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**Connection-Oriented Support for the  
SS7 SCCP User Adaptation Layer  
(SUA-CO)**

**<draft-bidulock-sigtran-suaco-00.ps>**

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**Abstract**

This Internet-Draft describes parameters and procedures in extension to the SS7 SCCP User Adaptation Layer [SUA09] that permits seamless Connection-Oriented operation with Network Service Users not possible in the existing protocol.

**1. Introduction**

SCCP [Q.711], and the OSI Network Services Definition [X.213] upon which SCCP is based, provides primitives at the SCCP to SCCP-User boundary. Although SUA [SUA09] claims seamless operation with SCCP and SCCP-Users, SUA does not provide the following:

- Mapping of the Connection-Oriented SCCP/SCCP-User primitive interface to SUA messages.
- Procedures for local management (binding, listening and accepting) of SCCP connections.
- Procedures for operation in multiple SG as STP configurations.
- Procedures for operation without coupling at the SG.
- Procedures for GTT support at the ASP/IPSP.

This document provides for these capabilities allowing seamless interworking between the SS7 and IP networks with SUA-CO.

**1.1. Scope**

**1.2. Terminology**

The terminology of SUA [SUA09] also applies in this document. This document provides additional terminology as follows:

### 1.3. Overview

### 1.4. Functional Areas

#### 1.4.1. Definition of the SCCP-User Boundary

##### 1.4.1.1. Mapping of SCCP Primitives

*Table 1. Mapping of SCCP Primitives*

Mode	Primitive	Name	SUA Msg
Connection-Less	N-UNITDATA	Request Indication	CLDT
	N-NOTICE	Indication	CLDR
Connection Oriented	N-CONNECT	Request Indication	CORE
		Response Confirmation	COAK
	N-DATA	Request Indication	CODT
	N-EXDATA	Request Indication	
	N-RESET	Request Indication	RESRE
		Response Confirmation	RESCO
	N-DISCONNECT	Request Indication	COREF RELRE
	N-INFORM	Indication	COERR
Management	N-STATE	Indication	SSNM
	N-PCSTATE	Indication	

### 1.5. Sample Configurations

### 2. Conventions

### 3. Protocol Elements

#### 3.1. Messages

##### 3.1.1. Connectionless (CL) Messages

###### 3.1.1.1. Connectionless Data Transfer (CLDT)

###### 3.1.1.2. Connectionless Data Response (CLDR)

##### 3.1.2. Connection-Oriented (CO) Messages

###### 3.1.2.1. Connection Request(CORE)

Table 2. Mapping of N-CONNECT Request Parameters

N-CONNECT Request		CORE ASP->SG	
Parameter		Parameter	
Called Address	M	Destination Address	M
Calling Address	U*1	Source Address	O
Expedited Data Selection	U	Protocol Class	M
Quality of Service	M	Protocol Class	M
		Sequence Control	M
		Sequence Number	O
		SS7 Hop Count	O
		Message Priority	O
		Credit	O
User Data	U	Data	O
Importance	O	Importance	O
Connection Identification	U	Routing Context	M
		Source Reference Number	M

Table 3. Mapping of N-CONNECT Indication Parameters

N-CONNECT Indication		CORE SG->ASP	
Parameter		Parameter	
Called Address	M	Destination Address	M
Calling Address	C*1	Source Address	O
Quality of Service	M	Protocol Class	M
		Message Priority	O
		Sequence Control	M
		SS7 Hop Count	O
		Credit	O
User Data	C(=)*2	Data	O
Importance	U	Importance	O
Connection Identification	O	Routing Context	M
		Source Reference Number	M
–	–	Sequence Number	O

### 3.1.2.2. Connection Acknowledge (COAK)

Table 4. Mapping of N-CONNECT Response Parameters

N-CONNECT Response Parameter		CORE SG->ASP Parameter	
Called Address	–	Destination Address	O
Calling Address	–	–	–
Resonding Address	U *1	Source Address	–
Expedited Data Selection	U	Protocol Class	M
Quality of Service	M	Protocol Class	M
		Message Priority	O
		Sequence Control	M
		SS7 Hop Count	O
		Credit	O
User Data	U	Data	O
Connection Identification	O	Routing Context	M
		Source Reference Number	M
		Destination Reference Number	M
Importance	O	Importance	O

Note 1: The parameter is associated with the SCCP service access point at which this primitive is issued if the responding address is absent.

Table 5. Mapping of N-CONNECT Confirm Parameters

N-CONNECT Confirm Parameter		CORE SG->ASP Parameter	
Called Address	–	Destination Address	O
Calling Address	–	–	O
Resonding Address	C *1	Source Address	–
Expedited Data Selection	–	–	–
Quality of Service	M(=)	Protocol Class	M
		Message Priority	O
		Sequence Control	M
		SS7 Hop Count	O
		Credit	O
User Data	C(=) *2	Data	O
Connection Identification	O	Routing Context	M
		Source Reference Number	M
		Destination Reference Number	M
Importance	O	Importance	O

Note 1: The parameter is associated with the SCCP service access point at which this primitive is issued if the responding address is absent.

Note 2: If present in the received SCCP message.

- 3.1.2.3. Connection Refused (COREF)
- 3.1.2.4. Release Request (RELRE)
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## R. References

- [SUA09] Loughney, J., Sidebottom, G., Mousseau, G., Lorusso, S., Coene, L., Verwimp, G., Keller, J., Gonzalez, F. E., Sully, W., Furniss, S. and Bidulock, B., "SS7 SCCP-User Adaptation Layer (SUA)," <draft-ietf-sigtran-sua-09.txt>, Internet Engineering Task Force - Signalling Transport Working Group (June 2001). *Work In Progress*.
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- [X.213] ITU, "OSI – Network Service Definition," **ITU-T Recommendation X.213 (ISO/IEC 8072)**, ITU-T Telecommunication Standardization Sector of ITU, Geneva (November, 1995). (*Previously "CCITT Recommendation"*)

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