3GPP TSG SA WG3 Security — S3#32 **S3-040168**
9 - 13 February 2004
Edinburgh, Scotland

Title: **DRAFT LS on Presence Security**
Response to: **-**
Release: **Rel-6**

Source: **SA3**
To: **OMA**
CC: **-**

Contact Person:
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Attachments: **S3-030045, S3-030169, SP-030719**

Overall Description:

3GPP TSG WG SA3 would like to inform OMA that SA3 will base the Presence Security, a 3GPP Release 6 Work Item, on TLS and in particular base it on the profiling of TLS as defined in WAP-219-TLS and on WAP-211-WAPCert for Certificate profiles. SA3 has identified that Presence Security should support at least one mandatory AES Ciphersuite as defined in RFC 3268. Furthermore TLSv1.0 is being updated into TLSv1.1 (draft-ietf-tls-rfc2246-bis-05.txt) in IETF and there is also an RFC for TLS Extensions targeting constrained clients like a Mobile Terminal, cf. RFC 3546. Based on the attached document (S3-030045) SA3 assumes that OMA will consider the ongoing TLS evolution in IETF and evolve WAP-219-TLS accordingly like defining a mandatory AES ciphersuite, cf. recommendations in S3-030045. Considering that the support of at least one AES ciphersuite is viewed as important for Presence Security, SA3 would want OMA to confirm that OMA is going to include support for AES in 3GPP Release 6 time frame. It seems also valuable for SA3 to include support of TLSv1.1 when the RFC is available.

Note 1:For your information the version of the Presence Security TS that was sent to SA plenary for information is also attached to the LS.

Note 2: For the work on Presence Security SA3 assumes that the priority order is 1) RFC 3268, 2) TLSv1.1 and 3) RFC 3546

Note 3: The attached document S3-030045 includes a pseudo CR, which was further evolved and finally approved in S3-030169

Actions:

3GPP TSG WG3 asks OMA to

- Inform SA3 on the feasibility of and the time schedule for the evolution of WAP-219-TLS such that OMA specifications support a profile of:
    1. IETF RFC 3268 (2002): "Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)".
    2. IETF Draft (2003): “The TLS Protocol Version 1.1”, draft-ietf-tls-rfc2246-bis-05.txt
    3. IETF RFC 3546 (2003): "Transport Layer Security (TLS) Extensions"
- Consider the 3GPP time schedule for Presence Security which is a Release 6 work item
- Comment on the suggested priority order in Note 2 above and if OMA have a different priority order in their work

Date of Next SA3 Meetings:

SA3#33	11 - 14 May 2004	Beijing, Samsung

SA3#34	6- 9 July 2004	TBA, North American Friends

3GPP TSG SA WG3 Security – SA3#32 **S3-030045**

9-13, February, 2004

Edinburgh, Scotland

Agenda Item: Presence

Source: Ericsson

Title: TLS profile for Presence Security

Document for: Discussion/Decision

1. Introduction

In this paper Ericsson discusses the status of TLS and what different TLS extensions and TLS profiles that are available.

Ericsson suggests that 3GPP should as a working assumption implement the TLS profile developed in WAP, cf. [WAP-219-TLS] as well as [WAPCert] for certificate profiles. The rationale behind this recommendation is that Ericsson believes that the most efficient and effective way forward is to re-use existing profiles for a wireless environment.

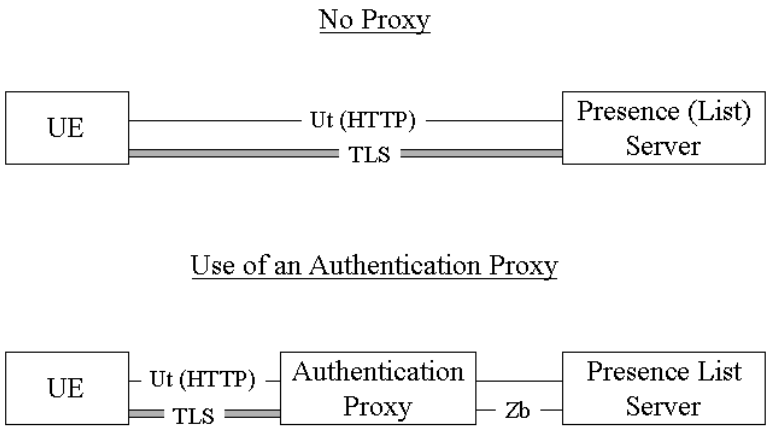
Furthermore Ericsson also suggests that SA3 as a working assumption for Presence security implements also future OMA defined TLS profiles that should consider the existing IETF TLS extensions like AES cipher suites and TLSv1.1

Ericsson proposes that SA3 sends an LS to OMA to ask them to report on the time schedule for implementation of these extensions for enhancing the OMA TLS profile since e.g. the implementation of an AES cipher suite should be essential for Presence Security.

Ericsson also asks SA3 to endorse the attached Pseudo CR.

2. Presence Security Requirements

The current architecture for the use of Presence Ut interface is depicted in the figure below, where the case of the use of a reverse proxy is included:



It is currently assumed in TS33.141 that TLS shall be used but there is an editor's note in the TS that highlights that several TLS standards document are available. This contribution aims to define what TLS specifications that the TS shall make references to.

3. TLS profiling

3.1 TLS profile status in standards

There are several different standards document that are TLS related available i.e. RFCs, Profiles and IETF drafts e.g.

- RFC 2246 The TLS Protocol Version 1.0, cf. [RFC 2246]
- RFC 3546 TLS Extensions, cf. [RFC 3546]
- IETF Draft TLSv1.1 Draft v5.0, cf. [Draft-TLSv1.1]
- RFC 3268 AES Ciphersuites, [RFC 3268]
- WAP-219-TLS TLS Profile and Tunneling which is a profile of RFC 2246 TLSv1.0, cf. [WAP-219-TLS]
- IETF Draft Shared Key TLS

On the IETF draft for Shared Key TLS Ericsson already identified several open issues, cf. [S3-030721] at SA3#31, which need to be clarified. Therefore Ericsson leaves that draft out from the discussion in this paper.

3.2 Profiling Discussion

When WAP Forum launched WAP2.0 it was a step to bring the wireless environment closer to the Internet Protocols like TCP, HTTP and TLS. For TLS a wireless profile was defined in [WAP-219-TLS] which requires that client and server implementations are compliant with TLSv1.0 [RFC 2246]. The WAP2.0 profile requires that a server support both cipher suites in the list below whereas the client shall support at least one of them:

1. TLS_RSA_WITH_RC4_128_SHA
2. TLS_RSA_WITH_3DES_EDE_CBC_SHA

From a confidentiality protection point of view cipher suite 2 is related to the encryption of IMS signalling where it is specified in TS33.203 that IPsec ESP implementation should use DES-EDE3-CBC. Hence this TLS cipher suite should take precedence over 1 since it facilitates the possibility to re-use existing implementations in the terminal.

In order to minimise the need to perform a full TLS handshake too often a session resume shall be used. The TLSv1.0 stipulates that a key shall not have a longer lifetime than 24 hours. This is also reflected in the [WAP-219-TLS]. Hence also Presence TS should respect this guideline.

For Presence TLS shall not be used for Client Authentication instead it is up to the Authentication Proxy or the Server to decide what part of [GAA] shall be used if any e.g. the use of GBA where HTTP Digest is used as the protocol for client authentication. For Server Authentication it is recommended that the WAP profiled X.509 Server Certificates as defined in [WAPCert] are utilised however it is not forbidden to use [X.509] Server Certificates.

A final note on the TLS tunnelling part as specified in [WAP-219-TLS] is that if the Client is aware of a Proxy between the Client and an Application Server the Client shall use the HTTP Connect method for setting up an end to end protected session. However if an operator implements a Reverse Proxy as specified in TS33.141 then the client is not aware of such a proxy and hence the TLS tunnelling is not used.

The RFC 3268, cf. [RFC 3268] defines a number of suites with AES support all in Cipher Block Chaining Mode with 128- or 256- bit keys e.g. TLS_RSA_WITH_AES_128_CBC_SHA. Ericsson suggests to add an Editors Note on AES

in the Presence TS on AES since it is desirable that the Presence Security includes at least one mandatory AES cipher suite.

In IETF there is ongoing work to further enhance TLSv1.0 to TLSv1.1 [Draft-TLSv1.1]. The list below highlights some of the enhancements that have been made in the draft:

- RSA/3DES is the mandatory cipher suite
- Removal of the requirement that the Server Random has to be different from the Client Random
- Editorial changes like removal of RSA patent statement
- Prevention of certain CBC attacks

Ericsson assumes that when the TLSv1.1 is available that the TLS profile in OMA should be updated accordingly. From a security point of view it is natural that TLSv1.1. would take precedence over TLS1.0 when it is available as an RFC since it prevents some certain known TLSv1.0 CBC attacks.

The TLS-Extensions [RFC 3546], defines extensions to TLS that may be used for added functionality in particular in wireless environments like:

- Negotiation of Client Certificate URLs
- Negotiation of Maximum Fragment Length
- TLS Clients enabled to communicate which CA Root Keys it supports
- Negotiation of the use of Truncated MACs (80 bit MAC)
- Mechanism that avoids that a full CRL is sent

Ericsson recognises that the RFC 3546 have identified several relevant requirements for constrained environments and constrained clients like bandwidth limitations, computational power limitations and battery life limitations to name a few.

Therefore it seems attractive that 3GPP considers to implement these extensions e.g. to Presence Security. However it could be discussed whether this RFC could then be for post Release 6 and included in the HTTP TS.

3.3 Recommended way forward

Considering that OMA is now responsible for WAP protocols like WTLS and the wireless profile of TLSv1.0 [RFC 2246] Ericsson recommends that 3GPP SA3 adopts the working assumption that Presence Security is based on [WAP-219-TLS] for Server Authentication, Confidentiality Protection and Integrity Protection and [WAPCert] for Certificate profiles. However the Tunneling part in [WAP-219-TLS] is not required for Presence since the UE is not aware of the Reverse Proxy.

Ericsson believes that this recommended way forward should be chosen since it minimises the risk that both 3GPP and OMA would start to work on wireless TLS profiles and perhaps increase the risk that the groups identify even conflicting requirements. It seems that such an approach would also decrease the workload e.g. minimising the number of LSs that need to be sent between the groups. This proposal also re-uses the existing work already done on TLS profiles in OMA and it is the belief of Ericsson that it is better to evolve future extensions to TLS and related profiles based on an existing specifications like [WAP-219-TLS], which is owned by OMA.

4. Conclusions

In this document several different TLS standards documents were discussed. It was concluded that the Presence TS should base the TLS profile on OMA specifications. It was also recommended that the most efficient and effective way forward is that OMA based on the existing specifications under their ownership evolve and profile based on the ongoing work on TLS in IETF e.g. the inclusion of a mandatory AES based cipher suite.

Ericsson suggests that 3GPP SA3 sends an LS to OMA to highlight the ongoing work on Presence Security and ask OMA to report the status on evolving the TLS profile [WAP-219-TLS] to include e.g. AES Cipher suites [RFC 3268], TLSv1.1 [Draft-TLSv1.1] and TLS Extensions [RFC 3546] and what the time schedule for this is.

5. References

[WAPCert] WAP-211-WAPCert, 22.5.2001: http://www.openmobilealliance.org/tech/affiliates/wap/wap-211-wapcert-20010522-a.pdf

[WAP-219-TLS] WAP-219-TLS, 4.11.2001: http://www.openmobilealliance.org/tech/affiliates/wap/wap-219-tls-20010411-a.pdf

[RFC 3268] IETF RFC 3268 (2002): "Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)".

[RFC 3546] IETF RFC 3546 (2003): "Transport Layer Security (TLS) Extensions".

[RFC 2246] IETF RFC 2246 (1999): "The TLS Protocol Version 1".

[Draft-TLSv1.1] IETF Draft (2003): “The TLS Protocol Version 1.1”, draft-ietf-tls-rfc2246-bis-05.txt

[S3-030721] Ericsson 2003, “Challenges in using shared-secret TLS with NAFs”, S3030721, Munich

3GPP TSG SA WG3 Security — S3#31 **S3-030xxx**
9 – 13 February, 2004, Edinburgh, Scotland

CR-Form-v7

Pseudo - CHANGE REQUEST

⌘ **33.141** **CR** **CRNum** ⌘**rev** **-** ⌘ Current version: 1.0.0 ⌘

*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 [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Security Mechanisms for Presence
Source:	⌘	Ericsson
Work item code:	⌘	***Date:*** ⌘ 26 January 2004
Category:	⌘	**B** ***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:	⌘	Currently clause 6 and 7 are empty
Summary of change:	⌘	Adding requirements for the security mechanisms
Consequences if not approved:	⌘	Some clauses will remain empty

Clauses affected:	⌘	Clause 6 and 7

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

Other comments:	⌘	

***** Begin of Change ****

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications".

[2] 3GPP TS 22.141: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Presence Service; Stage 1".

[3] 3GPP TS 23.141: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Presence Service; Architecture and functional description".

[4] 3GPP TS 33.203: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3G Security; Access security for IP-based services".

[5] 3GPP TS 23.228: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; IP Multimedia Subsystem (IMS); Stage 2".

[6] IETF RFC 2246 (1999): "The TLS Protocol Version 1".

[7] 3GPP TS 23.002: "3rd Generation Partnership Project; Technical Specification Group Services and Systems Aspects; Network architecture".

[8] IETF RFC 3268 (2002): "Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)".

[9] IETF RFC 3546 (2003): "Transport Layer Security (TLS) Extensions".

[10] 3GPP TS 33.210: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3G Security; Network Domain Security; IP network layer security".

[11] 3GPP TS 33.220: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Generic Authentication Architecture (GAA); Generic Bootstrapping Architecture".

[12] WAP-211-WAPCert, 22.5.2001: http://www.openmobilealliance.org/tech/affiliates/wap/wap-211-wapcert-20010522-a.pdf

[13] WAP-219-TLS, 4.11.2001: http://www.openmobilealliance.org/tech/affiliates/wap/wap-219-tls-20010411-a.pdf

[14] IETF draft-ietf-tls-rfc2246-bis-05 (2003): "The TLS Protocol Version 1.1"

***** End of Change ****

***** Begin of Change ****

4 Overview of the security architecture

An IMS operator using the CSCFs as Watcher Presence proxies and Presentity Presence proxies may offer the Presence services on top of the IMS network, cf. 3GPP TS 22.141 [2]. The access security for IMS is specified in 3GPP TS 33.203 [4] ensuring that SIP signalling is integrity protected and that IMS subscribers are authenticated through the use of IMS AKA. The security termination point from the UE towards the network is in the P-CSCF utilising IPsec ESP.

A watcher can ~~by~~ be sending a SIP SUBSCRIBE over IMS towards the network to subscribe ~~to~~ or to fetch presence information, i.e. the Presence Service supports SIP-based communications for publishing presence information. The presence information is provided by the Presence Server to the Watcher Application using SIP NOTIFY along the dialogue setup by SUBSCRIBE. This traffic is protected in a hop-by-hop fashion using a combination of SEGs as specified in 3GPP TS 33.210 [10] with the access security provided in 3GPP TS 33.203 [4].

The Presence Server is responsible for managing presence information on behalf of the presence entity and it resides in the presentity's home network. Furthermore the Presence Server provides with a subscription authorization policy that is used to determine which watchers are allowed to subscribe to certain presence information. Also the Presence Server shall before subscription is accepted try to verify the identity of the watcher before the watcher subscribes to presence information. Optionally, depending on the implementation, the Presence Server may authenticate an anonymous watcher depending on the Subscription Authorization Policy.

A Presence List Server is responsible of storing grouped lists of watched presentities and enable a Watcher Application to subscribe to the presence of multiple presentities using a single SIP SUBSCRIBE transaction. The Presence List Server also stores and enables management of filters in the presence list, cf. Figure 1.

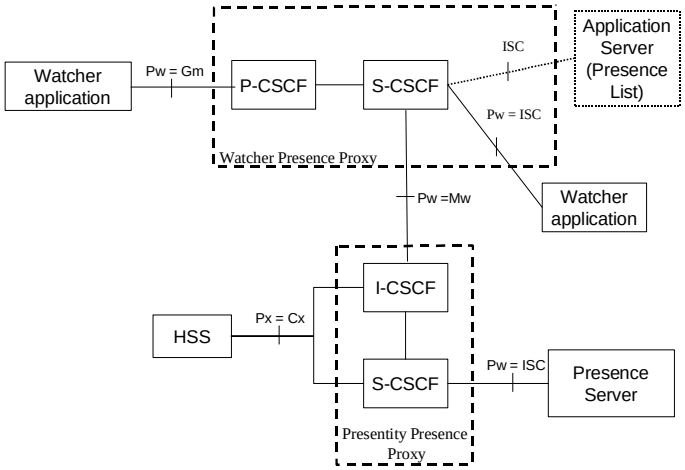


Figure 1: The Location of the Presence Server and the Presence List Server from an IMS point of view

A Presence User Agent shall be able to manage the data on the AS over the Ut interface, cf. 3GPP TS 23.002 [7], which is based on HTTP. This interface is not covered in 3GPP TS 33.203 [4] and it is mainly this interface for Presence use, which is covered in this specification. Before manipulation is allowed the user needs to be authenticated.

The Ut interface needs the following security features:

1. it shall be possible to provide with mutual authentication between the Server and the Watcher/Presentity;
2. a secure link and security association shall be established between the Server and the Watcher/Presentity. Data origin authentication shall be provided as well as confidentiality protection.

Editors Note The specification need to consider [6], [8] and [9] and make appropriate profiling of these TLS protocols and the TLS version 1.1. need to be considered also.

Editors Note: The exact details of the security architecture is FFS and dependant on decisions related with the ongoing work on GBA (Generic Bootstrapping Architecture).

An overview of the security architecture for Presence Ut Interface is depicted in figure 2:

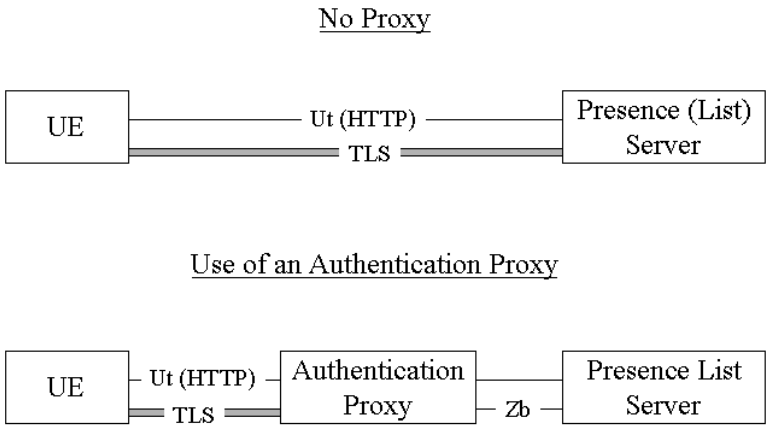


Figure 2: An overview of the Security architecture for the Ut interface including the support of an Authentication Proxy

***** End of Change ****

***** Begin of Change ****

6 Security Mechanisms

~~Editors Note: This should be a profiling of [6] and [8]~~

~~Editors Note: The clause 6 and 7 do not include much text. During the work with the security for Presence a TR was developed from which much of the content was moved to TS 33.203 Access Security for IMS Release 6. SA3 has an agreed working assumption on the use of TLS (some version of it). When the decision is taken there are no known issues available that should make it technically difficult to stabilise these clauses . The basis for this work is already outlined in S3-030749, which is approved in SA3 for inclusion in TS 33.222.~~

The UE and the AP/Server shall support the TLS version as specified in RFC 2246 [6] and WAP-219-TLS [13] or higher. Earlier versions are not allowed.

Editors Note: It is FFS if it is possible to base the Presence Security on TLSv1.1 [14], which is currently in draft status in IETF.

6.1 Authentication and key agreement

6.1.1 Authentication of the ~~user~~UE

From a TLS point of view the UE shall be considered as un-authenticated, cf. RFC 2246 [6].

The authentication of the UE may take place in either the Authentication Proxy or the Server. However the AP or the Server may given the policy of the operator conclude that the AP/Server shall not authenticate the UE using GBA i.e. the UE is considered as authenticated already or the UE is authenticated by other means. Otherwise if the AP/Server concludes that the authentication shall take place in the AP/Server then the UE may be authenticated as specified in TS 33.220 [11] (where the Ua interface is between the UE and the AP/Server). The AP/Server shall not require that the UE is authenticated through the use of UE Certificates, cf. RFC 2246 [6].

It shall be possible for the operator at any time to request a re-authentication of the UE.

6.1.2 Authentication of the AP/Server

The AP/Server is authenticated by the Client as specified in WAP-219-TLS [13], which in turn is based on RFC 2246 [6].

The AP/Server certificate profile shall be based on WAP Certificate and CRL Profile as defined in WAP-211-WAPCert [12].

6.1.3 Authentication Failures

If the UE receives a Server Hello Message from the AP/Server that requests a Certificate then the UE shall respond with a Certificate Message containing no Certificate if it does not have a certificate. The AP/Server upon receiving this message may respond with a failure alert, however if the AP/Server shall authenticate the UE as configured by the policy of the operator the AP/Server should continue the dialogue and assume that the UE will be authenticated as specified in TS 33.220 [11].

If there is no response within a given time limit from a network initated re-authentication request an authentication failure has occurred after that the request has been attempted for a limited number of times. This failure can be due to several reasons e.g. that the UE has powered off or due to that the message was lost due to a bad radio channel. The AP/Server shall then still assume that if a TLS session is still valid that it can be re-used by the UE at a later time. Should then the UE re-use an existing session then the AP/Server shall re-authenticate the UE and not give access to the AP/Server unless the authentication was successful.

6.2 ~~Confidentiality~~ Protection mechanisms

Both the UE and the AP/Server shall support the CipherSuite TLS_RSA_WITH_3DES_EDE_CBC_SHA. All other Cipher Suites as defined in RFC 2246 [6] are optional for implementation.

Editors Note: It is FFS is this specification should mandate any of the AES cipher suites as specified in RFC 3268.

Cipher Suites with NULL encryption may be used. The UE shall always include at least one cipher suite that supports encryption during the handshake phase.

Cipher Suites with NULL integrity protection (or HASH) are not allowed.

Editors Note: It is FFS what parts (if any) of the TLS extensions as specified in RFC 3546 [9] that shall be implemented in this TS

~~6.3 Integrity mechanisms~~

6.4 Key Agreement

The Key exchange method shall not be anonymous. Hence the following cipher suites as defined in RFC 2246 [6] are not allowed for protection of a session for Presence Services:

- CipherSuite TLS_DH_anon_EXPORT_WITH_RC4_40_MD5
- CipherSuite TLS_DH_anon_WITH_RC4_128_MD5
- CipherSuite TLS_DH_anon_EXPORT_WITH_DES40_CBC_SHA
- CipherSuite TLS_DH_anon_WITH_DES_CBC_SHA
- CipherSuite TLS_DH_anon_WITH_3DES_EDE_CBC_SHA

***** End of Change ****

***** Begin of Change ****

7 Security parameters agreement

7.1 Set-up of Security parameters

The TLS Handshake Protocol negotiates a session, which is identified by a Session ID. The Client and the AP/Server shall allow for resuming a session. This facilitates that a Client and Server may resume a previous session or duplicate an existing session. The lifetime of a Session ID is maximum 24 hours. The Session ID shall only be used under its lifetime and shall be considered by both the Client and the Server as obsolete when the Lifetime has expired.

7.2 Error cases

The AP/Server shall consider the following cases as a fatal error:

- If the received ciphersuites only includes all or some of the Ciphersuites in Clause 6.4
- If the received ciphersuites do not include any integrity protection
- If none of the received ciphersuites include encryption
- If the policy of the operator stipulates that encryption is required and the common set of supported ciphersuites only include key material less than 128 bits for confidentiality protection

***** End of Change ****

3GPP TSG SA WG3 Security — S3#32 **S3-040169**
9 – 13 February, 2004, Edinburgh, Scotland

CR-Form-v7

Pseudo - CHANGE REQUEST

⌘ **33.141** **CR** **CRNum** ⌘**rev** **-** ⌘ Current version: 1.0.0 ⌘

*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 [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Security Mechanisms for Presence
Source:	⌘	Ericsson
Work item code:	⌘	***Date:*** ⌘ 26 January 2004
Category:	⌘	**B** ***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.

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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:	⌘	Currently clause 6 and 7 are empty
Summary of change:	⌘	Adding requirements for the security mechanisms
Consequences if not approved:	⌘	Some clauses will remain empty

Clauses affected:	⌘	Clause 6 and 7

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

Other comments:	⌘	

***** Begin of Change ****

2 References

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[1] 3GPP TR 21.905: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications".

[2] 3GPP TS 22.141: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Presence Service; Stage 1".

[3] 3GPP TS 23.141: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Presence Service; Architecture and functional description".

[4] 3GPP TS 33.203: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3G Security; Access security for IP-based services".

[5] 3GPP TS 23.228: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; IP Multimedia Subsystem (IMS); Stage 2".

[6] IETF RFC 2246 (1999): "The TLS Protocol Version 1".

[7] 3GPP TS 23.002: "3rd Generation Partnership Project; Technical Specification Group Services and Systems Aspects; Network architecture".

[8] IETF RFC 3268 (2002): "Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)".

[9] IETF RFC 3546 (2003): "Transport Layer Security (TLS) Extensions".

[10] 3GPP TS 33.210: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3G Security; Network Domain Security; IP network layer security".

[11] 3GPP TS 33.220: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Generic Authentication Architecture (GAA); Generic Bootstrapping Architecture".

[12] WAP-211-WAPCert, 22.5.2001: http://www.openmobilealliance.org/tech/affiliates/wap/wap-211-wapcert-20010522-a.pdf

[13] WAP-219-TLS, 4.11.2001: http://www.openmobilealliance.org/tech/affiliates/wap/wap-219-tls-20010411-a.pdf

[14] IETF draft-ietf-tls-rfc2246-bis-05 (2003): "The TLS Protocol Version 1.1"

[15] 3GPP TR 33.919: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Generic Authentication Architecture (GAA); System Description".

[16] 3GPP TS 24.cde: "3rd Generation Partnership Project; Technical Specification Group Core Network; Bootstrapping interface (Ub) and Network application function interface (Ua); Protocol details".

[17] IETF RFC 2818 (2000): “HTTP over TLS”.

***** End of Change ****

***** Begin of Change ****

4 Overview of the security architecture

An IMS operator using the CSCFs as Watcher Presence proxies and Presentity Presence proxies may offer the Presence services on top of the IMS network, cf. 3GPP TS 22.141 [2]. The access security for IMS is specified in 3GPP TS 33.203 [4] ensuring that SIP signalling is integrity protected and that IMS subscribers are authenticated through the use of IMS AKA. The security termination point from the UE towards the network is in the P-CSCF utilising IPsec ESP.

A watcher can ~~by~~ be sending a SIP SUBSCRIBE over IMS towards the network to subscribe ~~to~~ or to fetch presence information, i.e. the Presence Service supports SIP-based communications for publishing presence information. The presence information is provided by the Presence Server to the Watcher Application using SIP NOTIFY along the dialogue setup by SUBSCRIBE. This traffic is protected in a hop-by-hop fashion using a combination of SEGs as specified in 3GPP TS 33.210 [10] with the access security provided in 3GPP TS 33.203 [4].

The Presence Server is responsible for managing presence information on behalf of the presence entity and it resides in the presentity's home network. Furthermore the Presence Server provides with a subscription authorization policy that is used to determine which watchers are allowed to subscribe to certain presence information. Also the Presence Server shall before subscription is accepted try to verify the identity of the watcher before the watcher subscribes to presence information. Optionally, depending on the implementation, the Presence Server may authenticate an anonymous watcher depending on the Subscription Authorization Policy.

A Presence List Server is responsible of storing grouped lists of watched presentities and enable a Watcher Application to subscribe to the presence of multiple presentities using a single SIP SUBSCRIBE transaction. The Presence List Server also stores and enables management of filters in the presence list, cf. Figure 1.

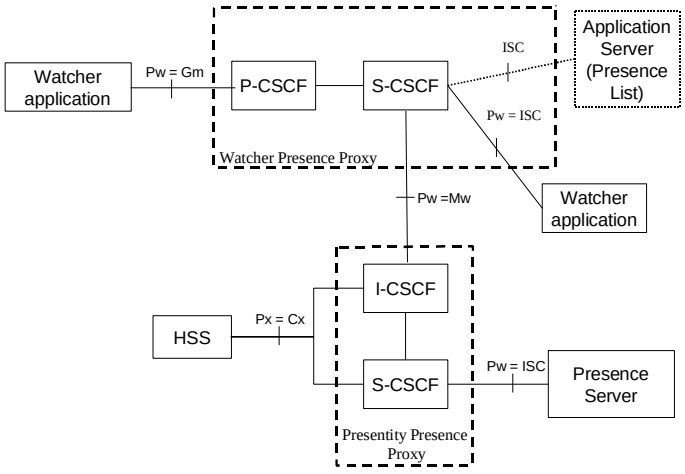


Figure 1: The Location of the Presence Server and the Presence List Server from an IMS point of view

A Presence User Agent shall be able to manage the data on the AS over the Ut interface, cf. 3GPP TS 23.002 [7], which is based on HTTP. This interface is not covered in 3GPP TS 33.203 [4] and it is mainly this interface for Presence use, which is covered in this specification. Before manipulation is allowed the user needs to be authenticated.

The Ut interface needs the following security features:

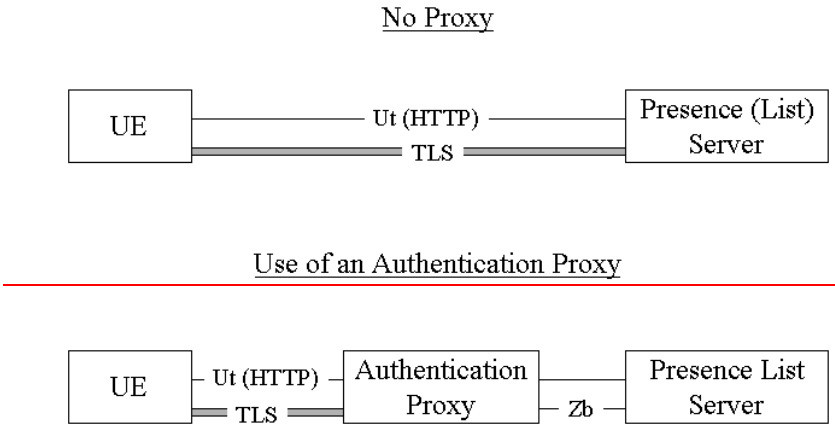
1. it shall be possible to provide with mutual authentication between the Server and the Watcher/Presentity;

2. a secure link and security association shall be established between the Server and the Watcher/Presentity. Data origin authentication shall be provided as well as confidentiality protection.

Editors Note The specification need to consider [6], [8] and [9] and make appropriate profiling of these TLS protocols and the TLS version 1.1. need to be considered also.

Editors Note: The exact details of the security architecture is FFS and dependant on decisions related with the ongoing work on GBA (Generic Bootstrapping Architecture).

An overview of the security architecture for Presence Ut Interface is depicted in figure 2:



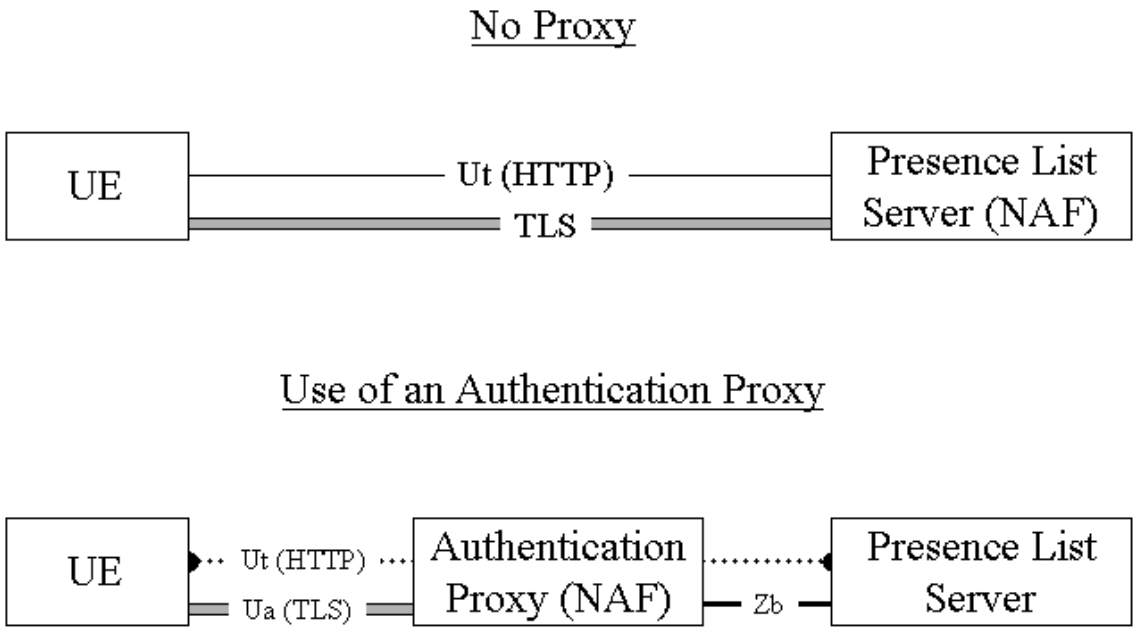


Figure 2: An overview of the Security architecture for the Ut interface including the support of an Authentication Proxy

Editors Note: The exact requirements on the Zb interface the use of NDS/IP for Presence Security are FFS.

***** End of Change ****

***** Begin of Change ****

5.1.1 Authentication of the subscriber and the network

A user shall be authenticated before accessing user data in a server. The user shall only be able to manipulate data that is associated with that particular user.

Authentication between the subscriber and the network shall be performed as specified in clause 6.1.

~~[Editors Note: An Editors note will be included in TR33.919 clarifying that an AS or an AP should decide on what parts of GAA shall be used if any. This might need to be reflected in this TS which is left FFS, cf. S3-030722].~~

In case 3GPP authentication mechanisms are used, the authentication of the subscriber shall be based on the USIM. The authentication of the subscriber and the network shall be based on Generic Authentication Architecture as defined in 3GPP TR 33.919 [15]. Generic Authentication Architecture enables the use of different authentication methods to be used for the authentication of the subcriber by using:

- subscriber certificates (e.g., TLS, cf. [6,8,9]), or
- shared secrets (e.g., TLS with HTTP Digest, cf. [17]).

The server certificate to be used for application server authentication shall be based on WAPCert [12].

~~The authentication of the subscriber shall be based on the ISIM as defined in 3GPP TS 33.203 [4]. The authentication of the subscriber shall be HTTP based.~~

~~Editors Note: It is FFS what the detailed requirements are on profiling TLS. The following requirements are FFS: *The Server is authenticated by means of asymmetric cryptography using a Server Certificate. The authentication of the Server shall be based on strong security. The use of anonymous Diffie Hellman is not allowed.*~~

NOTE: The interleaving attack shall not be possible.

~~Editors Note: The exact details on Server Certificate are FFS cf. X509v3 certificate and PKIX~~

~~Editors Note: It is FFS how the user is authenticated the methods that are FFS are:~~
~~— A Presence Subscriber may be authenticated with the use of Subscriber Certificates~~
~~— The use of TLS and Shared keys i.e. the IETF draft on Shared Key TLS~~
~~— The use of Authentication Proxy is an option~~
~~— The user can also be authenticated through the use of the BSF and the creation of a shared secret~~
~~— etc.~~

Editors Note: It is agreed that the shared key TLS draft need to be more mature in IETF before being considered for Presence. It is FFS and a decision is expected at SA3#32, cf. also S3-030721 and S3-030732.

A UE may contact the Presence Server/Presence List Server for further instructions on authentication procedures.

The consumption of Authentication Vectors should be minimized. The architecture shall ensure that SQN synchronization failures is minimized.

***** End of Change ****

***** Begin of Change ****

5.1.2 Confidentiality protection

It shall be possible to apply ~~The Ut interface shall be~~ confidentiality ~~protected~~ protection over the Ut interface using TLS ~~using~~ and with effective key size of at least 128 bits. The terminal shall in the negotiation phase include protection alternatives that include at least one alternative with encryption algorithm support. The terminal and the server shall be able to resume a previous session and to perform an abbreviated handshake.

***** End of Change ****

***** Begin of Change ****

6 Security Mechanisms

~~Editors Note: This should be a profiling of [6] and [8]~~

~~Editors Note: The clause 6 and 7 do not include much text. During the work with the security for Presence a TR was developed from which much of the content was moved to TS 33.203 Access Security for IMS Release 6. SA3 has an agreed working assumption on the use of TLS (some version of it). When the decision is taken there are no known issues available that should make it technically difficult to stabilise these clauses . The basis for this work is already outlined in S3-030749, which is approved in SA3 for inclusion in TS 33.222.~~

The UE and the AP/Server shall support the TLS version as specified in RFC 2246 [6] and WAP-219-TLS [13] or higher. Earlier versions are not allowed.

Editors Note: It is FFS if it is possible to base the Presence Security on TLSv1.1 [14], which is currently in draft status in IETF.

Note 1: The management of Root Certificates is out of scope for this Technical Specification

6.1 Authentication and key agreement

6.1.1 Authentication of the ~~user~~UE

From a TLS point of view the UE shall be considered as un-authenticated, cf. RFC 2246 [6].

The authentication of the UE may take place in either the Authentication Proxy or the Server. However the AP or the Server may given the policy of the operator conclude that the AP/Server shall not authenticate the UE using GBA i.e. the UE is considered as authenticated already or the UE is authenticated by other means.

Otherwise if the AP/Server concludes that the authentication shall take place in the AP/Server then the UE may be authenticated as specified in TS 33.220 [11] (where the Ua interface is between the UE and the AP/Server). ~~The AP/Server shall not require that the UE is authenticated through the use of UE Certificates, cf. RFC 2246 [6].~~

It shall be possible for the operator at any time to request a re-authentication of an active~~the~~ UE.

6.1.2 Authentication of the AP/Server

The AP/Server is authenticated by the Client as specified in WAP-219-TLS [13], which in turn is based on RFC 2246 [6].

The AP/Server certificate profile shall be based on WAP Certificate and CRL Profile as defined in WAP-211-WAPCert [12].

6.1.3 Authentication Failures

If the UE receives a Server Hello Message from the AP/Server that requests a Certificate then the UE shall respond with a Certificate Message containing no Certificate if it does not have a certificate. The AP/Server upon receiving this message may respond with a failure alert, however if the AP/Server shall authenticate the UE as configured by the policy of the operator the AP/Server should continue the dialogue and assume that the UE will be authenticated as specified in TS 33.220 [11].

If there is no response within a given time limit from a network initated re-authentication request an authentication failure has occurred after that the request has been attempted for a limited number of times. This failure can be due to several reasons e.g. that the UE has powered off or due to that the message was lost due to a bad radio channel. The AP/Server shall then still assume that if a TLS session is still valid that it can be re-used by the UE at a later time. Should then the UE re-use an existing session then the AP/Server shall re-authenticate the UE and not give access to the AP/Server unless the authentication was successful.

6.2 ~~Confidentiality~~ Protection mechanisms

~~Both t~~The UE ~~and the AP/Server~~ shall support the CipherSuite TLS_RSA_WITH_3DES_EDE_CBC_SHA. All other Cipher Suites as defined in RFC 2246 [6] are optional for implementation for the UE.

The AP/Server shall support the CipherSuite TLS_RSA_WITH_3DES_EDE_CBC_SHA and the CipherSuite TLS_RSA_WITH_RC4_128_SHA. All other Cipher Suites as defined in RFC 2246 [6] are optional for implementation for the AP/Server.

Editors Note: It is FFS is this specification should mandate any of the AES cipher suites as specified in RFC 3268.

Cipher Suites with NULL encryption may be used. The UE shall always include at least one cipher suite that supports encryption during the handshake phase.

Cipher Suites with NULL integrity protection (or HASH) are not allowed.

Editors Note: It is FFS what parts (if any) of the TLS extensions as specified in RFC 3546 [9] that shall be implemented in this TS

~~6.3 Integrity mechanisms~~

6.4 Key Agreement

The Key exchange method shall not be anonymous. Hence the following cipher suites as defined in RFC 2246 [6] are not allowed for protection of a session for Presence Services:

- CipherSuite TLS_DH_anon_EXPORT_WITH_RC4_40_MD5
- CipherSuite TLS_DH_anon_WITH_RC4_128_MD5
- CipherSuite TLS_DH_anon_EXPORT_WITH_DES40_CBC_SHA
- CipherSuite TLS_DH_anon_WITH_DES_CBC_SHA
- CipherSuite TLS_DH_anon_WITH_3DES_EDE_CBC_SHA

***** End of Change ****

***** Begin of Change ****

7 Security parameters agreement

7.1 Set-up of Security parameters

The TLS Handshake Protocol negotiates a session, which is identified by a Session ID. The Client and the AP/Server shall allow for resuming a session. This facilitates that a Client and Server may resume a previous session or duplicate an existing session. The lifetime of a Session ID is maximum 24 hours. The Session ID shall only be used under its lifetime and shall be considered by both the Client and the Server as obsolete when the Lifetime has expired.

7.2 Error cases

The AP/Server shall consider the following cases as a fatal error:

- If the received ciphersuites only includes all or some of the Ciphersuites in Clause 6.4
- If the received ciphersuites do not include any integrity protection
- If none of the received ciphersuites include encryption
- If the policy of the operator stipulates that encryption is required and the common set of supported ciphersuites only include key material less than 128 bits for confidentiality protection

***** End of Change ****

Technical Specification Group Services and System Aspects **TSGS#22(03)0719**

Meeting #22, Hawaii, USA, 15-18 December 2003

Presentation of Specification to TSG

Presentation to:	**TSG SA Meeting #22**
Documents for presentation:	**TR 33.141, Version 1.0.0**
Presented for:	**Information**

Abstract of document:

SA WG3 is specifying the security for Presence Services. It should be noted that in parallel with this work the GAA is also specified. In particular there is a relation to TS 33.222 Access To Network Application Functions using HTTPS. However SA3 has come to an agreement that TS33.141 has higher priority and TS33.222 is more generic and hence not critical for Release 6. To avoid duplicate work in release 6, the HTTPS TS shall reference the Presence TS when appropriate. Also for future releases, the two Technical Specifications could be restructured when needed.

NOTE: During the work on Presence Security a TR was developed (TR 33.941) from which a number of CRs were derived that were implemented in TS33.203 the access security TS for IMS.

Changes since last presentation to SA Meeting:

This TR has not been presented to SA plenary before.

Outstanding Issues:

There are open issues but it is the view of SA3 that all of the open issues are possible to resolve according to the Release 6 timescales.

- The exact references to the Technical Specifications of GAA are FFS
- Some 3GPP related profiling of TLS RFC is still open
- The use of Shared Key TLS is FFS however SA3 aims to based on amongst other things the progress in IETF make a decision at the SA3#32 meeting
- Clauses 6 and 7 are empty however SA3 has agreed on a working assumption to implement TLS and the material in S3-030749 is agreed as a basis for future work.

Contentious Issues:

None.

3GPP TS 33.141 V1.0.0 (2003-12)

Technical Specification

3rd Generation Partnership Project;
Technical Specification Group Services and System Aspects;
Presence Service;
Security
(Release 6)

Keywords
Security, Presence

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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

This technical specification defines the security architecture and requirements for the presence services. Presence services enable the spreading of presence information of a user to users or services. A presence entity or presentity comprises the user, users devices, services and services components. It is the intention that this platform will enable new services like e.g. enhancement to chat, multimedia messaging, cinema ticket information, the score of a football game and so on.

A user has the possibility to control if her or his information shall be available to other users or services. This control is possible to achieve with high granularity e.g. explicitly define which user or users and services that shall have access to presence information.

A presentity is an uniquely identifiable entity with the capability to provide with presence information and it has only one principal associated with it. Hence a principal is distinct from all other principals and can be e.g. a human, organisation, program or even a collection thereof. One example of such a relation is when the presentity is a terminal and the principal of the terminal is the subscriber. A watcher is also an uniquely identifiable entity but with the aim to fetch or request information about a presentity. There are access rules that set the rules for the presence service how presence information gets available to watchers.

Presence information consists of a number of elements or presence tuples as defined in 3GPP TS 23.141 [3].

1 Scope

The present document describes the Stage 2 security requirements for the Presence Service, which includes the elements necessary to realise the requirements in 3GPP TS 22.141 [2] and 3GPP TS 23.141 [3].

The present document includes information applicable to network operators, service providers and manufacturers.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TR 21.905: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications".

[2] 3GPP TS 22.141: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Presence Service; Stage 1".

[3] 3GPP TS 23.141: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Presence Service; Architecture and functional description".

[4] 3GPP TS 33.203: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3G Security; Access security for IP-based services".

[5] 3GPP TS 23.228: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; IP Multimedia Subsystem (IMS); Stage 2".

[6] IETF RFC 2246 (1999): "The TLS Protocol Version 1".

[7] 3GPP TS 23.002: "3rd Generation Partnership Project; Technical Specification Group Services and Systems Aspects; Network architecture".

[8] IETF RFC 3268 (2002): "Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)".

[9] IETF RFC 3546 (2003): "Transport Layer Security (TLS) Extensions".

[10] 3GPP TS 33.210: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3G Security; Network Domain Security; IP network layer security".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

Confidentiality: The property that information is not made available or disclosed to unauthorised individuals, entities or processes.

Data integrity: The property that data has not been altered in an unauthorised manner.

Data origin authentication: The corroboration that the source of data received is as claimed.

Entity authentication: The provision of assurance of the claimed identity of an entity.

Key freshness: A key is fresh if it can be guaranteed to be new, as opposed to an old key being reused through actions of either an adversary or authorised party.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply, 3GPP TR 21.905 [1] contains additional applicable abbreviations:

AKA	Authentication and key agreement
CSCF	Call Session Control Function
HSS	Home Subscriber Server
IM	IP Multimedia
IMPI	IM Private Identity
IMPU	IM Public Identity
IMS	IP Multimedia Core Network Subsystem
ISIM	IM Services Identity Module
MAC	Message Authentication Code
ME	Mobile Equipment
SA	Security Association
SEG	Security Gateway
SDP	Session Description Protocol
SIP	Session Initiation Protocol
UA	User Agent

4 Overview of the security architecture

An IMS operator using the CSCFs as Watcher Presence proxies and Presentity Presence proxies may offer the Presence services on top of the IMS network, cf. 3GPP TS 22.141 [2]. The access security for IMS is specified in 3GPP TS 33.203 [4] ensuring that SIP signalling is integrity protected and that IMS subscribers are authenticated through the use of IMS AKA. The security termination point from the UE towards the network is in the P-CSCF utilising IPsec ESP.

A watcher can by sending a SIP SUBSCRIBE over IMS towards the network subscribe to or fetch presence information i.e. the Presence Service supports SIP-based communications for publishing presence information. The presence information is provided by the Presence Server to the Watcher Application using SIP NOTIFY along the dialogue setup by SUBSCRIBE. This traffic is protected in a hop-by-hop fashion using a combination of SEGs as specified in 3GPP TS 33.210 [10] with the access security provided in 3GPP TS 33.203 [4].

The Presence Server is responsible for managing presence information on behalf of the presence entity and it resides in the presentity's home network. Furthermore the Presence Server provides with a subscription authorization policy that is used to determine which watchers are allowed to subscribe to certain presence information. Also the Presence Server shall before subscription is accepted try to verify the identity of the watcher before the watcher subscribes to presence information. Optionally, depending on the implementation, the Presence Server may authenticate an anonymous watcher depending on the Subscription Authorization Policy.

A Presence List Server is responsible of storing grouped lists of watched presentities and enable a Watcher Application to subscribe to the presence of multiple presentities using a single SIP SUBSCRIBE transaction. The Presence List Server also stores and enables management of filters in the presence list, cf. Figure 1.

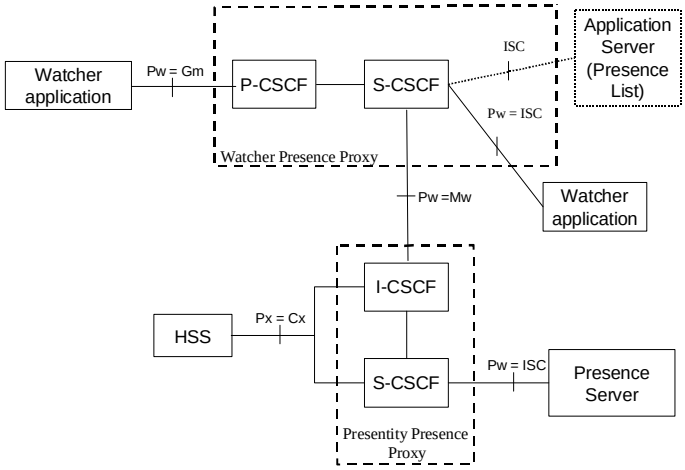

Figure 1: The Location of the Presence Server and the Presence List Server from an IMS point of view

A Presence User Agent shall be able to manage the data on the AS over the Ut interface, cf. 3GPP TS 23.002 [7], which is based on HTTP. This interface is not covered in 3GPP TS 33.203 [4] and it is mainly this interface for Presence use, which is covered in this specification. Before manipulation is allowed the user needs to be authenticated.

The Ut interface needs the following security features:

1. it shall be possible to provide with mutual authentication between the Server and the Watcher/Presentity;
2. a secure link and security association shall be established between the Server and the Watcher/Presentity. Data origin authentication shall be provided as well as confidentiality protection.

Editors Note The specification need to consider [6], [8] and [9] and make appropriate profiling of these TLS protocols and the TLS version 1.1. need to be considered also.

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An overview of the security architecture for Presence Ut Interface is depicted in figure 2:

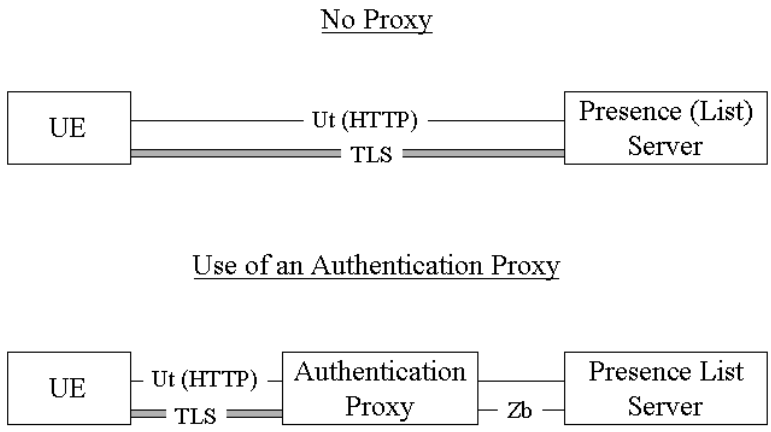

Figure 2: An overview of the Security architecture for the Ut interface including the support of an Authentication Proxy

5 Security features

5.1 Secure Access to the Presence Server/Presence List Server

5.1.1 Authentication of the subscriber and the network

A user shall be authenticated before accessing user data in a server. The user shall only be able to manipulate data that is associated with that particular user.

Authentication between the subscriber and the network shall be performed as specified in clause 6.1.

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The authentication of the subscriber shall be based on the ISIM as defined in 3GPP TS 33.203 [4]. The authentication of the subscriber shall be HTTP based.

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- A Presence Subscriber may be authenticated with the use of Subscriber Certificates
- The use of TLS and Shared keys i.e. the IETF draft on Shared Key TLS
- The use of Authentication Proxy is an option
- The user can also be authenticated through the use of the BSF and the creation of a shared secret
- etc.

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A UE may contact the Presence Server/Presence List Server for further instructions on authentication procedures.

The consumption of Authentication Vectors should be minimized. The architecture shall ensure that SQN synchronization failures is minimized.

5.1.2 Confidentiality protection

The Ut interface shall be confidentiality protected using TLS using effective key size of at least 128 bits. The terminal and the server shall be able to resume a previous session and to perform an abbreviated handshake.

5.1.3 Integrity protection

The Ut interface shall be integrity protected. The terminal and the server shall be able to resume a previous session and to perform an abbreviated handshake.

5.1.4 Authentication Proxy

The authentication proxy may reside between the UE and the Presence Server/Presence List Server as depicted in Figure 2. The usefulness of an Authentication Proxy may be to reduce the consumption of authentication vectors and/or to minimize SQN synchronization failures.

The following requirements apply for the use of an Authentication Proxy:

- Authentication proxy shall be able to authenticate the UE using the means of Generic Bootstrapping Architecture.
- Authentication proxy shall send the authenticated identity of the UE to the application server belonging to the trust domain at the beginning of new HTTP session.
- Authentication proxy may not reveal the authenticated identity of the UE to the application server not belonging to the trust domain if required.
- The authenticated identity management mechanism shall not prevent the application server to use an appropriate session management mechanisms with the client.
- The UE shall be able to create multiple parallel HTTP sessions via the authentication proxy towards different application servers.
- Activation of transfer of asserted user identity shall be configurable in the Authentication Proxy on a per AS base.
- Implementation of check of asserted user identity in the AS is optional.

NOTE 1: The used session management mechanism is out of the scope of 3GPP specifications.

The use of an authentication proxy should be such that there is no need to manage the authentication proxy configuration in the UE.

NOTE 2: This requirement implies that the authentication proxy should be a reverse proxy in the following sense: A reverse proxy is a web server system that is capable of serving web pages sourced from other web servers - in addition to web pages on disk or generated dynamically by CGI - making these pages look like they originated at the reverse proxy

[Editors Note: The above requirement may be revisited after the following issues are fully studied:
- Feasibility of shared-key TLS
- Terminal Configurability]

6 Security Mechanisms

Editors Note: This should be a profiling of [6] and [8]

Editors Note: The clause 6 and 7 do not include much text. During the work with the security for Presence a TR was developed from which much of the content was moved to TS 33.203 Access Security for IMS Release 6. SA3 has an agreed working assumption on the use of TLS (some version of it). When the decision is taken there are no known issues available that should make it technically difficult to stabilise these clauses . The basis for this work is already outlined in S3-030749, which is approved in SA3 for inclusion in TS 33.222.

6.1 Authentication and key agreement

6.1.1 Authentication of the user

6.1.2 Authentication of the Server

6.1.3 Authentication Failures

6.2 Confidentiality mechanisms

6.3 Integrity mechanisms

7 Security parameters agreement

7.1 Set-up of Security parameters

7.2 Error cases

Annex A (informative): Technical solutions for access to application servers via Authentication Proxy and HTTPS

This annex gives some guidance on the technical solution for authentication proxies so as to help avoid misconfigurations. An authentication proxy acts as reverse proxy which serves web pages (and other content) sourced from other web servers (AS) making these pages look like they originated at the proxy.

To access different hosts with different DNS names on one server (in this case the proxy) the concept of virtual hosts was created.

One solution when running HTTPS is to associate each host name with a different IP address (IP based virtual hosts). This can be achieved by the machine having several physical network connections, or by use of virtual interfaces which are supported by most modern operating systems (frequently called "ip aliases"). This solution uses up one IP address per AS and it does not allow the notion of "one TLS tunnel from UE to AP-NAF" for all applications behind a NAF together.

If it is desired to use one IP address only or if "one TLS tunnel for all" is required, only the concept of name-based virtual hosts is applicable. Together with HTTPS, however, this creates problems, necessitating workarounds which may deviate from standard behaviour of proxies and/or browsers. Workarounds, which affect the UE and are not generally supported by browsers, may cause interoperability problems. Other workarounds may impose restrictions on the attached application servers."

Editors Note: The text in this informative annex may need to be revisited if changes in the main body of the text are made.

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
12-2003	SP-22	SP-030719	-	-	Presentation to TSG SA#22 for Information	0.3.1	1.0.0