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Open Service Access (OSA);
Application Programming Interface (API);
Part 1: Overview
(Parlay 5)

ETSI

Reference

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN), and is now submitted for the ETSI standards Membership Approval Procedure.

The present document is part 1 of a multi-part deliverable covering Open Service Access (OSA); Application Programming Interface (API), as identified below. The API specification (ES 203 915) is structured in the following parts:

Part 1: **"Overview";**

Part 2: "Common Data Definitions";

Part 3: "Framework";

Part 4: "Call Control";

Part 5: "User Interaction SCF";

Part 6: "Mobility SCF";

Part 7: "Terminal Capabilities SCF";

Part 8: "Data Session Control SCF";

Part 9: "Generic Messaging SCF";

Part 10: "Connectivity Manager SCF";

Part 11: "Account Management SCF";

Part 12: "Charging SCF";

Part 13: "Policy Management SCF";

Part 14: "Presence and Availability Management SCF";

Part 15: "Multi-Media Messaging SCF".

The present document has been defined jointly between ETSI, The Parlay Group (http://www.parlay.org) and the 3GPP, in co-operation with a number of JAIN™ Community (http://www.java.sun.com/products/jain) member companies.

The present document forms part of the Parlay 5.2 set of specifications.

The present document is equivalent to 3GPP TS 29.198-1 V6.5.0 (Release 6).

1   Scope

The present document is part 1 of the Stage 3 specification for an Application Programming Interface for Open Service Access (OSA), and provides an overview of the content and structure of the various parts of the present document, and of the relation to other standards documents.

The OSA specifications define an architecture that enables service application developers to make use of network functionality through an open standardized interface, i.e. the OSA APIs.

2   References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

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2.1   Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1]   ETSI TR 121 905: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Vocabulary for 3GPP Specifications (3GPP TR 21.905)".

[2]   ETSI TS 122 024: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Description of Charge Advice Information (CAI) (3GPP TS 22.024)".

[3]   ITU-T Recommendation Q.850: "Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part".

[4]   ITU-T Recommendation Q.2931: "Digital Subscriber Signalling System No. 2 - User-Network Interface (UNI) layer 3 specification for basic call/connection control".

[5]   ETSI TS 122 101: "Universal Mobile Telecommunications System (UMTS); Service aspects; Service principles (3GPP TS 22.101)".

[6]   World Wide Web Consortium: "Composite Capability/Preference Profiles (CC/PP): A user side framework for content negotiation". (http://www.w3.org/TR/NOTE-CCPP/).

[7]   ETSI TS 129 002: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile Application Part (MAP) specification (3GPP TS 29.002)".

[8]   ETSI TS 129 078: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); customized Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification (3GPP TS 29.078)".

[9]   Wireless Application Protocol (WAP), Version 2.0: "User Agent Profiling Specification" (WAP-248). (http://www.wapforum.org/what/technical.htm).

[10]   ETSI TS 122 002: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.002)".

[11]   ETSI TS 122 003: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Circuit Teleservices supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.003)".

[12]   ETSI TS 124 002: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); GSM-UMTS Public Land Mobile Network (PLMN) Access Reference Configuration (3GPP TS 24.002)".

[13]   ITU-T Recommendation Q.763: "Signalling System No. 7 - ISDN User Part formats and codes".

[14]   ITU-T Recommendation Q.931: "ISDN user-network interface layer 3 specification for basic call control".

[15]   ISO 8601: "Data elements and interchange formats - Information interchange - Representation of dates and times".

[16]   ISO 4217: "Codes for the representation of currencies and funds".

[17]   ISO 639: "Code for the representation of names of languages".

[18]   IETF RFC 822: "Standard for the format of ARPA Internet text messages".

[19]   IETF RFC 1738: "Uniform Resource Locators (URL)".

[20]   ETSI TS 129 198 (V3.4.0): "Universal Mobile Telecommunications System (UMTS); Open Service Architecture (OSA) Application Programming Interface (API) - Part 1 (3GPP TS 29.198 version 3.4.0 Release 1999)".

[21]   ETSI TS 129 198 (all parts): "Universal Mobile Telecommunications System (UMTS); Open Service Access (OSA) Application Programming Interface (API); (3GPP TS 29.198 Release 6)".

[22]   ETSI TS 123 107: "Universal Mobile Telecommunications System (UMTS); Quality of Service (QoS) concept and architecture" (3GPP TS 23.107)".

[23]   ETSI TS 123 271: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Functional stage 2 description of Location Services (LCS) (3GPP TS 23.271)".

[24]   ANSI T1.113: "Signalling System No. 7 (SS7) - Integrated Services Digital Network (ISDN) User Part".

[25]   IETF RFC 3261: "SIP: Session Initiation Protocol".

[26]   ITU-T Recommendation Q.932: "Digital subscriber signalling system No. 1 - Generic procedures for the control of ISDN supplementary services".

[27]   ITU-T Recommendation H.221: "Frame structure for a 64 to 1920 kbit/s channel in audiovisual teleservices".

[28]   ITU-T Recommendation H.323: "Packet-based multimedia communications systems".

[29]   IETF RFC 1994: "PPP Challenge Handshake Authentication Protocol (CHAP)".

[30]   IETF RFC 2630: "Cryptographic Message Syntax".

[31]   IETF RFC 2313: "PKCS #1: RSA Encryption Version 1.5".

[32]   IETF RFC 2459: "Internet X.509 Public Key Infrastructure Certificate and CRL Profile".

[33]   IETF RFC 2437: "PKCS #1: RSA Cryptography Specifications Version 2.0".

[34]   IETF RFC 1321: "The MD5 Message-Digest Algorithm".

[35]   IETF RFC 2404: "The Use of HMAC-SHA-1-96 within ESP and AH".

[36]   IETF RFC 2403: "The Use of HMAC-MD5-96 within ESP and AH".

[37]   ITU-T Recommendation G.722: "7 kHz audio-coding within 64 kbit/s".

[38]   ITU-T Recommendation G.711: "Pulse code modulation (PCM) of voice frequencies".

[39]   ITU-T Recommendation G.723.1: "Speech coders: Dual rate speech coder for multimedia communications transmitting at 5.3 and 6.3 kbit/s".

[40]   ITU-T Recommendation G.728: "Coding of speech at 16 kbit/s using low-delay code excited linear prediction".

[41]   ITU-T Recommendation G.729: "Coding of speech at 8 kbit/s using conjugate-structure algebraic-code-excited linear-prediction (CS-ACELP)".

[42]   ITU-T Recommendation H.261: "Video codec for audiovisual services at p x 64 kbit/s".

[43]   ITU-T Recommendation H.263: "Video coding for low bit rate communication".

[44]   ITU-T Recommendation H.262: "Information technology - Generic coding of moving pictures and associated audio information: Video".

[45]   World Geodetic System 1984 (WGS 84). (http://www.wgs84.com/files/wgsman24.pdf).

NOTE: The above link is temporarily not accessible. The following mirror site may contain the same information, but has not been verified by ETSI. http://octopus.hit.bme.hu/tkatona/mirrors/WGS84/www.wgs84.com/files/wgsman24.pdf

[46]   ITU-T Recommendation X.400: "Message handling services: Message handling system and service overview".

[47]   ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[48]   IETF RFC 2445: "Internet Calendaring and Scheduling Core Object Specification (iCalendar)".

[49]   IETF RFC 2778: "A Model for Presence and Instant Messaging".

[50]   ITU-T Recommendation Q.1238-2: "Interface Recommendation for Intelligent Network Capability Set 3: SCF - SSF interface".

[51]   IETF RFC 3460: "Policy Core Information Model (PCIM) Extensions".

[52]   3GPP2 P.S0001-B: "Wireless IP Network Standard", Version 1.0, October 2002.

[53]   3GPP2 S.R0037-0: "IP Network Architecture Model for cdma2000 Spread Spectrum Systems", Version 2.0, May 2002.

[54]   3GPP2 X.S0013: "All-IP Core Network Multimedia Domain", December 2003.

[55]   ETSI ES 201 915: "Open Service Access (OSA); Application Programming Interface (API) (Parlay 3)".

[56]   ETSI ES 202 915: "Open Service Access (OSA); Application Programming Interface (API) (Parlay 4)".

[57]   ETSI ES 203 915-2: "Open Service Access (OSA); Application Programming Interface (API); Part 2: Common Data Definitions (Parlay 5)".

[58]   IETF RFC 1737: "Functional Requirements for Uniform Resource Names".

[59]   ITU-T Recommendation T.120: "Data protocols for multimedia conferencing".

[60]   ISO/IEC 11172-2: "Information technology - Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s - Part 2: Video".

[61]   ISO/IEC 11172-3: "Information technology - Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s - Part 3: Audio".

[62]   ISO/IEC 13818-3: "Information technology - Generic coding of moving pictures and associated audio information - Part 3: Audio".

[63]   ISO/IEC 14496-2: "Information technology - Coding of audio-visual objects - Part 2: Visual".

[64]   draft-ietf-simple-message-sessions-15.txt: "The Message Session Relay Protocol".

[65]   IETF RFC 2045: "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies".

[66]   IETF RFC 2183: "Communicating Presentation Information in Internet Messages: The Content-Disposition Header Field".

[67]   CORBA 2.4.2: "The Common Object Request Broker: Architecture and Specification", February 2001. http://www.omg.org/cgi-bin/doc?formal/01-02-33.

[68]   IETF RFC 2822: "Internet Message Format".

[69]   IETF RFC 3060: "Policy Core Information Model - Version 1 Specification".

[70]   IETF RFC 2591: "Definitions of Managed Objects for Scheduling Management Operations".

[71]   DMTF CIM: "Common Information Model" http://www.dmtf.org/spec/cims.html.

[72]   IEEE 754: "IEEE Standard for Binary Floating-Point Arithmetic".

[73]   ETSI ES 203 915-4-5: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 5: Conference Call Control SCF (Parlay 5)".

[74]   ETSI ES 203 915-4-1: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 1: Call Control Common Definitions (Parlay 5)".

[75]   ETSI ES 203 915-4-2: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 2: Generic Call Control SCF (Parlay 5)".

[76]   ETSI ES 203 915-4-3: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 3: Multi-Party Call Control SCF (Parlay 5)".

[77]   IEEE Std 1003.2 (POSIX 1003.2): "IEEE Standard for Information Technology-Portable Operating System Interface (POSIX®)-Part 2: Shell and Utilities".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in TS 122 101 [5] and the following apply:

applications: services, which are designed using service capability features

gateway: synonym for Service Capability Server

NOTE: From the viewpoint of applications, a Service Capability Server can be seen as a gateway to the core network.

HE-VASP: Home Environment Value Added Service Provider

NOTE: This is a VASP that has an agreement with the Home Environment to provide services.

Home Environment (HE): responsible for overall provision of services to users

local service: service which can be exclusively provided in the current serving network by a Value Added Service Provider

OSA Interface: standardized Interface used by application to access service capability features

Personal Service Environment (PSE): contains personalized information defining how subscribed services are provided and presented towards the user

NOTE: The Personal Service Environment is defined in terms of one or more User Profiles.

Service Capabilities (SC): bearers defined by parameters, and/or mechanisms needed to realize services

NOTE: These are within networks and under network control.

Service Capability Feature (SCF): functionality offered by service capabilities that are accessible via the standardized OSA interface

Service Capability Server (SCS): Functional Entity providing OSA interfaces towards an application

service: alternative for Service Capability Feature (in ES 203 915-1)

user interface profile: contains information to present the personalized user interface within the capabilities of the terminal and serving network

user profile: label identifying a combination of one user interface profile, and one user services profile

user services profile: contains identification of subscriber services, their status and reference to service preferences

Value Added Service Provider (VASP): provides services other than basic telecommunications service for which additional charges may be incurred

Virtual Home Environment (VHE): concept for personal service environment portability across network boundaries and between terminals

3.2   Abbreviations

For the purposes of the present document, the abbreviations defined in TR 121 905 [1] and the following apply:

AoC	Advice of Charge
API	Application Programming Interface
ASP	Application Service Provider
CAMEL	Customized Application for Mobile network Enhanced Logic
CGI	Cell Global Identification
CI	Cell Identification
CIC	Carrier Identification Code
CIM	DMTF Common Information Model
CMS	Cryptographic Message Syntax
CNF	Conjunctive Normal Form
CSE	Camel Service Environment
DMTF	Distributed Management Task Force
DNF	Disjunctive Normal Form
FSM	Finite State Model
GCC	Generic Call Control
GCCS	Generic Call Control Service
GMS	Generic Messaging Service
GPS	Global Positioning System

GUIS	Generic User Interaction Service
HE	Home Environment
HE-VASP	Home Environment Value Added Service Provider
HPLMN	Home Public Land Mobile Network
IDL	Interface Description Language
IMEI	International Mobile station Equipment Identity
JSR	Java™ Specification Request
LAC	Location Area Code
LAI	Location Area Identification
LCS	LoCation Services
MAP	Mobile Application Part
MCC	Mobile Country Code
MExE	Mobile station (application) Execution Environment
MMCC	Multi-Media Call Control
MNC	Mobile Network Code
MPCC	Multi-Party Call Control
MS	Mobile Station
MSC	Mobile Switching Centre
NA-ESRD	North American Emergency Services Routing Digits
NA-ESRK	North American Emergency Services Routing Key
OSA	Open Service Access
PAM	Presence and Availability Management
PCIM	Policy Core Information Model, as defined in RFCs 3060 and 3460
PLMN	Public Land Mobile Network
PM	Policy Management
PPA	Pre-Paid Application
PSE	Personal Service Environment
QoS	Quality of Service
RMI	Java™ Remote Method Invocation
SAG	Subscription Assignment Group
SAP	Service Access Point
SC	Service Capabilities
SCF	Service Capability Feature
SCS	Service Capability Server
SIM	Subscriber Identity Module
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SOAP	Simple Object Access Protocol
SPA	Service Provider API
STD	State Transition Diagrams
UI	User Interaction
ULE	User Location Emergency
UML	Unified Modelling Language
USSD	Unstructured Supplementary Service Data
VASP	Value Added Service Provider
VHE	Virtual Home Environment
VLR	Visited Location Register
VPLMN	Visited Public Land Mobile Network
WAP	Wireless Application Protocol
WSDL	Web Services Definition Language
XML	eXtensible Markup Language

4 Open Service Access APIs

The OSA specifications define an architecture that enables service application developers to make use of network functionality through an open standardized interface, i.e. the OSA APIs. The network functionality is describes as Service Capability Features or Services (see note). The OSA Framework is a general component in support of Services (Service Capabilities) and Applications.

The OSA API is split into four types of interface classes, Service and Framework:

- Interface classes between the Applications and the Framework, that provide applications with basic mechanisms (e.g. Authentication) that enable them to make use of the service capabilities in the network.

- Interface classes between Applications and Service Capability Features (SCF), which are individual services that may be required by the client to enable the running of third party applications over the interface e.g. Messaging type service.

- Interface classes between the Framework and the Service Capability Features, that provide the mechanisms necessary for multi-vendorship.

- Interface classes between the Enterprise Operator and the Framework that provides the Enterprise Operator with basic mechanisms to allow them to administer client application accounts and to manage their service contracts and profiles.

These interfaces represent interfaces 1, 2, 3 and 4 of the figure 1. The other interfaces are not yet part of the scope of the work.
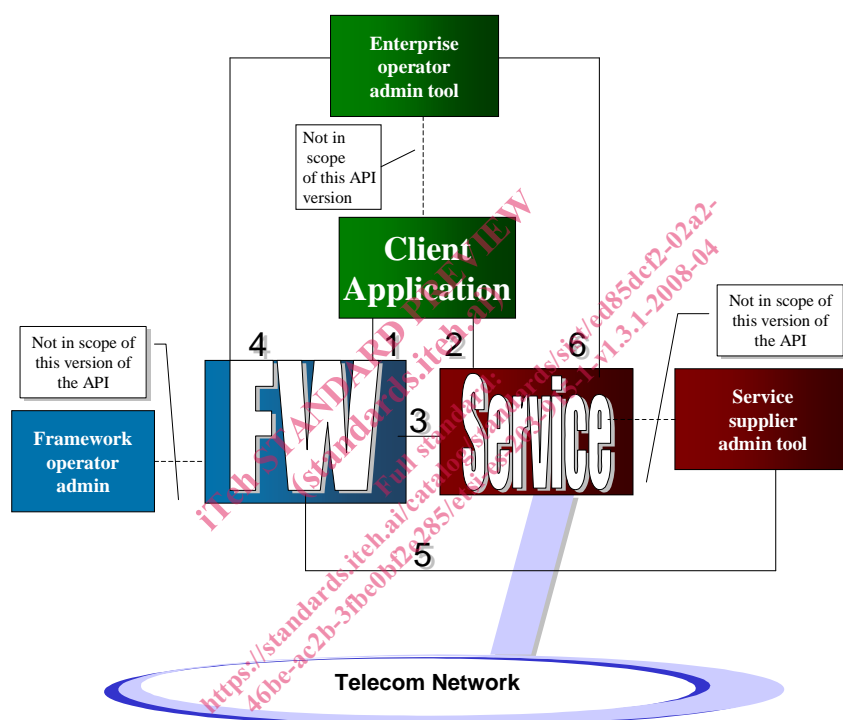

Figure 1

Within the OSA concept a set of Service Capability Features has been specified. The OSA documentation is structured in parts. The first part (the present document) contains an overview, the second part contains common Data Definitions, the third part the Framework interfaces. The rest of the parts contain the description of the SCFs.

NOTE: The terms "Service" and "Service Capability Feature" are used as alternatives for the same concept in the present document. In the OSA API itself the Service Capability Features as identified in the 3GPP requirements and architecture are reflected as 'service', in terms like service instance lifecycle manager, serviceDiscovery.

5   Document structure

The parts of the present document ES 203 915 (apart from 1 (the present document) and 2) define the interfaces, parameters and state models that form part of the API specification. UML is used to specify the interface classes. As such it provides a UML interface class description of the methods (API calls) supported by that interface and the relevant parameters and types. The interfaces are specified in IDL, WSDL (Web Services Definition Lanaguage) and in Java™.