

Title: Clarification of USIM-based access to IMS
Source: T-Mobile, Vodafone
Contact: Hans Hauser, T-Mobile Deutschland
Tel. +49 171 549 0399
hans.hauser@t-mobile.de

1. Introduction

TS 33.203 version 5.5.0 *Access security for IP-based services* states in section 8 *ISIM*:

For the purposes of this document the ISIM is a term that indicates the collection of IMS security data and functions on a UICC. The following implementation options are permitted:

- Use of a distinct ISIM application on a UICC which does not share security functions with the USIM;
- Use of a distinct ISIM application on a UICC which does share security functions with the USIM;
- Use of a R99/Rel-4 USIM application on a UICC.

NOTE: For later releases other implementations of ISIM are foreseen to be permitted.

If there is an ISIM and a USIM application on a UICC, then the ISIM application shall always be used for IMS authentication.

...

There seem to be different understandings of the third bullet point around:

- (interpretation 1)** with UICCs based on Release 6 (and later) specs carrying a USIM application but not an ISIM application access to an IMS is not possible. Consequently, a 3G operator is obliged to install an ISIM application on a Rel6 (and later) based UICC with USIM in case the user wants to access an IMS;
- (interpretation 2)** with UICCs based on Release 5 (and later) specs carrying a USIM application but not an ISIM application access to an IMS is not possible. Consequently, a 3G operator is obliged to install an ISIM application on a Rel5 (and later) based UICC with USIM in case the user wants to access an IMS;
- (interpretation 3)** UICCs with USIMs based on any USIM release from R'99 onwards can be used for IMS access in case no ISIM application is present.

Seemingly, there is a need to clarify this.

2. Discussion

2.1 USIM ↔ terminal interface

A Rel5 (and onwards) terminal has to check whether an ISIM application is available or not on the UICC. In case no ISIM is present IMS relevant parameters are to be derived from the USIM application. There is however no possibility for a Rel5 (and onwards) terminal to check the spec version on which the USIM application is based. And even in case a Rel5 (and onwards) terminal could find out about this nothing is specified how to signal the IMS access denial to the terminal.

2.2 Mandatory use of an ISIM

At SA#20, a CR to TS 33.203 Rel5 (SP-030100) was approved mandating the use of an ISIM for IMS access in case an ISIM exists on the UICC. Obviously, this CR makes only sense if the presence of an ISIM on a UICC is not mandatory.

2.3 Operators not or not yet running an IMS

It might well be the case that a network operator is interested to make use of the latest USIM specification available but has not yet made a decision to introduce an own IMS. One could of course argue that such operator is free to start with issuing Rel5 based UICCs with USIMs but no ISIMs since TS 22.101 version 5.8.0 requests in section 13.1.5:

It shall be possible to update ISIM specific information via the air interface, in a secure manner.

However, given the sensitive character of ISIM data it can be doubted whether heavily security related information such as (cf. TS 33.203)

- support for sequence number checking in the context of the IMS Domain,
 - the same framework for algorithms as specified for the USIM [applicable] for the ISIM or
 - an authentication key
- really should be downloaded over the air. For the time being, no standardized secure manner how to accomplish this is available.

For later releases the mandatory use of an ISIM for IMS access may be considered.

3. Conclusions

- Interpretations 1 and 2 are not applicable.
- Interpretation 3 is correct: Using IMS access parameters derived from the USIM application in case no ISIM is present on the UICC should be possible.

It has to be emphasized that this proposal does not intend to encourage the use of IMSI derived parameters for IMS access at the expense of an ISIM introduction.

4. Proposal

It is proposed to remove “R99/Rel-4” in the third bullet point in TS 33.203 section 8 so that it would read then:

- Use of a USIM application on a UICC.