

OpenCable™ Specifications

Stewardship and Fulfillment Interfaces

Interactive Application Fulfillment Summary Interface Specification

OC-SP-SaFI-IAFv3.0-120307

ISSUED

Notice

This OpenCable specification is the result of a cooperative effort undertaken at the direction of Cable Television Laboratories, Inc. for the benefit of the cable industry and its customers. This document may contain references to other documents not owned or controlled by CableLabs®. Use and understanding of this document may require access to such other documents. Designing, manufacturing, distributing, using, selling, or servicing products, or providing services, based on this document may require intellectual property licenses from third parties for technology referenced in this document.

Neither CableLabs nor any member company is responsible to any party for any liability of any nature whatsoever resulting from or arising out of use or reliance upon this document, or any document referenced herein. This document is furnished on an "AS IS" basis and neither CableLabs nor its members provides any representation or warranty, express or implied, regarding the accuracy, completeness, non-infringement, or fitness for a particular purpose of this document, or any document referenced herein.

© 2008-2012 Cable Television Laboratories, Inc.
All rights reserved.

Document Status Sheet

Document Control Number:	OC-SP-SaFI-IAFv3.0-120307			
Document Title:	Interactive Application Fulfillment Summary Interface Specification			
Revision History:	I01 – Released 6/26/09 v1.1 – Released 7/2/10 v2.0 – Released 1/31/11 v3.0 – Released 3/7/12			
Date:	March 7, 2012			
Status:	Work in Progress	Candidate	Issued	Closed
Distribution Restrictions:	Author Only	CL/Member	CL/Member/ Vendor	Public

Key to Document Status Codes:

Work in Progress	An incomplete document, designed to guide discussion and generate feedback that may include several alternative requirements for consideration.
Draft	A document in specification format considered largely complete, but lacking review by Members and vendors. Drafts are susceptible to substantial change during the review process.
Issued	A stable document, which has undergone rigorous member and vendor review and is suitable for product design and development, cross-vendor interoperability, and for certification testing.
Closed	A static document, reviewed, tested, validated, and closed to further engineering change requests to the specification through CableLabs.

Trademarks:

CableCARD™, CableHome®, CableLabs®, CableNET®, CableOffice™, CablePC™, DCAS™, DOCSIS®, DPoE™, EBIF™, eDOCSIS™, EuroDOCSIS™, EuroPacketCable™, Go2BroadbandSM, M-Card™, M-CMTS™, OCAP™, OpenCable™, PacketCable™, PCMM™, PeerConnect™, and tru2way® are marks of Cable Television Laboratories, Inc. All other marks are the property of their respective owners.

Contents

1	SCOPE.....	1
1.1	Introduction and Purpose.....	1
1.2	Requirements.....	1
2	REFERENCES	2
2.1	Normative References.....	2
2.2	Informative References.....	2
2.3	Reference Acquisition.....	2
3	TERMS AND DEFINITIONS	3
4	ABBREVIATIONS AND ACRONYMS.....	4
5	OVERVIEW.....	5
5.1	General Context.....	5
5.1.1	Reference Architecture	5
5.1.2	Interface Description.....	5
6	INTERACTIVE APPLICATION FULFILLMENT INTERFACE REQUIREMENTS	6
6.1	Data Model	6
6.1.1	Address	6
6.1.2	AppFulfillment	6
6.1.3	ApplicationFulfillmentHeaderGroup.....	6
6.1.4	Event.....	6
6.1.5	Events.....	7
6.1.6	GeographicCode.....	7
6.1.7	PackageIDGroup.....	7
6.1.8	RFIType	7
6.1.9	VoteType	8
6.1.10	SubscriberContactGroup	8
6.1.11	SubscriberInfo.....	8
7	INTERACTIVE APPLICATION FULFILLMENT DATA MODEL SCHEMA (NORMATIVE).....	9
8	INTERACTIVE APPLICATION FULFILLMENT WEB SERVICES DESCRIPTION LANGUAGE (NORMATIVE)	10
APPENDIX I	XML EXAMPLE (INFORMATIVE)	11
APPENDIX II	HTML REPRESENTATION (INFORMATIVE)	12
APPENDIX III	REVISION HISTORY	13

Figures

Figure 5–1 - IAF Platform Context5

1 SCOPE

1.1 Introduction and Purpose

This document defines requirements for an Interactive Application Fulfillment Summary Interface (IAF). The IAF interface provides a means for messaging generated by an interactive application to be exposed to an external entity. While individual messages may flow over this interface, more typically a summary of messages is transmitted, such as the aggregated results of a voting application.

1.2 Requirements

Throughout this document, the words that are used to define the significance of particular requirements are capitalized. These words are:

“SHALL”	This word means that the item is an absolute requirement of this specification.
“SHALL NOT”	This phrase means that the item is an absolute prohibition of this specification.
“SHOULD”	This word 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 weighed before choosing a different course.
“SHOULD NOT”	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.
“MAY”	This word 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.

2 REFERENCES

2.1 Normative References

In order to claim compliance with this specification, it is necessary to conform to the following standards and other works as indicated, in addition to the other requirements of this specification. Notwithstanding, intellectual property rights may be required to use or implement such normative references.

- [IAF WSDL] OC-SaFI-IAFv3.0.0.wsdl, March 7, 2012, Cable Television Laboratories, Inc.
[IAF XSD] OC-SaFI-IAFv3.0.xsd, March 7, 2012, Cable Television Laboratories, Inc.
[SaFI COM XSD] OC-SaFI-COMv3.0.xsd, March 7, 2012, Cable Television Laboratories, Inc.

2.2 Informative References

This document uses the following informative references.

- [CIP] Campaign Information Package Specification, OC-SP-SaFI-CIPv3.0-120307, March 7, 2012, Cable Television Laboratories, Inc.
[IAF EXMPL] OC-SaFI-IAFv3.0.0-example1.xml, March 7, 2012, Cable Television Laboratories, Inc.
[IAF HTML] OC-SaFI-IAFv3.0.0.html, March 7, 2012, Cable Television Laboratories, Inc.
[IAM] Interactive Application Messaging Specification, OC-SP-SaFI-IAMv3.0-120307, March 7, 2012, Cable Television Laboratories, Inc.
[SMS] Service Measurement Summary Interface Specification, OC-SP-SaFI-SMSv3.0-120307, March 7, 2012, Cable Television Laboratories, Inc.

2.3 Reference Acquisition

- Cable Television Laboratories, Inc., 858 Coal Creek Circle, Louisville, CO 80027; Phone +1-303-661-9100; Fax +1-303-661-9199; <http://www.cablelabs.com/>
- CableLabs SaFI 3.0 schemas and WSDLs are available at the following URLs:
 - OC-SaFI-COM-3.0.0.xsd <http://www.cablelabs.com/namespaces/safi/xsd/com/v3.0/>
 - OC-SaFI-CIP-3.0.0.xsd <http://www.cablelabs.com/namespaces/safi/xsd/cip/v3.0/>
 - OC-SaFI-CIP-3.0.0.wsdl
 - OC-SaFI-IAM-3.0.0.xsd <http://www.cablelabs.com/namespaces/safi/xsd/iam/v3.0/>
 - OC-SaFI-IAF-3.0.0.xsd <http://www.cablelabs.com/namespaces/safi/xsd/ias/v3.0/>
 - OC-SaFI-IAF-3.0.0.wsdl
 - OC-SaFI-SMS-3.0.0.xsd <http://www.cablelabs.com/namespaces/safi/xsd/sms/v3.0/>
 - OC-SaFI-SMS-3.0.0.wsdl

3 TERMS AND DEFINITIONS

This specification uses the following terms:

Affiliate	An operational entity that performs SaFI operations with one or more MSOs.
Bundle	A set of placements in a specific campaign, at an indicated MSO and syscode. The relationship between the placements that forms the basis of a bundle is beyond the scope of this specification.
Campaign	Provides a set of delivery plans and/or placement directions for one or more MSOs, specific systems within an MSO's footprint, as well as a set of Programmed Events within a system. A Campaign is negotiated, purchased, and managed as a single entity via campaign planning and management tools that are not in scope for the MSO interfaces. Within a Programmed Event, one or more products from predefined product families can be defined for placement by MSO delivery and/or processing.
Enhanced Program Sequence ID	An integer identifying a unique Package or Package Element within a specific Programmed Event.
GeoCode	Geographic Code: the geographic region that this service measurement message represents. The value in this element may indicate a ZIP Code, MSO syscode, or other encoded regional identifier.
MSO Order	The part of a Campaign Information Package (CIP) that falls within a specific MSO's advertising footprint.
Placement	A specific presentation of one or more advanced advertising assets at some advertising placement opportunity. In CIP, a data structure that supplies the definition of the conditions under which a placement may be executed.
Programmed Event ID	A globally-unique identifier for a Programmed Event.
Service Measurement	Information about the reach and usage of a campaign.
Stewardship and Fulfillment Interfaces	A collection of interfaces defined by CableLabs to support advanced services on multiple cable systems.
Syscode	A four-character, predefined code that represents a specific zone-level cable plant.
System Order	The part of an MSO Order that falls within a single zone-specific syscode. In simple cases, all the Programmed Events, Packages, and Package Elements of the Campaign will appear within each System Order; however, this may not be true due to site capabilities, or when targeting is applied.

4 ABBREVIATIONS AND ACRONYMS

This specification uses the following abbreviations:

AMB	Application Message Block
ARB	Application Report Block
CAAS	Common Advanced Advertising Systems
CIP	Campaign Information Package
EPSID	Enhanced Program Sequence ID
EpType	Enhancement Package Type
ETV	Enhanced Television
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol over Secure Sockets Layer (SSL)
PEID	Programmed Event ID
RFI	Request For Information
SaFI	Stewardship and Fulfillment Interfaces
SOAP	Simple Object Access Protocol; as of SOAP 1.2, this no longer represents an acronym
STB	Set-Top Box
WSDL	Web Services Description Language

5 OVERVIEW

5.1 General Context

The Interactive Application Fulfillment (IAF) platform provides an interface between MSO systems and partners. Its purpose is to transmit the results of viewer interactions with specific application functions, such as the results of vote, poll, and RFI functions.

While the interface supports transmission of individual responses, the expected usage is that aggregated responses will be transmitted. For instance, the results of a particular vote may be aggregated across some portions of an MSO's footprint, or the entire footprint, and transmitted as one payload over the interface. Therefore, this specification is called a *summary* interface.

5.1.1 Reference Architecture

The following diagram illustrates a systems view of the IAF platform. This diagram represents an advertising-centric view of the platform; however, the Interactive Application Fulfillment platform is generalized such that applications unrelated to advertising can use the same platform.

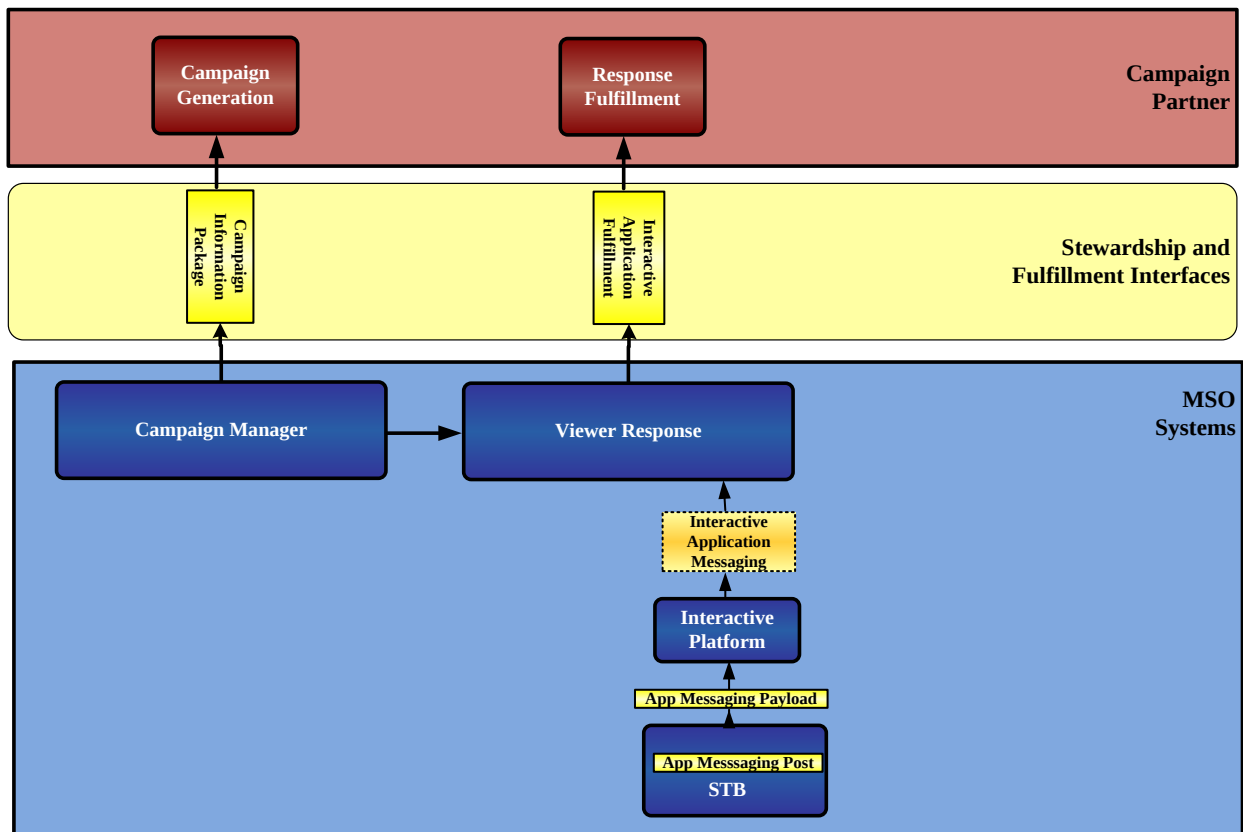


Figure 5-1 - IAF Platform Context

5.1.2 Interface Description

The Interactive Application Messaging interface defines how an application instantiates a message that includes a vote/poll or RFI response and application instrumentation messages that support Service Metrics. This interface is defined in [IAM]. The application messaging post and application messaging payload are also illustrated here.

The Campaign Information Package Interface [CIP] provides information to MSOs for resolution and routing of Interactive Application Fulfillment data.

6 INTERACTIVE APPLICATION FULFILLMENT INTERFACE REQUIREMENTS

This section defines requirements for the Interactive Application Fulfillment interface.

6.1 Data Model

The data model for fulfillment messages is defined by the normative XML schema referenced in Section 7. Additional semantic definitions for components of that data model are supplied in this section.

XML files conformant to this data model SHALL be generated by MSO systems and properly received by the web service at the secondary URL supplied in the[CIP].

6.1.1 Address

The Address element contains the subscriber's billing or mailing address, which consists of the following data units:

- Street1 is the primary street address, including the building number and street name.
- Street2 is the unit number, if applicable.
- City is the city name.
- State is the two-letter state code.
- Zip is the subscriber's 5- or 9-digit ZIP Code.

6.1.2 AppFulfillment

The AppFulfillment element is the root element of an Interactive Application Fulfillment Summary Message, and contains the following data units:

- ApplicationFulfillmentHeaderGroup contains message header information common to all contained message payloads. See Section 6.1.3.
- Event contains one or more Events in the form of VoteType (see Section 6.1.9) or RFIType (see Section 6.1.8).
- ReportData contains one or more ReportData elements (see [SaFI COM XSD]) composed of name-value attributes. ReportData may be used to report such things as aggregate counts of entries included in the Events under the Event element, aggregate counts of events that could not be successfully processed, or other name-value attributes to communicate information relevant to the application.
- Events is a container for reporting one or more Event elements for a given geographic area.

6.1.3 ApplicationFulfillmentHeaderGroup

Contains header information for an IAF message, and contains the following data units:

- MinSchemaVersion is the lowest compatible schema version that will validate this message.
- Timestamp provides a reference time for the message. The Timestamp element provides time and optionally an offset and interval.
- DerivativeID is a unique identifier that MAY be included to uniquely identify an interactive application fulfillment document.

6.1.4 Event

An abstract type that is extended in order to represent specific event types being reported. It currently has implementations for RFIType and VoteType, and contains the following data unit:

- Package ID Group is used as a container for the PEID, EPSID and EventID identifiers.
- ReportData contains one or more ReportData elements (see [SaFI COM XSD]) composed of name-value attributes. ReportData may be used to report such things as counts of entries included in this Event elements, counts of events that could not be successfully processed, or other name-value attributes to communicate information relevant to the application.

6.1.5 Events

The container element for one or more Event elements being passed in the Interactive Application Fulfillment message.

Events contains the following data units:

- GeoCode specifies the geographic location the Event elements are associated with.
- ReportData contains one or more ReportData elements (see [SaFI COM XSD]) composed of name-value attributes. ReportData may be used to report such things as counts of entries included in the Event elements, counts of events that could not be successfully processed, or other name-value attributes to communicate information relevant to the application.
- Event contains one or more Event elements in the form of VoteType (see Section 6.1.9) or RFIType (see Section 6.1.8).

6.1.6 GeographicCode

The GeographicCode element provides a wrapper around the specific type of geographic partitioning of the data being reported. It can take one of two forms, ZIP Code or syscode. Every message requires one of the GeographicCode forms.

GeographicCode contains the following data units:

- Zipcode is the ZIP Code for all Events being reported in an IAM message.
- Syscode is the syscode for all Events being reported in the IAM message.

6.1.7 PackageIDGroup

Contains the three identifiers used to map messages back to Programs and Programmed Events:

- PEID is the Programmed Event ID.
- EPSID is the Enhanced Program Sequence ID, a unique value within the scope of an associated PEID.
- EventID is a unique value within the scope of an associated EPSID. An EventID is allocated by an application to discrete entities within the application. For instance, this may indicate a User Interface overlay, or may indicate a lifecycle change within an application, such as a pause as the result of a channel change.

6.1.8 RFIType

The Request For Information type is an implementation of the abstract Event type. It carries information about subscribers who have requested additional information through an Event, and contains the following data units:

- SubscriberInfo contains information about a specific subscriber, including name and contact information.
- Parameters may be used by applications to provide application-specific data. Examples could include model or pricing information for the related RFI.
- PackageIDGroup inherits PackageIDGroup from the Event type. See Section 6.1.5.

6.1.9 VoteType

An extension of the abstract Event type. It carries aggregated vote counts through one or more Result elements. The first Result element maps to the first response, the second Result element maps to the second response, and so on through the last response.

VoteType contains the following data unit:

- Result is used to report aggregate responses to an Event. Result repeats any number of times to represent each potential response for an Event.

6.1.10 SubscriberContactGroup

Contains the preferred contact information for each subscriber who has responded positively to an RFI, consisting of the following data units:

- Address is the subscriber's full address including street, city and ZIP Code.
- PhoneNumber is the subscriber's numeric seven-digit telephone number.
- EmailAddress is the subscriber's email address.

6.1.11 SubscriberInfo

A wrapper containing the following informational elements about a specific subscriber and/or household:

- FirstName is the subscriber's first name.
- Last Name is the subscriber's last name.
- SubscriberContactGroup contains subscriber contact information containing at least one of address, phone number, or email address.
- Parameters provides subscriber-specific data. This data can be incremental to Parameter data provided at a higher level or standalone data specific to the subscriber.

7 INTERACTIVE APPLICATION FULFILLMENT DATA MODEL SCHEMA (NORMATIVE)

The formal data definition is found in [IAF XSD].

8 INTERACTIVE APPLICATION FULFILLMENT WEB SERVICES DESCRIPTION LANGUAGE (NORMATIVE)

The formal data definition is found in [IAF WSDL].

Appendix I XML Example (Informative)

Examples of SMSI data expressions can be found in [IAF EXMPL].

Appendix II HTML Representation (Informative)

A browse-able, graphical representation of the IAF data model can be found in [IAF HTML].

Appendix III Revision History

IAF Version 3.0 is a major version, and as such does not require a deterministic EC history from the prior release. The following identifies the substantive changes from the last release, v2.0, January 31, 2011:

Revision	Content
1.	Update release version number from 2.0 to 3.0 in documents, schemas, namespaces, and examples.
2.	Update references to current revisions.
3.	Editorial changes throughout.
