TSGS#24(04)0376

Source: SA WG3 (Security)

Title: CR to 33.220: NAF remove the security associations (Rel-6)

Document for: Approval

Agenda Item: 7.3.3

SA Doc number	Spec	CR	Rev	Phase	Subject	Cat	Version-Current	SA WG3 Doc number	Workitem
SP-040376	33.220	002	-	Rel-6	NAF remove the security associations	F	6.0.0	S3-040407	SEC1-SC

CR-Form-v7

CHANGE REQUEST

⌘ **TS 33.220 CR 002** ⌘**rev** **-** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	NAF remove the security associations
Source:	⌘	SA WG3
Work item code:	⌘	SEC1-SC
Date:	⌘	12-05-2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	GBA shall further indicate how security associations are removed and/or updated in the NAF.
Summary of change:	⌘	Add a note “NAF can remove the security association based on deletion conditions after the key has become invalid” to section 4.3.7. and delete the Editor’s notes. Add corresponding note describing to the Procedures using bootstrapped Security Association in section 4.5.3.
Consequences if not approved:	⌘	The removal of security associations is not described

Clauses affected:	⌘	4.3.7, 4.5.3

		Y	N		
Other specs Affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

**********Begin of change **********

4.3.7 Requirements on Transaction Identifier

Transaction identifier shall be used to bind the subscriber identity to the keying material in Ua, Ub and Zn interfaces.

Requirements for Transaction Identifier are:

- Transaction Identifier shall be globally unique;
- Transaction Identifier shall be usable as a key identifier in protocols used in the Ua interface;
- NAF shall be able to detect the home network and the BSF of the UE from the Transaction Identifier.

NOTE: NAF can remove the security association based on deletion conditions after the key has become invalid.

Editor's note: Parallel use of GBA and non-GBA infrastructure is ffs. There are use cases when NAF may want to use GBA and non-GBA based infrastructures at the same time. For example, a NAF may want to authenticate subscribers both by using normal HTTP Digest authentication (where the usernames and passwords are distributed using some other mechanism than GBA), and by using GBA based HTTP Digest. However, it seems that in most telecommunication protocols, the server side (i.e. NAF) controls the name space related to key identifiers (cf. Transaction Identifier). For example, in HTTP authentication, the server issues the usernames, and does not allow the re-use of already existing usernames. The parallel use of GBA and non-GBA based infrastructures may cause conflicts on Transaction Identifier namespace. In particular, BSF may assign Transaction Identifier values that NAFs are already using with non-GBA UEs.

~~Editor's note: GBA shall further specify on how security associations are removed and/or updated in NAF.~~

**********End of change **********

**********Begin of change **********

4.5.3 Procedures using bootstrapped Security Association

After UE is authenticated with the BSF, every time the UE wants to interact with an NAF the following steps are executed as depicted in figure 5.

UE starts communication over Ua interface with the NAF:

- in general, UE and NAF will not yet share the key(s) required to protect Ua interface. If they already do (i.e. if a key Ks_NAF for the corresponding key derivation parameter NAF_Id_n is already available),, the UE and the NAF can start to securely communicate right away. If the UE and the NAF do not yet share a key, the UE proceeds as follows:
  - if a key Ks is available in the UE, the UE derives the key Ks_NAF from Ks, as specified in clause 4.5.2;
  - if no key Ks is available in the UE, the UE first agrees on a new key Ks with the BSF over the Ub interface, and then proceeds to derive Ks_NAF;
- if the NAF shares a key with the UE, but an update of that key is needed, e.g. because the key's lifetime has expired, it shall send a suitable key update request to the UE and terminates the protocol used over Ua interface. The form of this indication may depend on the particular protocol used over Ua interface (cf. 4.5.1);

NOTE: If the shared key between UE and NAF is invalid , the NAF can set deletion conditions to the corresponding security association for subsequent removal.

- the UE supplies Transaction Identifier to the NAF, in the form of a Transaction Identifier, to allow the NAF to retrieve specific key material from BSF;
- the UE derives the keys required to protect the protocol used over Ua interface from the key material, as specified in clause 4.3.2;

NOTE: The UE shall adapt the key material Ks_NAF to the specific needs of the Ua interface. This adaptation is outside the scope of this specification.

- when the UE is powered down, or when the UICC is removed, any keys Ks and Ks_NAF shall be deleted from storage;
- when a new Ks is agreed over the Ub interface and a key Ks_NAF, derived from one NAF_Id, is updated, the other keys Ks_NAF, derived from different values NAF_Id, stored on the UE shall not be affected;

NAF starts communication over Zn interface with BSF

- The NAF requests key material corresponding to Transaction Identifier supplied by the UE to the NAF used over Ua interface;
- The BSF derives the keys required to protect the protocol used over Ua interface from the key material Ks and the key derivation parameters, as specified in clause 4.5.2, and supplies to NAF the requested key material Ks_NAF, as well as the lifetime time of that key material. If the key identified by the Transaction Identifier supplied by the NAF is not available at the BSF, the BSF shall indicate this in the reply to the NAF. The NAF then indicates a key update request to the UE.

NOTE: The NAF shall adapt the key material Ks_NAF to the specific needs of the Ua interface in the same way as the UE did. This adaptation is outside the scope of this specification.

NAF continues with the protocol used over the Ua interface with the UE.

Once the run of the protocol used over Ua interface is completed the purpose of bootstrapping is fulfilled as it enabled UE and NAF to use Ua interface in a secure way.

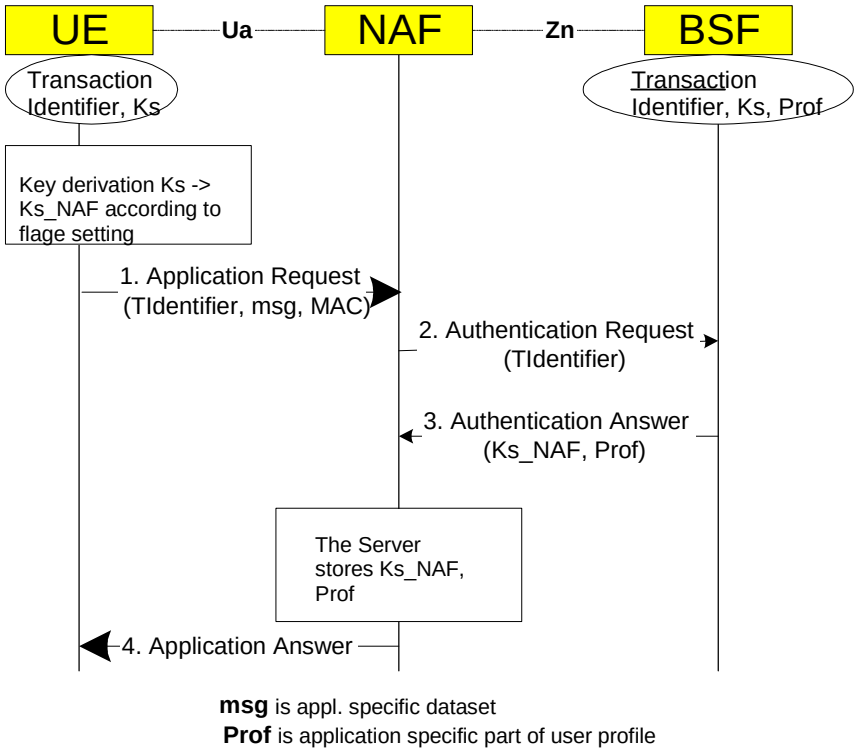

Figure 5: The bootstrapping usage procedure

**********End of change **********