

ISO/IEC JTC 1 N9783

2009-09-19

Replaces:

ISO/IEC JTC 1 Information Technology

Document Type: other (defined)

Document Title: SGSN Convenor's presentation at the 2009 JTC 1 Plenary meeting

Document Source: SGSN Secretariat

Project Number:

Document Status: This document is forwarded to JTC 1 National Bodies for review and consideration at the October 2009 JTC 1 Plenary meeting in Tel Aviv.

Action ID: ACT

Due Date:

No. of Pages: 21

ISO/IEC JTC 1
Study Group on Sensor Networks

Document Number:	SGSN N155
Date:	2009-09-10
Replace:	
Document Type:	Other Document (Open)
Document Title:	SGSN Convenor's presentation at the 2009 JTC 1 Plenary meeting
Document Source:	SGSN Convenor
Document Status:	It will be presented by the SGSN Convenor at the 2009 JTC 1 Plenary meeting.
Action ID:	FYI
Due Date;	
No. of Pages:	20

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ISO/IEC JTC 1 SGSN

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2009 JTC 1 Plenary



Outline

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- Summary of Activities
- Replying to JTC 1 Nara Resolution 31 on Middleware and Privacy
- Study on ToR
- SGSN Recommendation
- Future Meetings in 2010



Introduction

- Established at the 22nd ISO/IEC JTC 1 Plenary meeting in 2007 in Gold Coast, Australia.
- Re-confirmed at the 23rd ISO/IEC JTC 1 Plenary meeting, 15th November 2008 in Nara, Japan.



Summary of Activities

(Since the 2008 JTC 1 Plenary)

- SGSN Technical Document Ver.3 (TD) answering the ToR of SGSN
- Two physical meetings
 - 19-23 January 2009 in Sydney, Australia
 - 29 June – 3 July 2009 in Oslo, Norway
- Sensor Network Workshop
 - 15-17 April 2009 in Seoul, Korea.



Replying to JTC 1 Nara Resolution 31 on Middleware and Privacy - I

■ Middleware

- Submitted SGSN report on Middleware to JTC 1 (SGSN N151)
- Defined the middleware for Sensor Networks, analyzed existing middleware systems, and developed a functional model and standardization areas for middleware.
- Relevant SCs with middleware are JTC 1/SC 6, SC 25, SC 29, SC 32 and SC 36.



Replying to JTC 1 Nara Resolution 31 on Middleware and Privacy - II

■ Privacy

- Submitted SGSN report on Privacy to JTC 1 (SGSN N152)
- There are a number of security related ISO Standards (including the ISO 2700X series) which may assist in the achievement of privacy, and guidance is needed for sensor networks.
- Relevant SCs with privacy are JTC 1/SC6, SC17, SC24, SC27, SC29, SC36 and SC37.



SGSN ToR - I

- 1) Review the current definitions and visions and requirements for target applications of Sensor Networks within JTC 1 and outside JTC 1 in connection with different application areas (e.g. home, medical informatics, transport informatics, industrial communications, RFID etc) as well as JTC 1 SCs roles in these application areas



SGSN ToR - II

2) Review and identify

- the unique characteristics of Sensor Networks and the commonalities and differences with other networks
- the system architectures of Sensor Networks in terms of functionalities
- the entities that together comprise Sensor Networks and their characteristics
- existing protocols that can be used for Sensor Networks and the elements of protocols that are unique to Sensor Networks
- the scope of infrastructure that can be considered to be a Sensor Network
- the types of data that need to be handled (acquired, processed, transported, stored, rendered etc) by Sensor Networks and any specific QoS attributes required by those categories
- the interfaces that need to be supported by Sensor Networks
- the services that need to be supported by Sensor Networks
- aspects such as security, privacy, identification that may be relevant to specific Sensor Networks



SGSN ToR - III

- 3) Monitor other activities in international standardisation bodies and consortia and fora where specifications related to Sensor Networks are being developed.
- 4) Produce a report covering 1) and 2) above and information on other relevant standardization Activities
- 5) In the light of published SC scopes and work programmes and the results of 1) to 3) recommend potential areas of work to JTC1 and appropriate SCs and establishment of appropriate liaison relationships to ensure that all necessary aspects of Sensor Networks within the scope of JTC1 are standardized
- 6) Recommend how the work on Sensor Networks can be efficiently coordinated in JTC1.
- 7) The SGSN may hold workshops to gather requirements or publicise the results
- 8) Meetings of the group may be physical or via electronic means



Study on ToR

ToR #	Corresponding Chapter and Section of Technical Document Version 3
1	Chapters 2, 4, Section 8.2, and Annex A
2	Chapters 3, 5, 6, Section 7.5.2, 7.11, 7.13 and Annex E
3	Section 8.1 and Annex C, D
4	The report is produced, which is this SGSN Technical Document (Version 3)
5	Chapter 7 (for potential work areas); Section 8.2 (for appropriate SCs); and Section 8.3 (for potential collaboration with non-ISO organizations)
6	Section 8.4
7	Sensor Network Workshop was held on 15-17 April 2009 in Seoul, Korea
8	Two physical meetings were held: 3 rd meeting in January 2009, Sydney, Australia and 4 th meeting in June 2009, Oslo, Norway.



Study on ToR 1

- 90 Sensor Networks applications from 21 Market segments were identified. (Chapter 4 of TD)
- Among them, 12 target applications of Sensor Networks within JTC 1 and outside JTC 1 including smart grid system, health care system, ITS, and security were studied for their motivations (including definitions and visions), solution approaches and requirements. (Annex A)
- Generic vision and mission statement were developed (Chapter 2).
- JTC 1 SCs role were studied for each standardization area on sensor networks applications (Section 8.2).



Study on ToR 2

- Unique characteristics of Sensor Networks were analyzed and generic and generalized requirements of Sensor Networks based on the 12 target applications were defined (Chapter 5).
- Reference architecture of Sensor Networks in terms of functionalities and the entities comprising Sensor Networks were studied and defined (Chapter 6)
- Existing protocols that can be used for Sensor Networks were studied (Annex E).
- Scope and generic interfaces for Sensor Networks standardization were studied (Chapter 3).
- Types of data that need to be handled by Sensor Networks were studied. (Section 7.5.2).
- Data delivery model and taxonomy analysis of QoS in Sensor Networks were studied (Section 7.11).
- Services that need to be supported by Sensor Networks were studied for basic function layer, service layer, application layer, and for device management entity (Section 6.2.2).
- Security and privacy relevant to Sensor Networks were intensively studied (Section 7.13).



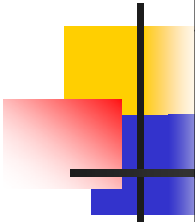
Study on ToR 3

- Sensor Networks related activities within JTC 1 and outside of JTC 1 were studied (Section 8.1, Annex C and D).
- The following SDOs, consortia and fora outside of JTC 1 were studied for their specification activities related to Sensor Networks.
 - ISO (TC 22, TC 184/SC5, TC 204, TC 205)
 - IEC (TC 17, TC 22, TC 57, TC 65)
 - ITU-T (SG13, 16, 17)
 - IEEE (802.15, 1451, 1588)
 - ISA 100 / ISA 100.11
 - ZigBee Alliance
 - IETF (6LOWPAN WG, ROLL WG)
 - OGC (SWE)



Study on ToR 5

Standardization Areas	ISO/IEC JTC 1 SCs
Terminology	JTC 1 (all SCs)
Requirements Analysis	SC 6, SC 17, SC 25, SC 32, SC 36, SC 37
Reference Architecture	SC 6
Application Profiles	SC 25, SC 31, SC 32, SC 36, SC 37
Sensor Interfaces	SC 6, [SC 25), SC 31, SC 37
Data type and Data Format	SC 6, SC 22, SC, 24, SC 25, SC 32, SC 36, SC 37
Communications	SC 6, [SC 25]
Mobility Support	SC 6, [SC 25]



Network Management	SC 6, [SC 25]
Collaborative Information Processing	SC 32, SC 37
Information Service Supporting	SC 6 , SC 24, [SC 25], SC 29, SC 31, SC 32
Quality of Service (QoS)	SC 6, [SC 25]
Middleware	SC 6, SC 25, SC 29, SC 32, SC 36
Security & Privacy	SC 6 , SC 17, [SC 25], SC 27, SC 29, SC 32, SC 36, SC 37
Conformance, Interoperability, Performance Testing	None Known [SC 25]

Note: Items allocated to SC 25 in bracket were proposed by SC 25 Secretariat at the SGSN Oslo meeting; however, they were not agreed during the SGSN Oslo meeting.



Study on ToR 6 - I

- SGSN was established in order to coordinate the SN standardization activities with JTC 1 SCs and SDOs outside JTC 1.
- SGSN has identified standardization areas for sensor networks and allocated each area to adequate SCs in JTC 1.
- SGSN also monitored activities in other SDOs, consortia and fora for collaboration.
- Necessity of permanent entity in JTC 1 for more efficient coordination was issued in SGSN.



Study on ToR 6 - II

The following 5 options were discussed by SGSN members:

1. No new organizations, but let an existing SC or WG
2. A new WG under an existing SC
3. A new SC
4. A new Special Working Group (SWG) directly under JTC 1
5. A new WG directly under JTC 1

This option could be accomplished by transforming SGSN to a Working Group on Sensor Networks (WGSN). WGSN is to coordinate the SN standardization activities with JTC 1 SCs and SDOs outside JTC 1 and to develop standards within the SN need areas that no SC has the work scope.



SGSN Recommendation

- SGSN recommends to JTC 1, subject to approval of appropriate work items, a working group directly under JTC 1.



Future meetings in 2010

- Date/location of next SGSN meetings
(Subject to the 2009 JTC 1 Plenary resolutions)
 - 8-12 March 2010 (London, UK)
 - 23-27 August 2010 (US) *(tentative)*