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HSTP.DS-Gloss
Digital signage: Glossary and definitions

ITU-T

Summary

This Technical Paper provides definitions and explanations of terms which are related to digital signage systems and services. Some terms listed are taken from the relevant ITU-T Recommendations and other SDOs' specifications. This Technical Paper also includes a number of general telecommunication terms in the field of digital signage. In conclusion, there are two types of terms presented in this document: those typically regarding digital signage services and those in more general use, but specifically applicable to the digital signage field.

Note

This is an informative ITU-T publication. Mandatory provisions, such as those found in ITU-T Recommendations, are outside the scope of this publication. This publication should only be referenced bibliographically in ITU-T Recommendations.

Keywords

Digital signage, terms, definitions, glossary.

Change Log

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Table of Contents

	Page
1 Scope	1
2 References.....	1
3 Definitions	1
4 Abbreviations and acronyms	1
5 Overview	1
6 Terms related to digital signage systems and services	2
6.1 General	2
6.2 Accessibility	4
6.3 Advertisement.....	4
6.4 Alerting.....	4
6.5 Audience measurement	5
6.6 Interactivity.....	6
6.7 Presentation	6
6.8 Security.....	7
6.9 Transport.....	7
Appendix I – Alphabetical index of terms	9
Bibliography.....	11

Technical Paper ITU-T HSTP.DS-Gloss

Digital signage: Glossary and definitions

1 Scope

This Technical Paper provides definitions and explanations of terms which are related to digital signage systems and services. This Technical Paper also includes a number of general telecommunication terms in the field of digital signage. In conclusion, there are two types of terms presented in this document; those typically used regarding the digital signage services and those in more general use, but specifically applicable to digital signage field.

2 References

- [ITU-T H.780] Recommendation ITU-T H.780 (2012), *Digital signage: Service requirements and IPTV-based architecture*.
- [ITU-T H.781] Recommendation ITU-T H.781 (2015), *Digital Signage: Functional architecture*.
- [ITU-T H.782] Recommendation ITU-T H.782 (2018), *Digital signage: Metadata*.
- [ITU-T H.783] Recommendation ITU-T H.783 (2019), *Digital signage: Audience measurement services*.
- [ITU-T H.784] Recommendation ITU-T H.784 (2018), *Digital signage: Display device control interface*.
- [ITU-T H.785.0] Recommendation ITU-T H.785.0 (2014), *Digital signage, Requirements of disaster information services*.
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3 Definitions

See clause 6.

4 Abbreviations and acronyms

This Technical Paper uses the following abbreviations and acronyms:

DS	Digital Signage
P2P	Peer-to-Peer
PII	Personally Identifiable Information
PoP	Proof of Play
QA	Question Answering
UNISDR	United Nations International Strategy for Disaster Reduction

5 Overview

A digital signage (DS) system sends information, advertisement and other messages to electronic devices (e.g., displays, speakers, smartphone) in accordance with the time of day and the location of

the devices, or the actions of the audience. Contents and their relevant information such as presentation schedules are delivered over networks [ITU-T H.780]. There are various digital signage services in a multitude of places; (e.g., flight schedule displays in airports, announcements in public facilities and out-of-home advertisement). The benefits of digital signage are summarized as follows:

- Rich contents can be shown on terminal devices;
- Signs can adapt to the context and audience, even interactively;
- A variety of terminal devices (e.g., stationary terminal, handy terminal including smartphone) can be used for digital signage services.

Digital signage relies on a wide variety of content delivery and media processing technologies. It is therefore beneficial to provide relevant terminologies to grasp ITU-T Recommendations on digital signage.

6 Terms related to digital signage systems and services

6.1 General

This clause introduces several terms which are generally used regarding digital signage systems and services.

6.1.1 application [b-ITU-T Y.101]: A structured set of capabilities, which provide value-added functionality supported by one or more services.

6.1.2 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]).

6.1.3 content delivery schedule [ITU-T H.781]: A schedule that describes time constraints of specific contents to be delivered to terminal devices.

NOTE – Since contents need to be delivered to terminals prior to display of them, content delivery schedule may provide alternative ways for content delivery with specific time-constraints.

6.1.4 content provider [b-ITU-T Y.1910]: The entity that owns or is licensed to sell content or content assets.

6.1.5 daisy chain [ITU-T H.784]: A form of wiring multiple display devices in sequence.

6.1.6 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.

6.1.7 digital signage (DS) service operator [ITU-T H.781]: The business operator that provides digital signage service. It manages digital signage terminals for displaying contents received from content provider.

6.1.8 digital signage (DS) terminal device: A device which typically presents and/or processes the digital signage services for the end users, such as handy terminals, smart-phones, large digital displays to provide certain kind of information for public, etc.

6.1.9 identification [b-ITU-T X.1252]: The process of recognizing an entity by contextual characteristics.

6.1.10 location owner [ITU-T H.783]: A person or organization that owns or manages the venue.

NOTE – It is general that digital signage service provider rents a venue for installation of their terminal.

6.1.11 media player [b-ITU-T H.761]: Component of an application environment which decodes or executes a specific content type.

6.1.12 metadata [b-ITU-T X.1255]: Structured information that pertains to the identity of users, systems, services, processes, resources, information or other entities.

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

6.1.14 playlist [ITU-T H.780]: Composed of a list of contents.

NOTE 1 – This data is created and provided by digital signage service providers.

NOTE 2 – This data can be selected by an end user when interactivity is supported in a digital signage terminal device.

NOTE 3 – This data may indicate an order of playing contents.

6.1.15 playlist schedule [ITU-T H.780]: Composed of a list of playlists indicated by specific play date and/or time.

6.1.16 play log [ITU-T H.782]: A collection of record or information created by a digital signage system reflecting the content played, system performance, and other data.

6.1.17 reference point [b-ITU-T Y.2012]: A conceptual point at the conjunction of two non-overlapping functional entities that can be used to identify the type of information passing between these functional entities.

NOTE – A reference point may correspond to one or more physical interfaces between pieces of equipment.

6.1.18 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, service providers acquire or license content from content providers and package this into a service that is consumed by end users.

6.1.19 symbols, pictograms and icons [b-ITU-T E.121]: 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 Technical Paper, 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.

6.1.20 universal design [b-ITU-T Y.1901]: It is the design of the products and environments to be useable by all people, to the greatest extent possible by including accessibility features in the original design to prevent the need for adaptation after deployment.

6.1.21 venue [ITU-T H.783]: A place or location that a terminal device is located.

6.2 Accessibility

6.2.1 accessibility feature [b-ITU-T F.791]: An additional content component that is intended to assist people hindered in their ability to perceive an aspect of the main content.

NOTE – Examples: captions for the hard of hearing, subtitles in various languages, sign-language interpretation video and descriptive audio.

6.2.2 acquisition [b-ITU-T Y.1901]: The process of obtaining content by the end-user.

NOTE – For content with accessibility features this means that the content will be available in a form that can be used by the end-user.

6.2.3 audio description [b-ITU-T F.791]: Is an additional audio track to aid persons with visual impairments who cannot follow the visual content. It is also known as "video description", "visual description", and "described video"

NOTE – Audio description is primarily intended to assist users who are unable to see the video content clearly. The narrative passages fit between the dialogue and other significant audio content so as not to interfere with it. Ideally the user can control the volume and spatial positioning of the audio or derive it from a separate output.

6.2.4 captions [b-ITU-T F.791]: Are a real-time transcription of spoken words, sound effects, relevant musical cues, and other relevant audio information in live or pre-recorded events. Captions can be open, not adjustable by the user, or closed where they can be turned on and off by the users at will.

NOTE – This service can be provided by means of either textual or graphical supplementary content. The captions and the dialogue are usually in the same language. The service is primarily to assist users having difficulty hearing the sound. Ideally, users may have some control over the position and size of the presentation. Different speakers are distinguished, usually by different colours.

6.2.5 sign language interpretation [b-ITU-T F.791]: Synchronized showing of an interpreter who uses sign language to convey the main audio content and dialogue to people who use sign language..

NOTE – This service comes in the form of supplementary video content, usually smaller in image size to that of the main video content. Ideally the user can control the position, size and background properties (solid or transparent and the colour, if solid). It is of sufficient temporal and spatial quality to enable sign reading and lip reading.

6.2.6 subtitles [b-ITU-T F.791]: On-screen text translation of language(s) of the dialogue in any audiovisual content.

NOTE – This service can be provided by means of either textual or graphical supplementary content. The subtitles and the dialogue are usually in different languages. The assumed audience for subtitling is hearing people who do not understand the language of the dialogue.

6.3 Advertisement

6.3.1 advertisement: An audio or visual form of marketing communication for promoting products, services, and events.

6.4 Alerting

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

6.4.2 alert agency [b-ITU-T X.674]: A national, regional or international entity responsible for the management of alerts.

6.4.3 disaster [b-ITU-T E.119]: A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

NOTE – Disasters are the consequences or effects of hazard.

6.4.4 disaster relief [b-ITU-T E.108]: Information or action to be effective for reduction and suppression of a serious disruption of the functioning of society. The disruption may be caused by accidents, natural phenomena or human activity, and results in a significant widespread threat to human life, health, property or the environment.

6.4.5 early warning system [b-ITU-T E.102]: The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

NOTE – This definition encompasses the range of factors necessary to achieve effective responses to warnings. A people-centred early warning system necessarily comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received. The expression "end-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection through to community response.

6.4.6 hazard [b-ITU-T K.95]: Potential source of harm.

NOTE – The term hazard can be qualified in order to define its origin (e.g., electrical hazard, mechanical hazard) or the nature of the potential harm (e.g., electric shock hazard, cutting hazard, toxic hazard, fire hazard).

6.4.7 mitigation [b-UNISDR terms]: The lessening or limitation of the adverse impacts of hazards and related disasters.

6.4.8 outage [b-ITU-T X.790]: Unavailability of a service or resource.

6.4.9 power outage [b-ITU-T E.102]: An outage of the electric power to an area.

NOTE – The loss can be short term or long term, also called a blackout.

6.4.10 preparedness [b-UNISDR terms]: The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

6.4.11 reconstruction phase [ITU-T H.785.0]: A later stage of disaster recovery, when definitive repair of the infrastructure affected by a disaster is done.

6.4.12 recovery [b-ITU-T E.102]: The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

NOTE 1 – The recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended and should be based on pre-existing strategies and policies that facilitate clear institutional responsibilities for recovery action and enable public participation. Recovery programmes, coupled with the heightened public awareness and engagement after a disaster, afford a valuable opportunity to develop and implement disaster risk reduction measures and to apply the "build back better" principle.

NOTE 2 – This term is related to definition 3.2.39 provided in [b-ITU-T X.860].

6.4.13 resilience [b-UNISDR terms]: The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

6.4.14 restoration phase [ITU-T H.785.0]: The earlier stage of disaster recovery, when the first steps to restore services to the population affected by a disaster are taken.

6.5 Audience measurement

6.5.1 active audience [ITU-T H.783]: Audience interacting with terminal devices.

6.5.2 audience [ITU-T H.783]: Listeners or viewers engaging in multimedia services.

6.5.3 audience information [ITU-T H.783]: The overall information about audience behaviour, and the related information, during the time that audience measurement is in active.

6.5.4 audience measurement [ITU-T H.783]: The measurement of audience within digital signage services.

6.5.5 audience measurement aggregation [ITU-T H.783]: The functions that configures audience measurement client, receive audience measurement data from it.

6.5.6 audience measurement client [ITU-T H.783]: The functions that sends audience measurement data to audience measurement aggregation functions.

6.5.7 audience measurement data [ITU-T H.783]: Audience behaviour data which is related to a service and contents consumption, combined or not with audience information. Audience measurement data is a result from the audience measurement client delivered to the audience measurement aggregation. The data includes results from the audience measurement metric, ambient information of the terminal, etc.

6.5.8 audience measurement metric [ITU-T H.783]: A set of information that is extracted through analysis of the raw audience data (e.g., the number of audience, gender, rough ages, etc.).

6.5.9 audience measurement report [ITU-T H.783]: A report from the audience measurement aggregation to the stakeholder or applications that represents the effect of advertising contents and characteristics of the venue of the terminal devices installed with statistical analysis on the series of audience measurement data.

6.5.10 audience measurement service provider [ITU-T H.741]: A service provider providing audience measurement services. An audience measurement service provider configures an audience measurement system to control what audience information the system collects.

6.5.11 audience measurement system [ITU-T H.783]: The system which captures audience raw data, extracts audience measurement metrics and analyse for making audience measurement report on audience behaviour by detecting application events and using raw data from input devices such as camera, microphone, sensor devices and so on within the service.

6.5.12 passive audience [ITU-T H.783]: Audience without interacting with terminal devices.

6.5.13 passing-by [ITU-T H.783]: A person without stopping nearby locations of multimedia services within the predetermined time and distance.

6.5.14 raw audience data [ITU-T H.783]: A raw data that is captured by input devices of a terminal device such as camera, microphone, sensor devices, etc.

6.6 Interactivity

6.6.1 question answering (QA) [ITU-T HSTP.DS-UCIS]: A function that generates answers for the user's question spoken in a natural language. The response generated by QA can be in any form such as text, graphics, video, voice, etc. It can assist the user to understand the answer.

6.7 Presentation

6.7.1 region [ITU-T H.782]: A partial area of the screen layout to be a content displayed.

6.7.2 screen layout [ITU-T H.782]: A composition of one or more regions to be content displayed.

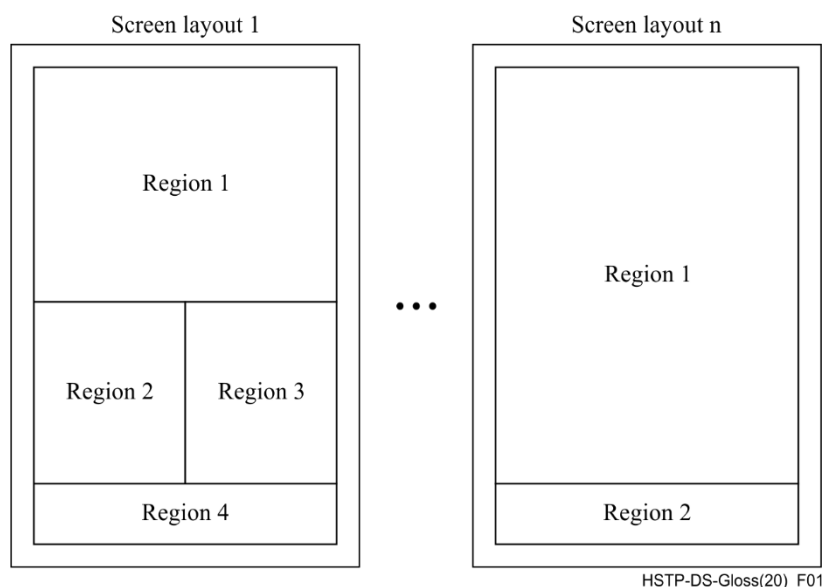


Figure 1 – Relation between "Screen layout" and "Region"

6.7.3 tile mode [ITU-T H.784]: A typical type of daisy chain. In the tile mode, multiple display devices are installed in the form of a two-dimensional square in order to be operated as a single large screen.

6.8 Security

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

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

6.8.3 information security [b-ISO/IEC 27000]: Preservation of confidentiality, integrity and availability of information.

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

6.8.5 personally identifiable information (PII) [b-ITU-T X.1252]: Any information a) that identifies or can be used to identify, contact, or locate the person to whom such information pertains; b) from which identification or contact information of an individual person can be derived; or c) that is or can be linked to a natural person directly or indirectly.

NOTE – In general, this information contains identifiers such as user's name, social identification number, device id, phone number, RFID codes and so on.

6.8.6 proof-of-play (PoP) [ITU-T H.781]: Any technique that can identify and prove that the content has been displayed on the screen.

NOTE – Additional explanation: Play logs will be used to confirm whether content has been played successfully or not. Under a specific contraction between a service provider and an advertiser (e.g., payments depend on the numbers of times of play), the logs are used as proof.

6.9 Transport

6.9.1 distribution [b-ITU-T Y.1910]: [In the context of IPTV architecture,] "distribution" is defined as sending the content to appropriate intermediate locations to enable subsequent delivery.

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

6.9.3 network provider [ITU-T H.780]: The organization that maintains and operates the network components required to support a service or set of services.

6.9.4 overlay network [b-ITU-T X.1162], [ITU-T H.781]: An overlay network is a virtual network that runs on top of another network. Like any other network, the overlay network comprises a set of nodes and links between them. Because the links are logical ones, they may correspond to many physical links of the underlying network.

6.9.5 peer-to-peer (P2P) [b-ITU-T Y.2206], [ITU-T H.781]: A system is considered to be P2P if the nodes of the system share their resources in order to provide the service the system supports. The nodes in the system both provide services to other nodes and request services from other nodes.

6.9.6 peer [b-ITU-T X.1161], [ITU-T H.781]: Communication node on P2P network that functions simultaneously as both "client" and "server" to the other nodes on the network.

Appendix I

Alphabetical index of terms

Table I.1 shows cross reference of terms in alphabetical order which are described in this Technical Paper.

Table I.1 – Cross reference of terms in alphabetical order

Terms	Clause	Reference
application	6.1	[b-ITU-T Y.101]
accessibility feature	6.2	[b-ITU-T F.791]
acquisition	6.2	[b-ITU-T Y.1901]
active audience	6.5	[ITU-T H.783]
advertisement	6.3	
alert	6.4	[b-ITU-T X.674]
alert agency	6.4	[b-ITU-T X.674]
audience	6.5	[ITU-T H.783]
audience information	6.5	[ITU-T H.783]
audience measurement	6.5	[ITU-T H.783]
audience measurement aggregation	6.5	[ITU-T H.783]
audience measurement client	6.5	[ITU-T H.783]
audience measurement data	6.5	[ITU-T H.783]
audience measurement metric	6.5	[ITU-T H.783]
audience measurement report	6.5	[ITU-T H.783]
audience measurement service provider	6.5	[ITU-T H.741]
audience measurement system	6.5	[ITU-T H.783]
audio description	6.2	[b-ITU-T F.791]
availability	6.8	[b-ISO/IEC 27000]
captions	6.2	[b-ITU-T F.791]
confidentiality	6.8	[b-ISO/IEC 27000]
content	6.1	[ITU-T H.780]
content delivery schedule	6.1	[ITU-T H.781]
content provider	6.1	[b-ITU-T Y.1910]
daisy chain	6.1	[ITU-T H.784]
delivery	6.9	[ITU-T H.780]
digital signage (DS)	6.1	[ITU-T H.780]
digital signage (DS) service operator	6.1	[ITU-T H.781]
disaster	6.4	[b-ITU-T E.119]
disaster relief	6.4	[b-ITU-T E.108]
distribution	6.9	[b-ITU-T Y.1910]
digital signage (DS) terminal device	6.1	
early warning system	6.4	[b-ITU-T E.102]

Table I.1 – Cross reference of terms in alphabetical order

Terms	Clause	Reference
hazard	6.4	[b-UNISDR terms]
identification	6.1	[b-ITU-T X.1252]
information security	6.8	[b-ISO/IEC 27000]
integrity	6.8	[b-ISO/IEC 27000]
location owner	6.1	[ITU-T H.783]
media player	6.1	[b-ITU-T H.761]
metadata	6.1	[b-ITU-T X.1255]
multimedia	6.1	[b-ITU-T T.174]
network provider	6.9	[ITU-T H.780]
outage	6.7	[b-ITU-T X.790]
overlay network	6.9	[b-ITU-T X.1162], [ITU-T H.781]
passing-by	6.5	[ITU-T H.783]
passive audience	6.5	[ITU-T H.783]
peer	6.9	[b-ITU-T X.1161], [ITU-T H.781]
peer-to-peer (P2P)	6.9	[b-ITU-T Y.2206], [ITU-T H.781]
personally identifiable information (PII)	6.8	[b-ITU-T X.1252]
playlist	6.1	[ITU-T H.780]
playlist schedule	6.1	[ITU-T H.780]
playlog	6.1	[ITU-T H.782]
power outage	6.4	[b-ITU-T E.102]
proof-of-play (PoP)	6.8	[ITU-T H.781]
question answering (QA)	6.6	[ITU-T HSTP.DS-UCIS]
raw audience data	6.5	[ITU-T H.783]
reconstruction phase	6.4	[ITU-T H.785.0]
recovery	6.4	[b-ITU-T X.860]
reference point	6.1	[b-ITU-T Y.2012]
region	6.7	[ITU-T H.782]
restoration phase	6.4	[ITU-T H.785.0]
screen layout	6.7	[ITU-T H.782]
service provider	6.1	[b-ITU-T M.1400]
sign language interpretation	6.2	[b-ITU-T F.791]
subtitles	6.2	[b-ITU-T F.791]
symbols, pictograms and icons	6.1	[b-ITU-T E.121]
tile mode	6.7	[ITU-T H.784]
universal design	6.1	[b-ITU-T Y.1901]
venue	6.1	[ITU-T H.783]

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