNet Luna PCIe HSM Battery" on page 20.

> **CAUTION!** This product uses semiconductors that can be damaged by electro-static discharge (ESD). When handling the device, avoid contact with exposed components, and always use an anti-static wrist strap connected to an earth ground. In rare cases, ESD can trigger a tamper or decommission event on the HSM. If this happens, all existing roles and cryptographic objects are deleted.

The SafeNet Luna PCIe HSM has been tested with a variety of representative systems/servers with compliant PCI express slots. When a compatibility problem with a current brand and model computer arises, that information is made available via the Thales Support Portal.

If you encounter any issues when installing the SafeNet Luna PCIe HSM into a new server/host computer, first try a different PCI express slot. The design of certain motherboards or the associated BIOS may prevent proper communication with a SafeNet Luna PCIe HSM. For example, certain PCI express physical slots are intended for use only with a video card or another specific type of hardware, and the SafeNet Luna PCIe HSM may not work correctly in these slots.

If you encounter further issues, please contact Thales Group Technical Support.

SafeNet Luna PCIe HSM Required Items

This section provides a list of the components you should have received with your SafeNet Luna PCIe HSM order. The specific items you received depend on whether you ordered a password-authenticated or a PED-authenticated SafeNet Luna PCIe HSM, and whether your order included a backup device or other options as described below.

Basic SafeNet Luna PCIe HSM order items

The standard items that you should have received as your basic order for a SafeNet Luna PCIe HSM are:

Qty	Item
1	**SafeNet Luna PCIe HSM** The HSM comes fitted with a full-height mounting bracket.
1	**Anti-Static Wrist Strap**
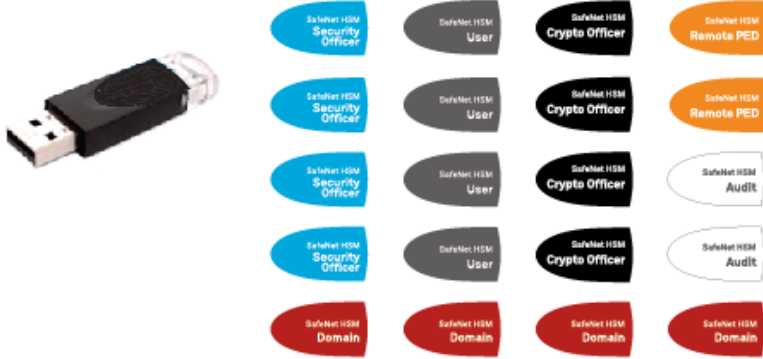
Qty	Item
1	**Half-height mounting bracket** Use this bracket if you need to install the SafeNet Luna PCIe HSM into a half-height slot.

PED-Authenticated SafeNet Luna PCIe HSM order items

If you ordered a PED-authenticated SafeNet Luna PCIe HSM, you should have received some combination of the following items in addition to the items in the basic order.

Qty	Item
1+	**SafeNet Luna PED** Your order should include at least one PED device. If you intend to back up your SafeNet Luna PCIe HSM to a SafeNet Luna Backup HSM, then you require a Luna PED to connect to that Backup HSM. If you intend to combine remote operation and backup, you might prefer to have a second PED. It is possible to use a single Luna PED for both connections, and to simply change between local and remote mode as needed. Note that you can use PED keys that you already own and use with other HSMs if appropriate. You should purchase the number you need for your own convenient operation, and for backup/standby units as your security policies might require.

Qty	Item
1	**Luna PED cable** Both the standard and remote-capable PED devices connect to your HSM using a Type A to Mini B USB cable.
1	**SafeNet Remote PED Power Supply Kit [*]** If you ordered a Luna PED, your order should include a Luna PED power supply kit with the appropriate connection for your region. The power supply is auto-sensing and includes replaceable mains plug modules for international use. [* If you received a refreshed PED (updated internal hardware, and PED firmware 2.8.0 or newer), it is powered via the USB connection and does not require a separate, external power supply; none is supplied.]

Qty	Item
1	**Ten-pack of iKey 1000 PED keys**, and sheets of peel-and-stick labels Your order should include a set of iKey PED keys and peel-and-stick labels.

Optional Items

Your order may include a SafeNet Luna Backup HSM.

Qty	Item
1	**SafeNet Luna Backup HSM** You can back up your selected SafeNet Luna PCIe HSM partition contents (root keys, certificates, other items) to a SafeNet Luna Backup HSM. The SafeNet Luna Backup HSM is suitable for off-site storage and for backing up multiple HSM partitions. It can back up contents of password-authenticated or of PED-authenticated HSMs. It must be initialized as one type or the other before the backup operation starts. The SafeNet Luna Backup HSM can be connected directly to an HSM, or it can be connected to a separate computer to back up remotely-located HSMs in conjunction with a Remote PED. The authentication method for a backup HSM must match the authentication method (password or PED) for any HSM with which it is used. The SafeNet Luna Backup HSM ships with an external power supply.

Installing the SafeNet Luna PCIe HSM Hardware

This section describes how to perform the following tasks:

> Install the SafeNet Luna PCIe HSM card into the host computer. See "Installing the SafeNet Luna PCIe HSM Card Into the Host Computer" below.

> Connect a chassis intrusion connector to the tamper header on the card, if necessary. See "Connecting a Chassis Intrusion Connector to the Tamper Header" on page 18

> Connect a local PED, if necessary. See "Connecting a Local PED" on page 19

> Connect a remote PED, if necessary. See "Connecting a Remote PED" on page 19

Installing the SafeNet Luna PCIe HSM Card Into the Host Computer

Install the SafeNet Luna PCIe HSM card into an open PCIe slot on the host computer.

> **CAUTION!** This product uses semiconductors that can be damaged by electro-static discharge (ESD). When handling the device, avoid contact with exposed components, and always use an anti-static wrist strap connected to an earth ground. In rare cases, ESD can trigger a tamper or decommission event on the HSM. If this happens, all existing roles and cryptographic objects are deleted.

To install the SafeNet Luna PCIe HSM hardware:

1. Open your computer, and remove the slot-cover bracket from an available PCIe slot. If the bracket is secured by a screw, keep that screw.

2. Use the provided anti-static wrist-strap to ground yourself to an exposed metal part of the computer chassis.

3. Remove the SafeNet Luna PCIe HSM from its anti-static packaging and prepare to insert the card into your computer.

    Your SafeNet Luna PCIe HSM comes fitted with a full-height mounting bracket, but if you have no full-height slots available, the card can fit into a half-height slot. A half-height mounting bracket is included for this purpose. To install the half-height bracket, remove the two screws connecting the full-height bracket to the card, and use them to mount the half-height bracket in its place.

4. Align the SafeNet Luna PCIe HSM card with the vacant slot. You might need to introduce the tip of the card-hold-down bracket first (the silver-metal part along the back edge of the card), in order to properly align the card with the connector.

You can use a PCIe X4 or larger slot, as long as it is wired for at least four PCI express channels, and not reserved for a dedicated function. For example, we do not recommend that you use your SafeNet Luna PCIe HSM card in a designated PCI express video slot - different models of computer and their BIOS firmware can differ in how faithfully they support the PCIe standard.

5. Insert the SafeNet Luna PCIe HSM card into the connector. It should go straight in – angling the card might cause it to bend. The card is properly seated when no portion of the gold-colored contacts of the card protrudes above the connector socket.
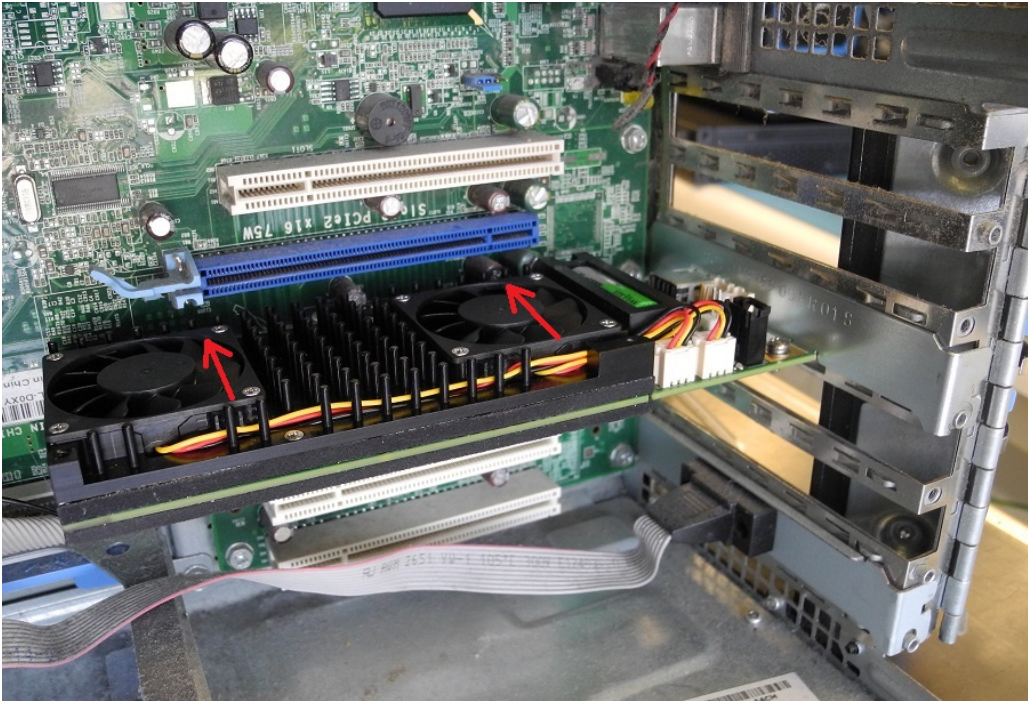
6. Secure the card hold-down bracket with a screw.

Connecting a Chassis Intrusion Connector to the Tamper Header

The SafeNet Luna PCIe HSM is equipped with a two-pin tamper header which, when shorted, places the HSM in a tamper state with a status of Chassis Open. If your chassis is so equipped, you can connect the chassis intrusion connector to the tamper header so that the HSM is placed in a tamper state if the chassis is opened. Refer to the documentation provided by your chassis manufacturer for more information.

To connect a chassis intrusion connector to the tamper header:

1. Install the card as described in "Installing the SafeNet Luna PCIe HSM Card Into the Host Computer" on page 16

2. Connect the chassis intrusion connector to the tamper header on the card, shown below.
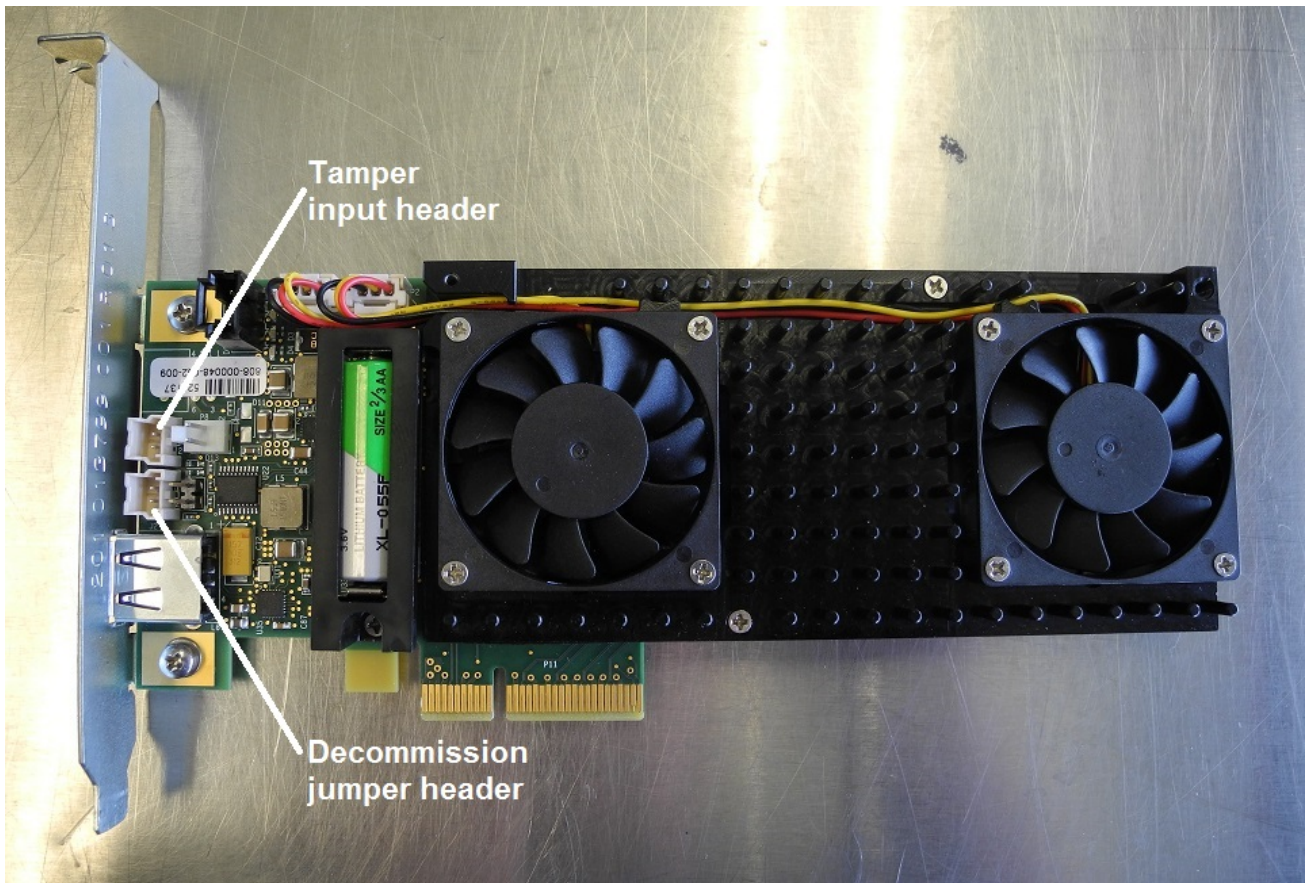
Connecting a Local PED

The local Luna PED (or a Luna PED Remote used locally) connects directly to the USB port on the SafeNet Luna PCIe HSM card via a USB-to-MiniUSB cable.

To connect a local PED to the SafeNet Luna PCIe HSM:

1. Use the Luna PED local cable (mini-USB to USB) to connect the Luna PED to the SafeNet Luna PCIe HSM card:

    a. Plug the mini-USB connector on the cable into the mini-USB port on the PED.

    b. Plug the USB connector on the cable into the USB port on the card.

Connecting a Remote PED

The Remote-Capable PED can be used either locally, connected directly to a SafeNet Luna HSM (exactly as for the standard PED), or remotely when connected to a suitable workstation and to the electrical main power supply. The normal local use of a PED with Remote PED capability is to use it in local mode to prepare an HSM (imprint an RPK – the orange key with a Remote PED Vector) before shipping it to its remote location. Then you would switch to Remote PED mode.

To prepare an HSM for Remote PED operation you need to connect it locally and imprint the HSM with a Remote PED key (orange). Once the HSM can be reached via remote desktop connection, and the HSM is associated with an orange PED key, all further configuration and administration can be performed remotely.

To connect a remote PED to the SafeNet Luna PCIe HSM:

1. Use the Luna PED local cable to connect the Luna PED to the SafeNet Luna PCIe HSM card. This step is required to imprint the HSM with a Remote PED Vector (RPV) using the orange PED key (RPK). This should be the only time you need to connect a PED locally to the HSM. Once the orange PED key is imprinted with the same RPV as the HSM, all future PED operations can be performed remotely.

2. Follow the instructions in the *Administration Guide* to configure the remote PED. Note that you must install at least the Remote PED optional component of the SafeNet Luna Client software before you can configure the remote PED. See "SafeNet Luna HSM Client Software Installation" on page 26.

Replacing the SafeNet Luna PCIe HSM Battery

The SafeNet Luna PCIe HSM uses a 3.6V non-rechargeable lithium battery to provide backup power to its memory. This enables the HSM to preserve cryptographic material even when the host system loses power. The battery may need replacement over the course of the HSM's lifetime. To see if your battery needs to be replaced, run **hsm envshow** in LunaCM. A warning is returned if the battery's voltage drops below 2.75 V.

> **CAUTION!**   Unless temporary battery power is supplied to the HSM while the main battery is replaced, all cryptographic material will be erased. Use the SafeNet Luna PCIe HSM 7.1 Temporary Battery Holder to ensure a continuous power supply.

Required Items

To replace the battery, you will need the following items. Battery manufacturer information is suggested.

Qty	Item	Description/Specifications	Manufacturer	Part Number
1	**SafeNet Luna PCIe HSM replacement battery**	2/3AA, 3.6V, 1650 mAh, Li-COCl$_2$, length 33.5 mm, diameter 14.55 mm	**OmniCel**	ER14335/S
			Xeno Energy	XL-055F

Qty	Item	Description/Specifications	Manufacturer	Part Number
1	**Temporary Battery Holder**	Used with a temporary battery to maintain power to the SafeNet Luna PCIe HSM during the replacement process. Can be requested from Thales Group. 	**Thales Group**	908-000408-001
1	**Temporary Battery**	AA, 3.6V, 1650 mAh, Li-COCl$_2$, length 50.3 mm, diameter 14.55 mm	**Saft**	LS14500-AA

Instructions

> **CAUTION!** Backup any important cryptographic material on the HSM before proceeding.

Prerequisites

To replace the battery, you must first remove the SafeNet Luna PCIe HSM card from the host system.

> **CAUTION!** This product uses semiconductors that can be damaged by electro-static discharge (ESD). When handling the device, avoid contact with exposed components, and always use an anti-static wrist strap connected to an earth ground. In rare cases, ESD can trigger a tamper or decommission event on the HSM. If this happens, all existing roles and cryptographic objects are deleted.

1. Test the temporary and replacement batteries with a voltmeter or multimeter. If either battery's voltage is below 3.1 V, it is depleted and must be replaced.

    > **CAUTION!** You must use the temporary battery specified in "Required Items" on the previous page. Standard AA voltage is too low to power the SafeNet Luna PCIe HSM.

2. Open LunaCM on the host machine and log in to the Admin partition as HSM SO.

3. Place the HSM in Secure Transport Mode to prevent a tamper event.

    lunacm:> **stm transport**

4. Power off the host machine and disconnect it from power.

5. Use an anti-static wrist strap (provided with your SafeNet Luna PCIe HSM) to ground yourself to an exposed metal part of the computer chassis.

6. Remove the SafeNet Luna PCIe HSM from its PCIe slot.

Replacing the SafeNet Luna PCIe HSM Battery

To maintain HSM power, you must connect a temporary battery while replacing the main battery.

To replace the SafeNet Luna PCIe HSM battery:

1. Install the temporary battery in the temporary battery replacement holder.

2. Install the 2-pin plug from the battery holder onto the 2-pin header marked **P8** on the SafeNet Luna PCIe HSM card.

> **NOTE** The polarity on the **P8** header is not reversible. The jumper will only fit onto the header in the correct direction.

The SafeNet Luna PCIe HSM card's green **D4** LED is illuminated. This indicates that the card is receiving power from the temporary battery. If the LED appears dim, ensure that the temporary battery's voltage is greater than 3.1 V.
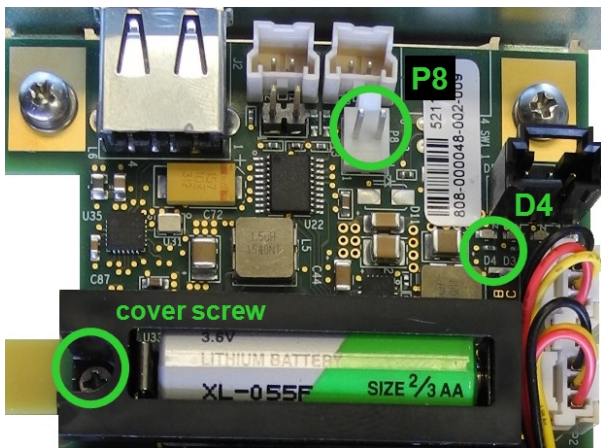
3. If necessary, remove the screw securing the battery cover.

4. Replace the 2/3AA battery on the card. Note the correct polarity.

5. Replace the battery cover and secure it with the screw.

6. Remove the jumper from the **P8** header to disconnect the temporary power.

7. Reinstall the SafeNet Luna PCIe HSM card.

8. Dispose of the depleted battery according to regional recycling regulations.

CHAPTER 2:
SafeNet Luna PED Received Items

This chapter describes the items you received with your SafeNet Luna PED device. For instructions on setting up the PED, see in the *Administration Guide*.
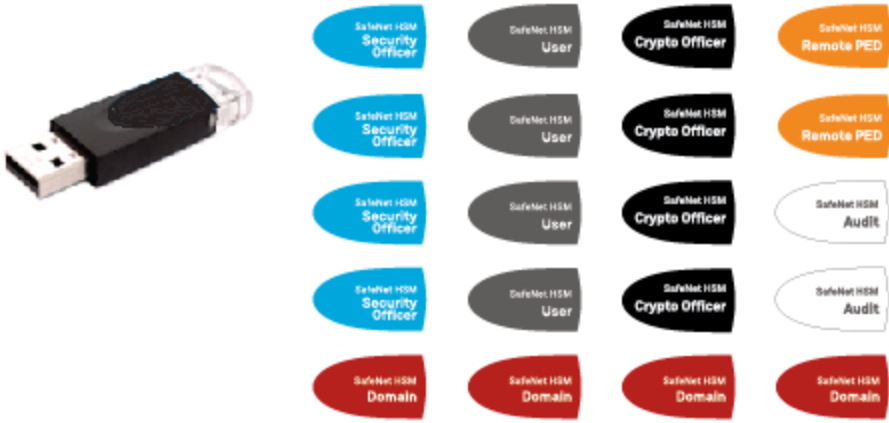
Required Items

The following items are included with your PED. All are required for a successful installation.

Quantity	Item
1	**SafeNet Luna PED** (with firmware 2.7.1 or newer)

Quantity	Item
1	**PED Power Supply** kit with replaceable mains plug modules for international use (employed when the PED is operated in Remote PED mode) **NOTE:** If your PED has firmware 2.8.0 or newer, it contains refreshed internal hardware and is powered by USB connection. Refreshed PEDs are not shipped with the external power supply, as they do not need it.
1	**Cable, USB 2.0, Type A to Mini B connectors** (for Remote PED operation).

Quantity	Item
1	**Cable, Data, 9-pin, Micro-D to Micro-D connectors** (for local PED operation prior to HSM firmware versions 7.x.).
1	**Ten-pack of iKey 1000 PED keys**, and sheets of peel-and-stick labels

CHAPTER 3:
SafeNet Luna HSM Client Software Installation

This chapter describes how to install the SafeNet Luna HSM Client software. After installing the hardware, you need to install the SafeNet Luna Client software before you can begin configuring your SafeNet Luna HSM(s).

You can install the client for all SafeNet General Purpose HSMs, or for a specific type (Network or PCIe). Install the client as follows:

> For SafeNet Luna Network HSM, install the SafeNet Luna Client on any computer that must connect to the appliance as a client.

> For SafeNet Luna PCIe HSM, install the SafeNet Luna Client on the workstation into which the SafeNet Luna PCIe HSM is installed.

> For SafeNet Luna USB HSM, install the SafeNet Luna Client on the workstation to which the SafeNet Luna USB HSM is connected.

> Install the SafeNet Luna Client on any computer that is to have a SafeNet Remote PED connected.

Choose the instructions for your operating system:

> For AIX, see "AIX SafeNet Luna HSM Client Installation" on the next page.

> For Linux, see "Linux SafeNet Luna HSM Client Software Installation" on page 35

> For Solaris, see "Solaris SafeNet Luna HSM Client Installation" on page 42

> For Windows, see "Windows SafeNet Luna HSM Client Installation" on page 50 The following supplemental topics also apply to Windows:

- • "Scripted/Unattended Windows Installation/Uninstallation" on page 59

> **NOTE** Not all operating systems are supported for each SafeNet Luna HSM type. Refer to the Customer Release Notes (see "Customer Release Notes" on page 7) for the most current information on supported platforms.

AIX SafeNet Luna HSM Client Installation

These instructions assume that you have already acquired the SafeNet Luna HSM Client software, usually in the form of a downloaded .tar archive.

You must install the SafeNet Luna HSM client software on each client workstation you will use to access a SafeNet Luna HSM. This section describes how to install the client on a workstation running AIX, and contains the following topics:

> "Prerequisites " below

> "Installing the Client Software" below

> "Controlling User Access to Your Attached HSMs and Partitions" on page 30

> "AIX SafeNet Luna HSM Client Installation" above

> "Installing Java Components " on page 31

> "Scripted or Unattended Installation" on page 32

> "AIX SafeNet Luna HSM Client Installation" above

Applicability to specific versions of AIX is summarized in the Customer Release Notes for the current release.

> **NOTE** Before installing a SafeNet system, you should confirm that the product you have received is in factory condition and has not been tampered with in transit. Refer to the Content Sheet included with your product shipment. If you have any questions about the condition of the product that you have received, please contact Thales Group Technical Support.

Prerequisites

Each computer that connects to the SafeNet Luna HSM appliance as a Client must have the cryptoki library, the vtl client shell and other utilities and supporting files installed. Each computer that contains, or is connected to a SafeNet Luna PCIe HSM or a SafeNet Luna Remote Backup HSM must have the cryptoki library and other utilities and supporting files installed.

Installing the Client Software

Check the SafeNet Luna HSM Customer Release Notes for any installation-related issues or instructions before you begin the following software installation process.

To install the SafeNet Luna Client software on AIX:

1. Log on to the client system, open a console or terminal window, and use **su** or **sudo** to gain administrative permissions for the installation.

2. If you downloaded the software, copy or move the .tar archive (which usually has a name like "LunaClient_ 7.x.y-nn_AIX.tar") to a suitable directory where you can untar the archive and launch the installation script.

3. Enter the following command to extract the contents from the archive:

   tar xvf <filename>**.tar**

4. Change directory to the software version suitable for your system (for example, under the "aix" subdirectory, choose 32-bit or 64-bit according to your system requirement).

5. Install the client software as follows:

- To see the 'help', or a list of available installer options, type:

  sh install.sh -? or **./sh install.sh --help**

- To install all available products and optional components, type:

  sh install.sh all

- To selectively install individual products and optional components, type the command without arguments:

  sh install.sh

> **NOTE** Do not interrupt the installation script in progress. An uninterruptible power supply (UPS) is recommended. See "Interrupting the Installation" on page 33 for more information.

6. Type **y** if you agree to be bound by the license agreement:

```
[mylunaclient-1 32]$ sh install.sh

IMPORTANT:  The terms and conditions of use outlined in the software
license agreement (Document #008-010005-001_EULA_HSM_SW_revN) shipped with the product
("License") constitute a legal agreement between you and SafeNet.
Please read the License contained in the packaging of this
product in its entirety before installing this product.

Do you agree to the License contained in the product packaging?

If you select 'yes' or 'y' you agree to be bound by all the terms
and conditions set out in the License.

If you select 'no' or 'n', this product will not be installed.

(y/n)
```

7. A list of installable SafeNet products appears (might be different, depending on your platform). Select as many as you require, by typing the number of each (in any order) and pressing Enter. As each item is selected, the list updates, with a "*" in front of any item that has been selected. This example shows item 1 has been selected.

```
Products
Choose Luna Products to be installed
    *[1]: Luna Network HSM
     [N|n]: Next
     [Q|q]: Quit

Enter selection: 1
```

> **NOTE** When the above was captured, the AIX client supported only SafeNet Luna Network HSM. To install the SafeNet Luna Backup HSM, you will need one of the other supported host platforms.

8. When selection is complete, type **N** or **n** for "Next", and press **Enter**. If you wish to make a change, simply type a number again and press **Enter** to de-select a single item.

9. The next list is called "Advanced" and includes additional items to install. Some items might be pre-selected to provide the optimum SafeNet Luna HSM experience for the majority of customers, but you can change any selection in the list.

```
Products
Choose Luna Products to be installed
     [1]: Luna Network HSM
     [N|n]: Next
     [Q|q]: Quit

Enter selection: 1

Advanced
Choose Luna Components to be installed

  [1]: Luna SDK

 *[2]: Luna JSP (Java)

 *[3]: Luna JCProv (Java)

  [B|b]: Back to Products selection

  [I|i]: Install

  [Q|q]: Quit

 Enter selection:
```

If you wish to make a change, simply type a number again and press **Enter** to select or de-select a single item.

If the script detects an existing cryptoki library, it stops and suggests that you uninstall your previous SafeNet software before starting the SafeNet Luna Client installation again.

10. The system installs all packages related to the products and any optional components that you selected. By default, the Client programs are installed in the **/usr/safenet/lunaclient** directory.

> **NOTE** When installing, ensure that the full path of a package does not contain any space characters. (The IBM examples do not show any spaces, implying that this might be a system requirement.)

As a general rule, do not modify the Chrystoki.conf/crystoki.ini file, unless directed to do so by Gemalto Technical Support. If you do modify the file, never insert TAB characters - use individual space characters. Avoid modifying the PED timeout settings. These are now hardcoded in the appliance, but the numbers in the Chrystoki.conf file must match.

Controlling User Access to Your Attached HSMs and Partitions

By default, only the root user has access to your attached HSMs and partitions. You can specify a set of non-root users that are permitted to access your attached HSMs and partitions, by adding them to the **hsmusers** group.

> **NOTE** The client software installation automatically creates the hsmusers group if one does not already exist on your system. The hsmusers group is retained when you uninstall the client software, allowing you to upgrade your client software while retaining your hsmusers group configuration.

Adding users to hsmusers group

To allow non-root users or applications access your attached HSMs and partitions, assign the users to the **hsmusers** group. The users you assign to the hsmusers group must exist on the client workstation. Users you add to the hsmusers group are able to access your attached HSMs and partitions. Users who are not part of the hsmusers group are not able to access your attached HSMs and partitions.

To add a user to hsmusers group

1. Ensure that you have **sudo** privileges on the client workstation.

2. Add a user to the hsmusers group:

    sudo gpasswd --add <username> **hsmusers**

    where <username> is the name of the user you want to add to the hsmusers group.

Removing users from hsmusers group

Should you wish to rescind a user's access to your attached HSMs and partitions, you can remove them from the hsmusers group.

> **NOTE** The user you delete will continue to have access to the HSM until you reboot the client workstation.

To remove a user from hsmusers group

1. Ensure that you have **sudo** privileges on the client workstation.

2. Remove a user from the hsmusers group:

    sudo gpasswd -d <username> **hsmusers**

    where <username> is the name of the user you want to remove from the hsmusers group. You must log in again to see the change.

Uninstalling the SafeNet Luna Client Software

You may need to uninstall the SafeNet Luna Client software prior to upgrading to a new release, or if the software is no longer required.

To uninstall the SafeNet Luna HSM client software:

1. Log in as root. (use sudo instead)

2. Go to the client installation directory:

   cd /usr/safenet/lunaclient/bin

3. Run the uninstall script:

   sudo sh uninstall.sh

Installing Java Components

During the installation, the script provides the opportunity to install SafeNet Java components. If you select Java components, the SafeNet Java files are installed in the **/usr/safenet/lunaclient/jsp/** directory. In order to use Java, you must have separately installed Java (JDK or run-time environment from the vendor of your choice) onto your system.

To install JSP

1. Copy the SafeNet Java library and .jar files from their default location under **/usr/safenet/lunaclient/jsp/lib** to the Java environment directory, for example **/usr/jre/lib/ext**.

The exact directory might differ depending on where you obtained your Java system, the version, and any choices that you made while installing and configuring it.

To install JCPROV

1. Copy the SafeNet JCPROV files from their default location under **/usr/safenet/lunaclient/jcprov/lib** to the Java environment directory, for example **/usr/jre/lib/ext**.

For additional Java-related information, see "Java Interfaces" on page 1 in the *SDK Reference Guide*.

> **CAUTION!** Copy libLunaAPI.so to system lib (/usr/lib) in order to make java7 or java8 work on AIX 7.1 64-bit client.

For additional Java-related information, see "Java Interfaces" on page 1 in the *SDK Reference Guide*.

JSP Static Registration

> **NOTE** This section applies to JSP, not to JCPROV.

You would choose static registration of providers if you want all applications to default to the SafeNet provider.

Once your client has externally logged in using **salogin** or your own HSM-aware utility, any application would be able to use SafeNet product without being designed to log in to the HSM Partition.

Edit the **java.security** file located in the **/jre/lib/security** directory of your Java SDK/JRE installation to read as follows:

```
security.provider.1=sun.security.provider.Sun

security.provider.2=com.sun.net.ssl.internal.ssl.Provider
```

```
security.provider.3=com.safenetinc.luna.provider.LunaProvider
security.provider.4=com.sun.rsajca.Provider
security.provider.5=com.sun.crypto.provider.SunJCE
security.provider.6=sun.security.jgss.SunProvider
```

You can set our provider in first position for efficiency if SafeNet Luna HSM operations are your primary mode. However, if your application needs to perform operations not supported by the LunaProvider (secure random generation or random publickey verification, for example) then it would receive error messages from the HSM and would need to handle those gracefully before resorting to providers further down the list. We have found that having our provider in third position works well for most applications.

The modifications in the **java.security** file are global, and they might result in the breaking of another application that uses the default KeyPairGenerator without logging into the SafeNet Luna Network HSM first. This consideration might argue for using dynamic registration, instead.

JSP Dynamic Registration

For your situation, you may prefer to employ dynamic registration of Providers, in order to avoid possible negative impacts on other applications running on the same machine. As well, the use of dynamic registration allows you to keep installation as straightforward as possible for your customers.

Removing components

To uninstall the JSP component or the JCPROV component, you must uninstall SafeNet Luna Client completely (see "Uninstalling the SafeNet Luna Client Software" on page 30, then re-run the installation script without selecting the unwanted component(s).

Scripted or Unattended Installation

If you prefer to run the installation from a script, rather than interactively, run the command with the options **-p** <list of SafeNet products> and **-c** <list of SafeNet components>. To see the syntax, run the command with **help** like this:

```
[myhost]$ sudo sh install.sh help
[sudo] password for fred

At least one product should be specified.

usage:
        install.sh      - Luna Client install through menu
        install.sh help - Display scriptable install options
        install.sh all  - Complete Luna Client install

        install.sh -p [sa|pci|g5|rb] [-c sdk|jsp|jcprov|ldpc|snmp]

        -p <list of Luna products>
        -c <list of Luna components>  - Optional. All components are installed if not provided

Luna products options
   sa      - SafeNet Luna Network HSM
   pci     - SafeNet Luna PCIe HSM
   g5      - SafeNet Luna USB HSM
   rb      - SafeNet Luna Backup HSM
```

```
Luna components options
   sdk    - Luna SDK
   jsp    - Luna JSP (Java)
   jcprov - Luna JCPROV (Java)
   snmp   - Luna SNMP subagent


[myhost]$
```

For scripted/automated installation, your script will need to capture and respond to the License Agreement prompt, and to the confirmation prompt. For example:

```
[myhost]$ sudo sh install.sh all

IMPORTANT: The terms and conditions of use outlined in the software
license agreement (Document #008-010005-001_053110) shipped with the product
("License") constitute a legal agreement between you and SafeNet Inc.
Please read the License contained in the packaging of this
product in its entirety before installing this product.

Do you agree to the License contained in the product packaging?

If you select 'yes' or 'y' you agree to be bound by all the terms
and conditions se out in the License.

If you select 'no' or 'n', this product will not be installed.

(y/n) y

Complete Luna Client will be installed. This includes SafeNet Luna Network HSM,
SafeNet Luna PCIe HSM, SafeNet Luna USB HSM AND SafeNet Luna Backup HSM.

Select 'yes' or 'y' to proceed with the install.

Select 'no' or 'n', to cancel this install.

Continue (y/n)?  y
```

Interrupting the Installation

Do not interrupt the installation script in progress, and ensure that your host computer is served by an uninterruptible power supply (UPS). If you press [Ctrl] [C], or otherwise interrupt the installation (OS problem, power outage, other), some components will not be installed. It is not possible to resume an interrupted install process. The result of an interruption depends on where, in the process, the interruption occurred (what remained to install before the process was stopped).

As long as the cryptoki RPM package is installed, any subsequent installation attempt results in refusal with the message "A version of Luna Client is already installed."

If components are missing or are not working properly after an interrupted installation, or if you wish to install any additional components at a later date (following an interrupted installation, as described), you would need to uninstall everything first. If **sh uninstall.sh** is unable to do it, then you must uninstall all packages manually.

Because interruption of the install.sh script is not recommended, and mitigation is possible, this is considered a low-likelihood corner case, fully addressed by these comments.

After Installation

When you have installed the software onto a Client, the next task is to configure the SafeNet Luna HSM, as described in the *Configuration Guide*.

Linux SafeNet Luna HSM Client Software Installation

You must install the SafeNet Luna HSM client software on each client workstation you will use to access a SafeNet Luna HSM. This section describes how to install the client on a workstation running Linux, and contains the following topics:

> "Prerequisites" below

> "Installing the Client Software" on the next page

> "Controlling User Access to Your Attached HSMs and Partitions" on page 37

> "Uninstalling the Client Software or Removing Components" on page 38

> "Java Configuration" on page 39

> "Scripted or Unattended Installation" on page 40

> "Interrupting the Installation" on page 41

Refer to the Customer Release Notes for a complete list of the supported Linux operating systems. These instructions assume that you have already acquired the SafeNet Luna Client software, either on DVD or as a downloaded .tar archive.

Prerequisites

Before starting the installation, ensure that you have satisfied the following prerequisites:

Components Required to Build the PCIe Driver

On Linux, the PCIe driver module is built by the client as part of the installation if you choose to install the Luna PCIe HSM component. To build the driver, the client requires the following items:

> Kernel headers for build

> kernel-devel package

> rpmbuild package

> C and C++ compilers

> make command

If any one of these items is missing, the driver build will fail and the client software will not be installed.

Debian Requires alien

The SafeNet Luna Client software is provided as RPM packages. If you are installing on a Debian system, you must have **alien** installed to allow the SafeNet Luna Client installation script to convert the RPM packages to DEB packages. The installation script will stop with a message if you attempt to install on a Debian system without **alien** installed. This applies to any other supported Debian-based Linux distribution, such as Ubuntu.

SUSE Linux on IBM PPC

JCE un-restriction files must be downloaded from IBM, not from SUN, for this platform. Attempting to use SUN JCE un-restriction files on IBM PowerPC systems with SUSE Linux causes signing errors.

32-bit Client on 64-bit RedHat 6

Before installing the 32-bit Client on 64-bit OS, you must enter the following commands:

yum install glibc.i686
yum upgrade libstdc++
yum install libstdc++.i686
yum install libgcc.i686
yum install libcap.i686

Installing the Client Software

It is recommended that you refer to the SafeNet Luna HSM Customer Release Notes for any installation-related issues or instructions before installing the client software.

> **NOTE**   You must install the client software using root-level privileges. For security reasons, we recommend that you do not log in as root (or use sudo root) to run the installation script, but instead use the sudo command to run the installation script, as detailed below.

By default, the Client programs are installed in the **/usr/safenet/lunaclient** directory.

To install the SafeNet Luna HSM client software on a Linux workstation:

1. Ensure that you have **sudo** privileges on the client workstation.

2. Access the installation software:

    Copy or move the **.tar** archive to a suitable directory where you can untar the archive and extract the contents:

    tar xvf <filename>**.tar**

3. Go to the directory for your architecture:

32-bit	**cd** /<install_sw_root>**/linux/32**
64-bit	**cd** /<install_sw_root>**/linux/64**

    where <install_sw_root> is the location of installation DVD or untarred download. For example, /cdrom or $HOME/safenet.

4. To install the software, run the **install.sh** installation script. You can run the script in interactive mode, or you can script the installation, as described in "Scripted or Unattended Installation" on page 40.

    - To display the help, or a list of available installer options, type:

      sudo sh install.sh -? or **sudo sh install.sh help**

    - To install all available products and optional components, type:

       sudo sh install.sh all

    - To selectively install individual products and optional components, type the command without arguments:

      sudo sh install.sh

> **NOTE** Do not interrupt the installation script in progress. An uninterruptible power supply (UPS) is recommended. See "Interrupting the Installation" on page 41 for more information.

5. Type **y** if you agree to be bound by the license agreement. You must accept the license agreement before you can install the software.

6. A list of installable SafeNet products is displayed. Select as many as you require, by typing the number of each (in any order) and pressing **Enter**. As each item is selected, the list updates, with a ***** in front of any item that has been selected.

   This example shows items 1 and 3 have been selected, and item 4 is about to be selected. The selections work as a toggle - if you wish to make a change, simply type a number again and press **Enter** to de-select it.

```
Products
Choose Luna Products to be installed
    *[1]: Luna Network HSM
     [2]: Luna PCIe HSM
    *[3]: Luna USB HSM
     [4]: Luna Backup HSM
     [N|n]: Next
     [Q|q]: Quit
Enter selection: 4
```

   When selection is complete, type **N** or **n** for "Next", and press **Enter**. The "Advanced" menu is displayed.

7. Select or de-select any additional items you want to install. Selected items are indicated with a *****. Some items might be pre-selected to provide the optimum experience for the majority of customers, but you can change any selection in the list. When the Components list is adjusted to your satisfaction, press **Enter**.

> **NOTE** The installer includes the Luna SNMP Subagent as an option. If you select this option, you will need to move the SafeNet MIB files to the appropriate directory for your SNMP application after installation is complete, and you will need to start the SafeNet subagent and configure it for use with your agent. See the *Administration Guide* for more information.

8. If the script detects an existing cryptoki library, it stops and suggests that you uninstall your previous SafeNet software before starting the SafeNet Luna Client installation again.

9. The system installs all packages related to the products and any optional components that you selected.

Controlling User Access to Your Attached HSMs and Partitions

By default, only the root user has access to your attached HSMs and partitions. You can specify a set of non-root users that are permitted to access your attached HSMs and partitions, by adding them to the **hsmusers** group.

> **NOTE** The client software installation automatically creates the hsmusers group if one does not already exist on your system. The hsmusers group is retained when you uninstall the client software, allowing you to upgrade your client software while retaining your hsmusers group configuration.

Adding users to hsmusers group

To allow non-root users or applications access your attached HSMs and partitions, assign the users to the **hsmusers** group. The users you assign to the hsmusers group must exist on the client workstation. Users you add to the hsmusers group are able to access your attached HSMs and partitions. Users who are not part of the hsmusers group are not able to access your attached HSMs and partitions.

To add a user to hsmusers group

1. Ensure that you have **sudo** privileges on the client workstation.

2. Add a user to the hsmusers group:

   sudo gpasswd --add <username> **hsmusers**

   where <username> is the name of the user you want to add to the hsmusers group.

Removing users from hsmusers group

Should you wish to rescind a user's access to your attached HSMs and partitions, you can remove them from the hsmusers group.

> **NOTE** The user you delete will continue to have access to the HSM until you reboot the client workstation.

To remove a user from hsmusers group

1. Ensure that you have **sudo** privileges on the client workstation.

2. Remove a user from the hsmusers group:

   sudo gpasswd -d <username> **hsmusers**

   where <username> is the name of the user you want to remove from the hsmusers group. You must log in again to see the change.

Uninstalling the Client Software or Removing Components

You may need to uninstall the client software before upgrading to a new version, or if it is no longer required.

To uninstall the client software

1. Ensure that you have **sudo** privileges on the client workstation.

2. Go to the client installation directory:

   cd /usr/safenet/lunaclient/bin

3. Run the uninstall script:

   sudo sh uninstall.sh

> **CAUTION!**   The hsmusers group is not removed when the client software is uninstalled. Should you install the client again on the same system, all users previously in the group will have access to your attached HSMs and partitions by default. You must remove users from the group if you want to restrict their access. See "Removing users from hsmusers group" on the previous page.

To remove individual components

To uninstall the JSP component or the SDK component, you must uninstall SafeNet Luna Client completely, then re-run the installation script without selecting the unwanted component(s).

Java Configuration

During the installation, the script provides the opportunity to install SafeNet Java components. If you select Java components, the SafeNet Java files are installed in the **/usr/safenet/lunaclient/jsp/** directory. In order to use Java, you must have separately installed Java (JDK or run-time environment from the vendor of your choice) onto your system. Refer to the Customer Release Notes for supported JDKs.

To install JSP

1. Copy the SafeNet Java library and .jar files from their default location under **/usr/safenet/lunaclient/jsp/lib** to the Java environment directory, for example **/usr/jre/lib/ext**.

The exact directory might differ depending on where you obtained your Java system, the version, and any choices that you made while installing and configuring it.

To install JCPROV

1. Copy the SafeNet JCPROV files from their default location under **/usr/safenet/lunaclient/jcprov/lib** to the Java environment directory, for example **/usr/jre/lib/ext**.

For additional Java-related information, see "Java Interfaces" on page 1 in the *SDK Reference Guide*.

JSP Static Registration

> **NOTE**   This section applies to JSP, not to JCPROV.

You would choose static registration of providers if you want all applications to default to the SafeNet provider.

Once your client has externally logged in using **salogin** or your own HSM-aware utility, any application would be able to use SafeNet product without being designed to log in to the HSM Partition.

Edit the **java.security** file located in the **/jre/lib/security** directory of your Java SDK/JRE installation to read as follows:

```
security.provider.1=sun.security.provider.Sun

security.provider.2=com.sun.net.ssl.internal.ssl.Provider

security.provider.3=com.safenetinc.luna.provider.LunaProvider

security.provider.4=com.sun.rsajca.Provider

security.provider.5=com.sun.crypto.provider.SunJCE
```

```
security.provider.6=sun.security.jgss.SunProvider
```

You can set our provider in first position for efficiency if SafeNet Luna HSM operations are your primary mode. However, if your application needs to perform operations not supported by the LunaProvider (secure random generation or random publickey verification, for example) then it would receive error messages from the HSM and would need to handle those gracefully before resorting to providers further down the list. We have found that having our provider in third position works well for most applications.

The modifications in the **java.security** file are global, and they might result in the breaking of another application that uses the default KeyPairGenerator without logging into the SafeNet Luna Network HSM first. This consideration might argue for using dynamic registration, instead.

JSP Dynamic Registration

For your situation, you may prefer to employ dynamic registration of Providers, in order to avoid possible negative impacts on other applications running on the same machine. As well, the use of dynamic registration allows you to keep installation as straightforward as possible for your customers.

Scripted or Unattended Installation

If you prefer to run the installation from a script, rather than interactively, run the command with the options **-p** <list of SafeNet products> and **-c** <list of SafeNet components>. To see the syntax, run the command with **help** like this:

```
[myhost]$ sudo sh install.sh help
[sudo] password for fred

At least one product should be specified.

usage:
        install.sh      - Luna Client install through menu
        install.sh help - Display scriptable install options
        install.sh all  - Complete Luna Client install

        install.sh -p [sa|pci|g5|rb] [-c sdk|jsp|jcprov|ldpc|snmp]

        -p <list of Luna products>
        -c <list of Luna components>  - Optional. All components are installed if not provided

Luna products options
    sa      - SafeNet Luna Network HSM
    pci     - SafeNet Luna PCIe HSM
    g5      - SafeNet Luna USB HSM
    rb      - SafeNet Luna Backup HSM

Luna components options
    sdk     - Luna SDK
    jsp     - Luna JSP (Java)
    jcprov  - Luna JCPROV (Java)
    snmp    - Luna SNMP subagent


[myhost]$
```

For scripted/automated installation, your script will need to capture and respond to the License Agreement prompt, and to the confirmation prompt. For example:

```
[myhost]$ sudo sh install.sh all

IMPORTANT: The terms and conditions of use outlined in the software
license agreement (Document #008-010005-001_053110) shipped with the product
("License") constitute a legal agreement between you and SafeNet Inc.
Please read the License contained in the packaging of this
product in its entirety before installing this product.

Do you agree to the License contained in the product packaging?

If you select 'yes' or 'y' you agree to be bound by all the terms
and conditions se out in the License.

If you select 'no' or 'n', this product will not be installed.

(y/n) y

Complete Luna Client will be installed. This includes SafeNet Luna Network HSM,
SafeNet Luna PCIe HSM, SafeNet Luna USB HSM AND SafeNet Luna Backup HSM.

Select 'yes' or 'y' to proceed with the install.

Select 'no' or 'n', to cancel this install.

Continue (y/n)?  y
```

Interrupting the Installation

Do not interrupt the installation script in progress, and ensure that your host computer is served by an uninterruptible power supply (UPS). If you press [CTRL] [C], or otherwise interrupt the installation (OS problem, power outage, other), some components will not be installed. It is not possible to resume an interrupted install process. The result of an interruption depends on where, in the process, the interruption occurred (what remained to install before the process was stopped).

As long as the cryptoki RPM package is installed, any subsequent installation attempt results in refusal with the message "A version of SafeNet Luna Client is already installed."

If components are missing or are not working properly after an interrupted installation, or if you wish to install any additional components at a later date (following an interrupted installation, as described), you would need to uninstall everything first. If **sh uninstall.sh** is unable to do it, then you must uninstall all packages manually.

Solaris SafeNet Luna HSM Client Installation

These instructions assume that you have already acquired the SafeNet Luna HSM client software, in the form of a downloaded .tar archive.

You must install the SafeNet Luna HSM client software on each client workstation you will use to access a SafeNet Luna HSM. This section describes how to install the client on a workstation running Solaris, and contains the following topics:

Applicability to specific versions of Solaris is summarized in the Customer Release Notes for the current release.

> **NOTE** Before installing a SafeNet system, you should confirm that the product you have received is in factory condition and has not been tampered with in transit. Refer to the Startup Guide included with your product shipment. If you have any questions about the condition of the product that you have received, contact Gemalto Support.

Each computer that connects to the SafeNet Luna Network HSM appliance as a client must have the cryptoki library, the vtl client shell and other utilities and supporting files installed.

Each computer that contains, or is connected to a SafeNet Luna USB HSM or a SafeNet Luna PCIe HSM must have the cryptoki library and other utilities and supporting files installed.

> **NOTE** This example shows all the SafeNet Luna HSM client products and components. Some items are not supported on all operating systems and therefore do not appear as you proceed through the installation script.

Prerequisites

Before starting the installation, ensure that you have satisfied the following prerequisites:

Random Number Generator (RNG) or Entropy Gathering Daemon (EGD)
Ensure that you have a Random Number Generator (RNG) or Entropy Gathering Daemon (EGD) on your system in one of the following locations:

> /dev/egd-pool

> /etc/egd-pool,

> /etc/entropy

> /var/run/egd-pool

RNG/EGD

Cryptographic algorithms, including those that assure the security of communication – such as in OpenSSL and other protocols – depend upon random numbers for the creation of strong keys and certificates. A readily available source of random data is the entropy that exists in complex computer processes. Utilities exist for every operating system, to gather bits of system entropy into a pool, which can then be used by other processes.

Windows and Linux have these installed by default. Other systems might not. See your system administrator.

Entropy Pool

In the case of SafeNet Luna Network HSM, the SafeNet Luna HSM Client administration tool (**vtl**) expects to find a source of randomness at **/dev/random**. If one is not found, **vtl** fails, because the link cannot be secured from the Client end.

If your system does have an entropy pool, but the random number generator (RNG) is not in the expected place, then you can create a symbolic link between the actual location and one of the following:

> /dev/random

> /dev/egd-pool

> /etc/egd-pool

> /etc/entropy

> /var/run/egd-pool

If your system does not have an entropy-gathering daemon or random number generator, please direct your system administrator to install one, and point it to one of the named devices.

Installing the Client Software

It is recommended that you refer to the SafeNet Luna HSM Customer Release Notes for any installation-related issues or instructions before you begin the following software installation process.

> **CAUTION!** You must be logged in as **root** when you run the installation script.

By default, the Client programs are installed in the **/opt/safenet/lunaclient/bin** directory.

To install the SafeNet Luna HSM client software on a Solaris workstation:

1. Log on to the client system, open a console or terminal window, and use **su** to gain administrative permissions for the installation.

2. Access the SafeNet Luna HSM client software:

   a. Copy or move the **.tar** archive to a suitable directory where you can untar the archive and launch the installation script.

   b. Extract the contents from the archive:

      tar xvf <filename>**.tar**

3. Go to the install directory for your architecture:

Architecture	Path
Solaris Sparc 32-bit	LunaClient_7.1.0_Solaris10Sparc/32
Solaris Sparc 64-bit	LunaClient_7.1.0_Solaris10Sparc/64
Solaris Sparc 32-bit	LunaClient_7.1.0_Solaris11Sparc/32
Solaris Sparc 64-bit	LunaClient_7.1.0_Solaris11Sparc/64
Solaris x86 32-bit	LunaClient_7.1.0_Solaris10x86/32
Solaris x86 64-bit	LunaClient_7.1.0_Solaris10x86/64
Solaris x86 32-bit	LunaClient_7.1.0_Solaris11x86/32
Solaris x86 64-bit	LunaClient_7.1.0_Solaris11x86/64

> **NOTE**   Not all platforms are supported with each release, so the available install options might not match the list above. Refer to the Customer Release Notes for more information.

4. To see the help, or a list of available installer options, type:

sh install.sh -? or **sh install.sh --help**

To install all available products and optional components, type:

sh install.sh all

To selectively install individual products and optional components, type the command without arguments:

sh install.sh

5. Type **y** if you agree to be bound by the license agreement.

6. A list of installable SafeNet products is displayed (might be different, depending on your platform). Select as many as you require, by typing the number of each (in any order) and pressing **Enter**. As each item is selected, the list updates, with a "*" in front of any item that has been selected. The following example shows that items 1 and 3 have been selected, and item 4 is about to be selected.

```
Products
Choose Luna Products to be installed
    *[1]: SafeNet Luna Network HSM
     [2]: SafeNet Luna PCIe HSM
    *[3]: SafeNet Luna USB HSM
     [4]: SafeNet Luna Backup HSM
     [N|n]: Next
     [Q|q]: Quit
Enter selection: 4
```

7. When the selection is complete, type **N** or **n** for "Next", and press **Enter**. If you wish to make a change, simply type a number again and press **Enter** to de-select a single item.

8. The next list is titled "Advanced" and includes additional items to install. Some items might be pre-selected to provide the optimum SafeNet Luna HSM experience for the majority of customers, but you can change any selection in the list. When the Components list is adjusted to your satisfaction, press **Enter**.

> **NOTE** The installer includes the SafeNet SNMP Subagent as an option. If you select this option, you will need to move the SafeNet MIB files to the appropriate directory for your SNMP application after installation is complete, and you will need to start the SafeNet subagent and configure for use with your agent. See the *Administration Guide* for more information.

9. If the script detects an existing cryptoki library, it stops and suggests that you uninstall your previous SafeNet software before starting the SafeNet Luna HSM Client installation again.

10. The system installs all packages related to the products and any optional components that you selected.

As a general rule, do not modify the Chrystoki.conf/crystoki.ini file, unless directed to do so by Gemalto Technical Support. If you do modify the file, never insert TAB characters - use individual space characters. Avoid modifying the PED timeout settings. These are now hardcoded in the appliance, but the numbers in the Chrystoki.conf file must match.

Controlling User Access to Your Attached HSMs and Partitions

By default, only the root user has access to your attached HSMs and partitions. You can specify a set of non-root users that are permitted to access your attached HSMs and partitions, by adding them to the **hsmusers** group.

> **NOTE** The client software installation automatically creates the **hsmusers** group if one does not already exist on your system. The **hsmusers** group is retained when you uninstall the client software, allowing you to upgrade your client software while retaining your **hsmusers** group configuration.

Adding users to hsmusers group

To allow non-root users or applications access your attached HSMs and partitions, assign the users to the **hsmusers** group. The users you assign to the **hsmusers** group must exist on the client workstation. Users you add to the **hsmusers** group are able to access your attached HSMs and partitions. Users who are not part of the **hsmusers** group are not able to access your attached HSMs and partitions.

To add a user to hsmusers group

1. Ensure that you have **sudo** privileges on the client workstation.

2. Add a user to the **hsmusers** group:

   sudo gpasswd --add <username> **hsmusers**

   where <username> is the name of the user you want to add to the **hsmusers** group.

Removing users from hsmusers group

Should you wish to rescind a user's access to your attached HSMs and partitions, you can remove them from the **hsmusers** group.

> **NOTE**   The user you delete will continue to have access to the HSM until you reboot the client
> workstation.

To remove a user from hsmusers group

1. Ensure that you have **sudo** privileges on the client workstation.

2. Remove a user from the **hsmusers** group:

   sudo gpasswd -d <username> **hsmusers**

   where <username> is the name of the user you want to remove from the **hsmusers** group. You must log in
   again to see the change.

Uninstalling the SafeNet Luna HSM Client Software

1. **cd /opt/safenet/lunaclient/bin**

2. **sh uninstall.sh**

Java (JSP or JCPROV)

During the installation, the script provides the opportunity to install SafeNet Java components. If you select
Java components, the SafeNet Java files are installed below **/opt/safenet/lunaclient/jsp/** for JSP and
/opt/safenet/lunaclient/jcprov/ for JCPROV. In order to use Java, you must have separately installed Java
(JDK or run-time environment from the vendor of your choice) onto your system.

To install JSP

1. Copy the SafeNet Java library and jar files from their default location under **/opt/safenet/lunaclient/jsp/lib**
   to the Java environment directory, for example **/opt/jre/lib/ext**.

The exact directory might differ depending on where you obtained your Java system, the version, and any
choices that you made while installing and configuring it.

To install JCPROV

1. Copy the SafeNet JCPROV library and jar files from their default location under
   /opt/safenet/lunaclient/jcprov/lib to the Java environment directory, for example **/opt/jre/lib/ext**.

For additional Java-related information, see "Java Interfaces" on page 1 in the *SDK Reference Guide*.

JSP Static Registration

> **NOTE**   This section applies to JSP, not to JCPROV.

You would choose static registration of providers if you want all applications to default to the SafeNet provider.

Once your client has externally logged in using **salogin** or your own HSM-aware utility, any application would
be able to use SafeNet product without being designed to log in to the HSM Partition.

Edit the **java.security** file located in the **/jre/lib/security** directory of your Java SDK/JRE installation to read as
follows:

```
security.provider.1=sun.security.provider.Sun
security.provider.2=com.sun.net.ssl.internal.ssl.Provider
security.provider.3=com.safenetinc.luna.provider.LunaProvider
security.provider.4=com.sun.rsajca.Provider
security.provider.5=com.sun.crypto.provider.SunJCE
security.provider.6=sun.security.jgss.SunProvider
```

You can set our provider in first position for efficiency if SafeNet Luna HSM operations are your primary mode. However, if your application needs to perform operations not supported by the LunaProvider (secure random generation or random publickey verification, for example) then it would receive error messages from the HSM and would need to handle those gracefully before resorting to providers further down the list. We have found that having our provider in third position works well for most applications.

The modifications in the **java.security** file are global, and they might result in the breaking of another application that uses the default KeyPairGenerator without logging into the SafeNet Luna Network HSM first. This consideration might argue for using dynamic registration, instead.

JSP Dynamic Registration

For your situation, you may prefer to employ dynamic registration of Providers, in order to avoid possible negative impacts on other applications running on the same machine. As well, the use of dynamic registration allows you to keep installation as straightforward as possible for your customers.

Removing components

To uninstall the JSP component or the JCPROV component, you must manually remove them from the locations where they were copied.

sh uninstall.sh

Scripted or Unattended Installation

If you prefer to run the installation from a script, rather than interactively, run the command with the options **-p** <list of SafeNet products> and **-c** <list of SafeNet components>. To see the syntax, run the command with **help** like this:

```
[myhost]$ sudo sh install.sh help
[sudo] password for fred

At least one product should be specified.

usage:
        install.sh       - Luna Client install through menu
        install.sh help - Display scriptable install options
        install.sh all  - Complete Luna Client install

        install.sh -p [sa|pci|g5|rb] [-c sdk|jsp|jcprov|ldpc|snmp]

        -p <list of Luna products>
        -c <list of Luna components>  - Optional. All components are installed if not provided

Luna products options
   sa      - SafeNet Luna Network HSM
```

```
    pci    - SafeNet Luna PCIe HSM
    g5     - SafeNet Luna USB HSM
    rb     - SafeNet Luna Backup HSM

Luna components options
    sdk    - Luna SDK
    jsp    - Luna JSP (Java)
    jcprov - Luna JCPROV (Java)
    snmp   - Luna SNMP subagent


[myhost]$
```

For scripted/automated installation, your script will need to capture and respond to the License Agreement prompt, and to the confirmation prompt. For example:

```
[myhost]$ sudo sh install.sh all

IMPORTANT: The terms and conditions of use outlined in the software
license agreement (Document #008-010005-001_053110) shipped with the product
("License") constitute a legal agreement between you and SafeNet Inc.
Please read the License contained in the packaging of this
product in its entirety before installing this product.

Do you agree to the License contained in the product packaging?

If you select 'yes' or 'y' you agree to be bound by all the terms
and conditions se out in the License.

If you select 'no' or 'n', this product will not be installed.

(y/n) y

Complete Luna Client will be installed. This includes SafeNet Luna Network HSM,
SafeNet Luna PCIe HSM, SafeNet Luna USB HSM AND SafeNet Luna Backup HSM.

Select 'yes' or 'y' to proceed with the install.

Select 'no' or 'n', to cancel this install.

Continue (y/n)?  y
```

Interrupting the installation - [Ctrl] [C]

Do not interrupt the installation script in progress, and ensure that your host computer is served by an uninterruptible power supply (UPS). If you press [Ctrl] [C], or otherwise interrupt the installation (OS problem, power outage, other), some components will not be installed. It is not possible to resume an interrupted install process. The result of an interruption depends on where, in the process, the interruption occurred (what remained to install before the process was stopped).

As long as the cryptoki package is installed, any subsequent installation attempt results in refusal with the message "A version of Luna Client is already installed." Removing the library allows the script to clean up remaining components, so that you can install again.

What to do if installation is incomplete or damaged

1. If SNFTlibcryptoki has been installed, uninstall it manually.

2. Run the Client install script again. Now that SNFTlibcryptoki is removed, the install script removes any stray packages and files.

3. Install again, to perform a clean installation.

After Installation

When you have installed the software onto a Client, the next task is to configure the SafeNet Luna HSM, as described in the *Configuration Guide*.

Windows SafeNet Luna HSM Client Installation

This section describes how to install the SafeNet Luna HSM Client software on Windows. It contains the following topics:

> "Required Client Software" below

> "Prerequisites" below

> "Installing the Luna HSM Client Software" below

> "Java" on page 54

> "CSP and KSP" on page 55

> "Uninstalling or Modifying the SafeNet Luna Client Software" on page 56

> "After Installation" on page 57

> "Troubleshooting" on page 57

Applicability to specific versions of Windows is summarized in the Customer Release Notes for this release.

> **NOTE** Before installing a SafeNet Luna HSM system, confirm that the product you have received is in factory condition and has not been tampered with in transit. Refer to the Startup Guide included with your product shipment. If you have any questions about the condition of the product that you have received, contact Technical Support immediately.

Required Client Software

Each computer that connects to a SafeNet Luna Network HSM as a Client must have the cryptoki library, the vtl client shell and other utilities and supporting files installed.

Each computer that contains, or is connected to a SafeNet Luna PCIe HSM or a SafeNet Luna USB HSM must have the cryptoki library and other utilities and supporting files installed.

Prerequisites

The Luna HSM Client installer requires the Microsoft Universal C Runtime (Universal CRT) to run properly. Universal CRT requires your Windows machine to be up to date. Before running the installer, ensure that you have the Universal C Runtime in Windows (KB2999226) update and its prerequisites installed on your machine. The following updates must be installed in order:

1. March 2014 Windows servicing stack update (See https://support.microsoft.com/en-us/help/2919442)

2. April 2014 Windows update (See https://support.microsoft.com/en-us/help/2919355)

3. Universal C Runtime update (See https://support.microsoft.com/en-us/kb/2999226)

Installing the Luna HSM Client Software

The supported Windows servers are 64-bit. They allow running of 32-bit or 64-bit applications.

For compatibility of our HSMs with Windows in general, we provide both 32-bit and 64-bit libraries and tools for use with your applications as appropriate. Hardware drivers are 64-bit only.

For compatibility of our HSMs with Windows CAPI we have SafeNet CSP, and for the newer Windows CNG we have SafeNet KSP. See "CSP and KSP" on page 55 for more information.

Interactive (prompted) and non-interactive (no prompts) installation options are available.

To install the Luna HSM client software:

1. Log into Windows as "Administrator", or as a user with administrator privileges (see "Troubleshooting" on page 57).

2. Uninstall any previous versions of the Client software before you proceed (see "Uninstalling or Modifying the SafeNet Luna Client Software" on page 56).

3. Download the Luna HSM Client from the Thales Group Support Portal at https://supportportal.gemalto.com and extract the .zip to an appropriate folder.

4. In the extracted directory, locate the folder for your Windows architecture and double click **LunaHSMClient.exe**.
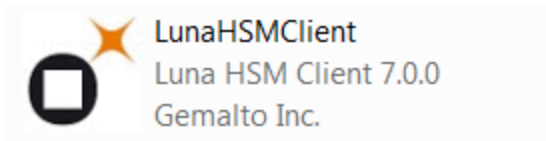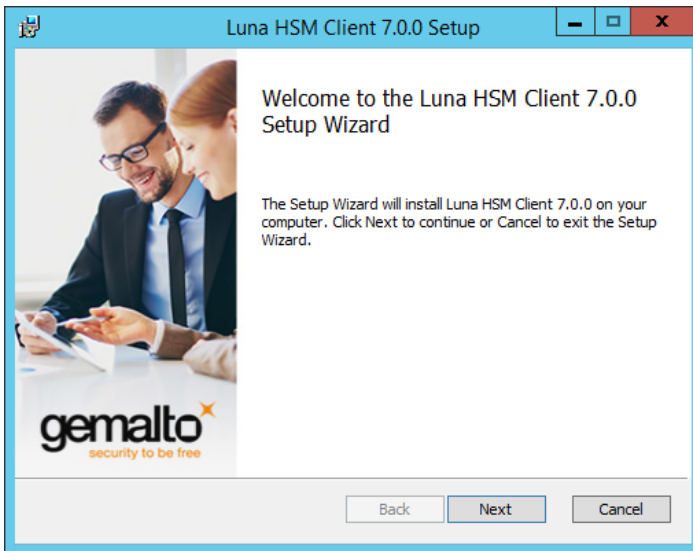


5. At the Welcome screen, click **Install**.

The Welcome screen is updated to show the Setup Progress, and the Luna HSM Client Setup Wizard is displayed in a new window.

6. Click **Next** on the Luna HSM Client Setup Wizard Welcome screen.

The End-User License Agreement dialog is displayed.

7. Click the **I accept the terms in the License Agreement** checkbox and click **Next**. Click **Print** if you would like to print the End-User License Agreement.
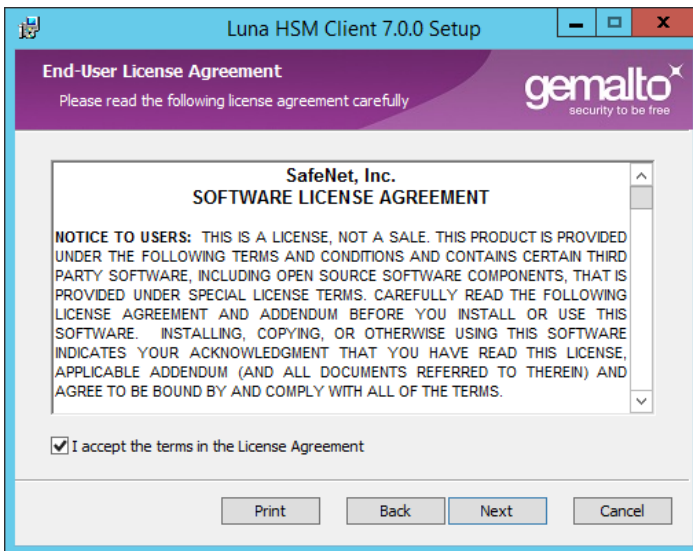
The Custom Setup dialog is displayed.

8. The Custom Setup dialog allows you to choose which software components you wish to install. Click on a product to select the components to install, as follows. You can click on the + icon for a product to show each of the individual components.

Will be installed on local hard drive	Install this component. If you select this option for a product, only the most commonly used components are installed. Use the + icon to show which components are included.
Entire feature will be installed on local hard drive	Install all of the components for the product.
✕ Entire feature will be unavailable	Do not install this component.

The installer includes the SafeNet SNMP Subagent as an option with any of the SafeNet Luna HSMs, except SafeNet Luna Network HSM, which has agent and subagent built in. After installation of the SafeNet SNMP Subagent is complete, you will need to move the SafeNet MIB files to the appropriate directory for your SNMP application, and you will need to start the SafeNet subagent and configure for use with your agent, as described in "SNMP Monitoring" on page 1 in the *Administration Guide*.

After you select the components you want to install, click **Next**.
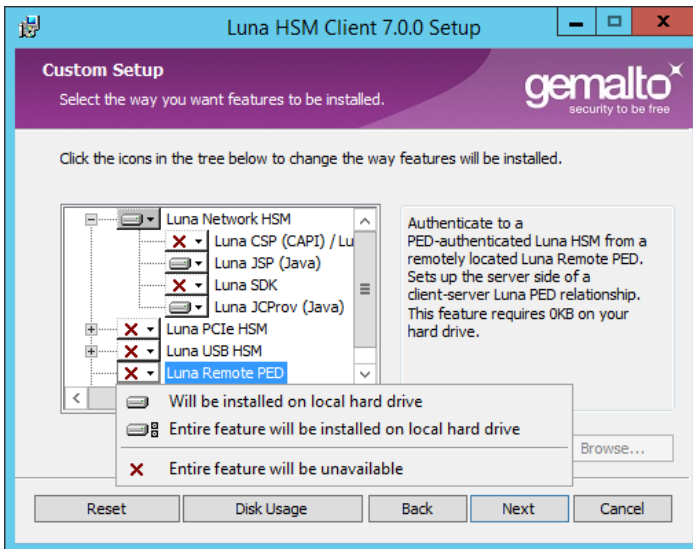
The **Ready to Install** dialog is displayed.

**9.** Click **Install** to install the selected components.
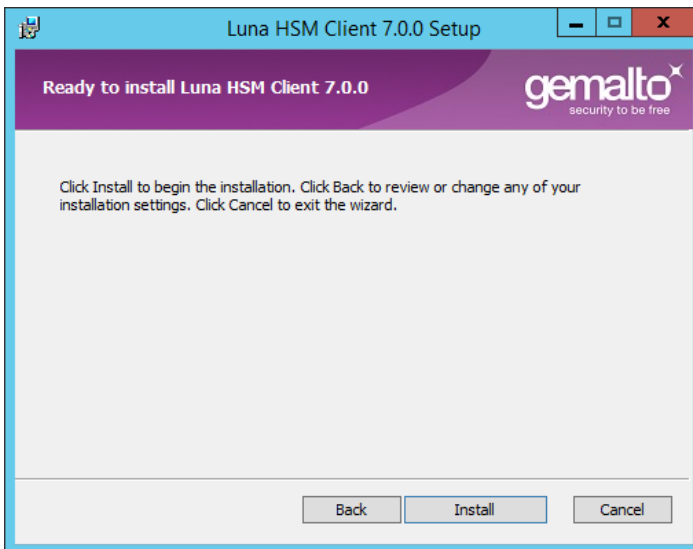
10. If Windows presents a security notice asking if you wish to install the device driver from SafeNet, click **Install** to accept.

> **NOTE**   If you choose not to install the driver, your Luna HSM Client cannot function with any locally-connected SafeNet hardware (which includes SafeNet Luna PCIe HSM, SafeNet Luna USB HSM, or SafeNet Luna Backup HSMs).

11. When the installation completes, click **Finish**.
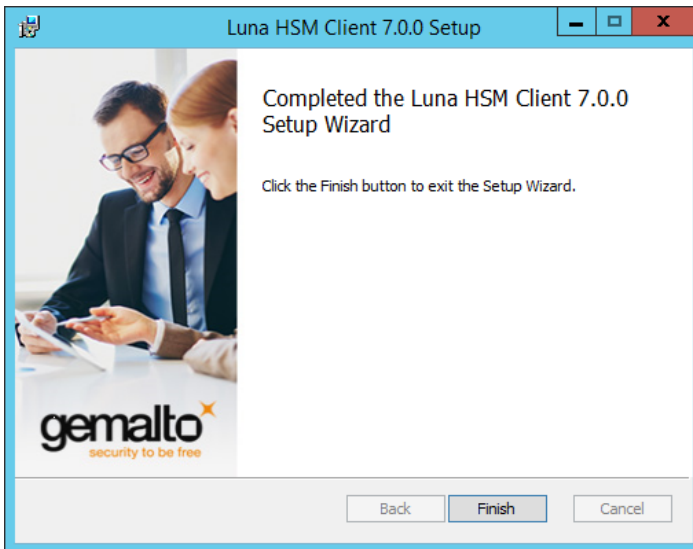
Java

If you want the Luna Java Security Provider (JSP) to be installed, the SafeNet Java files are installed in the **C:\Program Files\LunaClient\JSP\lib** folder. You install the Java JDK or run-time environment from the vendor of your choice to use the Luna JSP. Refer to the Customer Release Notes for supported Java versions.

Copy the SafeNet Java files from their default location under **C:\Program Files\SafeNet\LunaClient\JSP\lib** to the Java environment directory, for example **C:\Program Files\Java\jdk1.8.0_92\bin**.

> **NOTE**   The exact directory might differ depending on where you obtained your Java system, the version, and any choices that you made while installing and configuring it.

Using a 32-bit JDK on a 64-bit OS

If you install a 32-bit JDK on a 64-bit OS, you must copy the 32-bit **LunaAPI.dll** file to the 32-bit JDK bin folder, for example, **C:\Program Files (x86)\Java\jdk1.8.0_92\bin**.

Java 7 and Java 8 Library Path Issue

Thales has traditionally recommended that you put **LunaAPI.dll** in the **<java_install_dir>/lib/ext** folder.

However, Java 7 and Java 8 for Windows have removed that directory from the Java library path. As a result, when a Java 7 or Java 8 application on Windows uses the SafeNet provider, it cannot find the **LunaAPI.dll** library, causing the application to fail.

To address this problem, we suggest that you use one of the following methods to add **LunaAPI.dll** to the Java 7 or Java 8 search path:

> Put **LunaAPI.dll** in an arbitrary folder and add that folder to the system path. Java 7 or Java 8 will search the system path for **LunaAPI.dll**.

> Put **LunaAPI.dll** in the **<java_install_dir>/bin** folder.

Alternatively, at the command line, specify: **"%JAVA_HOME%/jre/bin/java" -Djava.library.path="C:\path\to\lunaapi.dll" -jar jMultitoken.jar**

For additional Java-related information,see "Java Interfaces" on page 1 in the *SDK Reference Guide*.

JSP Static Registration

You would choose static registration of providers if you want all applications to default to the SafeNet provider.

Once your client has externally logged in using **salogin** (see "SAlogin" on page 1 in the *Utilities Reference Guide*) or your own HSM-aware utility, any application is able to use the SafeNet product without being designed to login to the HSM Partition.

Edit the java.security file located in the **\jre\lib\security** directory of your Java SDK/JRE 7 or 8 installation to read as follows:

```
security.provider.1=sun.security.provider.Sun
security.provider.2=com.sun.net.ssl.internal.ssl.Provider
security.provider.3=com.safenetinc.luna.provider.LunaProvider
security.provider.4=com.sun.rsajca.Provider
security.provider.5=com.sun.crypto.provider.SunJCE
security.provider.6=sun.security.jgss.SunProvider
```

You can set our provider in first position for efficiency if SafeNet Luna HSM operations are your primary mode. However, if your application needs to perform operations not supported by the LunaProvider (secure random generation or random publickey verification, for example) then it would receive error messages from the HSM and would need to handle those gracefully before resorting to providers further down the list. We have found that having our provider in third position works well for most applications.

The modifications in the "java.security" file are global, and they might result in the breaking of another application that uses the default KeyPairGenerator without logging into the SafeNet Luna Network HSM first. This consideration might argue for using dynamic registration, instead.

JSP Dynamic Registration

For your situation, you may prefer to employ dynamic registration of Providers, in order to avoid possible negative impacts on other applications running on the same machine. As well, the use of dynamic registration allows you to keep installation as straightforward as possible for your customers.

Compatibility

We formally test SafeNet Luna HSMs and our Java provider with Oracle JDK for all platforms except AIX, and with IBM JDK for the AIX platform. The SafeNet JCE provider is compliant with the JCE specification, and should work with any JVM that implements the Java language specification.

Occasional problems have been encountered with respect to IBM JSSE.

GNU JDK shipped with most Linux systems has historically been incomplete and not suitable.

CSP and KSP

SafeNet CSP allows you to use the SafeNet Luna HSM with Microsoft CAPI, which is supported on 32-bit and on 64-bit Windows.

SafeNet KSP allows you to use the SafeNet Luna HSM with Microsoft CNG, which is newer, has additional functions, and supersedes CAPI.

Both of these require modifications to the Windows Registry.

SafeNet CSP

For SafeNet CSP, the utility **register.exe** takes care of the registry.

Just remember to run the 64-bit version, the 32-bit version, or both, depending on the applications you are running.

> Register the csp dll:
  # register.exe /library

> Register the partition:
  # register <no arguments>

SafeNet KSP

For SafeNet KSP, the utility **KspConfig.exe** takes care of the registry. Follow instructions for the use of the graphical KspConfig.exe as described in "KSP for CNG" on page 1 in the *SDK Reference Guide*. Just remember to run the 64-bit version, the 32-bit version, or both, depending on the applications you are running.

If SafeNet CSP (CAPI) / SafeNet KSP(CNG) is selected at installation time then the **SafeNetKSP.dll** file is installed in these two locations:

> **C:\Windows\System32** (used for 64-bit KSP)

> **C:\Windows\SysWOW64** (used for 32-bit KSP)

> **NOTE**   The **cryptoki.ini** file, which specifies many configuration settings for your HSM and related software, includes a line that specifies the path to the appropriate libNT for use with your application(s). Verify that the path is correct

Uninstalling or Modifying the SafeNet Luna Client Software

You need to uninstall SafeNet Luna Client before installing a new version. If you wish modify the installation (perhaps to add a component or product that you did not previously install), you must uninstall the current installation and re-install with the desired options.

To uninstall the Luna HSM client software:

1. Run the **LunaHSMClient.exe** program again. Because the software is already installed on your computer, the following dialog is displayed:
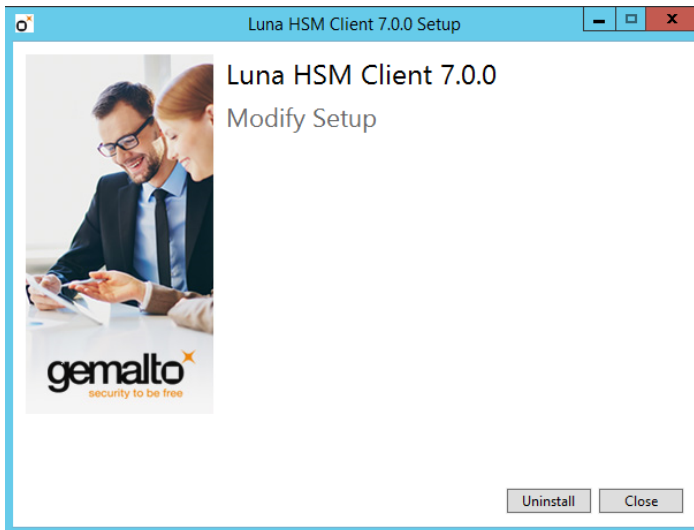
2. Click the **Uninstall** button. The client software is uninstalled. Click **Close** when the uninstallation is complete.

> **NOTE** You can also use **Programs and Features** in the Windows Control Panel to uninstall the client software.
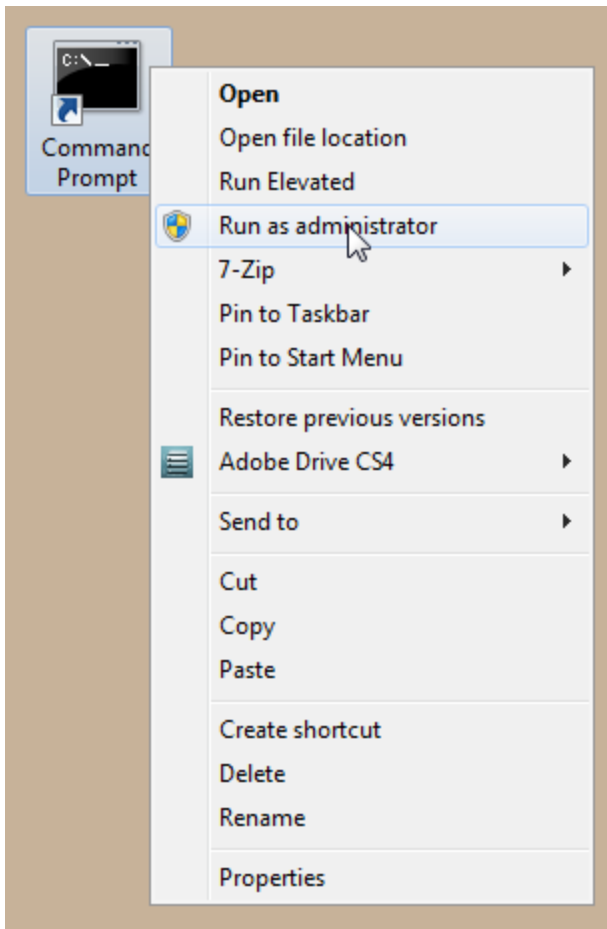
After Installation

When you have installed the software, the next task is to configure the SafeNet Luna HSM, as described in the *Configuration Guide*.

Open a new command-line/console window to allow the library path to be found before you run LunaCM or other utilities that require the library.

Troubleshooting

If you are not the Administrator of the computer on which Luna HSM Client is being installed, or if the bundle of permissions in your user profile does not allow you to launch the installer with "Run as Administrator", then some services might not install properly. One option is to have the Administrator perform the installation for you.

Another approach might be possible. If you have sufficient elevated permissions, you might be able to right-click and open a Command Prompt window as Administrator.

If that option is available, then you can use the command line to move to the location of the **LunaHSMClient.exe** file and launch it there, which permits the needed services to load for PedClient. See "Scripted/Unattended Windows Installation/Uninstallation" on the next page for instructions on how to install the client software from the command line.

Scripted/Unattended Windows Installation/Uninstallation

This section describes how to perform unattended or scripted installations on Windows platforms. The following procedures are described:

> "Installing the Luna HSM Client for the SafeNet Luna Network HSM" below

> "Installing the Luna HSM Client for the SafeNet Luna PCIe HSM" on the next page

> "Installing the Luna HSM Client for the SafeNet Luna USB HSM" on page 61

> "Installing the Luna HSM Client for the SafeNet Luna Backup HSM" on page 62

> "Installing the Luna HSM Client for Remote PED" on page 62

> "Uninstalling the Luna HSM Client" on page 62

If you want to perform an interactive installation, using the graphical, interactive installer, see "Windows SafeNet Luna HSM Client Installation" on page 50

> **NOTE**   Unattended installation stores the root certificate in the certificate store and marks the publisher (in this case, SafeNet, Inc.) as trusted for future installations. You are not prompted to trust SafeNet Inc. as a driver publisher during unattended installation.

Installing the Luna HSM Client for the SafeNet Luna Network HSM

Use the **ADDLOCAL=SA** flag to install the base client software for the SafeNet Luna Network HSM. Include the flags listed below to install any optional software components you desire. The base software must be installed first.

> **NOTE**   The setting **/l install.log** is optional and will save the installation logs to the file **install.log**. The **install.log** file is required only if troubleshooting an issue with Technical Support.

To install the Luna HSM Client for the SafeNet Luna Network HSM

From the location of **LunaHSMClient.exe** run one of the following commands:

> Install the base Luna HSM Client software for SafeNet Luna Network HSM

   LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="SA"

> Install the base Luna HSM Client software and any of the following optional components for the SafeNet Luna Network HSM that you desire:

Product or component	Description
SA_CSP_KSP	CSP and KSP components for the SafeNet Luna Network HSM
SA_JSP	JSP component for the SafeNet Luna Network HSM

Product or component	Description
SA_SDK	SDK component for the SafeNet Luna Network HSM
SA_JCProv	JCPROV component for the SafeNet Luna Network HSM

For example, the following command installs the base software and all of the optional components:

LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="SA,SA_CSP_KSP,SA_JSP,SA_SDK,SA_JCProv"

If you wish to install only some of the components, just specify the ones you want after the product name (SA in this example).

Installing the Luna HSM Client for the SafeNet Luna PCIe HSM

Use the **ADDLOCAL=PCI** flag to install the base client software for the SafeNet Luna PCIe HSM. Include the flags listed below to install any optional software components you desire. The base software must be installed first.

> **NOTE**   The setting **/l install.log** is optional and will save the installation logs to the file **install.log**. The **install.log** file is required only if troubleshooting an issue with Technical Support.

To install the Luna HSM Client for the SafeNet Luna PCIe HSM

From the location of **LunaHSMClient.exe** run one of the following commands:

> Install the base Luna HSM Client software for SafeNet Luna PCIe HSM

   LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="PCI"

> Install the base Luna HSM Client software and any of the following optional components for the SafeNet Luna PCIe HSM that you desire:

Product or component	Description
PCI_CSP_KSP	CSP and KSP components for the SafeNet Luna PCIe HSM
PCI_JSP	JSP component for the SafeNet Luna PCIe HSM
PCI_SDK	SDK component for the SafeNet Luna PCIe HSM
PCI_JCProv	JCPROV component for the SafeNet Luna PCIe HSM
PCI_SNMP	SNMP subagent component for the SafeNet Luna PCIe HSM

For example, the following command installs the base software and all of the optional components:

**LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="PCI,PCI_CSP_KSP,PCI_
JSP,PCI_SDK,PCI_JCProv,PCI_SNMP"**

If you wish to install only some of the components, just specify the ones you want after the product name
(PCI in this example).

Installing the Luna HSM Client for the SafeNet Luna USB HSM

Use the **ADDLOCAL=USB** flag to install the base client software for the SafeNet Luna USB HSM. Include the
flags listed below to install any optional software components you desire. The base software must be installed
first.

> **NOTE**   The setting **/l install.log** is optional and will save the installation logs to the file
> **install.log**. The **install.log** file is required only if troubleshooting an issue with Technical
> Support.

To install the Luna HSM Client for the SafeNet Luna USB HSM

From the location of **LunaHSMClient.exe** run one of the following commands:

> Install for SafeNet Luna USB HSM

  LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="G5"

> Install the base Luna HSM Client software and any of the following optional components for the SafeNet
  Luna USB HSM that you desire:

| Product or
component	Description
G5_CSP_KSP	CSP and KSP components for the SafeNet Luna USB HSM
G5_JSP	JSP component for the SafeNet Luna USB HSM
G5_SDK	SDK component for the SafeNet Luna USB HSM
G5_JCProv	JCPROV component for the SafeNet Luna USB HSM
G5_SNMP	SNMP subagent component for the SafeNet Luna USB HSM

For example, the following command installs the base software and all of the optional components:

**LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="G5,G5_CSP_KSP,G5_
JSP,G5_SDK,G5_JCProv,G5_SNMP"**

If you wish to install only some of the components, just specify the ones you want after the product name
(G5 in this example).

Installing the Luna HSM Client for the SafeNet Luna Backup HSM

Use the **ADDLOCAL=RB** flag to install the base client software for the SafeNet Luna Backup HSM. Include the flags listed below to install any optional software components you desire. The base software must be installed first.

> **NOTE** The setting **/l install.log** is optional and will save the installation logs to the file **install.log**. The **install.log** file is required only if troubleshooting an issue with Technical Support.

To install the Luna HSM Client for the SafeNet Luna Backup HSM

From the location of **LunaHSMClient.exe** run one of the following commands:

> Install the base Luna HSM Client software for SafeNet Luna Backup HSM

  LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="RB"

> Install the base Luna HSM Client software and the following optional component for the SafeNet Luna USB HSM:

Product or component	Description
RB_SNMP	SNMP subagent component for the SafeNet Luna Backup HSM

For example, the following command installs the base software and the optional component:

LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="RB,RB_SNMP"

Installing the Luna HSM Client for Remote PED

Use the **ADDLOCAL=RP** flag to install the client software for the SafeNet Luna Backup HSM.

> **NOTE** The setting **/l install.log** is optional and will save the installation logs to the file **install.log**. The **install.log** file is required only if troubleshooting an issue with Technical Support.

To install the Luna HSM Client for the SafeNet Luna Backup HSM

From the location of **LunaHSMClient.exe** run the following command:

LunaHSMClient.exe /install /l install.log /quiet /norestart ADDLOCAL="RP"

Uninstalling the Luna HSM Client

You can also perform scripted/unattended uninstallation.

> **NOTE** The setting **/l uninstall.log** is optional and will save the installation logs to the file **uninstall.log**. The **uninstall.log** file is required only if troubleshooting an issue with Technical Support.

To uninstall the Luna HSM Client

From the location of **LunaHSMClient.exe** run the following command:

LunaHSMClient.exe /uninstall /quiet /l uninstall.log