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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

IPTV multimedia services and applications for IPTV –
Digital Signage

Digital signage: Service requirements and a reference model on information services in public places via an interoperable service platform

Recommendation ITU-T H.785.1



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Recommendation ITU-T H.785.1

Digital signage: Service requirements and a reference model on information services in public places via an interoperable service platform

Summary

Digital signage (DS) services treat information of relatively common interest. Audiences in public places are typical targets of DS services. An interoperable service platform for DS services plays a key role for content dissemination to large numbers of DS terminal devices.

Recommendation ITU-T H.785.1 addresses high-level requirements, a reference model, push-based distribution methods and relevant metadata of DS services in public places via the interoperable service platform. This Recommendation is expected to enhance interoperability for DS services in public places for efficient and effective system operation.

History

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Digital signage, distribution method, interoperable service platform, metadata, public place, reference model, requirement.

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FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T H.785.1

Digital signage: Service requirements and a reference model on information services in public places via an interoperable service platform

1 Scope

This Recommendation addresses high-level requirements, a reference model, push-based distribution methods and relevant metadata of digital signage (DS) services in public places via an interoperable service platform. This Recommendation is expected to enhance interoperability for DS services in public places for efficient and effective system operation.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- | | |
|--------------------|---|
| [ITU-T H.780] | Recommendation ITU-T H.780 (2012), <i>Digital signage: Service requirements and IPTV-based architecture</i> . |
| [ITU-T H.781] | Recommendation ITU-T H.781 (2015), <i>Digital signage: Functional architecture</i> . |
| [ITU-T H.782] | Recommendation ITU-T H.782 (2018), <i>Digital signage: Metadata</i> . |
| [ITU-T H.785.0] | Recommendation ITU-T H.785.0 (2014), <i>Digital signage: Requirements of disaster information services</i> . |
| [ITU-T X.1058] | Recommendation ITU-T X.1058 (2017), <i>Information technology – Security techniques – Code of practice for personally identifiable information protection</i> . |
| [ITU-T X.1303 bis] | Recommendation ITU-T X.1303 bis (2014), <i>Common alerting protocol (CAP 1.2)</i> . |
| [IETF RFC 6455] | IETF Request for Comment 6455 (2011), <i>The WebSocket Protocol</i> . |
| [W3C HTML5] | W3C Recommendation HTML5.2 (2017), <i>HTML5.2</i> . |
| [W3C XML] | W3C Recommendation XML Schema Part 2 (2004), <i>XML Schema Part 2: Datatypes Second Edition</i> . |

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 alert [b-ITU-T X.674]: A warning or alarm message concerning an impending danger or problem.

3.1.2 availability [b-ISO/IEC 27000]: Property of being accessible and usable upon demand by an authorized entity.

3.1.3 cloud computing [b-ITU-T Y.3500]: Paradigm for enabling network access to a scalable and elastic pool of shareable physical or virtual resources with self-service provisioning and administration on-demand.

NOTE – Examples of resources include servers, operating systems, networks, software, applications, and storage equipment.

3.1.4 cloud service [b-ITU-T Y.3500]: One or more capabilities offered via **cloud computing** (3.1.3) invoked using a defined interface.

3.1.5 content [ITU-T H.780]: A combination of audio, still image, graphic, video, or data.

NOTE – Variety of formats is classified as the "data" (e.g., text, encoded values, multimedia description language introduced by [b-ITU-T H.760]).

3.1.6 digital signage (DS) [ITU-T H.780]: A system that sends information, advertising and other messages to electronic devices (e.g., displays, speakers) in accordance with the time of day and the location of the display, or the actions of audience. Contents and their relevant information such as display schedules are delivered over networks.

3.1.7 confidentiality [b-ISO/IEC 27000]: Property that information is not made available or disclosed to unauthorized individuals, entities, or processes.

3.1.8 distribution [b-ITU-T Y.1910]: Sending the content to appropriate intermediate locations to enable subsequent delivery.

3.1.9 delivery [ITU-T H.780]: Sending contents to terminal devices.

3.1.10 information security [b-ISO/IEC 27000]: Preservation of **confidentiality** (3.1.7), **integrity** (3.1.11) and **availability** (3.1.2) of information.

NOTE – In addition, other properties, such as authenticity, accountability, non-repudiation, and reliability can also be involved.

3.1.11 integrity [b-ISO/IEC 27000]: Property of accuracy and completeness.

3.1.12 interoperability [b-ITU-T Y.101]: The ability of two or more systems or applications to exchange information and to mutually use the information that has been exchanged.

3.1.13 multimedia [b-ITU-T T.174]: The property of handling several types of representation media.

3.1.14 personally identifiable information (PII) [b-ISO 29100]: Any information that (a) can be used to identify the PII principal to whom such information relates, or (b) is or might be directly or indirectly linked to a PII principal.

NOTE – To determine whether a PII principal is identifiable, account should be taken of all the means which can reasonably be used by the privacy stakeholder holding the data, or by any other party, to identify that natural person.

3.1.15 service provider [b-ITU-T M.1400]: A general reference to an operator that provides telecommunication services to customers and other users either on a tariff or contract basis. A service provider may or may not operate a network. A service provider may or may not be a customer of another service provider.

NOTE – Typically, the service provider acquires or licenses content from content providers and packages this into a service that is consumed by the end-user.

3.1.16 symbols, pictograms and icons [b-ITU-T E.121]: are graphical representations that convey information with a minimum of reliance on language.

Pictograms are typically said to be simplified pictorial representations, used to guide people and tell them how to achieve a certain goal. Pictograms are, as far as possible, self-explanatory, and require little or no learning on the part of users.

Symbols, on the other hand, are usually defined as abstract representations that stand for something but that require learning on the part of users to take on their meaning.

Symbols and pictograms can be considered to lie at opposite ends of a continuum defined by the degree to which they are pictorial representations of the things they represent. As a practical matter, many of the symbols and pictograms in use today, including many of those found in this Recommendation, lie some distance from either end of that continuum. That is, they may contain some degree of abstraction combined with a degree of pictorial representation.

Icons are similar representations that have become widely used as objects of manipulation in graphical user interfaces for computer applications. They may be entirely abstract, like symbols, or pictorial, like pictograms, or fall at some point between those extremes. The use of this term is growing beyond its origin in computer user interfaces.

In this Recommendation, the terms "symbol", "pictogram" and "icon" will be used as far as possible in the spirit of the definitions given above. However, it must be realized that the choice of one term or the other is, to some considerable degree, arbitrary in many cases. No effort has been made here to adhere strictly to clearly delineated distinctions between these terms, as distinctions have proved impossible to draw reliably.

3.1.17 terminal device (TD) [b-ITU-T Y.1901]: An end-user device which typically presents and/or processes the content, such as a personal computer, a computer peripheral, a mobile device, a TV set, a monitor, a VoIP terminal or an audio-visual media player.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

API	Application Program Interface
CSC	Cloud Service Customer
CSP	Cloud Service Provider
DS	Digital Signage
HTML	HyperText Markup Language
ICC	Integrated Circuit Card
LAN	Local Area network
PII	Personally Identifiable Information
SaaS	Software as a Service
SLA	Service Level Agreement
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
XML	extensible Markup Language

5 Conventions

In clause 7 of this Recommendation: