



BSI Standards Publication

Information technology — UPnP Device Architecture

Part 26-12: Telephony device control protocol — Level 2 — Messaging service

National foreword

This British Standard is the UK implementation of ISO/IEC 29341-26-12:2017.

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A list of organizations represented on this committee can be obtained on request to its secretary.

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**Information technology — UPnP
Device Architecture —**

**Part 26-12:
Telephony device control protocol —
Level 2 — Messaging service**

*Technologies de l'information — Architecture de dispositif UPnP —
Partie 26-12: Protocole de contrôle de dispositif de téléphonie —
Niveau 2 — Service de messagerie*





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Foreword

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For an explanation on the voluntary nature of Standard, the meaning of the ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword – Supplementary information](#)

ISO/IEC 29341-26-12 was prepared by UPnP Forum and adopted, under the PAS procedure, by joint technical committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

The list of all currently available parts of ISO/IEC 29341 series, under the general title *Information technology — UPnP Device Architecture*, can be found on the [ISO web site](#).

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Original UPnP Document

Reference may be made in this document to original UPnP documents. These references are retained in order to maintain consistency between the specifications as published by ISO/IEC and by UPnP Implementers Corporation and later by UPnP Forum. The following table indicates the original UPnP document titles and the corresponding part of ISO/IEC 29341:

UPnP Document Title	ISO/IEC 29341 Part
UPnP Device Architecture 1.0	ISO/IEC 29341-1:2008
UPnP Device Architecture Version 1.0	ISO/IEC 29341-1:2011
UPnP Device Architecture 1.1	ISO/IEC 29341-1-1:2011
UPnP Device Architecture 2.0	ISO/IEC 29341-1-2
UPnP Basic:1 Device	ISO/IEC 29341-2
UPnP AV Architecture:1	ISO/IEC 29341-3-1:2008
UPnP AV Architecture:1	ISO/IEC 29341-3-1:2011
UPnP AVTransport:1 Service	ISO/IEC 29341-3-10
UPnP ConnectionManager:1 Service	ISO/IEC 29341-3-11
UPnP ContentDirectory:1 Service	ISO/IEC 29341-3-12
UPnP RenderingControl:1 Service	ISO/IEC 29341-3-13
UPnP MediaRenderer:1 Device	ISO/IEC 29341-3-2
UPnP MediaRenderer:2 Device	ISO/IEC 29341-3-2:2011
UPnP MediaServer:1 Device	ISO/IEC 29341-3-3
UPnP AVTransport:2 Service	ISO/IEC 29341-4-10:2008
UPnP AVTransport:2 Service	ISO/IEC 29341-4-10:2011
UPnP ConnectionManager:2 Service	ISO/IEC 29341-4-11:2008
UPnP ConnectionManager:2 Service	ISO/IEC 29341-4-11:2011
UPnP ContentDirectory:2 Service	ISO/IEC 29341-4-12
UPnP RenderingControl:2 Service	ISO/IEC 29341-4-13:2008
UPnP RenderingControl:2 Service	ISO/IEC 29341-4-13:2011
UPnP ScheduledRecording:1	ISO/IEC 29341-4-14
UPnP ScheduledRecording:2	ISO/IEC 29341-4-14:2011
UPnP MediaRenderer:2 Device	ISO/IEC 29341-4-2
UPnP MediaServer:2 Device	ISO/IEC 29341-4-3
UPnP AV Datastructure Template:1	ISO/IEC 29341-4-4:2008
UPnP AV Datastructure Template:1	ISO/IEC 29341-4-4:2011
UPnP DigitalSecurityCamera:1 Device	ISO/IEC 29341-5-1
UPnP DigitalSecurityCameraMotionImage:1 Service	ISO/IEC 29341-5-10
UPnP DigitalSecurityCameraSettings:1 Service	ISO/IEC 29341-5-11
UPnP DigitalSecurityCameraStillImage:1 Service	ISO/IEC 29341-5-12
UPnP HVAC_System:1 Device	ISO/IEC 29341-6-1
UPnP ControlValve:1 Service	ISO/IEC 29341-6-10
UPnP HVAC_FanOperatingMode:1 Service	ISO/IEC 29341-6-11
UPnP FanSpeed:1 Service	ISO/IEC 29341-6-12
UPnP HouseStatus:1 Service	ISO/IEC 29341-6-13
UPnP HVAC_SetpointSchedule:1 Service	ISO/IEC 29341-6-14
UPnP TemperatureSensor:1 Service	ISO/IEC 29341-6-15
UPnP TemperatureSetpoint:1 Service	ISO/IEC 29341-6-16

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UPnP HVAC_UserOperatingMode:1 Service	ISO/IEC 29341-6-17
UPnP HVAC_ZoneThermostat:1 Device	ISO/IEC 29341-6-2
UPnP BinaryLight:1 Device	ISO/IEC 29341-7-1
UPnP Dimming:1 Service	ISO/IEC 29341-7-10
UPnP SwitchPower:1 Service	ISO/IEC 29341-7-11
UPnP DimmableLight:1 Device	ISO/IEC 29341-7-2
UPnP InternetGatewayDevice:1 Device	ISO/IEC 29341-8-1
UPnP LANHostConfigManagement:1 Service	ISO/IEC 29341-8-10
UPnP Layer3Forwarding:1 Service	ISO/IEC 29341-8-11
UPnP LinkAuthentication:1 Service	ISO/IEC 29341-8-12
UPnP RadiusClient:1 Service	ISO/IEC 29341-8-13
UPnP WANCableLinkConfig:1 Service	ISO/IEC 29341-8-14
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UPnP WANConnectionDevice:1 Device	ISO/IEC 29341-8-4
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UPnP QoS Architecture:1.0	ISO/IEC 29341-10-1
UPnP QosDevice:1 Service	ISO/IEC 29341-10-10
UPnP QosManager:1 Service	ISO/IEC 29341-10-11
UPnP QosPolicyHolder:1 Service	ISO/IEC 29341-10-12
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UPnP QosDevice:2 Service	ISO/IEC 29341-11-10
UPnP QosManager:2 Service	ISO/IEC 29341-11-11
UPnP QosPolicyHolder:2 Service	ISO/IEC 29341-11-12
UPnP QOS v2 Schema Files	ISO/IEC 29341-11-2
UPnP RemoteUIClientDevice:1 Device	ISO/IEC 29341-12-1
UPnP RemoteUIClient:1 Service	ISO/IEC 29341-12-10
UPnP RemoteUIServer:1 Service	ISO/IEC 29341-12-11
UPnP RemoteUIServerDevice:1 Device	ISO/IEC 29341-12-2
UPnP DeviceSecurity:1 Service	ISO/IEC 29341-13-10
UPnP SecurityConsole:1 Service	ISO/IEC 29341-13-11
UPnP ContentDirectory:3 Service	ISO/IEC 29341-14-12:2011
UPnP MediaServer:3 Device	ISO/IEC 29341-14-3:2011

UPnP ContentSync:1	ISO/IEC 29341-15-10:2011
UPnP Low Power Architecture:1	ISO/IEC 29341-16-1:2011
UPnP LowPowerProxy:1 Service	ISO/IEC 29341-16-10:2011
UPnP LowPowerDevice:1 Service	ISO/IEC 29341-16-11:2011
UPnP QoS Architecture:3	ISO/IEC 29341-17-1:2011
UPnP QosDevice:3 Service	ISO/IEC 29341-17-10:2011
UPnP QosManager:3 Service	ISO/IEC 29341-17-11:2011
UPnP QosPolicyHolder:3 Service	ISO/IEC 29341-17-12:2011
UPnP QosDevice:3 Addendum	ISO/IEC 29341-17-13:2011
UPnP RemoteAccessArchitecture:1	ISO/IEC 29341-18-1:2011
UPnP InboundConnectionConfig:1 Service	ISO/IEC 29341-18-10:2011
UPnP RADAConfig:1 Service	ISO/IEC 29341-18-11:2011
UPnP RADASync:1 Service	ISO/IEC 29341-18-12:2011
UPnP RATAConfig:1 Service	ISO/IEC 29341-18-13:2011
UPnP RAClient:1 Device	ISO/IEC 29341-18-2:2011
UPnP RAServer:1 Device	ISO/IEC 29341-18-3:2011
UPnP RADiscoveryAgent:1 Device	ISO/IEC 29341-18-4:2011
UPnP SolarProtectionBlind:1 Device	ISO/IEC 29341-19-1:2011
UPnP TwoWayMotionMotor:1 Service	ISO/IEC 29341-19-10:2011
UPnP AV Architecture:2	ISO/IEC 29341-20-1
UPnP AVTransport:3 Service	ISO/IEC 29341-20-10
UPnP ConnectionManager:3 Service	ISO/IEC 29341-20-11
UPnP ContentDirectory:4 Device	ISO/IEC 29341-20-12
UPnP RenderingControl:3 Service	ISO/IEC 29341-20-13
UPnP ScheduledRecording:2 Service	ISO/IEC 29341-20-14
UPnP MediaRenderer:3 Service	ISO/IEC 29341-20-2
UPnP MediaServer:4 Device	ISO/IEC 29341-20-3
UPnP AV Datastructure Template:1	ISO/IEC 29341-20-4
UPnP InternetGatewayDevice:2 Device	ISO/IEC 29341-24-1
UPnP WANIPConnection:2 Service	ISO/IEC 29341-24-10
UPnP WANIPv6FirewallControl:1 Service	ISO/IEC 29341-24-11
UPnP WANConnectionDevice:2 Service	ISO/IEC 29341-24-2
UPnP WANDevice:2 Device	ISO/IEC 29341-24-3
UPnP Telephony Architecture:2	ISO/IEC 29341-26-1
UPnP CallManagement:2 Service	ISO/IEC 29341-26-10
UPnP MediaManagement:2 Service	ISO/IEC 29341-26-11
UPnP Messaging:2 Service	ISO/IEC 29341-26-12
UPnP PhoneManagement:2 Service	ISO/IEC 29341-26-13
UPnP AddressBook:1 Service	ISO/IEC 29341-26-14
UPnP Calendar:1 Service	ISO/IEC 29341-26-15
UPnP Presense:1 Service	ISO/IEC 29341-26-16
UPnP TelephonyClient:2 Device	ISO/IEC 29341-26-2
UPnP TelephonyServer:2 Device	ISO/IEC 29341-26-3
UPnP Friendly Info Update:1 Service	ISO/IEC 29341-27-1
UPnP MultiScreen MultiScreen Architecture:1	ISO/IEC 29341-28-1
UPnP MultiScreen Application Management:1 Service	ISO/IEC 29341-28-10

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UPnP MultiScreen Screen:1 Device	ISO/IEC 29341-28-2
UPnP MultiScreen Application Management:2 Service	ISO/IEC 29341-29-10
UPnP MultiScreen Screen:2 Device	ISO/IEC 29341-29-2
UPnP IoT Management and Control Architecture Overview:1	ISO/IEC 29341-30-1
UPnP DataStore:1 Service	ISO/IEC 29341-30-10
UPnP IoT Management and Control Data Model:1 Service	ISO/IEC 29341-30-11
UPnP IoT Management and Control Transport Generic:1 Service	ISO/IEC 29341-30-12
UPnP IoT Management and Control:1 Device	ISO/IEC 29341-30-2
UPnP Energy Management:1 Service	ISO/IEC 29341-31-1

1 Scope

This service definition is compliant with [1]. It defines a service type referred to herein as Messaging service.

The Messaging service is a UPnP service that allows control points to use the messaging features provided by a Telephony Server (TS) or a Telephony Client (TC).

It provides in the UPnP network the overall set of messaging capabilities of a phone (e.g., smartphone, IP phone, VoIP gateway, etc.), as the role of a TS. Additionally, or as an alternative, a device with the role of a TC can provide the Messaging service via UPnP Telephony.

This service provides the control points with the following functionalities:

- Page Mode Messaging (e.g., e-Mail, SMS, MMS, etc.): notification of incoming messages, reading messages, sending a message, deleting a message.
- Session Mode Messaging (e.g., Instant Messaging, SMS, etc.): notification of incoming messages, retrieving and sending the messages within a session, creating, modifying or closing a messaging session.
- File transfer session, to transfer the files in near real time.

This service does not provide the following functionalities:

- Connection to a remote server for sending or receiving the messages (e.g., WAN side);
- Rendering of message notifications and messages to the end user;
- Configuring the Messaging service with account for connecting to remote servers;

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[1] – UPnP Device Architecture, version 1.0, UPnP Forum, October 15, 2008. Available at: <http://www.upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0-20081015.pdf>. Latest version available at: <http://www.upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.0.pdf>.

[2] – Data elements and interchange formats – Information interchange -- Representation of dates and times, International Standards Organization, December 21, 2000. Available at: [ISO 8601:2000](http://www.iso.org/iso/8601.html).

[3] – IETF RFC 2046, Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types, N. Freed, Innosoft, N. Borenstein, First Virtual, November 1996. Available at: <http://www.ietf.org/rfc/rfc2046.txt>.

[4] – IETF RFC 2396, Uniform Resource Identifiers (URI): Generic Syntax, T. Berners-Lee, MIT/LCS, R. Fielding, U.C. Irvine, L. Masinter, Xerox Corporation, August 1998. Available at: <http://www.ietf.org/rfc/rfc2396.txt>.

[5] – IETF RFC 3261 SIP: Session Initiation Protocol, J. Rosenberg, dynamicsoft, H. Schulzrinne, Columbia U., G. Camarillo, Ericsson, A. Johnston, WorldCom, J. Peterson,

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[7] – IETF RFC 3966, The tel URI for Telephone Numbers, H. Schulzrinne, Columbia University, December 2004. Available at: <http://www.ietf.org/rfc/rfc3966.txt>.

[8] – Extensible Markup Language (XML) 1.0 (Third Edition), François Yergeau, Tim Bray, Jean Paoli, C. M. Sperberg-McQueen, Eve Maler, eds., W3C Recommendation, February 4, 2004. Available at: <http://www.w3.org/TR/2004/REC-xml-20040204>.

[9] – XML Schema Part 2: Data Types, Second Edition, Paul V. Biron, Ashok Malhotra, W3C Recommendation, 28 October 2004. Available at: <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028>.

3 Terms, definitions, symbols and abbreviated terms

For the purposes of this document, the terms and definitions given in [1] and the following apply.

3.1 Provisioning terms

3.1.1

conditionally allowed

CA

The definition or behavior depends on a condition. If the specified condition is met, then the definition or behavior is allowed, otherwise it is not allowed.

3.1.2

conditionally required

CR

The definition or behavior depends on a condition. If the specified condition is met, then the definition or behavior is required, otherwise it is not allowed.

3.1.3

not allowed

The definition or behavior is prohibited by this specification. Opposite of required.

3.2 Symbols

3.2.1

::

signifies a hierarchical parent-child (parent::child) relationship between the two objects separated by the double colon. This delimiter is used in multiple contexts, for example: Service::Action(), Action()::Argument, parentProperty::childProperty.

3.3 General terms

3.3.1

Message

an information unit (e.g., e-Mail, SMS, MMS, Instant Message, etc.) that is exchanged between two or more entities (e.g., UPnP TelCP and TS/TC).

3.3.2

Messaging Session

a logical connection established between two or more recipients before starting to exchange Messages. The Messages are then orderly managed within the Messaging Session.

The Messaging Sessions are also referred to as “Sessions” in this specification.

3.3.3

Page Mode Messaging

a mode of sending and receiving messages from any recipients without establishing a session between the recipients.

The typical Messages exchanged under the Page Mode Messaging are e-Mail, SMS, and MMS.

3.3.4

Session Mode Messaging

the mode of sending and receiving Messages within a Messaging Session.

The typical Messages exchanged under the Session Mode Messaging are Instant Messages (IM) or chat. SMS, MMS, etc. can also be managed under the concept of Session Mode Messaging and can be used to logically group the Messages into an one conversation. It is also possible to have a Messaging Session with different Message classes.

3.3.5

Peer

a recipient for a Message or a participant in a Messaging Session.

3.4 Abbreviated terms

3.4.1

GUI

Graphical User Interface

3.4.2

ID

Identifier

3.4.3

IM

Instant Messaging

3.4.4

ISDN

Integrated Services Digital Network

3.4.5

MMS

Multimedia Messaging Service

3.4.6

PLMN

Public Land Mobile Network

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3.4.7

PSTN

Public Switched Telephone Network

3.4.8

SMS

Short Message Service

3.4.9

TC

Telephony Client

3.4.10

TelCP

Telephony Control Point

3.4.11

TS

Telephony Server

3.4.12

VoIP

Voice over IP

3.4.13

WAN

Wide Area Network

4 Notations and conventions

4.1 Text conventions

- Strings that are to be taken literally are enclosed in “double quotes”.
- Words that are emphasized are printed in *italic*.
- Keywords that are defined by the UPnP Working Committee are printed using the *forum* character style.
- Keywords that are defined by [1] are printed using the *arch* character style.

4.2 Data Types

This specification uses data type definitions from two different sources. Data types from [1] are used to define state variable and action argument data types [1]. The XML Schema namespace is used to define property data types [9].

For Boolean data types from [1], it is strongly recommended to use the value “0” for false, and the value “1” for true. The values “true”, “yes”, “false”, or “no” may also be used but are not recommended. The values “yes” and “no” are deprecated and shall not be sent out by devices but shall be accepted on input.

For XML Schema defined Boolean data types, it is strongly recommended to use the value “0” for false, and the value “1” for true. The values “true”, “yes”, “false”, or “no” may also be used

but are not recommended. The values “yes” and “no” are deprecated and shall not be sent out by devices but shall be accepted on input.

4.3 Vendor-defined Extensions

Whenever vendors create additional vendor-defined state variables, actions or properties, their assigned names and XML representation shall follow the naming conventions and XML rules as specified in [1], 2.5, “Description: Non-standard vendor extensions”.

5 Service Modeling Definitions

5.1 Service Type

The following service type identifies a service that is compliant with this specification:

urn:schemas-upnp-org:service:Messaging:2

Messaging service is used herein to refer to this service type.

5.2 Messaging Service Architecture

The Messaging service provides in the UPnP network the overall set of messaging capabilities of a phone (e.g., smartphone, IP phone, VoIP gateway, etc.), as the role of a TS.

According to the Telephony architecture in [10], this Messaging service can be included both in the TS or TC devices. More than one Messaging services can coexist in the same UPnP network, it's up to a TelCP to manage multiple Messaging services.

The Messaging service provides the TelCP with the following features:

- Sending, retrieving and deleting of Messages.
- Receiving notification of Messages.
- Managing messaging and file transfer Sessions.

Both Page Mode and Session Mode Messaging are supported by the Messaging service.

The architecture for the Messaging service is shown in Figure 1.

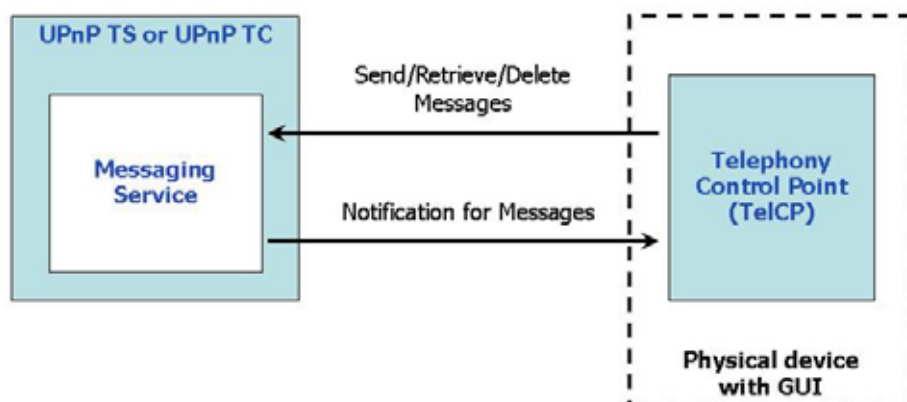


Figure 1 — Architecture of the Messaging Service

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It is assumed that the TelCP features are implemented in a physical device that provides a Graphical User Interface (GUI), for a user to manage locally the messaging functionalities. These are however out of the scope of the *Messaging* service design.

The UPnP device that implements the *Messaging* service is capable of exposing messaging features to the peers through some telecommunication means (e.g., PSTN/ISDN, PLMN, VoIP, etc.). The implementation of these messaging features with peer networks are out of the scope.

It is possible to have a local user interface for the *Messaging* service in UPnP server. The local management of Messages by the end user should be taken into consideration when implementing the *Messaging* service.

5.3 State Variables

Note: For first-time reader, it may be more insightful to read the theory of operations first and then the action definitions before reading the state variable definitions.

5.3.1 State Variable Overview

Table 1 — State Variables

Variable Name	R/A ^a	Data Type	Reference
<i>A_ARG_TYPE_MessagingCapabilities</i>	<i>R</i>	<i>string</i> (XML fragment)	See 5.3.2
<i>NewMessages</i>	<i>R</i>	<i>string</i> (XML fragment)	See 5.3.3
<i>SessionUpdates</i>	<i>A</i>	<i>string</i> (XML fragment)	See 5.3.4
<i>A_ARG_TYPE_TelephonyServerIdentity</i>	<i>R</i>	<i>string</i>	See 5.3.5
<i>A_ARG_TYPE_MessageID</i>	<i>R</i>	<i>string</i>	See 5.3.6
<i>A_ARG_TYPE_MessageClass</i>	<i>A</i>	<i>string</i>	See 5.3.7
<i>A_ARG_TYPE_MessageFolder</i>	<i>A</i>	<i>string</i>	See 5.3.8
<i>A_ARG_TYPE_MessageStatus</i>	<i>A</i>	<i>string</i>	See 5.3.9
<i>A_ARG_TYPE_Message</i>	<i>R</i>	<i>string</i> (XML fragment)	See 5.3.10
<i>A_ARG_TYPE_MessageList</i>	<i>A</i>	<i>string</i> (XML fragment)	See 5.3.11
<i>A_ARG_TYPE_SessionID</i>	<i>A</i>	<i>string</i>	See 5.3.12
<i>A_ARG_TYPE_SessionClass</i>	<i>A</i>	<i>string</i>	See 5.3.13
<i>A_ARG_TYPE_RecipientsList</i>	<i>A</i>	<i>string</i> (XML fragment)	See 5.3.14
<i>A_ARG_TYPE_SessionInfo</i>	<i>A</i>	<i>string</i> (XML fragment)	See 5.3.15
<i>A_ARG_TYPE_SessionsList</i>	<i>A</i>	<i>string</i> (XML fragment)	See 5.3.16
<i>A_ARG_TYPE_SupportedContentType</i>	<i>A</i>	<i>string</i>	See 5.3.17
<i>A_ARG_TYPE_Subject</i>	<i>A</i>	<i>string</i>	See 5.3.18
<i>A_ARG_TYPE_SessionStatus</i>	<i>A</i>	<i>string</i>	See 5.3.19
<i>A_ARG_TYPE_FileInfoList</i>	<i>A</i>	<i>string</i> (XML fragment)	See 5.3.20

Variable Name	R/A ^a	Data Type	Reference
^a <u>R</u> = required, <u>A</u> = allowed, <u>CR</u> = conditionally required, <u>CA</u> = conditionally allowed, <u>X</u> = Non-standard, add <u>-D</u> when deprecated (e.g., <u>R-D</u> , <u>A-D</u>).			

5.3.2 A ARG TYPE MessagingCapabilities

This state variable defines an XML fragment that contains the features supported by the Messaging service, regarding:

- The Message classes supported for Page Mode Messaging;
- The Session classes supported for Session Mode Messaging;
- The Message folders supported.

5.3.2.1 XML Schema Definition

This is a string containing an XML fragment. The XML fragment in this argument shall validate against the XML schema for MessagingCapabilities in the XML namespace "urn:schemas-upnp-org:phone:messaging" which is located at "http://www.upnp.org/schemas/phone/messaging-v2.xsd".

5.3.2.2 Description of fields in the MessagingCapabilities structure

```
<?xml version="1.0" encoding="UTF-8"?>
<messaging:messagingCapabilities
  xsi:schemaLocation="urn:schemas-upnp-org:phone:messaging
  http://www.upnp.org/schemas/phone/messaging-v2.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:messaging="urn:schemas-upnp-org:phone:messaging">
  <supportedMessageClasses>
    <messageClass>Message class</messageClass>
    <!-- Any other messageClass(if any) go here.-->
  </supportedMessageClasses>
  <supportedSessionClasses>
    <sessionClass>Session class</sessionClass>
    <!-- Any other sessionClass(if any) go here.-->
  </supportedSessionClasses>
  <supportedMessageFolders>
    <messageFolder>Message Folder</messageFolder>
    <!-- Any other messageFolder(if any) go here.-->
  </supportedMessageFolders>
</messaging:messagingCapabilities>
```

<xml>

Required. Case Sensitive.

<messagingCapabilities>

Required. Shall include a namespace declaration for the Messaging service Schema ("urn:schemas-upnp-org:phone:messaging"). This element includes the following sub elements:

<supportedMessageClasses>

Required. Indicates the list of supported Message classes.

<messageClass>

Required. Indicates the Message class as defined for the A ARG TYPE MessageClass state variable. The empty value is not allowed. This element can appear one or more times.

<supportedSessionClasses>

Required. Indicates the list the supported Session classes.

<sessionClass>

Allowed. Indicates the Session class as defined for the [A_ARG_TYPE SessionClass](#) state variable. The empty value is not allowed. This element can appear one or more times.

<supportedMessageFolders>

Required. Indicates the list of the supported folders for the Messages.

<messageFolder>

Required. Indicates the folder name as defined for the [A_ARG_TYPE MessageFolder](#) state variable. The empty value is not allowed. This element can appear one or more times.

5.3.3 [NewMessages](#)

This state variable notifies incoming Messages (for both Page Mode and Session Mode Messaging), to the TelCP.

This state variable includes a list of *MessageIDs*. The TelCP can retrieve the details for each Message using the *MessageID*. It can also contain an overview of the Message.

5.3.3.1 XML Schema Definition

This is a string containing an XML fragment. The XML fragment in this argument shall validate against the XML schema for [NewMessages](#) in the XML namespace "urn:schemas-upnp-org:phone:messaging" which is located at "http://www.upnp.org/schemas/phone/messaging-v2.xsd".

5.3.3.2 Description of fields in the [NewMessages](#) structure

```
<?xml version="1.0" encoding="UTF-8"?>
<messaging:newMessages
  xsi:schemaLocation="urn:schemas-upnp-org:phone:messaging
    http://www.upnp.org/schemas/phone/messaging-v2.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:messaging="urn:schemas-upnp-org:phone:messaging">
  <newMessage>
    <messageID>ID of the Message</messageID>
    <messageOverview>
      Preview of the Message (i.e., SMS from +390112288046:Hallo,how...)
    </messageOverview>
  </newMessage>
  <!-- Any other newMessage(if any) go here.-->
</messaging:newMessages>
```

<xml>

Required. Case Sensitive.

<newMessages>

Required. Shall include a namespace declaration for the [Messaging](#) service Schema ("urn:schemas-upnp-org:phone:messaging"). This element includes the following sub elements:

<newMessage>

Allowed. Includes a MessageID and Message overview. This element can appear zero or more times.

<messageID>

Required. Includes the unique identifier of the Message.

<messageOverview>

Allowed. xsd:string, Includes the overview of the Message.

5.3.4 SessionUpdates

This state variable notifies any changes (e.g., session requested, session accepted, session closed, session modified, and user typing etc.) to the Messaging Sessions.

The notification message includes the Session ID, the Session status and any changes to the Session.

These information are contained in an XML data structure.

5.3.4.1 XML Schema Definition

This is a string containing an XML fragment. The XML fragment in this argument shall validate against the XML schema for SessionUpdates in the XML namespace "urn:schemas-upnp-org:phone:messaging" which is located at "http://www.upnp.org/schemas/phone/messaging-v2.xsd".

5.3.4.2 Description of fields in the SessionUpdates structure

```
<?xml version="1.0" encoding="UTF-8"?>
<u>sessionUpdates
  xsi:schemaLocation="urn:schemas-upnp-org:phone:messaging
  http://www.upnp.org/schemas/phone/messaging-v2.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:messaging="urn:schemas-upnp-org:phone:messaging">
  <u>sessionUpdate
    <u>sessionID<ID of the Session</u>sessionID>
    <u>sessionEvent<Session event description</u>sessionEvent>
    <!-- Any other sessionEvent (if any) go here.-->
    <u>sessionStatus<Status of the session</u>sessionStatus>
  </u>sessionUpdate>
  <!-- Any other sessionUpdate (if any) go here.-->
</u>sessionUpdates>
```

<xml>

Required. Case Sensitive.

<sessionUpdates>

Required. Shall include a namespace declaration for the Messaging service Schema ("urn:schemas-upnp-org:phone:messaging"). This element includes the following sub elements:

<sessionUpdate>

Allowed. Includes sessionID, Session events to capture the Session changes and Session status. This element can appear zero or more times.

<sessionID>

Required. Includes the unique identifier of the Session.

<sessionEvent>

Required. xsd:string, Includes the descriptions of the events occurred. This element can appear one or more times. Table 2 shows the possible values of sessionEvent element and the resulting Session status:

Table 2 — Allowed values for sessionEvent and the corresponding values of the sessionStatus

sessionEvent	sessionStatus	Description
"session requested by: "<peer:name>	" <u>Pending</u> "	An incoming Session has been requested by a peer

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sessionEvent	sessionStatus	Description
"session accepted by: "<peer:name>	" <u>Running</u> "	A Session has been accepted by a peer
"session closed"	" <u>Closed</u> "	The Session has been closed or rejected
"session modified"	" <u>Running</u> "	The Session has been modified
<peer:name>" is typing"	" <u>Running</u> "	One of the Session participants is typing a Message
"one TelCP has left"	" <u>Running</u> "/ " <u>Parked</u> "	One of the TelCP has left the Session. The Session status shall be " <u>Parked</u> " if the last TelCP has left.
"one TelCP has joined"	" <u>Running</u> "	A " <u>Parked</u> " Session has been joined by a TelCP
<peer:name> " has left"	" <u>Running</u> "	One of the peers has left the Session.
<peer:name> " has joined"	" <u>Running</u> "	One of the peers has joined the Session.
"file transfer started"	" <u>Running</u> "	A file transfer has started within the Session
"file transfer completed"	" <u>Running</u> "	A file transfer has been completed within a Session
"file transfer cancelled"	" <u>Running</u> "	A file transfer has been cancelled
"file transfer progress: "<nBytes>" Bytes"	" <u>Running</u> "	A file transfer is in progress within the Session and <i>nBytes</i> Bytes have been transferred since the transfer has started.
"file download failed"	" <u>Running</u> "	The file can not be retrieved by the TS/TC.
<i>TBD</i>	<i>TBD</i>	<i>(Specified by UPnP vendors.)</i>

<sessionStatus>

Required. Includes the current status of the Session.

5.3.5 A ARG TYPE TelephonyServerIdentity

This state variable contains the unique identifier of a Telephony Server. The identity of a Telephony Server is expressed using the standard URI (Unified Resource Identifier) scheme as specified in [4]. In case of SIP, the identity of the Telephony Server identity contains the SIP URI. In case of a generic resource identified by a telephone number, the Telephony Server identity contains the TEL URI [7].

5.3.6 A ARG TYPE MessageID

This state variable contains an identifier that uniquely identifies a Message.

The format of this state variable is as follows:

- *MessageID*
 - to be used for Page Mode Messages;
- *SessionID"."MessageID*
 - to be used for Session Mode Messages.

where:

- The *MessageID* is an unique alphanumerical identifier that shall contain only characters from the sets: “0..9”, “A..Z”, “a..z”, generated by the UPnP device hosting the *Messaging* service.
- The *SessionID* is an unique alphanumerical identifier of the Messaging Session, as defined in 5.3.12. It’s applicable for Session Mode Messaging.

Example:

Some examples of valid values for this variable are:

- Valid examples for Page Mode Messaging are: 123456, qwerty, M000123, XXY123.
- Valid examples for Session Mode Messaging are: abcdef.789012, ses001.123455.

5.3.7 **A_ARG_TYPE_MessageClass**

This state variable contains the value for the Message class. The *Messaging* service shall support at least one of the Message classes. The possible values of this state variable are shown in the table below.

Table 3 — allowedValueList for the A_ARG_TYPE_MessageClass state variable

Value	R/A ^a
<u>“e-Mail”</u>	<u>A</u>
<u>“SMS”</u> (Default)	<u>A</u>
<u>“MMS”</u>	<u>A</u>
<u>“Instant Message”</u>	<u>A</u>
<u>“WebpageURL”</u>	<u>A</u>
^a <u>R</u> = required, <u>A</u> = allowed, <u>X</u> = Non-standard.	

where:

- “e-Mail” refers to an e-Mail Message;
- “SMS” refers to an SMS Message;
- “MMS” refers to an MMS Message;
- “Instant Message” refers to an instant Message (e.g., within a chat Session);
- “WebpageURL” refers to a notification for an webpage sync messa

Vendor specific extensions are allowed for the values of this argument.

5.3.8 **A_ARG_TYPE_MessageFolder**

This state variable contains the possible values for the folders where Messages are kept and organized by the *Messaging* service.

This state variable is introduced to provide type information for various action arguments that refers to folders of Messages.

The possible values of this state variable are shown in the table below.

Table 4 — allowedValueList for the **A ARG TYPE MessageFolder** state variable

Value	R/A ^a
" <u>Received</u> " (DEFAULT)	<u>R</u>
" <u>Outgoing</u> "	<u>R</u>
" <u>Sent</u> "	<u>R</u>
" <u>Deleted</u> "	<u>A</u>
" <u>ClosedSession</u> "	<u>A</u>
a <u>R</u> = required, <u>A</u> = allowed, <u>X</u> = Non-standard.	

where:

- The "Received" folder contains the Messages that have been received by the Messaging service;
- The "Outgoing" folder contains the Messages that are in the process of being sent by the Messaging service;
- The "Sent" folder contains the Messages that have been sent by the Messaging service;
- The "Deleted" folder contains the Messages that have been deleted from all other folders;
- The "ClosedSession" folder contains information related to all the closed and terminated Sessions. The Session information includes Session ID, Session Class, and Messages exchanged during the Session;

5.3.9 **A ARG TYPE MessageStatus**

This state variable contains the current status of a Message. The status includes whether a Message has been read or yet to be read. This state variable is used to provide type information for arguments of various actions (i.e., GetMessages()). The possible values of this state variable are shown in the table below.

Table 5 — allowedValueList for the **A ARG TYPE MessageStatus** state variable

Value	R/A ^a
" <u>Read</u> "	<u>R</u>
" <u>Unread</u> "	<u>R</u>
a <u>R</u> = required, <u>A</u> = allowed, <u>X</u> = Non-standard.	

where:

- "Read" means the Message has been read by a TelCP by invocation of the ReadMessage() action, or by using the local user interface of the device.
- "Unread" means the Message has not been read yet.

5.3.10 **A ARG TYPE Message**

This state variable defines an XML fragment that contains the details of a Message which includes the ID of the Message, the ID of the Session, the ID of the reply Message, information about the recipients, the subject, the text for the Message, and any attachment if exist, etc.