

3GPP TSG SA WG3 Security —S3#24

S3-020444 (with rev marks)

9 - 12 July 2002

Helsinki, Finland

## Work Item Description

### Title

Network Domain Security; IP network layer security (NDS/IP) [for Release 6](#)  
(formerly known as Network Domain Security)

*This WID replaces WID "Network Domain Security" (SP-000420).*

*Togheter with WID "Network Domain Security; MAP application layer security" (S3-010275) it also replaces WID "Key Management for core network security" (SP-000301).*

### 1 3GPP Work Area

X	Radio Access
X	Core Network
	Services

### 2 Linked work items

- Related work is in [N1 and N4 to specify the solutions developed by S3-RAN and GERAN work groups \(yet to be indentified\)](#)

### 3 Justification

There is a clear need to protect the IP based core network protocols for the control plane to protect the system against attacks.

[There may be a need to protect IP based control plane protocols over lu, lur, lub, lupc and Gb. SA3 will evaluate the need for security protection of the protocols over these interface and then extend NDS/IP to cover the relevant protocols/interfaces \(if any\).](#)

### 4 Objective

The general objective is to develop security solutions for all IP based core network protocols which need protection. This notably includes GTP and control protocols used in IMS.

The security characteristics that have been identified as being in need of protection are confidentiality, integrity, and authentication. These will be ensured by standard procedures, based on cryptographic techniques.

The scope of this WI includes key management and distribution mechanisms for NDS/IP.

This work might also be extended to protection of the user plane.

[A further objective is to provide NDS/IP security protection to IP based control plane protocols over UTRAN and GERAN interfaces.](#)

~~It is foreseen that there may be a need for a network element authentication framework for later releases.~~  
[The work is based on TR 25.933: IP Transport in UTRAN.](#)

**5 Service Aspects**

None identified.

**6 MMI-Aspects**

None identified.

**7 Charging Aspects**

None identified.

**8 Security Aspects**

The work item is a security item.

**9 Impacts**

Affects:	USIM	ME	AN	CN	Others
Yes			X	X	
No	X	X	X		X
Don't know					

**10 Expected Output and Time scale (to be updated at each plenary)**

Meeting	Date	Activity
CN/S3 joint	June, 2000	Presentation by S2 of R'00 architecture

meeting		
CN	July-August, 2000	Specification of the protocol stacks of the core network interfaces
S3	Autumn, 2000	Requirements capture GTP signalling security Feasibility study of GTP signalling security, including definition of work tasks and completion of plan
S3#14	August, 2000	Start feature specification of GTP signalling security
S3#15	September, 2000	Start feature specification of GTP signalling security
S3#16	November, 2000	Feasibility study, including definition of work tasks and completion of plan. Establishment of principles for NDS/IP architecture.
<a href="#">SA3#24</a>	<a href="#">July 2002</a>	<a href="#">NDS/IP Release6 WID defined</a>
<a href="#">SA#17</a>	<a href="#">September 2002</a>	<a href="#">WID approval</a>
<a href="#">SA3#25</a>	<a href="#">October 2002</a>	<a href="#">Requirement analysis of UTRAN/GERAN protocols and interfaces in need of security protection. LS to relevant RAN/GERAN groups.</a>
<a href="#">SA3#26</a>	<a href="#">November 2002</a>	<a href="#">Evaluation of the scope for NDS/IP in UTRAN and GERAN</a>
<a href="#">SA3#27</a>	<a href="#">TBD, 2003</a>	<a href="#">CR to TS33210 agreed by SA3</a>
<a href="#">SA#19</a>	<a href="#">March 2003</a>	<a href="#">CR to 33.210 presented SA plenary.</a> <a href="#">If approved, the CR will create a Release6 version of TS 33.210 NDS/IP</a>

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
<b>33.xxx</b>	<b>NDS/IP</b>	<b>SA3</b>				
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	
<b>33.210</b>		<b>NDS/IP</b>		<b>19</b>	<b>Release6</b>	

## 11 Work item rapporteurs

Geir M. Køien, Telenor  
[Geir-myrdahl.koien@telenor.com](mailto:Geir-myrdahl.koien@telenor.com)  
 Tel +47 9075 2914  
 Fax +47 3704 5284

## 12 Work item leadership

TSG SA WG3

**13 Supporting Companies**

T-Mobil, Vodafone, Ericsson, Telenor, Nokia, Siemens, Motorola, AT&T Wireless, Lucent

**14 Classification of the WI (if known)**

X	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

**14b The WI is a Building Block:**

9 - 12 July 2002

Helsinki, Finland

---

## Work Item Description

### **Title**

**Network Domain Security; IP network layer security (NDS/IP) for Release 6**

#### **1 3GPP Work Area**

X	Radio Access
X	Core Network
	Services

#### **2 Linked work items**

- Related work is in RAN and GERAN work groups (yet to be indentified)

#### **3 Justification**

There is a clear need to protect the IP based core network protocols for the control plane to protect the system against attacks.

There may be a need to protect IP based control plane protocols over Iu, Iur, Iub, Iupc and Gb. SA3 will evaluate the need for security protection of the protocols over these interface and then extend NDS/IP to cover the relevant protocols/interfaces (if any).

#### **4 Objective**

The general objective is to develop security solutions for all IP based core network protocols which need protection. This notably includes GTP and control protocols used in IMS.

The security characteristics that have been identified as being in need of protection are confidentiality, integrity and authentication. These will be ensured by standard procedures based on cryptographic techniques.

The scope of this WI includes key management and distribution mechanisms for NDS/IP.

This work might also be extended to protection of the user plane.

A further objective is to provide NDS/IP security protection to IP based control plane protocols over UTRAN and GERAN interfaces.

The work is based on TR 25.933: IP Transport in UTRAN.

**5 Service Aspects**

None identified.

**6 MMI-Aspects**

None identified.

**7 Charging Aspects**

None identified.

**8 Security Aspects**

The work item is a security item.

**9 Impacts**

<b>Affects:</b>	<b>USIM</b>	<b>ME</b>	<b>AN</b>	<b>CN</b>	<b>Others</b>
<b>Yes</b>			X	X	
<b>No</b>	X	X			X
<b>Don't know</b>					

**10 Expected Output and Time scale (to be updated at each plenary)**

<b>Meeting</b>	<b>Date</b>	<b>Activity</b>
SA3#24	July 2002	NDS/IP Release6 WID defined
SA#17	September 2002	WID approval
SA3#25	October 2002	Requirement analysis of UTRAN/GERAN protocols and interfaces in need of security protection. LS to relevant RAN/GERAN groups.
SA3#26	November 2002	Evaluation of the scope for NDS/IP in UTRAN and GERAN
SA3#27	TBD, 2003	CR to TS33210 agreed by SA3
SA#19	March 2003	CR to 33.210 presented SA plenary. If approved, the CR will create a Release6 version of TS 33.210 NDS/IP

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#	Comments	
33.210		NDS/IP		19	Release6	

**11 Work item raporteurs**

Geir M. Køien, Telenor  
[Geir-myrdahl.koien@telenor.com](mailto:Geir-myrdahl.koien@telenor.com)  
 Tel +47 9075 2914

**12 Work item leadership**

TSG SA WG3

**13 Supporting Companies**

T-Mobil, Vodafone, Ericsson, Telenor, Nokia, Siemens, Motorola, AT&T Wireless, Lucent

**14 Classification of the WI (if known)**

X	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

**14b The WI is a Building Block:**