

Errata Notice on Schema Locations

March 17, 2022

This standard makes use of namespace locations with a form of <http://www.scte.org/schemas/xyz/>*, where “xyz” is the location of the specific schema being referenced. Due to limitations on the current SCTE website, those specific locations are not available.

To find such schemas:

1. Go to the standards download page at <https://www.scte.org/standards/library/catalog/>
2. Search for the standard number (xyz in the above example)
3. Select the document from the table
4. Scroll to the “Supporting Documentation” section of the document webpage.

The schema will be listed within the Supporting Documentation section.

This notice will be removed once the exact namespace values are functional.

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S T A N D A R D S

Digital Video Subcommittee

AMERICAN NATIONAL STANDARD

ANSI/SCTE 130-2 2020

**Digital Program Insertion—Advertising Systems
Interfaces**

Part 2

Core Data Elements

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Digital Program Insertion—Advertising Systems Interfaces Part 2—Core Data Elements

1.0 SCOPE

This document, SCTE 130 Part 2, describes the Digital Program Insertion - Advertising Systems Interfaces' core messaging and data types using extensible markup language (XML), XML Namespaces, and XML Schema. Core messaging includes the extensible message schemas, the common SCTE 130 message attributes, and the required SCTE 130 messages. The core data types are XML attributes and XML elements that may be used in any SCTE 130 message element or within any SCTE 130 element definition.

2.0 REFERENCES

2.1 Normative references

The following standards contain provisions that, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

[XML]	W3C Recommendation, “Extensible Markup Language (XML) 1.0 (Fourth Edition)”, Tim Bray, et al, 16 August 2006, http://www.w3.org/TR/2006/REC-xml-20060816/ .
[XMLNamespaces]	W3C Recommendation, “Namespaces In XML (Second Edition)”, Tim Bray, et al, 16 August 2006, http://www.w3.org/TR/2006/REC-xml-names-20060816/ .
[XMLSchemaP1]	W3C Recommendation, “XML Schema Part 1: Structures (Second Edition)”, H. Thompson, et al, 28 October 2004, http://www.w3.org/TR/xmlschema-1/ .
[XMLSchemaP2]	W3C Recommendation, “XML Schema Part 2: Datatypes (Second Edition)”, P. Biron, et al, 28 October 2004, http://www.w3.org/TR/xmlschema-2/ .
[XMLInfoSet]	W3C Recommendation, “XML InfoSet (Second Edition)”, John Cowan, Richard Tobin, 4 February 2004, http://www.w3.org/TR/2004/REC-xml-infoset-20040204/ .
[SCTE35]	ANSI/SCTE 35 2019r1—Digital Program Insertion Cueing Message for Cable.

[SCTE118-3]	ANSI/SCTE 118-3 2019—Program Specific Ad Insertion—Traffic System to Ad Insertion System File Format Specification.
[CLADI1-1]	CableLabs Asset Distribution Interface Specification Version 1.1: MD-SP-ADI1.1-I04-060505, http://www.cablelabs.com/specifications/MD-SP-ADI1.1-I04-060505.pdf
[SCTE236]	ANSI/SCTE 236 2017—Content Metadata.
[RFC2616]	Part 3 of Hypertext Transfer Protocol -- HTTP/1.1
[RFC3986]	RFC 3986, “Uniform Resource Identifier (URI): Generic Syntax”, January 2005, www.ietf.org/rfc/rfc3986.txt
[IEEE802]	IEEE Std 802-2001—IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture—IEEE Computer Society, approved 6 December 2001, http://standards.ieee.org/getieee802/802.html

2.2 Informative References

The following documents may provide valuable information to the reader but are not required when complying with this standard.

[XMLSchemaP0]	W3C Recommendation, “XML Schema Part 0: Primer (Second Edition)”, D. Fallside, et al, 28 October 2004, http://www.w3.org/TR/xmlschema-0/ .
[RFC2046]	Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types
[RFC6838]	Media Type Specifications and Registration Procedures
[RFC4122]	RFC 4122 “The Universally Unique IDentifier (UUID) URN Namespace, July 2005, www.ietf.org/rfc/rfc4122.txt .
[SCTE67]	SCTE 67—Recommended Practice for Digital Program Insertion for Cable

[SCTE118-1]	ANSI/SCTE 118-1—Program-Specific Ad Insertion - Data Field Definitions, Functional Overview and Application Guidelines.
[SCTE118-2]	ANSI/SCTE 118-2—Program-Specific Ad Insertion—Content Provider to Traffic Communication Applications Data Model.
[CLVOD1-1]	CableLabs Video-on-Demand Content Specification 1.1: MD-SP-VOD-CONTENT1.1-I05-060831, http://www.cablelabs.com/specifications/MD-SP-VOD-CONTENT1.1-I05-060831.pdf .
[SCTE130-1]	SCTE 130-1: Digital Program Insertion—Advertising Systems Interfaces Part 1—Overview.
[SCTE130-3]	SCTE 130-3: Digital Program Insertion—Advertising Systems Interfaces Part 3—Ad Management Service (ADM) Interface.
[SCTE130-7]	SCTE 130-7: Digital Program Insertion—Advertising Systems Interfaces Part 7—Message Transport.

3.0 COMPLIANCE NOTATION

<i>shall</i>	This word or the adjective “ required ” means that the item is an absolute requirement of this document.
<i>shall not</i>	This phrase means that the item is an absolute prohibition of this document.
<i>forbidden</i>	This word means the value specified <i>shall</i> never be used.
<i>should</i>	This word or the adjective “ <i>recommended</i> ” means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighted before choosing a different course.
<i>should not</i>	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
<i>may</i>	This word or the adjective “ <i>optional</i> ” means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.
<i>deprecated</i>	Use is permissible for legacy purposes only. Deprecated features may be removed from future versions of this document. Implementations should avoid use of deprecated features.

4.0 DEFINITION OF TERMS

Throughout this standard the terms below have specific meanings. Because some of the terms are defined in other SCTE documents having very specific technical meanings, the reader is referred to the original source for their definition. For terms defined by this standard, brief definitions are given below.

content: The video, audio, and data streams taken together as a single identifiable unit. Content *may* refer to the original entertainment (programming) content, an ad spot, an interactive or enhanced application asset, or any other similar asset.

default endpoint: The endpoint where messages are delivered in the absence of a message specific endpoint designation.

endpoint: An address, a Uniform Resource Identifier (URI), or a specific location where a logical service function or functions *shall* be found and consumed via message exchange.

event: A general term indicating something has happened or occurred.

logical service: A well-defined, self-contained set of functions accessible via one or more endpoints. The logical service has some type of underlying computer system that supports message communication.

message: The unit of communication between two logical services.

program: A time-bounded collection of video, audio, and data streams.

registration-established service channel: A service channel duration commencing with a successful registration and continuing until termination through deregistration.

scope of uniqueness: Uniqueness is context relative and for this specification's purpose *shall* be defined by one of following: global, service channel or element.

- **global uniqueness:** Global or universally unique and at no other time *shall* the item be compromised, reused, or otherwise taken to have more than one meaning. Enforcement of uniqueness as well as creation of globally unique identifiers is outside the scope of this specification and RFC 4122 is recommended. See [\[RFC4122\]](#) for additional information.
- **service channel uniqueness:** Uniqueness scoped by the @identity attribute and the service channel and at no other time *shall* the item be compromised, reused, or otherwise taken to have more than one meaning. XML messages *shall* be service channel unique and a message *shall not* be compromised or reused for the duration of the service channel. Service channel uniqueness is relative only to the endpoints where the message exchange is occurring and within the identity domain of the two endpoints involved in the exchange. Enforcement of uniqueness as well as creation of identity unique identifiers is outside the scope of this specification and RFC 4122 is recommended. See [\[RFC4122\]](#) for additional information.
- **element uniqueness:** Generally, XML elements *shall* be unique according to existing XML compliance where the element's distinctiveness is unambiguous and unique relative to its immediate spatial relationship to other elements.

service channel: A message communication path between two logical services.

5.0 ABBREVIATIONS

This document uses the following abbreviations:

ADS: Ad Decision Service.

ADM: Ad Management Service

CIS: Content Information Service

HA: High Availability

IANA: Internet Assigned Numbers Authority – See [\[RFC6838\]](#).

POIS: Placement Opportunity Information Service

SIS: Subscriber Information Service

UPID: Unique Program Identifier—See [[SCTE35](#)].

URI: Uniform Resource Identifier—See [[RFC3986](#)].

UUID: Universally Unique Identifier—See [[RFC4122](#)].

XML: Extensible Markup Language —See [[XML](#)].

6.0 INTRODUCTION

This document defines the following:

- The extensible SCTE 130 message structure.
- A set of required messages that *shall* be implemented by all SCTE 130 compliant logical services.
- A common set of XML elements (i.e., core elements) which *may* appear in any SCTE 130 message or within any SCTE 130 defined element.
- Common XML attributes used by the core data elements which *may* also be used by any other element.

All externally defined SCTE 130 messages *shall* contain the appropriate common message attributes as defined herein.

This specification also defines requirements for the SCTE 130 message transport without specifying the actual transport implementation. SCTE 130 Part 7 [[SCTE130-7](#)] defines the normative transport specification.

6.1 Document Organization

This document provides a structured, logical approach to the core aspects of SCTE 130. Each subsequent section focuses on a particular specification aspect and the document's presentation order provides a top-down, conceptual introduction necessary to implement SCTE 130.

Section 7 explains the document's notational conventions. Section 8 defines the XML namespace usage and the applicable XML semantics. Section 9 introduces the message concepts and the core XML attributes which are the foundation of every SCTE 130 message. This section also defines the message exchange characteristics common to all SCTE 130 message interactions.

Section 9 and its subsequent sections often *may* reference XML attributes and elements defined later in the document. The reader *may* occasionally need to

reference other sections of this document in order to find the complete explanation of a syntactic component.

Section 10 defines messages that **shall** be supported by every SCTE 130 logical service. Section 11 presents the core XML attributes followed by the principal specification XML elements with each group presented in alphabetical order. Appendix A concludes the document with the normative status code values, their meanings, and their message usage applicability.

7.0 NOTATIONAL CONVENTIONS

7.1 Normative XML Schema

Descriptions of messages, elements, and attributes are normative and, when combined with the normative XML schema document (provided separately), comprise the full normative specification. Non-normative schema illustrations and instance examples are included herein for informational purposes only. Any real or implied usage, semantics, or structure indicated by the schema illustrations and examples **shall not** be considered part of the specification.

No messages representing the interfaces defined in the schema are considered conformant unless they are valid according to the schema document. Additionally, other SCTE 130 standard normative parts *may* impose additional rules or restrictions that **shall** be adhered to in order for the messages to be considered conformant to those parts.

In the case where the written normative specification (for example, this document) and the normative schema document (i.e., the separately provided XML ‘xsd’ file) conflict, the written normative specification **shall** take precedence over the XML schema document.

The inclusion of a normative XML schema document does not require or imply the specific use of the schema nor a requirement that a message be validated.

7.2 Document Conventions

XML elements *may* be listed in the format “element” or “prefix:element” without the double-quotes where “prefix” denotes the appropriate namespace defined in Section 8 and “element” denotes the name of the element. A slash “/” denotes that a child XML element or XML attribute follows.

XML attributes are listed in the format “@attribute” or “@prefix:attribute” without the double-quotes where “prefix” denotes the appropriate namespace defined in Section 8. An “@” character without the double-quotes denotes an XML attribute as opposed to an XML element, and “attribute” denotes the name of the attribute.

When describing concrete XML schemas, an element wildcard (`<xsd:any/>`) is represented by the notation `##any`. The `##any` element refers to all namespaces including the namespace defined by this document. Any SCTE 130 or alternative namespace element *may* be included.

The constrained wildcard element `<xsd:any namespace="##other"/>` is represented by `##other`. The `##other` element refers to all other namespaces except the namespace defined by this document. Any non-SCTE 130 Part 2 namespace element *may* be included.

An attribute wildcard (`<xsd:anyAttribute/>`) is represented by the notation `@##any` (or 'any `##any`' within the schema diagrams). The `##any` attribute indicates that any SCTE 130 defined or alternatively defined attribute *may* be included.

Figure 1 explains the schema illustration technique used throughout the SCTE 130 specifications. Symbols and their meanings are explained within the figure.

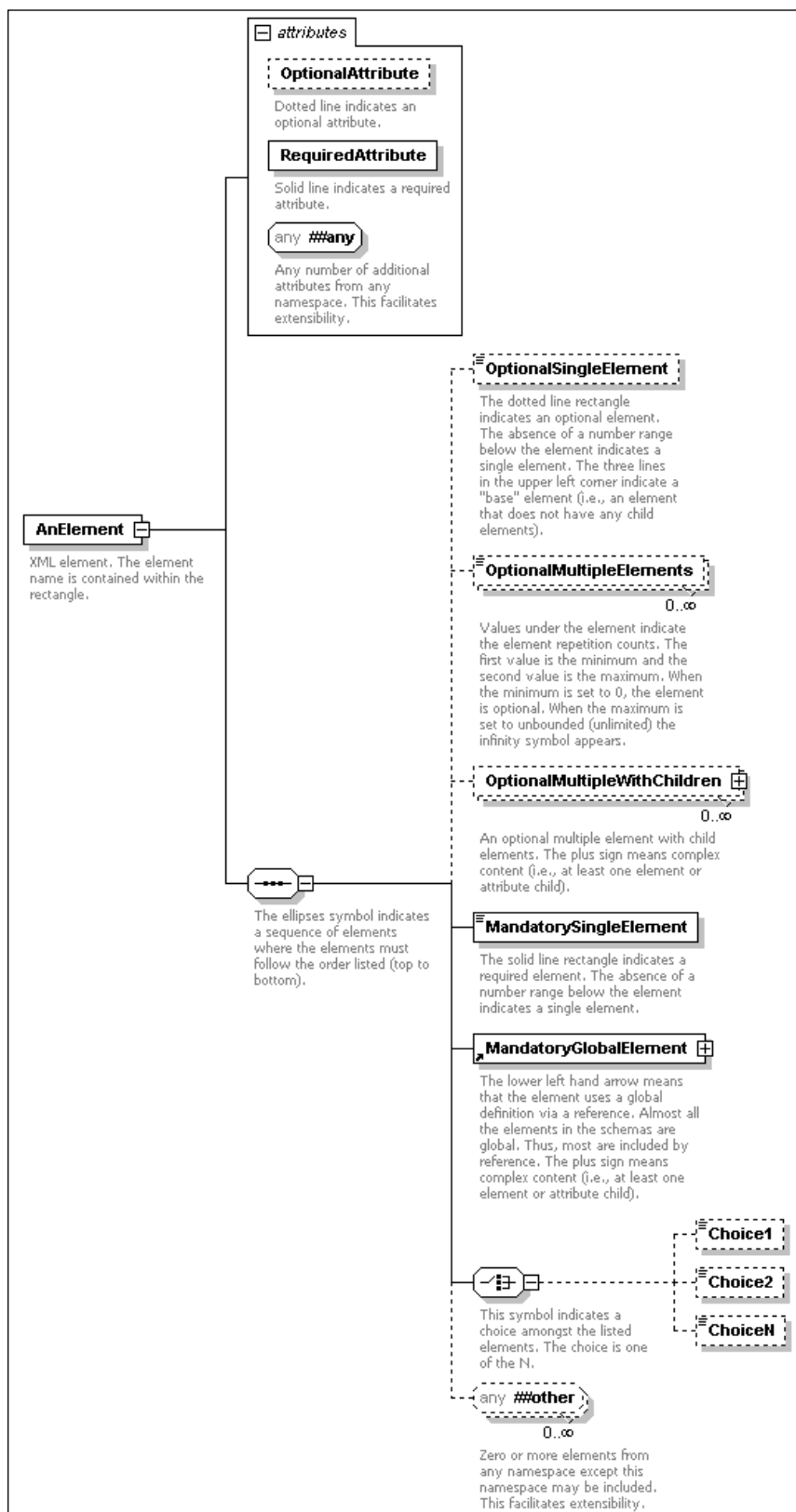


Figure 1: Schema Illustration Explanation

8.0 XML NAMESPACES

This document uses the prefix ‘*core*’ for the interface associated with this specification’s XML namespace URI. This URI *shall* be used by all implementations applying this specification. Table 1 lists the prefix, the corresponding namespace, and a description of the defining specification.

Standard	XML Schema Prefix	XML Schema Elements	Value
2020 (latest) SCTE 130 Part 2 (i.e., this document)	core	Schema namespace	http://www.scte.org/schemas/130-2/2008a/core ¹
		Schema version attribute	20200321
		Schema filename	SCTE_130-2_core_20200321.xsd
XML foundation. See [XMLSchemaP1] .	xsd	Schema namespace	http://www.w3.org/2001/XMLSchema

Table 1: XML Namespace Declarations

The namespace is formatted per the SCTE recommendation and includes the SCTE 130 version through the inclusion of a date, which *may* minimally be a specification year identifier.

8.1 Unknown/Unrecognized/Unsupported XML Elements and Attributes

Generally, unknown, unrecognized or unsupported XML elements and attributes contained within SCTE 130 messages and elements *should* be ignored during message processing. Specifically, these are elements or attributes which the implementation does not understand or expect. The logical service *should* generate an appropriate response message for any element or attribute in this categorization. For example, the return message might contain an informational Note element. Ideally, validation *should* be utilized to identify and report prohibited constructs through the

¹ While this specification has a ratified year of 2020, the XML schema/XSD namespace has a year of 2008a, which is the year the XSD and this specification’s syntax was initially ratified. All subsequent changes have been backwards compatible and thus, the namespace has not changed.

appropriate mechanisms. Elements and attributes that are prohibited by a namespace *should* generate an appropriate error response message.

8.2 Element Order

Element order is constrained by the schemas and must be preserved throughout processing of the XML document. In particular, the order of elements affects the end result of the processing. Consequently, an implementation failing to preserve the order *may* cause incorrect processing results. Subsequently, the process of producing an abstract XML Information Set (InfoSet) from a concrete XML document, e.g., by parsing it, ***shall*** always result in the same abstract InfoSet, with the same element order per XML InfoSet. (See [XMLInfoSet] for additional information.) Any intermediary processing *may* enhance the XML document but it ***shall not*** alter the abstract InfoSet element order (i.e., the XML elements comprising the document ***shall*** stay in document order).

8.3 Language Identification

In document processing, it is often useful to identify the natural or formal language in which the content is written. A special attribute named `xml:lang` *may* be inserted in documents to specify the language used in the contents and attribute values of any element in an XML document. See [XML] for the allowed values. Typically, the `xml:lang` attribute is utilized with an `xsd:string` type.

9.0 SCTE 130 MESSAGE BASICS

A logical service is a self-contained set of functions accessible via one or more endpoints where each function is accessed via an XML document exchange. An endpoint identifies where a function *may* be found and consumed and multiple functions *may* be found at the same endpoint. Endpoint discovery is outside the scope of this specification. A message is the unit of communication between two logical services. All SCTE 130 identified logical services exchange information based on a common XML schema defined herein.

The XML document root element for all communication exchanges is a specific form of request, response, notification or acknowledgement element referred to as a message. Communication involves a two-way message exchange of a specific paired message set as illustrated in Figure 2. The possible exchanged message sets ***shall*** be either a request/response message pair or a notification/acknowledgement message pair. All other message combinations ***shall not*** be allowed. When a request or notification message is received by an SCTE 130 logical service, then the appropriately paired response or acknowledgement message ***shall*** be returned.

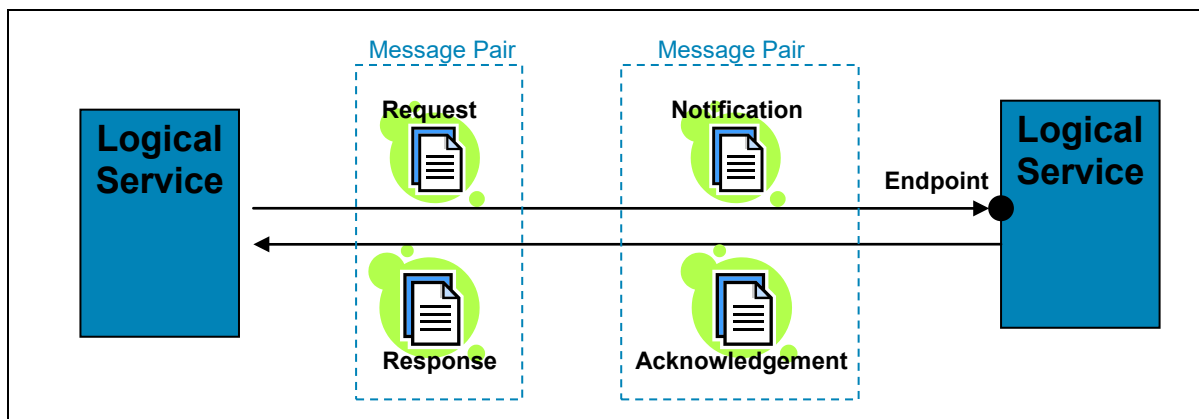


Figure 2: Basic Communication Overview

Figure 3 illustrates a single logical service *may* be simultaneously communicating with multiple other logical services.

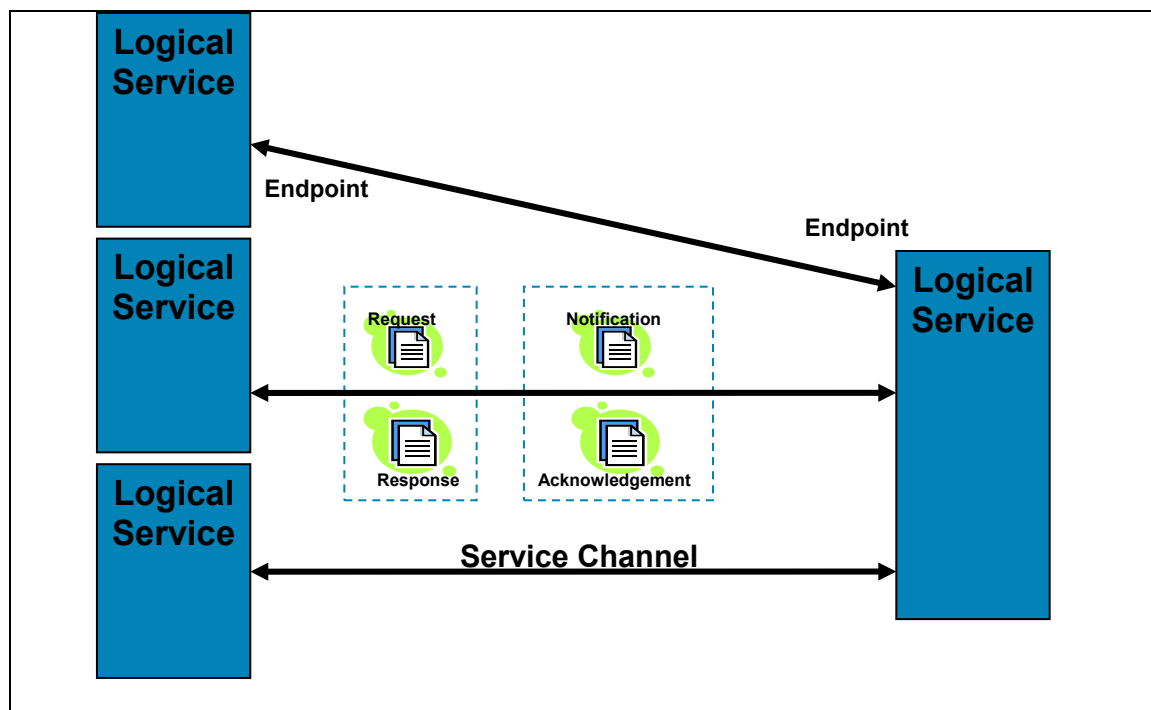


Figure 3: Service Channel Illustrated

A service channel is the message communication path between two logical services which exists for one of the following durations: the duration marked by the first message of a service registration and ending with the last message of service deregistration or the single request/response message transaction where the messages are permitted outside the registration-established service channel scope.

Once successfully constructed, the registration-established service channel *shall* remain active until terminated via deregistration. Normal termination of a service channel *shall*

occur via a deregistration message exchange. Abnormal termination (e.g., a system failure, etc.) *may* require alternative deregistration mechanisms outside the scope of this specification. (Note: SCTE 130 Part 7 provides additional details. See [[SCTE130-7](#)] for supplementary information.)

Since an SCTE 130 message element is the XML document root element, all SCTE 130 messages *shall* share a common base syntactic structure as defined in the following sections.

9.1 Common Schema for All Messages

All SCTE 130 message XML elements *shall* share a common attribute definition though individual messages *may* contain additional attributes. Refer to the individual message schemas for specific details. Figure 4 illustrates the SCTE 130 message common attribute schema.

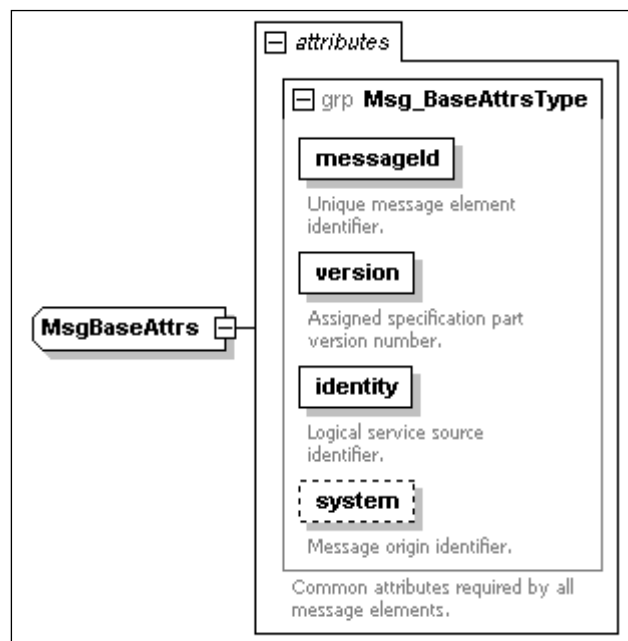


Figure 4: SCTE 130 Message Common Attribute Schema

A single SCTE 130 message *shall* be identifiable via its @messageId attribute. The individual SCTE 130 message specification version *shall* be identified via the @version attribute. The logical service message origin *shall* be specified using the @identity attribute and a further refinement *may* be provided via the @system attribute.

9.1.1 Semantic Definitions for the SCTE 130 Message Common Attributes

@messageId [Required, messageIdAttrType]—The message identifier. Every SCTE 130 message instance *shall* have a service channel unique value. The

@messageId *should* be a Universally Unique Identifier as defined by RFC 4122 (see [RFC4122]). See Section 11.2.4 for additional information.

@version [Required, versionAttrType]—The SCTE 130 message specification version number. The value *shall* be specified by the individual SCTE 130 specification parts. For all messages defined herein, the value *shall* be “1.2”. See Section 11.2.9 for the attribute’s type definition.

@identity [Required, identityAttrType]—The origin logical service identifier. A globally unique identifier associated with the logical service. See Section 11.2.1 for additional information.

@system [Optional, systemAttrType]—The message source identifier. See Section 11.2.8 for additional information.

9.2 Request and Notification Messages Base Schema

Figure 5 and Figure 6 illustrate the SCTE 130 request and notification messages base schema.

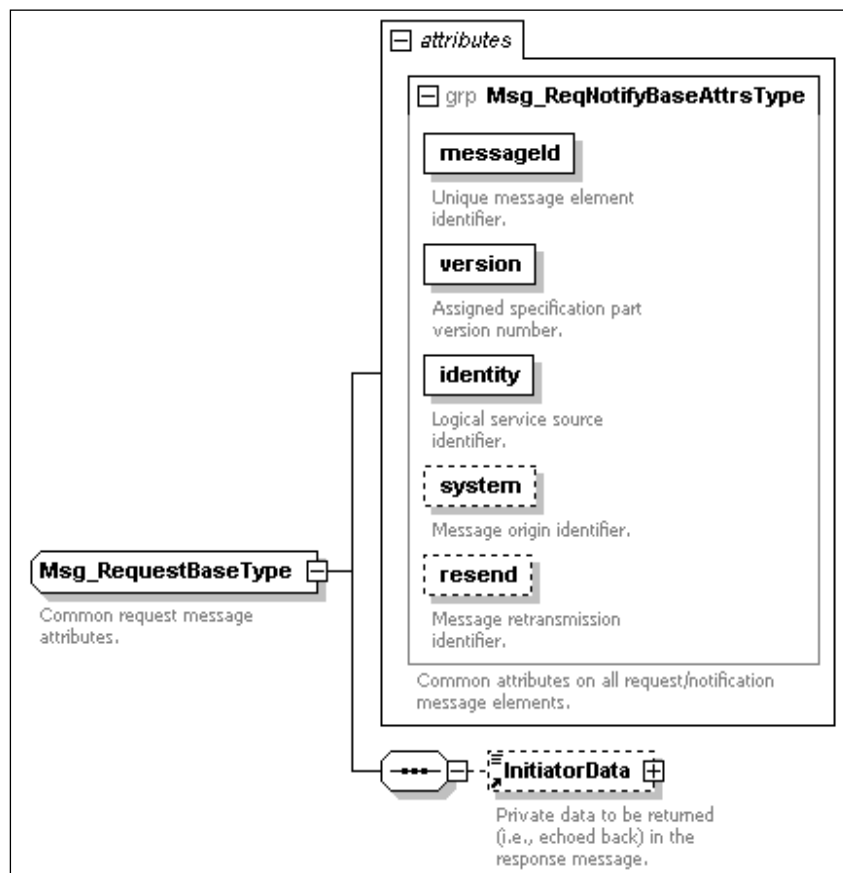


Figure 5: Request Message Base Schema

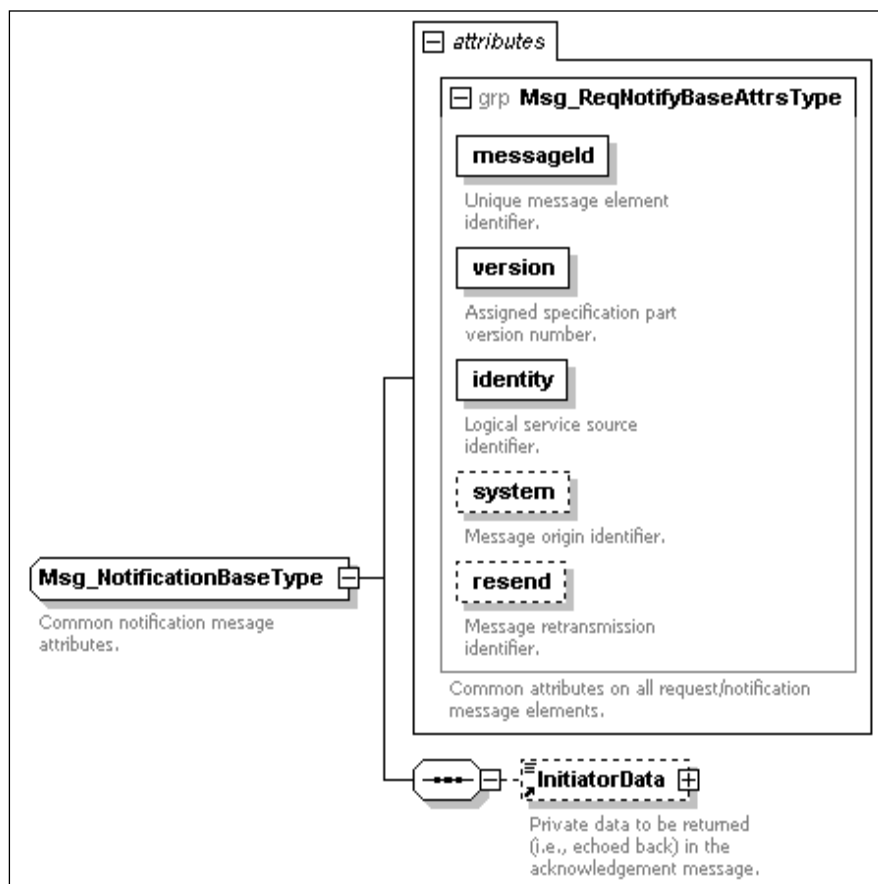


Figure 6: Notification Message Base Schema

9.2.1 Semantic Definitions for the Request and Notification Messages Base Schema

@messageId [Required, messageIdAttrType]—The message identifier. See Section 9.1.1 for additional information.

@version [Required, versionAttrType]—The message specification version. See Section 9.1.1 for additional information.

@identity [Required, identityAttrType]—The origin logical service identifier. See Section 9.1.1 for additional information.

@system [Optional, systemAttrType]—The message source identifier. See Section 9.1.1 for additional information.

@resend [Optional, resendAttrType]—The message identifier of a previously sent original message (i.e., the @messageId of a previous message) for which this message is a retransmit. See Section 9.4.7 and Section 11.2.7 for additional information.

InitiatorData [Optional]—The InitiatorData element contains implementation specific private data. If the element is present in the request or notification

message, the corresponding response or acknowledgement message *shall* include an exact copy of the original element. Figure 9 illustrates the linkage. If the InitiatorData element is omitted from the original request or notification message, the element *shall not* be present in the corresponding response or acknowledgement message. See Section 11.14 for additional information.

9.3 Response and Acknowledgement Messages Base Schema

Figure 7 and Figure 8 illustrate the SCTE 130 response and acknowledgement messages base schema.

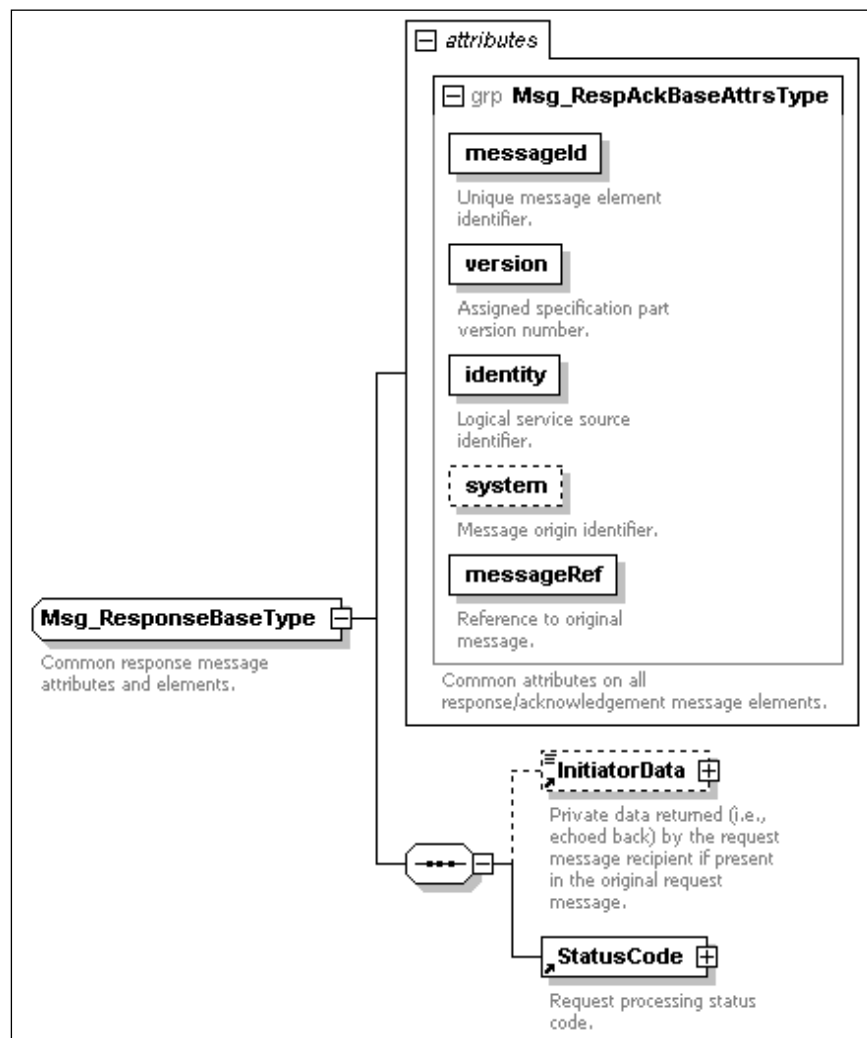


Figure 7: Response Message Base Schema

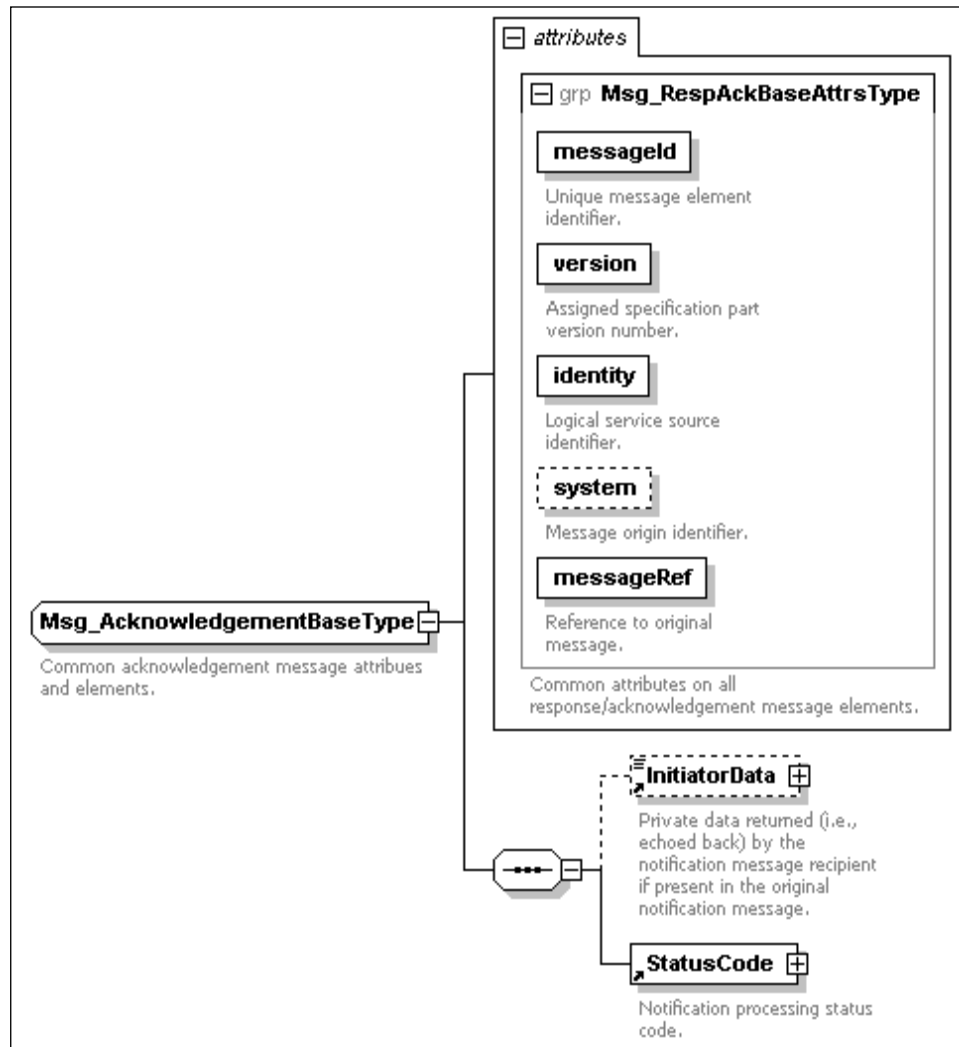


Figure 8: Acknowledgement Message Base Schema

9.3.1 Semantic Definitions for the Response and Acknowledgement Messages Base Schema

@messageId [Required, messageIdAttrType]—The message identifier. See Section 9.1.1 for additional information.

@version [Required, versionAttrType]—The message specification version. See Section 9.1.1 for additional information.

@identity [Required, identityAttrType]—The origin logical service identifier. See Section 9.1.1 for additional information.

@system [Optional, systemAttrType]—The message source identifier. See Section 9.1.1 for additional information.