

ATIS IIF Committees

Architecture (ARCH) Committee

The Architecture Committee develops IPTV architecture requirements, specifications, protocols and other documents required to enable deployment of a standardized, interoperable, access-agnostic IPTV service.

IPTV Security Solutions (ISS) Committee

The IPTV Security Solutions Committee develops security standards with emphasis on a security requirements framework and an integrated toolkit of security functions that can be utilized for an interoperable solution for enabling IPTV services.

Metadata and Transaction Delivery (MTD) Committee

The Metadata and Transaction Delivery Committee develops standards that define metadata elements, the representation of metadata elements and the content of application-level transactions where the MTD Committee is the primary developer of metadata standards in support of all ATIS IIF Committees.

Quality of Service Metrics (QoSM) Committee

The Quality of Service Metrics Committee develops standards that define metrics, models and approaches for measurement and reporting of quality of service (QoS) and quality of experience (QoE) for IPTV services.

Testing & Interoperability (T&I) Committee

The Testing and Interoperability Committee develops the necessary test scripting and test planning for the interoperability of ATIS IIF standards and addresses IPTV interoperability issues, providing recommended courses of action for mitigation of the identified issues.

ATIS IIF Participating Companies Include:

Alcatel-Lucent - AT&T - BigBand Networks - British Telecom
CableLabs - Cisco Systems - Ericsson - Huawei
IneoQuest Technologies - Intel - JDSU - Juniper - LG Electronics
Microsoft - Motorola - NagraVision - NEC Corporation of America - Nielsen
Company - Nokia Siemens Networks - Philips Consumer Electronics - Qwest
RGB Networks - Rogers Wireless - Samsung
SeaChange International - Symmetricom - Telchemy
Telcordia Technologies - TELUS - Tollgrade Communications
Verivue, Inc. - Verizon - ZTE USA

www.atis.org

1200 G Street NW | Suite 500 | Washington, DC | 20005



IPTV Interoperability Forum

STANDARDS THAT DRIVE THE BUSINESS OF COMMUNICATIONS

IPTV Defined

IPTV is a collection of video and related services that may include live broadcast video, content on demand and interactive TV (iTV) services. In contrast to video over the public Internet, with IPTV deployments, network security and performance are closely managed to help ensure a superior entertainment experience resulting in a compelling business environment for content providers, advertisers and customers alike. These services are delivered across an access-agnostic, packet-switched network that employs the IP protocol to transport the audio and video signals.

ATIS IPTV Interoperability Forum: Building Standards for IPTV

Perhaps the most critical step toward IPTV's effective deployment is broad industry agreement on both the standards and the most appropriate technology path for these services. This area is the focus of the innovative work of the ATIS IPTV Interoperability Forum (IIF).

Recognized globally, the ATIS IIF is the leading developer of requirements, standards, and specifications for IPTV. The ATIS IIF defines industry requirements, the overall industry reference architecture and critical standards to support various aspects of IPTV delivery, including Digital Rights Management and Quality of Service.

ADVANCING INITIATIVES FOR 2009 AND BEYOND

The ATIS IIF is working to develop standards related to IPTV functions, including:

- Content On Demand (Subscription, Free, and Pay)
- Internet-sourced Content
- Push Content Delivery
- Pay-Per-View
- Advanced Advertising
- Notification Services
- Interactive Program Guide

ATIS IPTV Interoperability Forum: Key Deliverables

Since its establishment in July 2005, the ATIS IIF has produced a number of key requirements and framework documents to serve as the foundation for further development of IPTV specifications and standards. The following summarizes key activities and deliverables published to date:

- **IPTV DRM Interoperability Requirements (ATIS-0800001)** - Defines the requirements for the interoperability of systems and components in the IPTV DRM/security environment.
- **IPTV Architecture Requirements (ATIS-0800002)** This document focuses on services that may comprise IPTV; the functions necessary for content providers to deliver content to service providers; functions required by service providers and network providers to offer IPTV; and the home networking functions needed for the consumer to receive IPTV services.
- **IPTV Architecture Roadmap (ATIS-0800003)** Defines the phases in which IPTV standards will be developed. Phase 1 includes specifications for network/service attachment; service discovery; basic navigation through services; and regulatory compliance, including emergency Alert Services (EAS), Closed Caption and Parental Advisory. Phase 2 addresses video-on-demand (VOD) and pay-per-view (PPV) transaction-based services. Phase 3 addresses Interactive TV, multiplayer games, network PVR and in-home peer-to-peer interaction.
- **Framework for QoS Metrics and Measurements Supporting IPTV Services (ATIS-0800004)** - Serves as a basis for definitions of Quality of Service (QoS)/Quality of Experience (QoE) related to different segments of the network, different service instances or invocations, network architectures/technologies utilized and modes of service. The document offers an overview and concepts related to the following: measurement model and measurement points; quality layers, protocol stack view and use cases; types, characteristics and definitions of metrics; a QoS/QoE Model; measurement practices and methodologies; and time and frequency synchronization requirements for ensuring QoS/QoE and enabling metrics measurement.
- **IPTV Packet Loss Issue Report (ATIS 0800005)** Reviews many of the factors that may cause packet loss in IPTV transmissions and addresses solutions to mitigate packet drop.
- **IIF Default Scrambling Algorithm (ATIS-0800006)** Specifies a default scrambling/descrambling algorithm for MPEG-2 Transport Stream and scrambling algorithm signaling. Use of the specification provides network operators with a maximum choice of IPTV Receiving Device platforms.
- **IPTV High Level Architecture (ATIS-0800007)** Provides a high-level architectural framework and the supporting network design for the implementation of end-to-end IPTV systems.
- **QoS Metrics for Linear Broadcast IPTV (ATIS-0800008)** - QoS metrics for linear broadcast IPTV, including video, audio and the synchronization between audio and video. Identifies measurement points, applicable measurements and measurement methodologies.

- **Remote Management of Devices in the Consumer Domain for IPTV Services (ATIS-0800009)** - Addresses the remote management of devices in the consumer domain, focusing initially on the Delivery network Gateway (DNG) and IPTV Terminal Function (ITF) devices. It also addresses device attachment to the transport network; image download; provisioning of parameters; status monitoring; remote diagnostics; fault recovery; and security management.
- **Emergency Alert Service (EAS) Provisioning Specifications for IPTV (ATIS-0800010)** - Supports the offering of an emergency Alert System (EAS) for IPTV.
- **QoS Metrics and Measurements for Public Services for IPTV (ATIS-0800011)** - Provides QoS metrics, measurement points applicable measurements and measurement methodologies for emergency information (e.g. EAS), Closed Captioning, Content Advisories, and V-Chip Technology for IPTV.
- **IPTV Emergency Alert System Metadata Specification (ATIS-0800012)** - Defines metadata elements for an EAS announcement, interfaces across which metadata are exchanged, formats for elements of metadata and protocols for metadata exchange.
- **Media Formats and Protocols for IPTV Services (ATIS-0800013)** - Identifies the media formats and protocols, including reliability protocols, required for implementation of the ATIS IIF-defined IPTV services.
- **Secure Download Interoperability Specification for IPTV (ATIS-0800014)** - Provides a complete solution for messaging and secure download to IPTV Devices by providing authentication, integrity, and confidentiality through the IPTV Security Solution/Authentication (ISS/A) and the IPTV Security Solution/Encryption (ISS/E) functions.
- **Certificate Trust Management Hierarchy Interoperability Specification (ATIS-0800015)** - Provides the basis of trust for PKI operations by creating a PKI hierarchy that satisfies trust requirements of security solutions, identifying trust relationships affected by PKI hierarchies, and establishing requirements for the generation, distribution, and revocation of ATIS IIF PKI certificates.
- **Standard PKI Certificate Format Interoperability Specification (ATIS-0800016)** - Standardizes the delivery, distribution and validation of encrypted keys in a trusted certificate format. The encrypted keys within a key certificate are a security component consisting of digital signatures used to authenticate data sources and content.
- **Network Attachment and Initialization of Devices and Client Discovery of IPTV Services (ATIS-0800017)** - Addresses network attachment, service provider discovery, service provider attachment and services discovery procedures for IPTV.
- **IPTV Linear TV Service (ATIS-0800018)** Defines the basic Linear TV service operation after initialization, configuration, service provider discovery, and services discovery.
- **Multicast Network Service Specification (ATIS-0800019)** - Describes a simple IP multicast service the network provider can offer for use as a basis for a linear/broadcast TV service.
- **IPTV Electronic Program Guide Metadata Specification**

(ATIS-0800020) - Establishes basic metadata requirements for an IPTV EPG to support functionality that meets the service selection and acquisition needs of consumers.

- **Trial Use Standard for Estimated Peak Signal-to-Noise Ratio (EPSNR) (ATIS-0800021)** - Documents the EPSNR algorithm and a test plan that will be used to determine if the EPSNR algorithm is an accurate predictor of the QoE based on QoS metrics/data.
- **IPTV Consumer Domain Device Configuration Metadata (ATIS-0800022)** - Establishes requirements for metadata associated with configuration of consumer domain devices—specifically the Delivery network Gateway (DNG) and the IPTV Terminal Function (ITF)—during network attachment, initialization, configuration, and remote management.
- **Security Robustness Rules (ATIS-0800024)** Facilitates interoperability and encourages product innovation while maintaining standardized procedures, interfaces and platforms with respect to secure transmission and storage of materials.
- **Test Plan for Evaluation of Quality Models for IPTV Services (ATIS-0800025)** - Describes subjective and objective test plans appropriate for the formal evaluation of objective video quality prediction algorithms.
- **IPTV Glossary (ATIS-0800027)** – Provides a collection of ATIS IIF acronyms, terms, and definitions.
- **Fault Codes for IPTV (ATIS-0800028)** - Defines a standard set of fault codes that cause the improper functioning of an IPTV service or component. The type of fault is a vital input to service assurance, test, fault and performance operations and systems.
- **IPTV Terminal Function Metadata Specification (ATIS-0800029)** - Specifies a logical data model to address the requirements related to IPTV services in the Consumer Domain. Specifically addressed are user preferences for content consumption and accessibility, services to which users are subscribed, recording of content consumption, and user interaction.
- **Metadata for IPTV Fault Codes (ATIS-0800032)** Provides the metadata for the fault codes defined in ATIS-0800028 for the exchange between consumer domain devices and service provider and/or network provider systems.
- **APOD: An IPTV Separable Security Interface Specification (ATIS-0800033 [trial-use])** - Provides a physically separable security solution for IPTV that is harmonized with and backwards compatible to the existing unidirectional and multi-stream CableCARD™ standards.
- **XML Schema for ITF Execution Environment (ATIS-0800036)** - Provides an XML schema for the Execution Environment profiles for use in services and functions within an IPTV Security Solution.

ATIS IIF Standards and Specifications Presently Under Development

- **Content on Demand Service**
- **Adapting Client-Addressable Advertising to IPTV**
- **Application Level Interfaces (API) Interoperability Specification for IPTV**
- **Distribution of IPTV Content in the Subscriber's Authorized Service Domain**
- **Managing the Trust Hierarchy**
- **Secure Time**
- **Technical Report on a Validation Process for IPTV Perceptual Quality Measurements**
- **Device Identity and Authentication**
- **Implementer's Guide to QoS Metrics**
- **IPTV QoE Measurement Recommendations and Framework**
- **Interoperability and Testing of ATIS-0800009, Remote Management of Devices in the Consumer Domain for IPTV Services**
- **Format and Delivery-Independent Bookmark Definition**
- **EPG Metadata for Light-Weight IPTV Devices**
- **IPTV MPEG Transport Stream Monitoring**