Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
LTE;
Open Service Access (OSA)
Application Programming Interface (API);
Part 7: Terminal capabilities Service Capability Feature (SCF)
(3GPP TS 29.198-07 version 9.0.0 Release 9)
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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.
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Foreword

This Technical Specification has been produced by the 3rd 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 present document is part 7 of a multi-part TS covering the 3rd Generation Partnership Project: Technical Specification Group Core Network; Open Service Access (OSA); Application Programming Interface (API), as identified below. The API specification (3GPP TS 29.198) is structured in the following Parts:

Part 1: "Overview";
Part 2: "Common Data Definitions";
Part 3: "Framework";
Part 4: "Call Control";
   Sub-part 1: "Call Control Common Definitions";
   Sub-part 2: "Generic Call Control SCF";
   Sub-part 3: "Multi-Party Call Control SCF";
   Sub-part 4: "Multi-Media Call Control SCF";
   Sub-part 5: "Conference Call Control SCF";
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"; (not part of 3GPP Release 8)
Part 10: "Connectivity Manager SCF"; (not part of 3GPP Release 8)
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 Mapping specification of the OSA APIs and network protocols (3GPP TR 29.998) is also structured as above. A mapping to network protocols is however not applicable for all Parts, but the numbering of Parts is kept. Also in case a Part is not supported in a Release, the numbering of the parts is maintained.
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</tr>
</tbody>
</table>
1 Scope

The present document is part of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardised interface, i.e. the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3GPP TS 23.198 [3]. The requirements for OSA are contained in 3GPP TS 22.127 [2].

The present document specifies the Terminal Capabilities Service Capability Feature (SCF) aspects of the interface. All aspects of the Terminal Capabilities SCF are defined here, these being:

- Sequence Diagrams
- Class Diagrams
- Interface specification plus detailed method descriptions
- State Transition diagrams
- Data definitions
- IDL Description of the interfaces
- WSDL Description of the interfaces

The process by which this task is accomplished is through the use of object modelling techniques described by the Unified Modelling Language (UML).

This specification has been defined jointly between 3GPP TSG CT WG5, ETSI TISPAN and the Parlay Group, in cooperation with a number of JAIN™ Community member companies.

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.


[2] 3GPP TS 22.127: "Service Requirement for the Open Services Access (OSA); Stage 1”.

[3] 3GPP TS 23.198: "Open Service Access (OSA); Stage 2”.


3 Definitions and abbreviations

3.1 Definitions
For the purposes of the present document, the terms and definitions given in TS 29.198-1 [1] apply.

3.2 Abbreviations
For the purposes of the present document, the abbreviations given in TS 29.198-1 [1] apply.

4 Terminal Capabilities SCF
The following clauses describe each aspect of the Terminal Capability Feature (SCF).

The order is as follows:

- The Sequence diagrams give the reader a practical idea of how each of the SCF is implemented.
- The Class relationships clause shows how each of the interfaces applicable to the SCF, relate to one another.
- The Interface specification clause describes in detail each of the interfaces shown within the Class diagram part.
- The State Transition Diagrams (STD) show the transition between states in the SCF. The states and transitions are well-defined; either methods specified in the Interface specification or events occurring in the underlying networks cause state transitions.
- The Data definitions section shows a detailed expansion of each of the data types associated with the methods within the classes. Note that some data types are used in other methods and classes and are therefore defined within the Common Data types part of this specification.

4.1 General requirements on support of methods
An implementation of this API which supports or implements a method described in the present document, shall support or implement the functionality described for that method, for at least one valid set of values for the parameters of that method.

Where a method is not supported by an implementation of a Service interface, the exception P_METHOD NOT_SUPPORTED shall be returned to any call of that method.

Where a method is not supported by an implementation of an Application interface, a call to that method shall be possible, and no exception shall be returned.
5 Sequence Diagrams

5.1 Terminal capabilities triggered example

The following example sequence diagram illustrates how the terminal capabilities can be retrieved and their changes monitored.

1: The application retrieves the terminal capability of a terminal using the synchronous mechanism. The terminalCapabilitiesReportReq method can also be used here, and allows the application to set the scope of capabilities and allows retrieval of terminal capabilities for one or several users.

2: The application creates an object to implement IpAppExtendedTerminalCapabilities.

3: The terminal capabilities changes are started to be monitored.

4: The terminal capabilities have changed and they are reported as requested.

5: The report is forwarded internally to the application.

6: The terminal capabilities have changed and they are reported as requested.

7: The report is forwarded internally to the application.
5.2 Terminal capabilities interactive request

The following example sequence diagram illustrates how the terminal capabilities can be retrieved.

1: The application creates an object to implement IpAppExtendedTerminalCapabilities.
2: The terminal capabilities for one or several users are requested. The scope of capabilities can be set for the request.
3: The terminal capabilities are reported.
4: The report is forwarded internally to the application.
6 Class Diagrams

Terminal Capabilities Class Diagram:

![Class Diagram](image_url)

Figure: Terminal Capabilities Class Diagram
7 The Service Interface Specifications

7.1 Interface Specification Format

This clause defines the interfaces, methods and parameters that form a part of the API specification. The Unified Modelling Language (UML) is used to specify the interface classes. The general format of an interface specification is described below.

7.1.1 Interface Class

This shows a UML interface class description of the methods supported by that interface, and the relevant parameters and types. The Service and Framework interfaces for enterprise-based client applications are denoted by classes with name Ip<name>. The callback interfaces to the applications are denoted by classes with name IpApp<name>. For the interfaces between a Service and the Framework, the Service interfaces are typically denoted by classes with name IpSvc<name>, while the Framework interfaces are denoted by classes with name IpFw<name>.

7.1.2 Method descriptions

Each method (API method 'call') is described. Both synchronous and asynchronous methods are used in the API. Asynchronous methods are identified by a 'Req' suffix for a method request, and, if applicable, are served by asynchronous methods identified by either a 'Res' or 'Err' suffix for method results and errors, respectively. To handle responses and reports, the application or service developer must implement the relevant IpApp<name> or IpSvc<name> interfaces to provide the callback mechanism.

7.1.3 Parameter descriptions

Each method parameter and its possible values are described. Parameters described as 'in' represent those that must have a value when the method is called. Those described as 'out' are those that contain the return result of the method when the method returns.

7.1.4 State Model

If relevant, a state model is shown to illustrate the states of the objects that implement the described interface.
7.2 Base Interface

7.2.1 Interface Class IpInterface

All application, framework and service interfaces inherit from the following interface. This API Base Interface does not provide any additional methods.

```
<<Interface>>
IpInterface
```

7.3 Service Interfaces

7.3.1 Overview

The Service Interfaces provide the interfaces into the capabilities of the underlying network - such as call control, user interaction, messaging, mobility and connectivity management.

The interfaces that are implemented by the services are denoted as 'Service Interface'. The corresponding interfaces that must be implemented by the application (e.g. for API callbacks) are denoted as 'Application Interface'.
7.4 Generic Service Interface

7.4.1 Interface Class IpService

Inherits from: IpInterface

All service interfaces inherit from the following interface.

```
<<Interface>>
IpService
```

- `setCallback (appInterface : in IpInterfaceRef) : void`
- `setCallbackWithSessionID (appInterface : in IpInterfaceRef, sessionID : in TpSessionID) : void`

7.4.1.1 Method setCallback()

This method specifies the reference address of the callback interface that a service uses to invoke methods on the application. It is not allowed to invoke this method on an interface that uses SessionIDs. Multiple invocations of this method on an interface shall result in multiple callback references being specified. The SCS shall use the most recent callback interface provided by the application using this method. In the event that a callback reference fails or is no longer available, the next most recent callback reference available shall be used.

Parameters

- `appInterface : in IpInterfaceRef`
  Specifies a reference to the application interface, which is used for callbacks.

Raises

- `TpCommonExceptions, P_INVALID_INTERFACE_TYPE`

7.4.1.2 Method setCallbackWithSessionID()

This method specifies the reference address of the application's callback interface that a service uses for interactions associated with a specific session ID: e.g. a specific call, or call leg. It is not allowed to invoke this method on an interface that does not use SessionIDs. Multiple invocations of this method on an interface shall result in multiple callback references being specified. The SCS shall use the most recent callback interface provided by the application using this method. In the event that a callback reference fails or is no longer available, the next most recent callback reference available shall be used.

Parameters

- `appInterface : in IpInterfaceRef`
  Specifies a reference to the application interface, which is used for callbacks.

- `sessionID : in TpSessionID`
  Specifies the session for which the service can invoke the application's callback interface.

Raises

- `TpCommonExceptions, P_INVALID_SESSION_ID, P_INVALID_INTERFACE_TYPE`
8 Terminal Capabilities Interface Classes

The Terminal Capabilities SCF enables the application to retrieve the terminal capabilities of the specified terminal. Additionally, it is possible for the application to request notifications when the capabilities of the terminal change in some way. The Terminal Capabilities service provides SCF interfaces IpTerminalCapabilities and IpExtendedTerminalCapabilities. The application side interface for the reporting is called IpAppExtendedTerminalCapabilities.
8.1 Interface Class IpTerminalCapabilities

Inherits from: IpService.

The Terminal Capabilities SCF interface IpTerminalCapabilities contains the synchronous method getTerminalCapabilities. The application has to provide the terminalIdentity as input to this method. The result indicates whether or not the terminal capabilities are available in the network and, in case they are, it will return the terminal capabilities (see the data definition of TpTerminalCapabilities for more information). The network may override some capabilities that have been indicated by the terminal itself due to network policies or other restrictions or modifications in the supported capabilities.

This interface, or IpExtendedTerminalCapabilities shall be implemented by a Terminal Capabilities SCF as a minimum requirement. If this interface is implemented, the getTerminalCapabilities() method shall be implemented as a minimum requirement.

<table>
<thead>
<tr>
<th>&lt;&lt;Interface&gt;&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>IpTerminalCapabilities</td>
</tr>
</tbody>
</table>

getTerminalCapabilities (terminalIdentity : in TpString) : TpTerminalCapabilities

8.1.1 Method getTerminalCapabilities()

This method is used by an application to get the capabilities of a user's terminal. Direction: Application to Network.

Returns result : Specifies the latest available capabilities of the user's terminal.

This information, if available, could be returned as CC/PP headers as specified in W3C (see [6] in ES 204 915-1) and adopted in the WAP UAProf specification (see [9] in ES 204 915-1). It contains URLs; terminal attributes and values, in RDF format; or a combination of both.

Parameters

terminalIdentity : in TpString

Identifies the terminal. It may be a logical address known by the WAP Gateway/PushProxy.

Returns

TpTerminalCapabilities

Raises

TpCommonExceptions, P_INVALID_TERMINAL_ID
8.2 Interface Class IpExtendedTerminalCapabilities

Inherits from: IpTerminalCapabilities.

This interface can be used as an extended version of terminal capability monitoring. The application programmer can use this interface to request terminal capability reports that are triggered by their changes. Note that the underlying mechanisms for this network feature are currently not fully standardised.

This interface, or IpTerminalCapabilities, shall be implemented by a Terminal Capabilities SCF as a minimum requirement. The triggeredTerminalCapabilityStartReq() and triggeredTerminalCapabilityStop() methods shall be implemented as a minimum requirement. An implementation of IpExtendedTerminalCapabilities is not required to implement the minimum mandatory methods of IpTerminalCapabilities.

```
<<Interface>>

IpExtendedTerminalCapabilities


triggeredTerminalCapabilityStop (assignmentID : in TpAssignmentID) : void
```
8.2.0a Method terminalCapabilitiesReportReq()

Request for terminal capabilities for one or several terminals.

Returns: assignmentID.

Specifies the assignment ID of the terminal capabilities report request.

**Parameters**

- **appTerminalCapabilities : in IpAppExtendedTerminalCapabilitiesRef**
  Specifies the application interface for callbacks.

- **terminals : in TpAddressSet**
  Specifies the terminal(s) for which the capabilities shall be reported. TpAddress fields have the following use:
  - Plan: Used to indicate the numbering plan.
  - AddrString: Used to indicate the subscriber address.
  - Name: Used to indicate the terminal identity. May be applied also together with AddrString to indicate subscriber's particular terminal. The precise format is not defined.
  - Presentation: No defined use.
  - Screening: No defined use.
  - SubAddressString: No defined use.

Hence it is possible to indicate the subscriber and/or the terminal identification. This terminal addressing is implementation specific e.g. subscriber identification may not always be sufficient information to get the capabilities of the terminal.

- **capabilityScope : in TpTerminalCapabilityScope**
  Specifies the scope of the capabilities that the application is interested in. The contents are implementation specific. One possibility is to use the CC/PP definitions as in TpTerminalCapabilities.

**Returns**

- **TpAssignmentID**

**Raises**

- TpCommonExceptions, P_INFORMATION_NOTAVAILABLE, P_INVALIDINTERFACE_TYPE, P_INVALIDCRITERIA, P_INVALID_TERMINAL_ID
8.2.1 Method triggeredTerminalCapabilityStartReq()

Request for terminal capability reports when the capabilities change or when the application obviously does not have the current terminal capability information when this method is invoked.

Returns: assignmentID.

Specifies the assignment ID of the triggered terminal capability reporting request.

Parameters

appTerminalCapabilities : in IpAppExtendedTerminalCapabilitiesRef
Specifies the application interface for callbacks.

terminals : in TpAddressSet
Specifies the terminal(s) for which the capabilities shall be reported. TpAddress fields have the following use:

- Plan: Used to indicate the numbering plan.
- AddrString: Used to indicate the subscriber address.
- Name: Used to indicate the terminal identity. May be applied also together with AddrString to indicate subscriber's particular terminal. The precise format is not defined.
- Presentation: No defined use.
- Screening: No defined use.
- SubAddressString: No defined use.

Hence it is possible to indicate the subscriber and/or the terminal identification. This terminal addressing is implementation specific e.g. subscriber identification may not always be sufficient information to get the capabilities of the terminal.

capabilityScope : in TpTerminalCapabilityScope
Specifies the scope of the capabilities that the application is interested in. The contents are implementation specific. One possibility is to use the CC/PP definitions as in TpTerminalCapabilities.

criteria : in TpTerminalCapabilityChangeCriteria
Specifies the trigger conditions for the reports e.g. software or hardware update.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INFORMATION_NOT_AVAILABLE, P_INVALID_INTERFACE_TYPE, P_INVALID_CRITERIA, P_INVALID_TERMINAL_ID
8.2.2 Method triggeredTerminalCapabilityStop()

Stop reporting for terminal capability changes that were started by triggeredTerminalCapabilityStartReq().

Parameters

assignmentID : in TpAssignmentID
Specifies the assignment ID for the task to be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID
8.3 Interface Class IpAppExtendedTerminalCapabilities

Inherits from: IpInterface.

IpAppExtendedTerminalCapabilities interface is used to send triggered terminal capability reports. It is implemented by the client application developer.

```
<<Interface>>
IpAppExtendedTerminalCapabilities
```


8.3.0a Method terminalCapabilitiesReportErr()

This method indicates that the terminal capabilities report request has failed.

**Parameters**

- **assignmentId** : in TpAssignmentID
  Specifies the assignment ID.

- **cause** : in TpTerminalCapabilitiesError
  Specifies the error that led to the failure.

8.3.0b Method terminalCapabilitiesReportRes()

A report containing the capabilities for one or several terminals.

**Parameters**

- **assignmentID** : in TpAssignmentID
  Specifies the assignment ID of the report.

- **capabilities** : in TpTerminalCapabilitiesReportSet
  Specifies the capabilities of one or several terminals. The network may override some capabilities that have been indicated by the terminal itself due to network policies or other restrictions or modifications in the supported capabilities.
8.3.1 Method triggeredTerminalCapabilityReport()

This terminal capability report is issued when the capabilities of the terminal have changed in the way specified by the criteria parameter in the previously invoked triggeredTerminalCapabilityStartReq() method.

Parameters

assignmentID : in TpAssignmentID
Specifies the assignment ID of the report.

terminals : in TpAddressSet
Specifies the terminal(s) either by subscriber or terminal ID or both as described for the triggeredTerminalCapabilityStartReq() method.

criteria : in TpTerminalCapabilityChangeCriteria
Specifies the criteria that caused the report to be sent.

capabilities : in TpTerminalCapabilities
Specifies the capabilities of the terminal. The network may override some capabilities that have been indicated by the terminal itself due to network policies or other restrictions or modifications in the supported capabilities.

8.3.2 Method triggeredTerminalCapabilityReportErr()

This method indicates that the requested reporting has failed. Note that errors may concern the whole assignment or just some terminals. In the former case no terminals are specified.

Parameters

assignmentId : in TpAssignmentID
Specifies the assignment ID.

terminals : in TpAddressSet
Specifies the terminal(s) either by subscriber or terminal ID or both as described for the triggeredTerminalCapabilityStartReq() method.

cause : in TpTerminalCapabilitiesError
Specifies the error that led to the failure.
## 9 State Transition Diagrams

There are no State Transition Diagrams for the Terminal Capabilities SCF.

## 10 Service Properties

The following table lists properties relevant for this SCF.

<table>
<thead>
<tr>
<th>Property</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_TRIGGERED_REPORTING_SUPPORTED</td>
<td>BOOLEAN_SET</td>
<td>Value = TRUE : The triggered reporting of terminal capabilities is supported by the SCF. Value = FALSE : The triggered reporting of terminal capabilities is not supported by the SCF.</td>
</tr>
</tbody>
</table>
11 Terminal Capabilities Data Definitions

All data types referenced but not defined in this clause are common data definitions which may be found in 3GPP TS 29.198-2.

11.1 terminalIdentity

Identifies the terminal.

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>terminalIdentity</td>
<td>TpString</td>
<td>Identifies the terminal. It may be a logical address known by the WAP Gateway/PushProxy.</td>
</tr>
</tbody>
</table>

11.2 TpTerminalCapabilities

This data type is a Sequence of Data Elements that describes the terminal capabilities. It is a structured type that consists of:

<table>
<thead>
<tr>
<th>Sequence Element Name</th>
<th>Sequence Element Type</th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TerminalCapabilities</td>
<td>TpString</td>
<td>Specifies the latest available capabilities of the user's terminal. This information, if available, could be returned as CC/PP headers as specified in W3C [4] and adopted in the WAP UAProf specification [5]. It contains URLs; terminal attributes and values, in RDF format; or a combination of both.</td>
</tr>
<tr>
<td>StatusCode</td>
<td>TpBoolean</td>
<td>Indicates whether or not the TerminalCapabilities are available.</td>
</tr>
</tbody>
</table>

11.3 TpTerminalCapabilitiesError

Defines an error that is reported by the Terminal Capabilities SCF.

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_TERMCAP_ERROR_UNDEFINED</td>
<td>0</td>
<td>Undefined.</td>
</tr>
<tr>
<td>P_TERMCAP_INVALID_TERMINALID</td>
<td>1</td>
<td>The request can not be handled because the terminal id specified is not valid.</td>
</tr>
<tr>
<td>P_TERMCAP_SYSTEM_FAILURE</td>
<td>2</td>
<td>System failure. The request cannot be handled because of a general problem in the terminal capabilities service or the underlying network.</td>
</tr>
<tr>
<td>P_TERMCAP_INFO_UNAVAILABLE</td>
<td>3</td>
<td>The terminal capability information is not available.</td>
</tr>
</tbody>
</table>

11.3a TpTerminalCapabilitiesReport

Defines the Sequence of Data Elements that specify the identity and capabilities of a terminal.

<table>
<thead>
<tr>
<th>Sequence Element Name</th>
<th>Sequence Element Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TerminalIdentity</td>
<td>TpAddress</td>
<td>The address of the terminal.</td>
</tr>
<tr>
<td>TerminalCapabilities</td>
<td>TpString</td>
<td>Specifies the latest available capabilities of the user's terminal. This information, if available, could be returned as CC/PP headers as specified in W3C [4] and adopted in the WAP UAProf specification [5]. It contains URLs; terminal attributes and values, in RDF format; or a combination of both.</td>
</tr>
<tr>
<td>StatusCode</td>
<td>TpBoolean</td>
<td>Indicates whether or not the terminal capabilities are available.</td>
</tr>
<tr>
<td>Cause</td>
<td>TpTerminalCapabilitiesError</td>
<td>Indicates the cause of the error if terminal capabilities are not available.</td>
</tr>
</tbody>
</table>
11.3b TpTerminalCapabilitiesReportSet

Defines a **Numbered Set of Data Elements** of TpTerminalCapabilitiesReport.

11.4 TpTerminalCapabilityChangeCriteria

Defines the type of the terminal capability changes to be reported. The values may be combined by a logical "OR" function.

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P TERMINAL CAPABILITY CHANGE CRITERIA UNDEFINED</td>
<td>00h</td>
<td>Undefined.</td>
</tr>
<tr>
<td>P TERMINAL CAPABILITY CHANGE CRITERIA GENERAL</td>
<td>01h</td>
<td>Any change in the terminal capabilities.</td>
</tr>
<tr>
<td>P TERMINAL CAPABILITY CHANGE CRITERIA HW UPDATE</td>
<td>02h</td>
<td>The terminal device hardware has been modified or replaced completely.</td>
</tr>
<tr>
<td>P TERMINAL CAPABILITY CHANGE CRITERIA SW UPDATE</td>
<td>04h</td>
<td>The software of the terminal has been updated in any way.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Also changes in configuration or preferences may be concerned.</td>
</tr>
<tr>
<td>P TERMINAL CAPABILITY CHANGE CRITERIA INITIAL</td>
<td>08h</td>
<td>The initial device capabilities reported when monitoring has been started.</td>
</tr>
</tbody>
</table>

11.5 TpTerminalCapabilityScopeType

Defines a specific type of the terminal capability scope definition.

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P TERMINAL CAPABILITY SCOPE TYPE UNDEFINED</td>
<td>0</td>
<td>Undefined.</td>
</tr>
<tr>
<td>P TERMINAL CAPABILITY SCOPE TYPE CCPP</td>
<td>1</td>
<td>Indicates that the terminal capability scope is expressed as CC/PP headers as specified in W3C [4] and adopted in the WAP UAProf specification [5]. It contains URLs; terminal attributes and values, in RDF format; or a combination of both.</td>
</tr>
</tbody>
</table>

11.6 TpTerminalCapabilityScope

Defines the **Sequence of Data Elements** that specify the scope of the terminal capabilities.

<table>
<thead>
<tr>
<th>Sequence Element Name</th>
<th>Sequence Element Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ScopeType</td>
<td>TpTerminalCapabilityScopeType</td>
</tr>
<tr>
<td>Scope</td>
<td>TpString</td>
</tr>
</tbody>
</table>
## 12 Exception Classes

The following are the list of exception classes which are used in this interface of the API.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_INVALID_TERMINAL_ID</td>
<td>The request cannot be handled because the terminal id specified is not valid.</td>
</tr>
</tbody>
</table>

Each exception class contains the following structure.

<table>
<thead>
<tr>
<th>Structure Element Name</th>
<th>Structure Element Type</th>
<th>Structure Element Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ExtraInformation</td>
<td>TpString</td>
<td>Carries extra information to help identify the source of the exception, e.g. a parameter name</td>
</tr>
</tbody>
</table>
Annex A (normative):
OMG IDL Description of Terminal Capabilities SCF

The OMG IDL representation of this interface specification is contained in a text file (termcap.idl) contained in archive 2919807V800IDL.ZIP which accompanies the present document.
Annex B (informative):
W3C WSDL Description of Terminal Capabilities SCF

The W3C WSDL representation of this interface specification is contained in zip file 2919807V800WSDL.ZIP, which accompanies the present document.
Annex C (informative):
Java™ API Description of the Terminal Capabilities SCF

The Java™ API realisation of this interface specification is produced in accordance with the Java™ Realisation rules defined in Part 1 of this specification series. These rules aim to deliver for Java™, a developer API, provided as a realisation, supporting a Java™ API that represents the UML specifications. The rules support the production of both J2SE™ and J2EE™ versions of the API from the common UML specifications.

The J2SE™ representation of this interface specification is provided as Java™ Code, contained in archive 2919807V800J2SE.ZIP that accompanies the present document.

The J2EE™ representation of this interface specification is provided as Java™ Code, contained in archive 2919807V800J2EE.ZIP that accompanies the present document.
Annex D (informative): Description of Terminal Capabilities SCF for 3GPP2 cdma2000 networks

This annex is intended to define the OSA API Stage 3 interface definitions and it provides the complete OSA specifications. It is an extension of OSA API specifications capabilities to enable operation in cdma2000 systems environment. They are in alignment with 3GPP2 Stage 1 requirements and Stage 2 architecture defined in:


These requirements are expressed as additions to and/or exclusions from the 3GPP Release 8 specification. The information given here is to be used by developers in 3GPP2 cdma2000 network architecture to interpret the 3GPP OSA specifications.

D.1 General Exceptions

The terms 3GPP and UMTS are not applicable for the cdma2000 family of standards. Nevertheless these terms are used (3GPP TR 21.905) mostly in the broader sense of "3G Wireless System". If not stated otherwise there are no additions or exclusions required.

CAMEL and CAP mappings are not applicable for cdma2000 systems.

D.2 Specific Exceptions

D.2.1 Clause 1: Scope

There are no additions or exclusions.

D.2.2 Clause 2: References

Normative references on 3GPP TS 23.078 and on 3GPP TS 29.078 are not applicable for cdma2000 systems.

D.2.3 Clause 3: Definitions and abbreviations

There are no additions or exclusions.

D.2.4 Clause 4: Terminal Capabilities SCF

There are no additions or exclusions.

D.2.5 Clause 5: Sequence Diagrams

There are no additions or exclusions.
D.2.6 Clause 6: Class Diagrams
There are no additions or exclusions.

D.2.7 Clause 7: The Service Interface Specifications
There are no additions or exclusions.

D.2.8 Clause 8: Terminal Capabilities Interface Classes
There are no additions or exclusions.

D.2.9 Clause 9: State Transition Diagrams
There are no additions or exclusions.

D.2.10 Clause 10: Service Properties
There are no additions or exclusions.

D.2.11 Clause 11: Terminal Capabilities Data Definitions
There are no exclusions. Additions for Data types for cdma2000 systems are for further study and are not part of this release. (E.g.: terminalIdentity identifies the terminal. It may be a logical address known by the WAP Gateway/PushProxy or any other relevant network elements in cdma2000 network, i.e. HSS).

D.2.12 Clause 12: Exception Classes
There are no additions or exclusions.

D.2.13 Annex A (normative): OMG IDL Description of Terminal Capabilities SCF
There are no additions or exclusions.

D.2.14 Annex B (informative): W3C WSDL Description of Terminal Capabilities SCF
There are no additions or exclusions.

D.2.15 Annex C (informative): Java™ API Description of Terminal Capabilities SCF
There are no additions or exclusions.
Annex E (informative):
Change history

<table>
<thead>
<tr>
<th>Date</th>
<th>TSG #</th>
<th>TSG Doc.</th>
<th>CR</th>
<th>Rev</th>
<th>Subject/Comment</th>
<th>Old</th>
<th>New</th>
</tr>
</thead>
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<tr>
<td>Mar 2007</td>
<td>CT_35</td>
<td>CP-070047</td>
<td>0035</td>
<td></td>
<td>Update document for conversion to Release 7</td>
<td>6.4.1</td>
<td>7.0.0</td>
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<tr>
<td>Dec 2007</td>
<td>CP-38</td>
<td>CP-070714</td>
<td>0036</td>
<td></td>
<td>Add an asynchronous request to get terminal capabilities</td>
<td>7.0.0</td>
<td>8.0.0</td>
</tr>
<tr>
<td>2009-12</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>Update to Rel-9 version (MCC)</td>
<td>8.0.0</td>
<td>9.0.0</td>
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# History

## Document history

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>V9.0.0</td>
<td>January 2010</td>
<td>Publication</td>
</tr>
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</table>
