Final draft ETSI ES 202 504-18 V1.1.1 (2008-02)
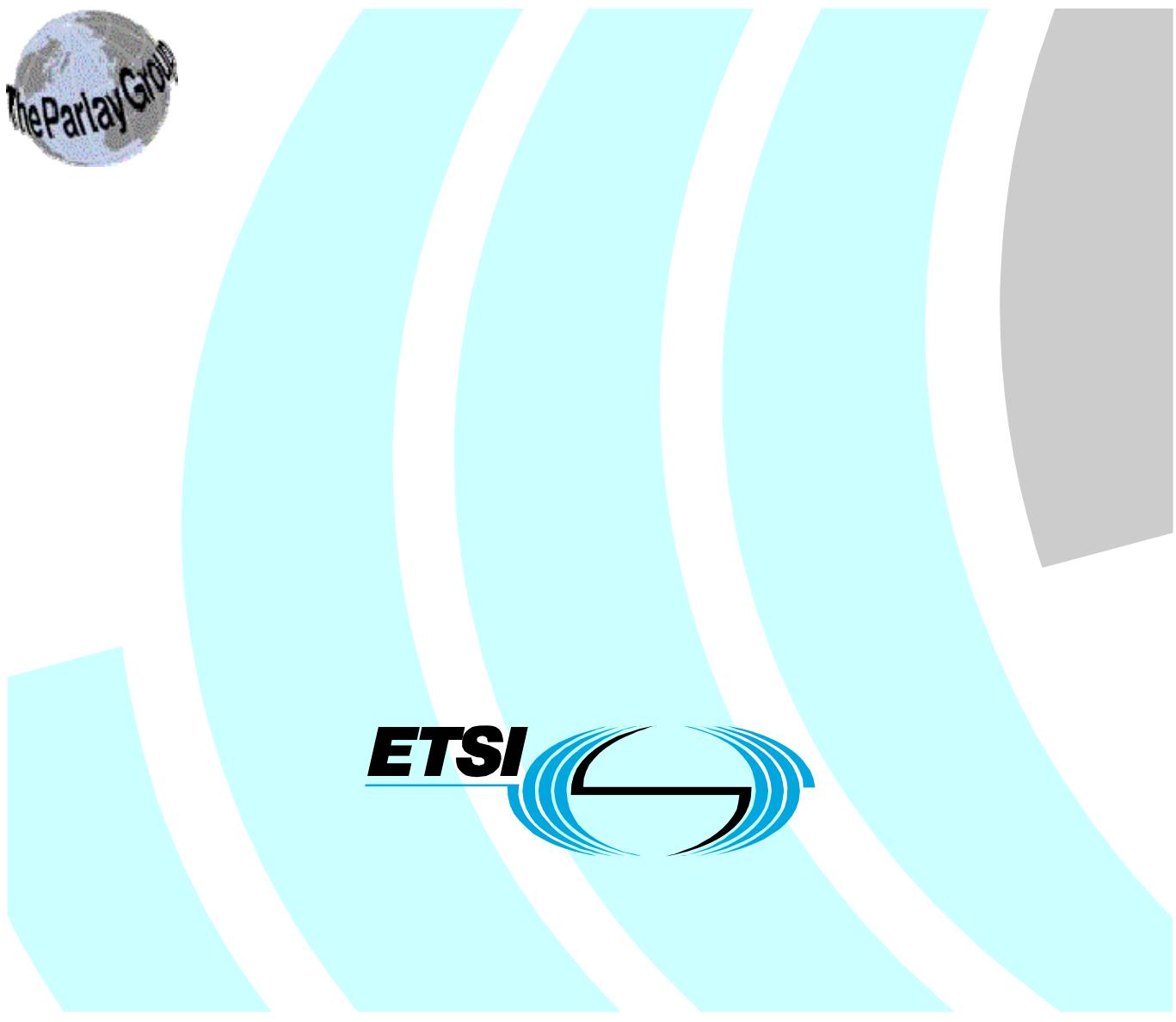
ETSI Standard

Open Service Access (OSA);
Parlay X Web Services;
Part 18: Device Capabilities and Configuration
(Parlay X 3)

Reference

DES/TISPAN-01034-18-OSA

Keywords

API, OSA, service

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
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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 18 of a multi-part deliverable covering Open Service Access (OSA); Parlay X 3 Web Services, as identified below:

Part 1:   "Common";

Part 2:   "Third Party Call";

Part 3:   "Call Notification";

Part 4:   "Short Messaging";

Part 5:   "Multimedia Messaging";

Part 6:   "Payment";

Part 7:   "Account Management";

Part 8:   "Terminal Status";

Part 9:   "Terminal Location";

Part 10:   "Call Handling";

Part 11:   "Audio Call";

Part 12:   "Multimedia Conference";

Part 13:   "Address List Management";

Part 14:   "Presence";

Part 15:   "Message Broadcast";

Part 16:   "Geocoding";

Part 17:   "Application-driven Quality of Service (QoS)";

Part 18:   "Device Capabilities and Configuration";

Part 19:   "Multimedia Streaming Control";

Part 20:   "Multimedia Multicast Session Management".

The present document has been defined jointly between ETSI, The Parlay Group (http://www.parlay.org) and the 3GPP.

The present document forms part of the Parlay X 3.0 set of specifications.

The present document is equivalent to 3GPP TS 29.199-18 V7.0.0 (Release 7).

1   Scope

The present document is part 18 of the Stage 3 Parlay X 3 Web Services specification for Open Service Access (OSA).

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

The present document specifies the Device Capabilities and Configuration Web Service. The following are defined here:

- Name spaces.

- Sequence diagrams.

- Data definitions.

- Interface specification plus detailed method descriptions.

- Fault definitions.

- Service Policies.

- WSDL Description of the interfaces.

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]   W3C Recommendation (2 May 2001): "XML Schema Part 2: Datatypes".

NOTE: Available at http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/.

[2]   ETSI ES 202 504-1: "Open Service Access (OSA); Parlay X Web Services; Part 1: Common (Parlay X 3)".

[3]   OMA Client Provisioning.

NOTE: Available at http://www.wapforum.org/DTD/prov.dtd.

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in ES 202 504-1 [2] apply.

3.2   Abbreviations

For the purposes of the present document, the abbreviations defined in ES 202 504-1 [2] apply.

4   Detailed service description

The Parlay X Device Capabilities and Configuration Web Service will allow applications to get information about device capabilities and push device configuration to a device.

4.1   Device capabilities

An application retrieves the device capabilities of a user's device by providing their phone number. The device capabilities are described by a user profile XML file, which URL is stored in the DeviceCapability structure returned when the capabilities are requested. In addition there is an operation to get the equipment identifier of the device. (The operation to get the device identifier is in a separate call, in case there is a wish to restrict this information more than the device capabilities.)

In addition it is possible to set up notification for device identifier changes and receive the notifications when the device identifier changes.

4.2   Device configuration

The application pushes the device configuration to a user's device by providing their phone number and the configuration (chosen from a list of available configurations.) The application can get the list of available configurations for a given device and the history of the configurations previously pushed to the user's device.

4.3   Application scenarios

The Parlay X Device Capabilities and Configuration web service relies on the Parlay/OSA Terminal Capabilities SCF and one of the Parlay/OSA or Parlay X Messaging interfaces. In addition storage for configuration files is provided. These files should respect the OMA Client Provisioning standard [3]. Usually sent to the subscriber device by SMS messages these files may configure settings such as WAP, MMS, Emails, etc. The following figure gives two examples of applications that can utilize the Device Capabilities and Configuration web service. One is a Customer Relationship Management Application used by an operator, the other is a Self Care Application used by the subscribers.
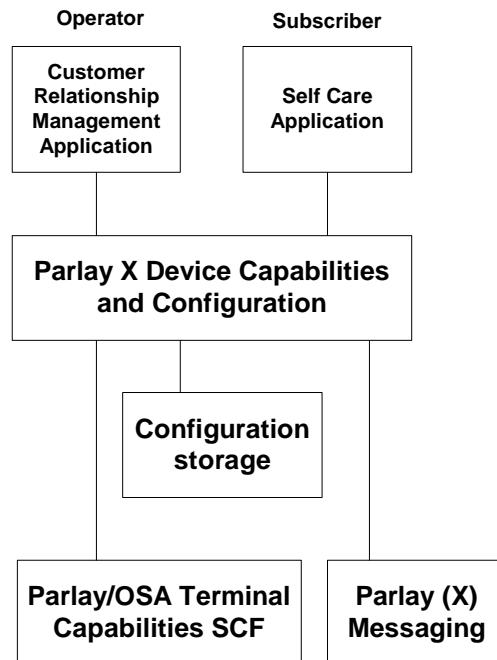
Figure 1

5   Namespaces

The DeviceCapabilities interface uses the namespace:

   http://www.csapi.org/wsdl/parlayx/device_capabilities/v3_0

The DeviceCapabilitiesNotificationManager interface uses the namespace:

   http://www.csapi.org/wsdl/parlayx/device_capabilities/notification_manager/v3_0

The DeviceCapabilitiesNotification interface uses the namespace:

   http://www.csapi.org/wsdl/parlayx/device_capabilities/notification/v3_0

The DeviceConfiguration interface uses the namespace:

   http://www.csapi.org/wsdl/parlayx/device_capabilities/device_configuration/v3_0

The data types are defined in the namespace:

   http://www.csapi.org/schema/parlayx/device_capabilities/v3_0

The 'xsd' namespace is used in the present document to refer to the XML Schema data types defined in
XML Schema [1]. The use of the name 'xsd' is not semantically significant.

6   Sequence diagrams

6.1   Device capability

The application gets the device capabilities of a device. With the device capabilities the application can chose the right
version of another service to make available for the user (not shown in the diagram).
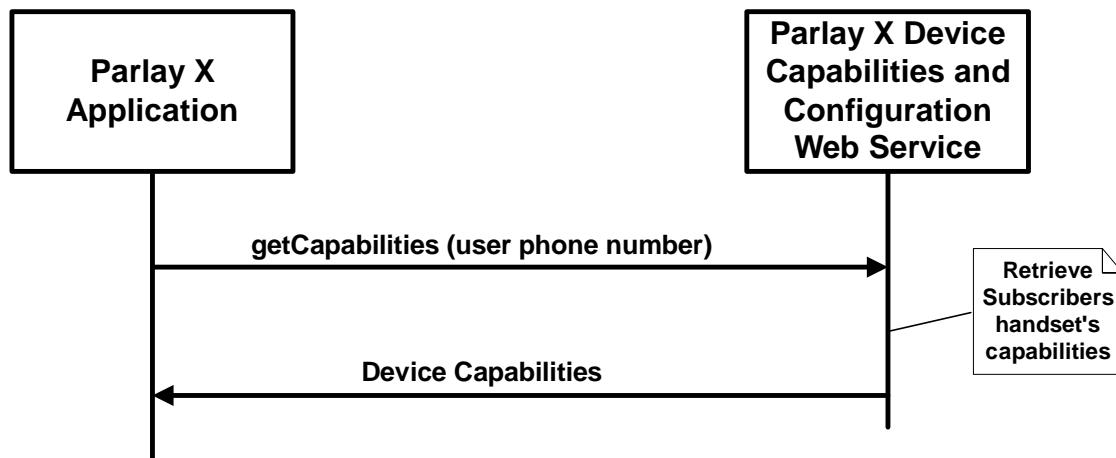
Figure 2

6.2   Device configuration

The first device configuration sequence diagram shows how an application for a customer service operator can utilize the configuration history when a customer calls in with configuration problems. The application first gets the configuration history, and then the customer service operator chooses to push the previous configuration to the device.
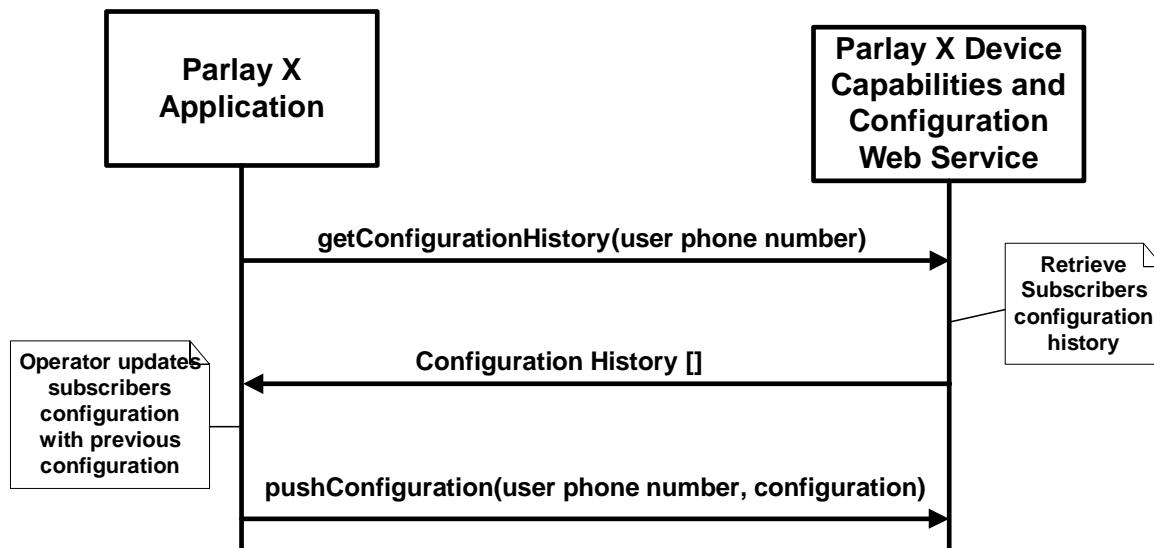
Figure 3

Another possibility is for the customer service operator to check available configurations for the customer's device when the customer calls. Then the operator chooses a configuration to push to the device.
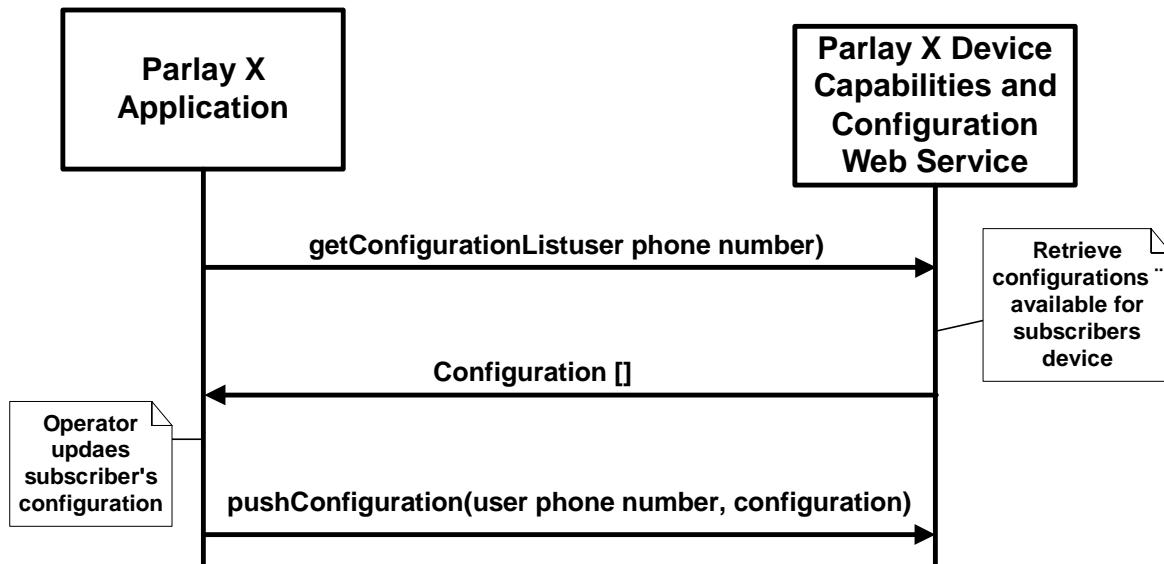
Figure 4

7 XML Schema data type definition

7.1 ConfigurationDescription Structure

Data structure containing the configuration ID, name, description and a link to the URL where the configuration XML file can be found.

Element Name	Element Type	Optional	Description
configurationId	xsd:string	No	A unique identifier for the Configuration
name	xsd:string	No	The name of the configuration.
description	xsd:string	No	The description of the configuration
configurationReference	xsd:anyURI	No	The URL where the configuration XML file can be found

7.2 ConfigurationHistory Structure

Data structure containing configuration (ConfigurationDescription) and a timestamp for when this configuration was sent to a device address.

Element Name	Element Type	Optional	Description
configuration	ConfigurationDescription	No	A Configuration
timestamp	xsd:dateTime	No	The date/time when the configuration was sent to the device address.

7.3 DeviceCapabilities Structure

Data structure containing device capabilities consisting of a device ID that uniquely identifies the device type, the name of the device/model, and a link to the URL where the User Agent Profile XML file can be found.

Element Name	Element Type	Optional	Description
deviceId	xsd:string	No	A unique identifier for the device type
name	xsd:string	No	The name of the device/model.
userAgentProfileReference	xsd:anyURI	No	The URL where the User Agent Profile XML file is located

8 Web Service interface definition

8.1 Interface: DeviceCapabilities

Request information on capabilities of a device.

8.1.1 Operation: getCapabilities

This operation is intended to get the capabilities of a given device. The device is identified by its address (i.e. the phone number). The URI provided is for a single device, not a group URI. If a group URI is provided, a fault (POL0006) will be returned to the application. The information returned is the Device Capabilities consisting of a unique ID for the device type, the name of the device/model and a link to the User Agent Profile XML file for the device.

8.1.1.1 Input message: getCapabilitiesRequest

Part Name	Part Type	Optional	Description
address	xsd:anyURI	No	Address of the device

8.1.1.2 Output message: getCapabilitiesResponse

Part Name	Part Type	Optional	Description
result	DeviceCapabilities	No	Identification of the device and link to User Agent Profile

8.1.1.3 Referenced faults

ServiceException from ES 202 504-1 [2]:

- SVC0001: Service error.

- SVC0002: Invalid input value.

PolicyException from ES 202 504-1 [2]:

- POL0001: Policy error.

- POL0006: Groups not allowed.

8.1.2 Operation: getDeviceId

This operation is intended to get the equipment identifier (e.g. IMEI) of a given device. The device is referenced by its address (i.e. the phone number). The URI provided is for a single address, not a group address. If a group address is provided, a fault (POL0006) will be returned to the application.

8.1.2.1 Input message: getDeviceIdRequest

Part Name	Part Type	Optional	Description
address	xsd:anyURI	No	Address of the device

8.1.2.2 Output message: getDeviceIdResponse

Part Name	Part Type	Optional	Description
result	xsd:string	No	Equipment identifier of the device

8.1.2.3   Referenced faults

ServiceException from ES 202 504-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 504-1 [2]:

- POL0001: Policy error.
- POL0006: Groups not allowed.

8.2   Interface: DeviceCapabilitiesNotificationManager

Set up notifications for device changes.

8.2.1   Operation: startNotification

The notification pattern with correlation is used in order to correlate the notification events with the request. The application sets a notification trigger on equipment identifier change. In the case where the address part is a group address, the application is setting a notification of equipment identifier change for every device address in the group. Note that the reference part contains the correlator string used in subsequent messages to the notification interface.

8.2.1.1   Input message: startNotificationRequest

Part Name	Part Type	Optional	Description
address	xsd:anyURI[1..unbounded]	No	The address(es) or address group(s), for one or more devices that the application wants to monitor for equipment identifier changes.
reference	common:SimpleReference	No	Notification endpoint definition.
duration	common:TimeMetric	Yes	Length of the time for which notifications occur. Do not specify to use default notification duration defined by service policy.

8.2.1.2   Output message: startNotificationResponse

Part Name	Part Type	Optional	Description
None			

8.2.1.3   Referenced faults

ServiceException from ES 202 504-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.
- SVC0004: No valid address(es).
- SVC0005: Duplicate correlator.
- SVC0006: Invalid group.

PolicyException from ES 202 504-1 [2]:

- POL0001: Policy error.
- POL0002: Privacy error.

- POL0003: Too many addresses.

- POL0006: Groups not allowed.

- POL0007: Nested groups not allowed.

8.2.2   Operation: endNotification

The application may end a notification using this operation. Until this operation completes, notifications may continue to be received by the application.

An end of notification (**deviceChangeNotificationEnd**) operation will not be invoked on the application for a notification ended using the **endNotification** operation.

8.2.2.1   Input message: endNotificationRequest

Part Name	Part Type	Optional	Description
correlator	xsd:string	No	The notification the application wants to cancel.

8.2.2.2   Output message: endNotificationResponse

Part Name	Part Type	Optional	Description
None			

8.2.2.3   Referenced faults

ServiceException from ES 202 504-1 [2]:

- SVC0001: Service error.

- SVC0002: Invalid input value.

PolicyException from ES 202 504-1 [2]:

- POL0001: Policy error.

8.3   Interface: DeviceCapabilitiesNotification

Notification interface to which device change notifications are delivered.

8.3.1   Operation: deviceNotification

The Parlay X Device Capabilities and Configuration web service invokes this operation when the equipment identifier of a monitored device changes.

8.3.1.1   Input message: deviceNotificationRequest

Part Name	Part Type	Optional	Description
correlator	xsd:string	No	Correlator provided in request to set up this notification
address	xsd:anyURI	No	The address of the device
deviceId	xsd:string	No	The new equipment identifier of the device

8.3.1.2   Output message: deviceNotificationResponse

Part Name	Part Type	Optional	Description
None			

8.3.2   Operation: deviceError

This operation is invoked on the application to indicate that the Web Service is cancelling the notification.

8.3.2.1   Input message: deviceErrorRequest

Part Name	Part Type	Optional	Description
correlator	xsd:string	No	Correlator provided in request to set up this notification.
address	xsd:anyURI	Yes	Address of the device if the error applies to an individual device, or not specified if it applies to the whole notification.
reason	common:ServiceError	No	Reason notification is being discontinued.

8.3.2.2   Output message: deviceErrorResponse

Part Name	Part Type	Optional	Description
None			

8.3.3   Operation: deviceEnd

The notifications have ended for this **correlator**. This message will be delivered when the duration for notifications has been completed. This message will not be delivered in the case of an error ending the notifications or deliberate ending of the notification (using **endNotification**).

8.3.3.1   Input message: deviceEndRequest

Part Name	Part Type	Optional	Description	
correlator	xsd:string	No	Correlator provided in request to set up this notification	

8.3.3.2   Output message: deviceEndResponse

Part Name	Part Type	Optional	Description
None			

8.4   Interface: DeviceConfiguration

Pushes configurations to a device, gets history of pushed configurations and gets available configurations for a given device model.

8.4.1   Operation: pushConfiguration

The operation enables pushing of a configuration to a device. If the **address** part is a group address, the configuration is pushed to all devices in the group.

8.4.1.1   Input message: pushConfigurationRequest

Part Name	Part Type	Optional	Description
address	xsd:anyURI	No	Address to which the configuration is pushed.
configuration	ConfigurationDescription	No	The configuration pushed to the addressed specified above.

8.4.1.2   Output message: pushConfigurationResponse

Part Name	Part Type	Optional	Description
None			

8.4.1.3   Referenced faults

ServiceException from ES 202 504-1 [2]:

- SVC0001: Service error.

- SVC0002: Invalid input value.

PolicyException from ES 202 504-1 [2]:

- POL0001: Policy error.

8.4.2   Operation getConfigurationList

Gets the list of configurations available for a given device. The configurations have to be made available in advance by the gateway operator.

8.4.2.1   Input message: getConfigurationListRequest

Part Name	Part Type	Optional	Description
deviceId	xsd:string	No	The **deviceID** for which compatible configurations should be returned.

8.4.2.2   Output message: getConfigurationListResponse

Part Name	Part Type	Optional	Description
result	ConfigurationDescription [1..unbounded]	No	An array of Configuration applicable to the **deviceID** specified in the input message.

8.4.2.3   Referenced faults

ServiceException from ES 202 504-1 [2]:

- SVC0001: Service error.

- SVC0002: Invalid input value.

PolicyException from ES 202 504-1 [2]:

- POL0001: Policy error.

8.4.3   Operation: getConfigurationHistory

Gets the list of configurations previously pushed to a given address. The URI provided is for a single device, not a group URI. If a group URI is provided, a fault (POL0006) will be returned to the application.

8.4.3.1 Input message: getConfigurationHistoryRequest

Part Name	Part Type	Optional	Description
address	xsd:anyURI	No	Address of the device.

8.4.3.2 Output message: getConfigurationHistoryResponse

Part Name	Part Type	Optional	Description
result	ConfigurationHistory [1..unbounded]	No	The history of configurations previously pushed to this device address.

8.4.3.3 Referenced faults

ServiceException from ES 202 504-1 [2]:

- SVC0001: Service error.

- SVC0002: Invalid input value.

PolicyException from ES 202 504-1 [2]:

- POL0001: Policy error.

- POL0006: Groups not allowed.

9 Fault definitions

There are no service-specific fault definitions for this service.

10 Service policies

Service policies for this service.

Name	Type	Description
MaximumNotificationAddresses	xsd:int	Maximum number of addresses for which a notification can be set up
MaximumNotificationDuration	common:TimeMetric	Maximum amount of time for which a notification may be set up
GroupSupport	xsd:boolean	Indicates whether group URIs may be used
NestedGroupSupport	xsd:boolean	Indicates whether nested groups are supported in group definitions

Annex A (normative):
WSDL for Device Capabilities and Configuration

The document/literal WSDL representation of this interface specification is compliant to ES 202 504-1 [2] and is contained in text files (contained in archive es_20250418v010101m0.zip) which accompany the present document.

Annex B (informative):
Bibliography

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

History

Document history		
V1.1.1	February 2008	Membership Approval Procedure MV 20080425: 2008-02-26 to 2008-04-25