Final draft ETSI ES 204 915-1 V1.1.1 (2008-02)

ETSI Standard

Open Service Access (OSA); Application Programming Interface (API); Part 1: Overview (Parlay 6)

Reference

DES/TISPAN-01032-1-OSA

Keywords

API, IDL, OSA, UML

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, please send your comment to one of the following services:
http://portal.etsi.org/chaircor/ETSI_support.asp

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://webapp.etsi.org/IPR/home.asp).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

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 204 915) 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"

Part 16: "Service Broker 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 6.0 set of specifications.

The present document is equivalent to 3GPP TS 29.198-1 V7.0.0 (Release 7).

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.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

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".

NOTE: Available at 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) Phase X; CAMEL Application Part (CAP) specification (3GPP TS 29.078)".

[9] Wireless Application Protocol (WAP), Version 2.0: "User Agent Profiling Specification" (WAP-248).

NOTE: Available at 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] 3GPP TS 29.198 (V3.4.0): "3rd Generation Partnership Project; Technical Specification Group Core Network; Open Service Architecture (OSA) Application Programming Interface (API) - Part 1 (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 7)".

[22] ETSI TS 123 107: "Digital cellular telecommunications system (Phase 2+); 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: "Telecommunications Signaling System No. 7 (SS7) - Integrated Services Digital Network (ISDN) User Part (ISUP)".

[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: "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 204 915-2: "Open Service Access (OSA); Application Programming Interface (API); Part 2: Common Data Definitions (Parlay 6)".

[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] IETF RFC 4975: "The Message Session Relay Protocol (MSRP)".

[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.

NOTE: Available at 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".

NOTE: Available at http://www.dmtf.org/spec/cims.html.

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

[73] ETSI ES 204 915-4-5: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 5: Conference Call Control SCF (Parlay 6)".

[74] ETSI ES 204 915-4-1: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 1: Call Control Common Definitions (Parlay 6)".

[75] ETSI ES 204 915-4-2: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 2: Generic Call Control SCF (Parlay 6)".

[76] ETSI ES 204 915-4-3: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 3: Multy-Party Call Control SCF (Parlay 6)".

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

[78] ETSI ES 204 915-5: "Open Service Access (OSA); Application Programming Interface (API); Part 5: User Interaction SCF (Parlay 6)".

[79] ETSI ES 204 915-4-4: "Open Service Access (OSA); Application Programming Interface (API); Part 4: Call Control; Sub-part 4: Multi-Media Call Control SCF (Parlay 6)".

[80] ITU-T Recommendation Q.713: "Signalling connection control part formats and codes".

[81] World Wide Web Consortium: "Speech Recognition Grammar Specification Version 1".

NOTE: Available at http://www.w3.org/TR/2004/REC-speech-grammar-20040316/.

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 the present document)

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.