STS Association

STS1800-6

Edition 1.0 Nov 2017

KMC Form Completion Guidelines

Contents

Revision	Clause	Date	Change details from previous Edition
1.0		June 2017	Initial revision
		Nov 2017	Updated key refresh max to 365 days from 265 days

1   Introduction

The introduction of the STSA KMC600 in 2017 has necessitated that a new set of forms be developed for the various services requests from the KMC by manufacturers and members. These forms are designed to cater for legacy as well as STS6 services requests and must be used for all requests.

This document describes the various terms used in the forms, and provides information on the correct method of completing the required forms.

Note: Fields with a red border are required fields - they must be completed. All other fields are optional and may be completed.

Annexure 1 gives added explanatory information on some of the items that will be encountered in the forms.

2   Terms, abbreviations, and Definitions

SGC - Supply Group Code

VK - Vending Key

BD - Base Date

KRN - Key Revision Number

SM/HSM - security Module

KEN - Key Expiry Number

KLF - Keyload File

KUA - Key Use Authorization

EXP - Key Expiry

UIT - Issued Until

3 Form definition and description

3.1 New customer form

This form is to be completed for any new customer to the KMC. This form need only be completed once.

A customer may be defined as any person or company that requires the services of the KMC. This could be:

1. The utility - who owns the SGC's
2. The manufacturer of STS prepayment systems that requires the use of the KMC for meter coding, SM keyload files.
3. A STS vendor (vending system manufacturer or suppliers) that requires the loading of vending keys into SM's
4. Any entity or person that makes use of security modules and requires keyload files or SGC's.

The following fields are defined:

Field Name	To complete this field, enter ..
Name	The name of the contact person.
Customer Type	Select whether the customer will be a company or an individual.
VAT No.	Your company's VAT number if you have one.
Company No.	Your company's registration number if you have one.
Address 1	The address of the company.
Address 2	The address of the company if you need more than one line.
City	The city that the company resides in.
Region	The region that your company resides in. This could be a suburb, industrial area, etc.
Postal Code	The postal code of the company.
Country	The country that the company operates from.
Email	The email address of the respondent or person to be registered with the KMC.
Telephone	The telephone number of the contact person.
Designation	The designation of the contact person.
Fax	The fax number (if available) of the contact person or company.
Signed	The signature of the person responsible (the contact person).
Name	The name of the signatory above.
Date	The date that the form is signed.
Contact Person	Only complete the items different from above
Name	
Designation	
Address 1	
Address 2	
City	The city that the company resides in.

Region	The region that your company resides in. This could be a suburb, industrial area, etc.
Postal Code	The postal code of the company.
Country	The country that the company operates from.
Email	The email address of the respondent or person to be registered with the KMC.
Telephone	The telephone number of the contact person.
Fax	The fax number (if available) of the contact person or company.

3.2 Transfer of ownership form

This form is to be completed for any SGC owner wishing to transfer ownership of the SGC to a new owner.

Field Name	To complete this field, enter..
Old SGC owner details	
SGC Number	The name of the SGC that you want to transfer to another owner.
SGC Name	The name of the SGC you want to transfer ownership for.
Name	The name of the current SGC owner.
Company	The name of the current company that owns the SGC.
Address 1	The address of the current company.
Address 2	The address of the current company.
City	The city that the company resides in.
Region	The region that your company resides in. This could be a suburb, industrial area, etc.
Postal Code	The postal code of the company that currently owns the SGC.
Country	The country that the company operates from.
Email	The email address of the current SGC owner.
Telephone	The telephone number of the current SGC owner.
Signed	The signature of the current owner of the SGC
Date	The date that this form was signed.
New SGC owner details	
Name	The name of the new SGC owner.
Company	The name of the new company that owns the SGC.
Address 1	The address of the new company.
Address 2	The address of the new company.
City	The city that the company resides in.
Region	The region that your company resides in. This could be a suburb, industrial area, etc.
Postal Code	The postal code of the company that currently owns the SGC.
Country	The country that the company operates from.
Email	The email address of the new SGC owner.
Telephone	The telephone number of the new SGC owner.
Signed	The signature of the new owner of the SGC
Name	The name of the person signing the form on behalf of the new SGC owner.
Date	The date that this form was signed.

3.3   Request for Vending Key form

This form must be completed when requesting a vending key for a SGC. The SGC must already have been created by the KMC using the Request for SGC form. The table below shows all the fields that need to be completed on the form, along with a suggestion for completing the field entry.

Field Name	To complete this field, enter..
Supply Group Code	1. The SGC number that you want the vending key for - this will already have been allocated by the KMC using the Request for SGC form. 2. If this is a new application, leave blank.
Supply Group code name	A suitable name of your choice for the SGC - i.e. "Madagascar - Central Region".
Key Type	One of the following 1 - Default key - DDTK (for manufacturer specific SGC's) 2 - Unique key - DUTK (for keypad meters) 3 - Common key - DCTK (for mag card meters)
DKGA	For legacy systems, use DKGA=02. For STS6 systems you may use DKGA=04 or DKGA02.
Base Date	1993 for legacy systems. All current systems have a base date of 1993. With STS6, this base date can change to 2014 if a TID rollover is being implemented or for a new site with no installed meters.
Activation Date	The date that you wish the key to become active in the security module. Normally, this is the date that the form is signed.
Credit Vending Expiry (KEN)	"255" for legacy systems, unless you want the key to expire (in the meter) before the TID rollover time (Nov 2024). Note that 255 is the maximum allowed here. This value effectively means that the key in the meter will not expire. Leave as "255" if unsure.
Expiry Date	This is the date that the allocated key becomes inactive and the security module is no longer able to vend tokens - enter any date in the future that suits your needs (as long as it is less than the date given by the KEN value).
Signed	The signature of the owner of the SGC.
Name	The name of the SGC owner that signed the form.
Date	The date that this form was signed.

3.4 Key authorization form

The Key Authorization Form is used to authorize the use of a vending key for a SM. Permission is given from the owner of the SGC to the requestor.

Field Name	To complete this field, enter..
SGC Owner Name	The name of the owner of the SGC. This must be specifically the name of an organization/utility/company. Not the name of a person.
SM Purpose (Vending/Manufacturing)	For a manufacturing module, select the 'Manufacturing' option, and for a vending module, select the 'Vending' option.
SM ID	The ID (identification number) of the security module for which you want to authorize the key.
Module Type(Legacy/STS6)	The module type - either legacy, or STS6.
SGC No.	The SGC number for which you are requesting the vending key.
SGC Name	The SGC name for which you are requesting the vending key.
Key Expiry Date	The date at which the vending key expires. Only applicable to STS6 units.
Refresh Period	STS6 allows the key to expire periodically (in the case a module is stolen for example). The refresh period in days can be set here. Select a period that suits your needs. Only applicable to STS6 units. For example, entering '30' here will require the SM to request a new keyload file every 30 days.
Unit limit per key revision	The maximum accumulative units of credit that the SM can vend. Only applicable to STS6 units. Leave blank for maximum units.
Currency limit per key revision	The maximum accumulative currency units of credit that the SM can vend. Only applicable to STS6 units. Leave blank for maximum units.
Signed	The signature of the SGC owner.
Name	The name of the person authorizing this form (SGC owner).
Date	The date that this form is signed.

3.5   SGC Name change form

Use this form to change the registered name of the SGC to a new name.

Field Name	To complete this field, enter..
SGC No.	The SGC number that you want to change.
Current SGC Name	The name of the SGC that you want to change.
New SGC Name	The new name of the SGC.
Name	The name of the person signing the form.
Date	The date that the form is signed.
Signed	The signature of the SGC owner.

3.6   Request for SGC form

When a new SGC is required, the SGC owner submits this form to instruct the KMC to allocate a SGC. Note that you may request up to 5 SGC's on this form. If you need more, send as many forms as you require.

Field Name	To complete this field, enter..
Requestor Name	The name of the person requesting the SGC('s). This must be the name of the organization/utility/company.
SGC	Leave blank - the KMC will allocate a number
SGC Name	The name that you want for the new SGC.
SGC	Leave blank - the KMC will allocate a number
SGC Name	The name that you want for the new SGC if you need two SGC's.
SGC	Leave blank - the KMC will allocate a number
SGC Name	The name that you want for the new SGC if you need three SGC's.
SGC	Leave blank - the KMC will allocate a number
SGC Name	The name that you want for the new SGC if you need four SGC's.
SGC	Leave blank - the KMC will allocate a number
SGC Name	The name that you want for the new SGC if you need five SGC's.
Country	The country of residence of the company or SGC owner.
Location	A suburb if you wish.
Network	Leave blank.
Electricity	Check this box if you want to be able to vend to electricity meters.
Water	Check this box if you want to be able to vend to water meters.
Gas	Check this box if you want to be able to vend to gas meters.
Time	Check this box if you want to be able to vend to time meters.
Electricity Currency	Check this box if you want to be able to vend to electricity currency meters.
Water Currency	Check this box if you want to be able to vend to water currency meters.
Gas Currency	Check this box if you want to be able to vend to gas currency meters.
Time Currency	Check this box if you want to be able to vend to time currency meters.
Cluster	Leave blank
Signed	The signature of the SGC owner.
Name	The name of the SGC owner.
Date	The date the form was signed.

4   Use cases…

4.1   For a new customer

If you are not yet registered as a customer with the KMC, you will need:

4.1.1   New customer registration only

Submit a New CustomerForm - this allows the KMC to register you as a SGC owner or SGC user. You will not be allocated an SGC number yet.

4.1.2   New customer requiring an SGC

If you also want an SGC number, then also submit a RequestForSGC Form, the KMC will then issue you with a new SGC. Note that you cannot choose an SGC number, the KMC will choose a number for you.

4.1.3   New customer requiring an SGC and vending key

If you want a vending key to be allocated for a security module as well, submit a Key Authorization Form, as well as a Request For VK Form. The KMC will generate a vending key for the required security module, and send you a keyload file. If you are not the SGC owner, you will have to get the Key Authorization Form submitted by the SGC owner to get their key onto your security module.

4.2   For an existing customer

You are already registered as a customer with the KMC, and you want an SGC:

- Submit a Request For SGC Form, along with a Request For VK form.
- If you want a vending key to be allocated for a security module as well, submit a Key Authorization Form. The KMC will generate a vending key for the required security module, and send you a keyload file.
- If you want to change the name of an SGC that you own, submit a SGC Name Change Request Form.
- If you want to transfer ownership of an SGC that you own to someone else, submit a Transfer Of Ownership Form.
- You want someone else's vending key in your security module - ask the SGC owner to submit a Key Authorization Form allowing the KMC to generate a keyload file for your security module, with the required vending key.

5   Annexure 1 - explanatory notes

This annexure gives information on various key parameters encountered with the STS6 and legacy protocols, and the new STS600 KMC.

5.1   Base Date

The base date defines a 31 year period starting with a TID value of zero at the start of the period, and ending with a TID value of 0xFFFFFF at the end of the TID period. At the end of any TID period, a keychange must be done to all meters, and the base date changed to the next base date in order to start a new TID period.

There are three base dates defined for STS:

- 1993 - the range for this period is 01/01/1993 to 24/11/2024. This is the first base date and applies to all meters manufactured since 1993.
- 2014 - the range for this period is 01/01/2014 to 24/11/2045. This is the second base date and will apply to all 1993 base date meters that undergo the 1993 - 2014 TID rollover keychanges.
- 2035 - the range for this period is 01/01/2035 to 24/11/2066. This is the third base date and will apply to all 2014 base date meters that undergo the 2014 - 2035 TID rollover keychanges.

Only select the 2014 base date when a TID rollover from a 1993 base date is required for your meters. Only select the 2035 base date when a TID rollover from a 2014 base date is required for your meters.

5.2   Key Expiry

This is the date upon which the vending key will expire. The key will no longer be included in the keyload file after this date. This applies only to STS6 modules.

5.3   Key Authorization

Every time a vending key needs to be loaded into a security module, the KMC will first see if a Key Authorization exists for this key to be loaded into a particular security module. If it does not exist, the SGC owner will have to give permission for his key to be loaded into the security module. This is done with the Key Authorization Form.

Once the key authorization has been done, this key will always be sent in the keyload file to the security module for which it was done.

The key authorization for a particular security module may be revoked by the SGC owner by contacting the KMC.

5.4   Credit Vending Expiry - KEN

This expiry stops the point of sale from issuing a token if the current date is later than the date specified by the KEN. The meter also checks this value and will reject the token if the TID of the token is later than

the KEN value. Please see IEC62055-41 for more information on the KEN. If you do not want this expiry active, set the value to 255 (its maximum). This means that the POS will issue tokens until the end of the base date period.

5.5 Activation Date

This is the date upon which the vending key will become active. The vending key will only be included in the keyload file from this date onwards.

5.6 Key Refresh Period

Each vending key generated using the STS6 protocol requires a periodic refresh in order to keep vending. This is essentially a key revocation - if the expiry period comes to an end and the key has not been refreshed, the key may no longer be used to vend any tokens. The refresh period is set by the SGC owner in days (minimum is 30 days, maximum is 365 days).

In order to refresh its keys, the security module will send a VKLoadRequest to the KMC. It will then receive a VKLoadResponse (a new keyload file) from the KMC with all its authorized keys.

This only applies to STS6 modules. There is no refresh period in the current legacy modules.

5.7 When does my key expire?

When a Vending Key is generated (creating a new KRN of an SGC), *two* expiry dates are associated with the Vending Key, and stored at the KMC:

- The VK Expiry Date. This gives the date at which the VK expires for all use. After this date the KMC will no longer distribute the VK to any SM, and SMs will inhibit any use of the VK.

- The KEN, as described in IEC 62055-41. This gives the date at which the VK expires for normal use (i.e. the SM will no longer issue Credit Tokens using the VK). The VK can still be used for certain limited purposes (e.g. as the source key of a Key Change Token Set), and can still be distributed to SMs. The (effective date of the) KEN must be less than the VK Expiry Date.

Both of these dates can be changed at the KMC.

 When a Supply Group Owner wants a particular SM to be able to use the SGC's VKs, the owner creates a Key Use Authorisation (KUA) at the KMC. There are *two* expiry values associated with this KUA when it is created, and they are stored at the KMC:

- The KUA Expiry Date. This is the date on which the Key Use Authorisation expires; after this date the KMC will no longer include the VKs on this SGC in any KLF issued to the particular SM, and the SM will inhibit the use of any VKs (for this SGC) that it has previously received.

- The KUA Refresh Period (given in days). The SM must refresh its keys (by obtaining a new KLF from the KMC) within this period (measured from the issue of a KLF), or the SM will inhibit the use of the VKs obtained under this authorisation until such time as a refresh is performed. Together the KUA Expiry Date and KUA Refresh Period allow the SGC owner to state the rule

> "Allow (SM) to use the VKs on my supply group (SGC) from now until (KUA Expiry Date), subject to the SM checking in with the KMC at least every (KUA Refresh Period) days".

Both of these values can be changed at the KMC.

At the time that an STS6 KLF is issued by the KMC (in response to a VKLOADREQ from the SM):

- The mandatory KEN attribute is the VK's KEN.

- The optional EXP attribute is computed at the lesser of: KUA Expiry Date ; VK Expiry Date

- The optional IUT attribute is computed at the least of: Date of issue of KLF plus KUA Refresh Period ; EXP