

SafeNet Luna Network HSM

Upgrade Manual

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Introduction

Welcome

The SafeNet Luna Network HSM is a feature-packed product that offers most customers all the out-of-the-box capabilities they need. Gemalto offers upgrades on some models for those customers that need additional capacity. This guide describes the upgrades, how to order them and the steps to apply them.

For all customers, an “upgrade” includes additional partitions. For our Korean customers, Gemalto also offers an upgrade to enable Korean-specific cryptographic algorithms.

Upgrade Models

SafeNet Luna Network HSM comes in three series and for each series in three models. Gemalto designates the last two digits of the product identifier as the model. In the example “Luna S750,” the model is “50.” The three models available are: “00,” “50” and “90.” Models “50” and “90” are capable of upgrades. With this release of SafeNet Luna Network HSM, model “00” does not accept upgrades.

At Time of HSM Order and Afterward

Gemalto customers can choose to have upgrades applied at the *factory* at time of HSM order. Customers also have the option to order an upgrade and apply it themselves as a *field* upgrade. Factory upgrades free customers from some of the steps necessary to enable capabilities on the HSM. On the other hand, field upgrades offer maximum flexibility in how to distribute upgrades amongst a fleet of HSMs. The choice is yours. This guide describes in detail the steps for both factory upgrades and field upgrades.

Today’s Process Gets Better

The process described in this guide represents the start of a new method for Gemalto to entitle customers with upgrades. Those customers familiar with partition upgrades for the Luna SA 5/6 product will instantly see the benefits of the new method. Gemalto is working on and has lots of plans to improve the process. In some places in this guide, the text notes coming changes to give you advance notice of a planned process improvement.

Systems in the Process

Before starting into a detailed description of how to order and apply upgrades, an introduction to the systems involved is useful for context. These systems are:

- *Gemalto order entry*. All products – upgrades included – have part numbers. The Gemalto order entry system uses part numbers to specify the product(s) purchased by a customer. The first step to obtain an upgrade is to obtain its associated part number. After entering and validating an order, the Gemalto order entry system sends you an email with instructions on how to apply a field upgrade or review an activated factory upgrade.
- *Gemalto Enhanced Customer Portal* or *ECP*. ECP is a self-service web portal where customers can activate and revoke¹ upgrades. From ECP, customers can also view details of purchased upgrades.
- *SafeNet Luna Network HSM*. The HSM appliance is ultimately the target for the upgrade.

Using this Document

This guide takes advantage of hyperlinks to enable you to navigate back-and-forth between high-level overview sections and detailed instructions. Purple text amongst black text is usually a hyperlink. Click on the colored text to go to the relevant reference. To return, simultaneously hold the *Alt* and *left arrow* keys.

¹ Revoke is a capability under development.

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Upgrade Options

Factory Upgrades

This option has you order SafeNet Luna Network HSM(s) and upgrade(s) at the same time. Gemalto installs the upgrade(s) on the HSM(s) at time of manufacture so that when you receive the product, the upgrade entitlement is activated on your behalf. After placing your order, you receive an email from Gemalto's order entry system with details of your upgrade entitlement. You have no required action: when you receive your HSM(s), the upgrade is installed and ready for service.

Field Upgrades

This option enables you to order an upgrade for SafeNet Luna Network HSM(s) under your management. After placing your order for an upgrade, you receive an email from Gemalto's order entry system with instructions on how to obtain your entitlement. Attached to the email is an **entitlement certificate** with an entitlement identifier. At a high level, after you receive the email, the steps you perform are:

1. Click the portal link in the email to **access the Gemalto self-service ECP**
2. **Provide the quantity** that you want to activate
3. **Select the HSM** for the upgrade
4. Identify **who is activating** the entitlement
5. **Complete** the activation
6. **Save** the license string to file
7. **Copy** the license string file to the HSM appliance
8. Login to the HSM appliance
9. **Login** to the HSM
10. **Apply** the upgrade

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Return Material Authorization

In the exceptional event that you must return an HSM to Gemalto, the unit you receive in exchange or receive back will represent “the configuration” before the failure. “The configuration” means the base part number plus any upgrades appearing in ECP as activated for the HSM appliance. Gemalto’s customer care team will revoke upgrades in ECP on your behalf so that the HSM appliance sent to you has the upgrade(s).

Repair

Gemalto will apply *activated* upgrades to the repaired HSM appliance. For a repaired HSM appliance, the HSM serial number remains unchanged. You can use the same serial number of the repaired HSM appliance in the ECP portal.

Replacement

Gemalto will apply *activated* upgrades to the replacement HSM appliance. A replacement HSM appliance has a different serial number from the one returned. Be aware that you need to refer to the new serial number for the replacement HSM appliance in the ECP portal.

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Revoking a License

Gemalto offers you the freedom to purchase and apply upgrades to any HSM appliance you possess. If you have already applied an upgrade to an HSM appliance and want to remove the upgrade and apply it to a different HSM appliance, we refer to this process as *revoking a license*. Revoking a license permits you to transfer an upgrade from one HSM appliance to another. A simple use case is transfer of an upgrade from a development HSM appliance to a production HSM appliance.

A self-service feature to revoke a license is in development and Gemalto hopes to release it soon. Until released, you must leave upgrades installed as you distributed them across your HSM appliances.

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Getting Information

Seeing What I Purchased and Activated

From within the ECP portal, you can get information about what you ordered, what you activated and the HSMs that have upgrades. Follow these steps to do so.

1. Use your login credentials to access ECP. Login credentials are a valid email address and password.
2. Expand “Products” to see a summary of what products your company has purchased.
3. Expand “Orders” to see details of the products your company has purchased.
4. Expand “Activations” to see a list of entitlements you have activated.
5. Expand “Devices” to see a list of HSM serial numbers that you have registered previously within ECP.

Seeing What Upgrades Are On the HSM Appliance

To see what upgrades are applied on the HSM appliance, logon as an administrator to the appliance and use the `sysconf license list` command. [Here](#) is an example.

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Purchasing Upgrades

To place an order for an upgrade, you need the relevant Gemalto part number. Be aware that there are two part numbers: one for factory-installed upgrades and one for field upgrades (that is, customer installed). Gemalto offers partition upgrades in “five-packs” up to a total aggregate of 100 partitions. By way of an example, suppose you have a model S790 appliance. The base number of partitions for this model is 10. Suppose you want to upgrade your HSM to have 30 partitions. You would order quantity four upgrades: 20 partitions. After you apply this full entitlement to your HSM, you will have the desired 30 partitions. The following table summarizes the upgrade options for various models.

Model	Factory-Installed Partitions	Maximum Number of Partitions	Maximum Number of 5-Pack Upgrades
_700	5	5	n/a
_750	5	20	3
_790	10	100	18

Entitlement Email

After you have placed your order for an upgrade and a Gemalto customer care representative has entered the order, you receive an email with detailed instructions on how to obtain and apply your upgrade. Very likely, you followed a link to this user guide from the entitlement email you received.

Entitlement Certificate

Attached to the upgrade email is an entitlement certificate. On this certificate is an entitlement identifier that you need to activate your upgrade. Here is an example of an entitlement certificate and where to find the EID.

SafeNet Luna Network HSM License Purchase

Thank you for your recent SafeNet Luna Network HSM order. Below please find your Entitlement ID as described in the user guide. Please keep this ID for your records.

We thank you for your business.

Entitlement ID:	c102f5dc-8179-4bec-9373-ffb3e633abe5		
Sold To Customer:	SWELL GOFAR		
End Customer:			
Customer Purchase Order:	Demo	Gemalto/SafeNet Sales Order:	11074136
Item Number:	908-000395-001	Quantity:	4
Description:	PARTITION 5-PACK,LUNA HSM 7+ (FIELD UPGRADE)		
Order Book Date:	05/31/2017		

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Managing Upgrade Entitlements with ECP

Access ECP with Entitlement Identifier

On the ECP portal “Welcome” screen, enter the entitlement identifier provided to you in an email from Gemalto’s order entry system in the “Enter Entitlement ID” window box and click the *Activate* button. Note that for field upgrades, you must always use any new EID you receive to access ECP (versus login with user name and password).



On your first logon to the ECP portal, you must complete the user registration process. This registration makes subsequent logons to the ECP portal more convenient.

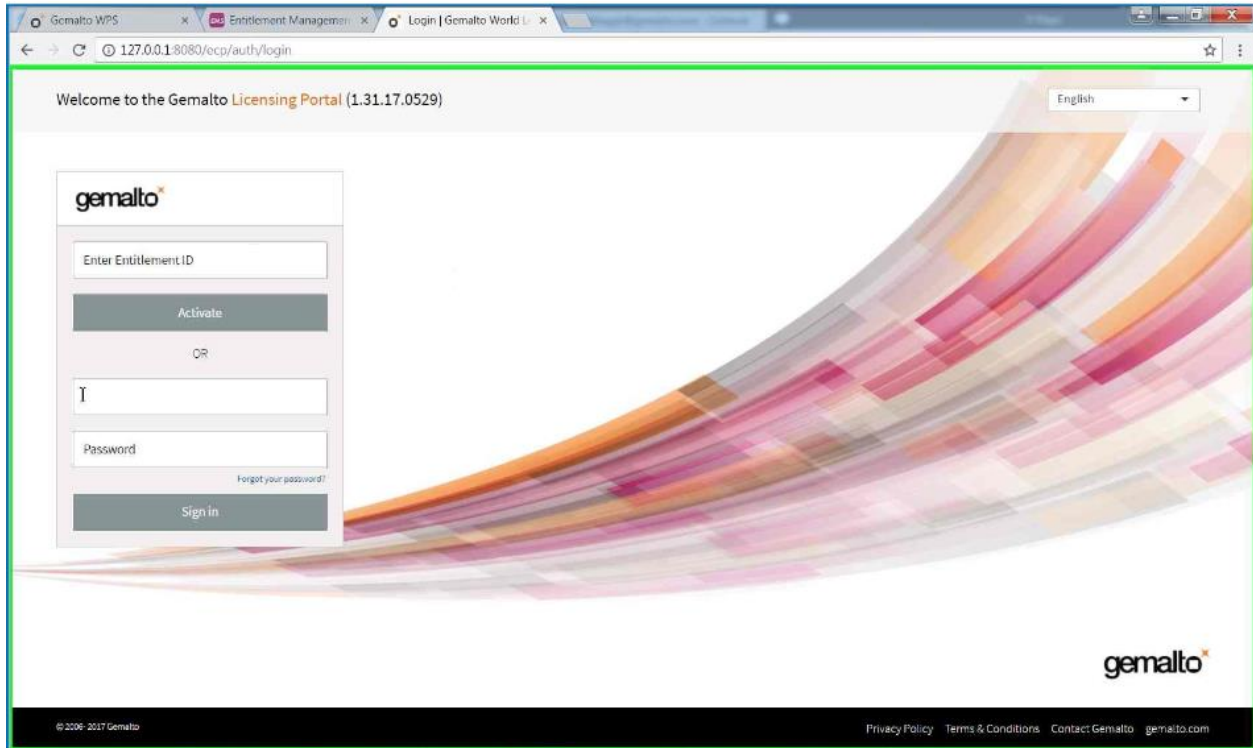
After completing a few mandatory fields, you can subsequently access the ECP portal with an email address and password.

If you previously registered and are now activating a new entitlement, you can access the login page from the Login link.

Please take some time to register with us. Already registered? [Login](#)

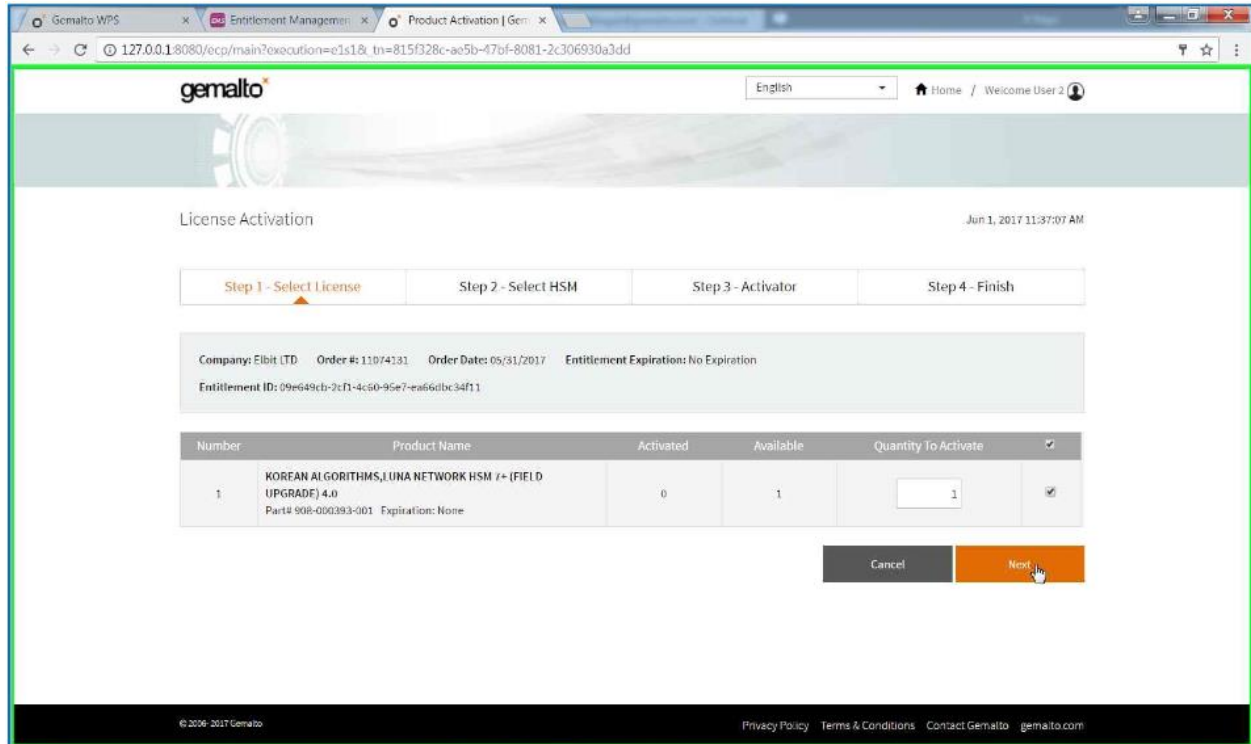
Login to ECP with Email Address and Password

On the ECP portal “Welcome” screen, enter the credentials you created when you registered with ECP.



Select License

After registering to the ECP portal, you see a screen similar to the next example. Enter the desired quantity of five-pack partitions to activate in the “Quantity to Activate” field. Click *Next* to continue the process.



Select HSM

You have two options to select the HSM. If you are visiting ECP for the first time or you have a new HSM to activate, select the “Enter New HSM SN” check box and enter the HSM serial number in the window to the right of “HSM SN:” in the bottom, right of the *Step 2 – Select HSM* screen.

If you want to activate an entitlement for an HSM previously identified to ECP, select the “Use Existing HSM SN” check box and choose the HSM from the drop-down menu.

Click *Next* to continue.

Who is Activating?

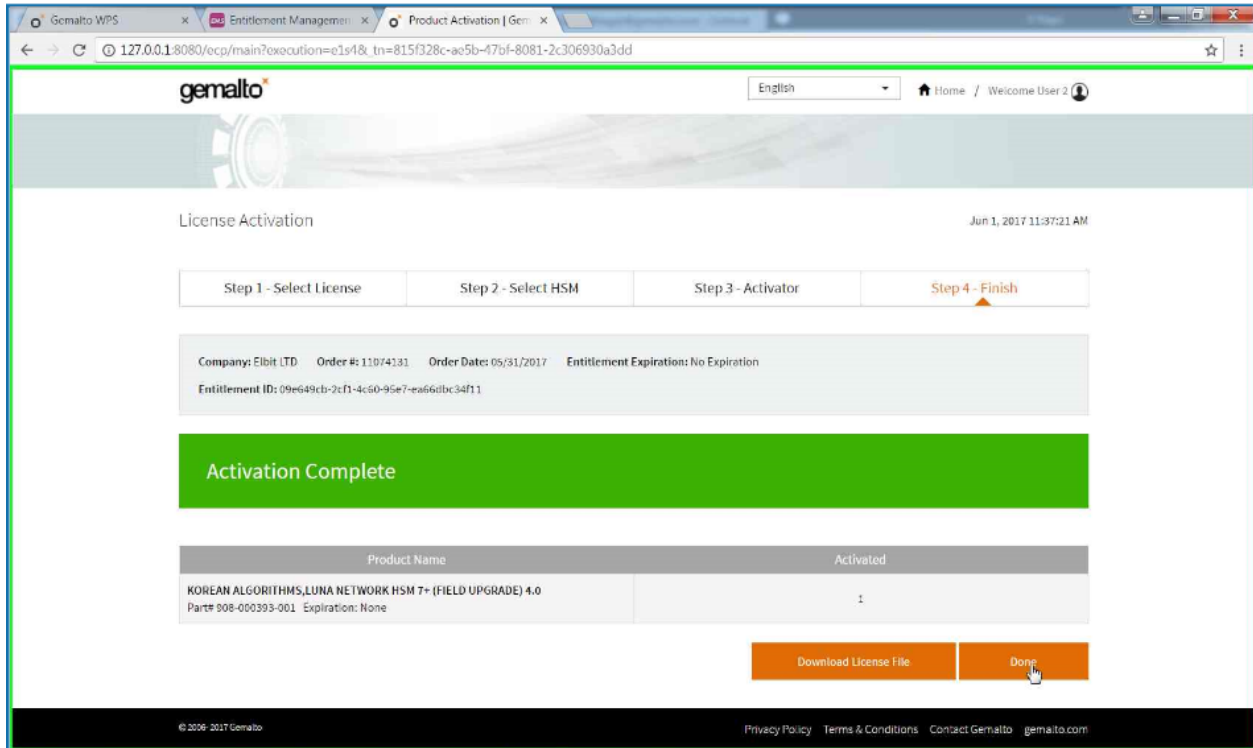
ECP is a common portal used by you, our customer, as well as by Gemalto personnel to activate entitlements on behalf of customers². In most cases, you select the “I am activating for myself” check box. Only if you are activating for someone else do you need to enter the email address in the field provided for this purpose.

² For example, factory-activated entitlements involve Gemalto personnel.

After selecting the activator and entering the email address if activating for someone else, click *Next* to continue.

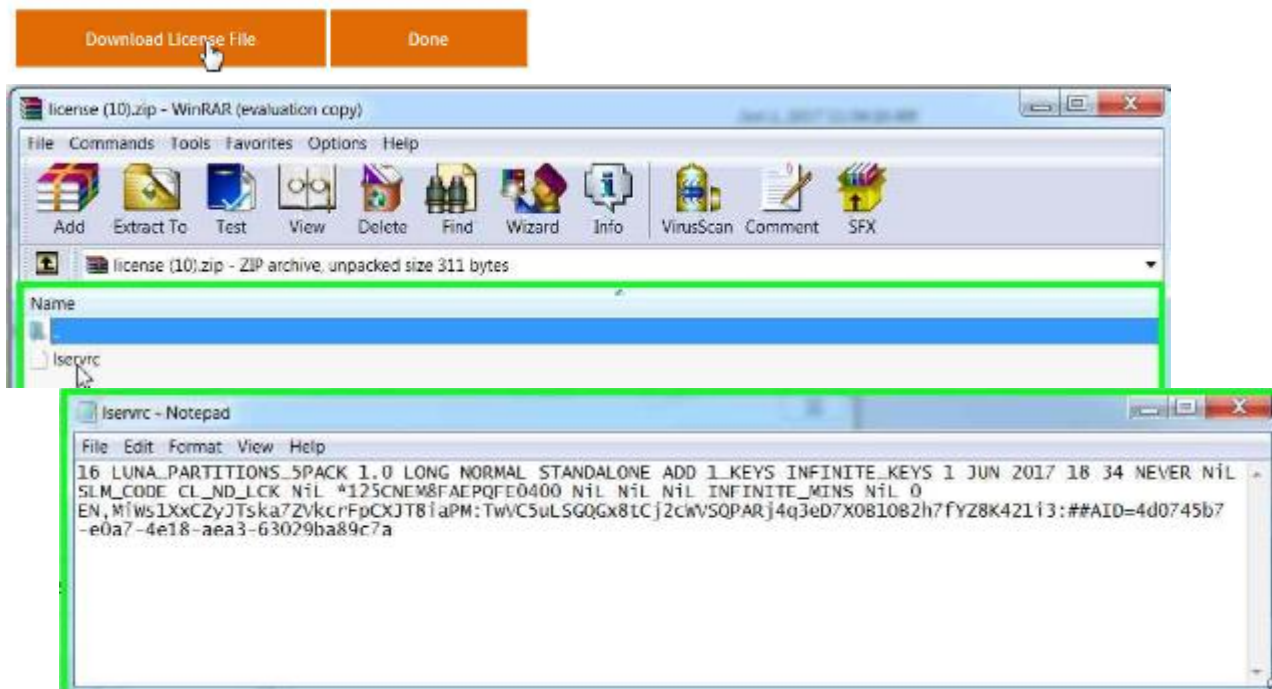
Complete Activation

The final step to complete activation is the *Step 4 – Finish* screen. Here, you get confirmation that the activation process succeeded. Additionally, you can click on the *Download License File* button to have ECP display the license string.



Save License String

When you complete activation of an entitlement, ECP generates a license string. This license string is what the SafeNet network HSM uses to validate an upgrade and subsequently apply it. Thus, you save this license string to a file so that you can transfer it to the HSM in a subsequent step.



The default filename for the file is `lserverc`. You should rename this file to something more meaningful, especially when you have multiple upgrades to manage. One suggestion is to name the file by the upgrade and quantity: `N_partitions_S.lic`, where `N` is the number of partitions the entitlement enables and `S` is a sequence number to create unique filenames. For example, `5_partitions_1.lic`, `5_partitions_2.lic`, `10_partitions_3.lic`. If you have a fleet of HSMs, you might want to include the HSM serial number in the filename as a means to organize upgrades (e.g., `5_partitions_567250_1.lic` where 567250 is the HSM serial number).

You use secure copy to transfer the saved license string file to the HSM.

Purchased Products

After you have logged into ECP, you have the ability to view information about the products you purchased, the activations you performed and the devices in your inventory. The “My Assets” page is the link to this information. To see the products you have purchased, expand the *Products* view. This page is a summary of upgrades and shows a quantity available and how many are activated.

The screenshot shows the Gemalto Licensing Portal interface. The main content area is titled "My Assets" and contains a section for "Products (3)". An instruction states: "The following list displays all products that are available to your company. To view the list of orders for a given product, click the View button for that product. To activate a given order, click the associated Activate button from the list of orders." Below this is a table with columns for Product Name, Activated, Available, and View. The table lists three products:

Product Name	Activated	Available	View
KOREAN ALGORITHMS, LUNA NETWORK HSM 7+ (FIELD UPGRADE) 4.0 Part# 908-000393-001	1	0	View
PARTITION 5-PACK, LUNA HSM7+ (FACTORY INSTALL) 3.0 Part# 908-000396-001	8	0	View
PARTITION 5-PACK, LUNA HSM7+ (FIELD UPGRADE) 3.0 Part# 908-000395-001	1	5	View

Below the table are sections for "Orders (3)" and "Activations (4)". The footer includes copyright information: © 2008-2017 Gemalto, and links for Privacy Policy, Terms & Conditions, Contact Gemalto, and gemalto.com.

Listing Orders

The “Orders” option from the main page of the ECP gives you details for each order you purchased.

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English Home / Welcome User 2

What is it? / Where do I find it?

Licensing Portal Jun 1, 2017 11:37:29 AM

My Assets

Products (3)

Orders (3)

Instruction: The following list displays all orders for your company. Click **Activate** for an order to initiate an activation.

Orders Export CSV

Order Date	Order Number	PO Number	Product Name	Entitlement ID	Activated	Available	Activate
6/1/2017	11074128	luna ECP test factory	PARTITION 5-PACK, LUNA HSM7+ (FACTORY INSTALL) 3.0 Part# 908-000395-001 Expiration:None	bd55c61-73e9-412f-9c4a-a750cb0c719	8	0	Activate
6/1/2017	11074130	luna ECP 0601field com	PARTITION 5-PACK, LUNA HSM7+ (FIELD UPGRADE) 3.0 Part# 908-000395-001 Expiration:None	c91e39a4-a294-4630-81fd-dcb92da02599	1	5	Activate
5/31/2017	11074131	luna ECP 0601korean	KOREAN ALGORITHMS, LUNA NETWORK HSM 7+ (FIELD UPGRADE) 4.0 Part# 908-000393-001 Expiration:None	09e649cb-2cf1-4c60-95e7-ea66dbc34f11	1	0	Activate

Activations (4)

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Listing Activations

The “Activations” view lists the entitlements that you have activated. From this list, you can get a corresponding license string (*Download* button).

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English Home / Welcome User 2

Products (3)

Orders (3)

Activations (4)

Instruction: The following list displays all activations for your company.

Activations Export CSV

Activation Date	Activation ID	Entitlement ID	HSM Serial Number	Locking Code	License Activated	License File	Activated
6/1/2017	cda34680-e662-4f4d-8b74-16c1bb9a4f77	09e649cb-2cf1-4c60-95e7-ea66dbc34f11	460101	*125CNEM8FAEPQFE	KOREAN ALGORITHMS, LUNA NETWORK HSM 7+ (FIELD UPGRADE) 4.0 Part#908-000393-001 Expiration: None	Download	1
6/1/2017	4d0745b7-e0a7-4e18-aea3-63029ba83c7a	c91e39a4-a294-4630-81fd-dcb92da02599	460101	*125CNEM8FAEPQFE	PARTITION 5-PACK, LUNA HSM7+ (FIELD UPGRADE) 3.0 Part#908-000395-001 Expiration: None	Download	1
6/1/2017	13131e7c-11a8-4de7-8861-0b97546777b9	bd55c61-73e9-412f-9c4a-a750cb0c719	060102	*1QJ33U8TJG/FDC	PARTITION 5-PACK, LUNA HSM7+ (FACTORY INSTALL) 3.0 Part#908-000395-001 Expiration: None	Download	5
6/1/2017	928efae8-2ef1-e995-900b-91155236c27b	bd55c61-73e9-412f-9c4a-a750cb0c719	060101	*18CW8ACJCQKJF9	PARTITION 5-PACK, LUNA HSM7+ (FACTORY INSTALL) 3.0 Part#908-000395-001 Expiration: None	Download	3

Devices (4)

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Listing Device Activations

The “Devices” view lets you see what HSMs you have registered with ECP.

The screenshot shows the Gemalto Licensing Portal interface. The main content area is titled "Devices" and contains a table of HSMs. The table has the following columns: HSM Serial Number, Locking Code, License Activated, and Activated. There are also "View" buttons for each row. An instruction above the table states: "The following list displays all devices that have an associated activation for your company." The footer of the page includes copyright information and links for Privacy Policy, Terms & Conditions, Contact Gemalto, and gemalto.com.

HSM Serial Number	Locking Code	License Activated	Activated	View
060101	*16CWBACJQKCJF9	PARTITION 5-PACK, LUNA HSM7+ (FACTORY INSTALL) 3.0 Part#908-000396-001 Expiration:None	3	View
060102	*1Q9J33UBTJG7FDC	PARTITION 5-PACK, LUNA HSM7+ (FACTORY INSTALL) 3.0 Part#908-000396-001 Expiration:None	5	View
460101	*125CNEM8FAE28FE	KOREAN ALGORITHMS,LUNA NETWORK HSM 7+ (FIELD UPGRADE) 4.0 Part#908-000393-001 Expiration:None	1	View
		PARTITION 5-PACK, LUNA HSM7+ (FIELD UPGRADE) 3.0 Part#908-000395-001 Expiration:None	1	

The *View* button enables you to get a more detailed summary for a specific device: what feature(s) you have activated, when and the corresponding license file (*Download* button).

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English Home / Welcome User 2

Device Activations

HSM Serial Number: 460101
Locking Code: 125CNEBFAEPQFE

Activation Date	Activation ID	Entitlement ID	License Activated	Activated	License File
2017-06-01	4d9745b7-e0a7-4e18-aea3-63029ba89c7a	c91e39a4-a294-4630-81fd-deb92da02599	PARTITION 5-PACK, LUNA HSM7+ (FIELD UPGRADE) 3.0 Part#908-000395-001 Expiration:None	1	Download
2017-06-01	cda34680-a662-4f4d-8b74-16c1bb9a4f77	09e648cb-2cf1-4c60-95e7-ea66dbc34f11	KOREAN ALGORITHMS, LUNA NETWORK HSM 7+ (FIELD UPGRADE) 4.0 Part#908-000393-001 Expiration:None	1	Download

Cancel

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Managing Upgrades on HSM Appliance

This section provides further details and examples for the steps you perform to and as administrator of your SafeNet Luna Network HSM. For brevity, this section uses the term *HSM appliance* in place of the full product name.

Transfer License String to HSM Appliance

Use secure copy (scp) or any equivalent tool to copy license string files to the HSM appliance.

```
licenses]$ scp 5_partitions_1.lic admin@192.168.1.103:
```

Logging in to the HSM

The process to authenticate to the internal HSM in the HSM appliance depends upon the product model. Here is an example screenshot for the Luna A7xx model: password-based authentication.

```
[myluna] lunash:>hsm login

Please enter the HSM Administrator password:
> 
```

Getting the HSM Fingerprint

The `sysconf fingerprint license` command displays the fingerprint for the HSM serial number. You can use this fingerprint – also referred to as a *locking code* – to correlate a license string to a specific HSM serial number. The license string shows the fingerprint only.

```
[myluna] lunash:>sysconf fingerprint license

Fingerprint for Use With Entitlement Management System
-----
HSM serial #56725 : *1K9CMFJXJBVU6LC
```

```
16 LUNA_PARTITIONS_5PACK Ni LONG NORMAL STANDALONE ADD 1_KEYS INFINITE_KEYS 27 OCT 2016 21
19 NEVER NiL SLM_CODE CL_ND_LCK NiL *1K9CMFJXJBVU6LC0400 NiL NiL NiL 5_MINS 5_PACK 0
```


XjOZSSJSK1f39KMyH4qDLdXtwfJ08fFN8kNZ1qDFNiVaG6NF,bRpZH6ha09r17yRLyD1wlzpStLUH72nOHD4103x##A
ID=2c305d17-eec7-46cb-ad9f-b0ed752692ef

Applying the Upgrade

The `sysconf license apply` command upgrades the appliance with an entitlement specified by a license string. The command takes two arguments: a mandatory filename that contains the license string; and an optional force to override the prompt to proceed. The following screenshot shows a forced upgrade for the Korean suite of algorithms.

```
[myluna] lunash:>sysconf license apply -filename kcdsa.lic -force
Force option used. Proceed prompt bypassed.
FwUpdate3 Application Version 2.5
SafeNet Firmware/Capability Update Utility
This is a destructive capability update
Proceed prompt bypassed
Update Result : 0 (Success)
Command Result : 0 (Success)
```

Listing Applied Upgrades

You can see what upgrades are applied on the appliance with the `sysconf license list` command. The output resembles the following example.

```
[run-in] lunash:>sysconf license list
#      FEATURE                VERSION  QUANTITY
=====
1      LUNA_PARTITIONS         1.0     10
2      LUNA_PARTITIONS         1.0     20
3      LUNA_PARTITIONS         1.0     10
Command Result : 0 (Success)
```

Note that the *QUANTITY* column represents the total number of partitions associated with an upgrade. In the output above: 10 partitions is quantity two, five-pack upgrades; 20 partitions is quantity four, five-pack upgrades.

APPENDIX A

Troubleshooting

This appendix provides some guidance for situations you might encounter.

Applying Upgrade on HSM Appliance

The Lush command `sysconf license apply` installs an upgrade on your HSM appliance. The following list identifies potential messages you could see when you run this Lush command and the meaning for each message.

Cannot find <filename>	You provide as a parameter to the <code>sysconf license apply</code> the filename that contains the license string you obtained from the ECP portal. This message means that the filename you provided cannot be found on the HSM appliance. Use <code>my file list</code> to see what files are available.
Cannot find lservrc	You should not encounter this message. If you do, please contact Gemalto technical support for assistance.
Invalid licensed feature	The license string is corrupted in the feature attribute. Confirm that you saved the license string without modification after activating the upgrade in the ECP portal.
Invalid licensed feature version	The license string is corrupted in the feature version attribute. Confirm that you saved the license string without modification after activating the upgrade in the ECP portal.
Invalid licensed HSM serial number	The license string is for an HSM with a serial number that is different from the serial number on this HSM appliance.
<feature> not licensed for this appliance	The license string is for an HSM with a serial number that is different from the serial number on this HSM appliance.
License is already applied	The license string matches an entitlement already applied on this HSM appliance.
LUNA_RET_HSM_TAMPERED	The HSM is in a tampered state and must be cleared of the tampered state before the upgrade can be applied.
Update Result : 12 (Error detecting HSM)	The HSM administrator is not logged in.

License is unknown/not available (feature)	The HSM appliance software needs to be updated to support a newer feature.
Upgrades not available for this model of HSM	Only x50 and x90 models of HSM support upgrades.
Upgrade to <#> partitions not available for this model of HSM	Applying the upgrade would exceed the upper limit for the maximum number of partitions on the HSM.
Unable to determine model of HSM	You should not encounter this message. If you do, please contact Gemalto technical support for assistance.