

# ETSI TS 123 198 V7.3.0 (2008-01)

---

*Technical Specification*

**Universal Mobile Telecommunications System (UMTS);  
Open Service Access (OSA);  
Stage 2  
(3GPP TS 23.198 version 7.3.0 Release 7)**



**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)  
Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/22751a11-6c30-4914-92ed-71e0328e2459/etsi-ts-123-198-v7.3.0-2008-01>



## Reference

---

RTS/TSGC-0523198v730

## Keywords

---

UMTS**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/chaicor/ETSI\\_support.asp](http://portal.etsi.org/chaicor/ETSI_support.asp)

**Copyright Notification**

---

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2008.  
All rights reserved.

DECT™, PLUGTESTS™, UMTS™, TIPHON™, the TIPHON logo and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

---

## 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 Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

**ETSI STANDARD PREVIEW**  
(standards.iteh.ai)  
Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/2275-9111-6c30-4914-92ed-71e0328e2459/etsi-ts-123-198-v7.3.0-2008-01>

# Contents

Intellectual Property Rights .....	2
Foreword.....	2
Foreword.....	5
Introduction .....	5
1 Scope .....	7
2 References .....	7
3 Definitions and abbreviations.....	7
3.1 Definitions .....	7
3.2 Abbreviations .....	8
4 OSA support of VASP .....	8
5 Open Service Access .....	9
5.1 Overview of the Open Service Access .....	9
5.2 Basic mechanisms in the Open Service Access.....	13
5.3 Service Brokering.....	14
6 Framework .....	15
6.1 Trust and Security Management Functions.....	15
6.1.1 Initial Contact .....	15
6.1.2 Authentication.....	15
6.1.3 OSA Access.....	15
6.2 Discovery .....	16
6.3 Integrity Management functions.....	16
6.3.1 Load Manager.....	16
6.3.2 Fault Manager.....	16
6.3.3 Heartbeat Management .....	16
6.3.4 OAM.....	16
6.4 Registration of SCFs with the Framework.....	17
6.4.1 Service Registration.....	17
6.4.2 Service Factory .....	17
7 Service Capability Features (SCFs) .....	18
7.1 Call Control.....	18
7.1.1 Mapping of OSA APIs in CS domain .....	18
7.1.2 Mapping of OSA APIs in IMS .....	18
7.2 Data Session Control.....	20
7.3 Mobility.....	20
7.4 Terminal Capabilities .....	21
7.5 User Interaction .....	21
7.6 Charging.....	21
7.7 Account Management.....	21
7.8 Presence.....	22
7.8.1 Mapping of OSA Presence APIs.....	22
7.9 Multi Media Messaging (MMM) .....	23
7.9.1 Mapping of OSA MM APIs.....	23
7.10 Policy Management.....	23
8 Parlay X Web Services: OSA at a higher level of abstraction .....	24
8.1 General .....	24
8.1.1 Deployment Scenario A: Web Services to OSA.....	26
8.1.2 Deployment Scenario B: Web Services to Network Element.....	26
8.2 Third Party Call.....	27
8.3 Network-Initiated Third Party Call .....	27
8.4 SMS.....	27

8.5 Multimedia Message .....28

8.6 Payment .....28

8.7 Account Management.....28

8.8 Terminal Status .....29

8.9 Terminal Location .....29

8.10 Audio Call .....29

8.11 Call Handling .....29

8.12 Multimedia Conferencing.....30

8.13 Address List Management.....30

8.14 Presence.....30

8.15 Message Broadcast.....30

8.16 Geocoding .....31

8.17 Application Driven QoS .....31

8.18 Device Management.....31

8.19 Multimedia Streaming Control.....31

8.20 Multimedia Multicast Session Management .....31

**Annex A (informative): Change History .....33**

History .....34

**iTeh STANDARD PREVIEW**  
 (standards.iteh.ai)  
 Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/22751a11-6c30-4914-92ed-71e0328e2459/etsi-ts-123-198-v7.3.0-2008-01>

---

## Foreword

This Technical Specification (TS) has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

---

## Introduction

The Open Service Access (OSA) defines an architecture that enables service application developers to make use of network functionality through open standardized interface, i.e. the OSA APIs and Parlay X Web Services. The network functionality is describes as Service Capability Features (SCFs) or Services. The OSA Framework is a general component in support of Services (Service Capabilities) and Applications. The concepts and the functional architecture for the OSA are contained in the present document. The requirements for OSA are contained in 3GPP TS 22.127 [3].

NOTE: The terms "Service" and "Service Capability Feature" are used as alternatives for the same concept in the present document. In the OSA Application Programming Interface (API) itself, the SCFs as identified in the 3GPP requirements and architecture are reflected as "service", in terms like service instance lifecycle manager, service Discovery.

The present document is part of a TS-family as identified below:

- |                |  |
|----------------|--|
| 22.127:        | "Service Requirement for the Open Services Access (OSA); Stage 1". |
| <b>23.198:</b> | <b>"Open Service Access (OSA); Stage 2".</b>                       |

Stage 3 Technical Specifications (TSs):

- |              |   |
|--------------|---|
| 29.198-01:   | "OSA API; Part 1: Overview".  |
| 29.198-02:   | "OSA API; Part 2: Common data".   |
| 29.198-03:   | "OSA API; Part 3: Framework".   |
| 29.198-04:   | "OSA API; Part 4: Call control".  |
| 29.198-04-1: | "OSA API; Part 4: Call control; Subpart 1: Common call control data definitions". |
| 29.198-04-2: | "OSA API; Part 4: Call control; Subpart 2: Generic call control data SCF".        |
| 29.198-04-3: | "OSA API; Part 4: Call control; Subpart 3: Multi-party call control data SCF".    |
| 29.198-04-4: | "OSA API; Part 4: Call control; Subpart 4: Multimedia call control SCF".          |
| 29.198-04-5: | "OSA API; Part 4: Call control; Subpart 5: Conference call control SCF".          |
| 29.198-05:   | "OSA API; Part 5: Generic user interaction".                                      |
| 29.198-06:   | "OSA API; Part 6: Mobility".  |
| 29.198-07:   | "OSA API; Part 7: Terminal capabilities".   |
| 29.198-08:   | "OSA API; Part 8: Data session control".  |
| 29.198-09:   | does not exist  |
| 29.198-10:   | does not exist  |
| 29.198-11:   | "OSA API; Part 11: Account management".   |

- 29.198-12: "OSA API; Part 12: Charging".  
 29.198-13: "OSA API; Part 13: Policy management SCF".  
 29.198-14: "OSA API; Part 14: Presence and Availability Management (PAM)".  
 29.198-15: "OSA API; Part 15: Multi-media Messaging (MM) SCF".  
 29.198-16: "OSA API; Part 16: Service Broker Service Capability Feature (SCF)".
- 29.199-01: "OSA; Parlay X web services; Part 1: Common".  
 29.199-02: "OSA; Parlay X web services; Part 2: Third party call".  
 29.199-03: "OSA; Parlay X web services; Part 3: Call notification".  
 29.199-04: "OSA; Parlay X web services; Part 4: Short messaging".  
 29.199-05: "OSA; Parlay X web services; Part 5: Multimedia messaging".  
 29.199-06: "OSA; Parlay X web services; Part 6: Payment".  
 29.199-07: "OSA; Parlay X web services; Part 7: Account management".  
 29.199-08: "OSA; Parlay X web services; Part 8: Terminal status".  
 29.199-09: "OSA; Parlay X web services; Part 9: Terminal location".  
 29.199-10: "OSA; Parlay X web services; Part 10: Call handling".  
 29.199-11: "OSA; Parlay X web services; Part 11: Audio call".  
 29.199-12: "OSA; Parlay X web services; Part 12: Multimedia conference".  
 29.199-13: "OSA; Parlay X web services; Part 13: Address list management".  
 29.199-14: "OSA; Parlay X web services; Part 14: Presence".  
 29.199-15: "OSA; Parlay X web services; Part 15: Message Broadcast".  
 29.199-16: "OSA; Parlay X web services; Part 16: Geocoding".  
 29.199-17: "OSA; Parlay X web services; Part 17: Application driven Quality of Service (QoS)".  
 29.199-18: "OSA; Parlay X web services; Part 18: Device management".  
 29.199-19: "OSA; Parlay X web services; Part 19: Multimedia streaming control".  
 29.199-20: "OSA; Parlay X web services; Part 20: Multimedia multicast session management".

#### Technical Reports (TRs):

- 29.998-01: "OSA API Mapping for OSA; Part 1: General issues on API mapping".  
 29.998-04-1: "OSA API Mapping for OSA; Part 4: Call Control Service Mapping; Subpart 1: API to CAP Mapping".  
 29.998-04-2: "OSA API Mapping for OSA; Part 4: Call Control Service Mapping; Subpart 2: INAP".  
 29.998-04-3: "OSA API Mapping for OSA; Part 4: Call Control Service Mapping; Subpart 3: MEGACO mapping".  
 29.998-04-4: "OSA API Mapping for OSA; Part 4: Call Control Service Mapping; Subpart 4: Multiparty Call Control ISC".  
 29.998-05-1: "OSA API Mapping for OSA; Part 5: User Interaction Service Mapping; Subpart 1: API to CAP Mapping".  
 29.998-05-2: "OSA API Mapping for OSA; Part 5: User Interaction Service Mapping; Subpart 2: INAP mapping".  
 29.998-05-3: "OSA API Mapping for OSA; Part 5: User Interaction Service Mapping; Subpart 3: MEGACO mapping".  
 29.998-05-4: "OSA API Mapping for OSA; Part 5: User Interaction Service Mapping; Subpart 4: API to SMS Mapping".  
 29.998-06-1: "OSA API Mapping for OSA; Part 6: User Location - User Status Service Mapping; Subpart 1: Mapping to MAP".  
 29.998-06-2: "OSA API Mapping for OSA; Part 6: User Location - User Status Service Mapping; Subpart 1: Mapping to SIP".  
 29.998-08: "OSA API Mapping for OSA; Part 8: Data Session Control Service Mapping to CAP".

---

# 1 Scope

The present document specifies the stage 2 of the Open Service Access (OSA).

---

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 22.101: "Service aspects; Service principles".
  - [2] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
  - [3] 3GPP TS 22.127: "Service Requirement for the Open Services Access (OSA); Stage 1".
  - [4] 3GPP TS 23.218: "IP Multimedia (IM) session handling; IM call model; Stage 2".
  - [5] 3GPP TS 22.141: "Presence service; Stage 1".
  - [6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".
  - [7] 3GPP TS 23.141: "Presence service; Architecture and functional description; Stage 2".
  - [8] 3GPP TS 23.140: "Multimedia Messaging Service (MMS); Functional description; Stage 2".
  - [9] 3GPP TS 23.271: "Location Services (LCS); Functional description; Stage 2".
  - [10] ITU-T Recommendation Q.763: "Signalling System No. 7 - ISDN User Part formats and codes".
- 

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 22.101 [1], 3GPP TR 21.905 [2] and the following apply:

**applications:** software components providing services to end-users by utilizing Service Capability Features

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

**Home Environment Value Added Service Provider:** home service provider to users other than the operator

**interface:** listing and semantics of the methods and attributes provided by an object that belongs to a Service Capability Feature

**OSA API:** standardized API used by applications to access Service Capability Features

**OSA Internal API:** standardized API between framework and service capability servers

**Service Capabilities:** See 3GPP TS 22.127 [3].



**Service Capability Feature (SCF):** See 3GPP TS 22.127 [3].

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

**Value Added Service Provider:** service provider to users other than the operator

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TS 22.101 [1], 3GPP TR 21.905 [2] and the following apply:

API	Application Programming Interface
HE	Home Environment
HE-VASP	Home Environment - Value Added Service Provider
HSS	Home Subscriber Server
IMS	IP Multimedia core network Subsystem
ISC	IMS Service Control
MRF	Media Resource Function
MRFC	Media Resource Function Controller
MRFP	Media Resource Function Protocol
OSA	Open Service Access
SCF	Service Capability Feature
SCS	Service Capability Server
S-CSCF	Serving - Call Session Control Function
SMS-C	Short Message Service - Center
SOAP	Simple Object Access Protocol
VASP	Value Added Service Provider

---

## 4 OSA support of VASP

The OSA APIs may be used by the Home Environment, by Value Added Service Providers (VASPs) and Home Environment Value Added Service Providers (HE-VASPs).

OSA is optimized to support HE-VASPs as the user subscription information is owned and managed by the Home Environment, i.e. the Home Environment knows which users are subscribed to the service implemented by the OSA application, and if the service is activated or not.

Specific methods are specified in OSA Service Capability Features, permitting:

- An OSA application to request user related event notifications pertaining to any subscribed user for which the service implemented by the application is activated.
- The OSA SCS to report user related event notifications in which it explicitly identifies the user to which the event applies.
- An OSA application to request a function to be applied to all current subscribed users for which the service implemented by the application is activated.

The OSA SCS can report user related events to the OSA application, without the application having explicitly subscribed to the event (events to be reported have been agreed between the Home Environment and the HE-VASP by other means, e.g. in their service level agreement).

This functionality is supported by all relevant Service Capability Features, like call and session control SCFs, user status, and user location.

## 5 Open Service Access

In order to be able to implement future applications/end user services that are not yet known today, a highly flexible Framework for Services is required. The Open Service Access (OSA) enables applications implementing the services to make use of network functionality. Network functionality offered to applications is defined in terms of a set of Service Capability Features (SCFs). These SCFs provide functionality of network capabilities, which is accessible to applications through the standardized OSA interface for service development.

The aim of OSA is to provide a standardized, extensible and scalable interface that allows for inclusion of new functionality in the network in future releases with a minimum impact on the applications using the OSA interface.

Network functionality offered to applications is defined as a set of Service Capability Features (SCFs) in the OSA API, which are supported by different Service Capability Servers (SCS). These SCFs provide access to the network capabilities on which the application developers can rely when designing new applications (or enhancements/variants of already existing ones). The different features of the different SCSs can be combined as appropriate.

The exact addressing (parameters, type and error values) of these features is described in stage 3 descriptions.

These descriptions (defined using UML and in three realizations: OMG Interface Description Language<sup>TM</sup>, Java J2SE<sup>TM</sup> and Java J2EE<sup>TM</sup> are open and accessible to application developers, who can design services in any programming language, while the underlying core network functions use their specific protocols. The present document also contains a set of Web Services called Parlay X Web Services, specified in WSDL.

The standardized OSA APIs are secure, independent of vendor specific solutions and independent of programming languages, operating systems etc used in the service capabilities. The OSA APIs are independent of the location within the home environment where service capabilities are implemented, and independent of supported service capabilities in the network. Furthermore, an architecture with open interfaces allows for application developers to rapidly design new and innovative applications.

### 5.1 Overview of the Open Service Access

The Open Service Access consists of three parts:

- **Applications:** e.g. VPN, conferencing, location based applications. These applications are implemented in one or more Application Servers.
- **Framework:** providing applications with basic mechanisms that enable them to make use of the service capabilities in the network. Examples of framework functions are Authentication, and Registration and Discovery. Service Capability Features made available to applications are Registered in the Framework. Before an application can use the network functionality made available through Service Capability Features, authentication between the application and framework is needed. After authentication, the discovery function enables the application to find out which Service Capability Features are provided by the Service Capability Servers. The Service Capability Features are accessed by the methods defined in the OSA interfaces.
- **Service Capability Servers:** providing the applications with Service Capability Features, which are abstractions from underlying network functionality. Examples of Service Capability Features offered by the Service Capability Servers are Call Control and User Location. Similar Service Capability Features may possibly be provided by more than one Service Capability Server. For example, Call Control functionality might be provided by SCSs on top of CAMEL and MExE.

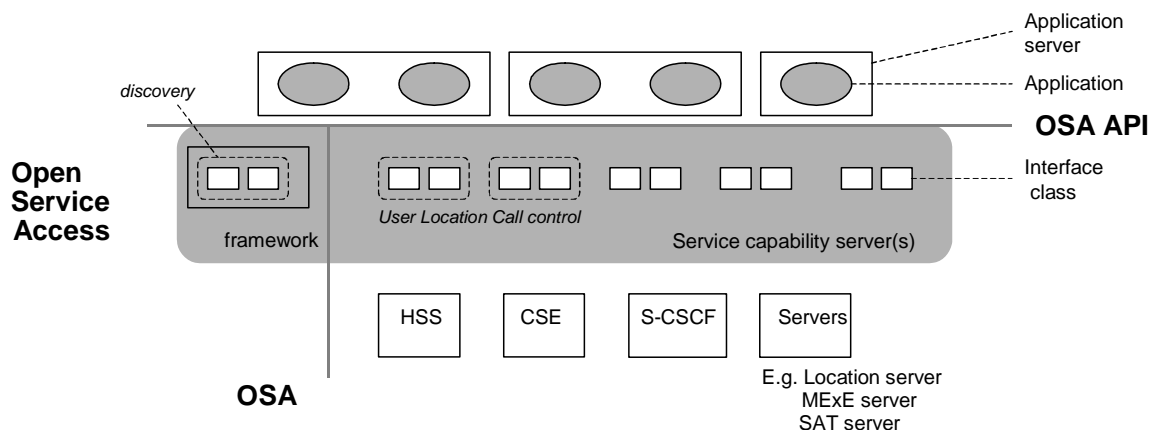


Figure 5.1.1: Overview of Open Service Access

The present document, together with the associated stage 3 specification, defines the OSA APIs. OSA does not mandate any specific platform or programming language.

The Service Capability Servers that provide the OSA interfaces are functional entities that can be distributed across one or more physical nodes. For example, the User Location interfaces and Call Control interfaces might be implemented on a single physical entity or distributed across different physical entities. Furthermore, a service capability server can be implemented on the same physical node as a network functional entity or in a separate physical node. For example, Call Control interfaces might be implemented on the same physical entity as the CAMEL protocol stack (i.e. in the CSE) or on a different physical entity.

Several options exist:

**Option 1**

The OSA interfaces are implemented in one or more physical entity, but separate from the physical network entities. Figure 5.1.2 shows the case where the OSA interfaces are implemented in one physical entity, called "gateway" in the figure. Figure 5.1.3 shows the case where the SCSs are distributed across several "gateways".

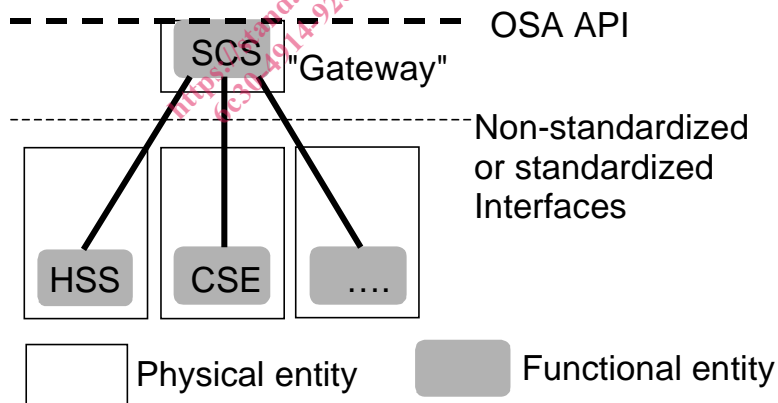


Figure 5.1.2: SCSs and network functional entities implemented in separate physical entities