American National Standard

Connected Home Appliances - Object Modeling

ANSI/AHAM CHA-1-2003

AHAM
association of home appliance manufacturers

PREFACE

The Association of Home Appliance Manufacturers develops standards in accordance with AHAM's "Policy and Procedures Governing Technical Standards", which states:

“AHAM Standards shall be in the best interest, mutually, of consumers who use appliances, and other properly interested parties.”

AHAM standards are presented to the American National Standards Institute (ANSI) for recognition as American National Standards. This standard was approved by ANSI on March 14, 2003. Use or observance of AHAM standards is voluntary.

With regard to safety, AHAM recommends that all appliance products--both major and portable--manufactured or marketed in the United States be submitted to an appropriate independent laboratory for inspection and listing in conformance with the safety standards and procedures followed by such laboratories.

AHAM welcomes comments and suggestions regarding this standard. Any standard may be reviewed and improved as needed. All standards must be updated or reconfirmed at least every five years. Any interested party, at any time, may request a change in an AHAM standard. Such request should be addressed to AHAM's President, and should be accompanied by a statement of reason for the request and a suggested alternate proposal.

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INTRODUCTION

AHAM formed a Smart Appliance Task Force in August of 2000 to investigate the standardization of the messaging aspects of connected home appliances. The initial focus was to develop a voluntary consensus standard to facilitate the interoperability of "smart" appliances at the interface between the appliance and the communications network.

Extensive discussions were held to investigate a complete communications standard, including all seven layers of the Open System Interconnection (OSI) reference model, from the physical layer up through the application layer. The OSI model is a widely recognized framework standard for transmitting messages between two points in a telecommunications network.

Comments on the initial approach of the task force were solicited from several network providers in May of 2001. After consideration of their feedback on various architecture schemes, physical layer protocols, and hardware implementations, the task force determined that it was preferable to take a high level, generic approach and defer more detailed considerations to possible future efforts. Therefore, the mission of the task force was redefined to include the following aspects:

1. Interoperability is based on generic appliance models, objects, and high-level messages, which will allow for mapping to various protocols.
2. The abstract AHAM models are not directly coupled to an end product.
3. Manufacturers will map the AHAM features and functions to their product.

The task force adopted the following ground rules:

- Focus on the standard (required) behavior
- Determine what is controllable and observable for typical products in the market
- Only 1 interface per behavior
- Work in English, verses a programming language, to avoid implementation-specific details
- Optional elements can be added in the future

The work product from this effort is documented herein as the standard. Opportunities for future work phases may include the following:

- Extend interoperability with new capabilities including:
  - standardized models for service/diagnostics
  - standardized models for energy management
  - additional appliance categories
- Specify a communications protocol for all relevant layers of the OSI Reference model

1. PURPOSE

The purpose of this standard is to promote new appliance services and features enabled through networking by describing generic appliance models, objects, and high-level messages. The models define standardized elements of appliances that are accessible and controllable remotely by users, service providers, and other devices, independent of the underlying network.

This document assumes that each appliance and device contains a communications interface module linked to a home systems network.

2. SCOPE

This standard provides a template that is to be used for documenting generic appliance models, objects, and high-level messages and future extensions.

Appliances are described as collections of subsystems that are modeled as objects. High-level messages are defined for accessing object properties and for executing methods within the objects. The standard consists of required and optional messages and objects. Extensions may be defined by manufacturers for private use.

The interface, transport mechanism, and coding (fields and bits) of messages are beyond the scope of this document.

The initial version of this standard describes models and objects applicable to the following appliances:

1. Clothes Washer
2. Refrigerator-Freezer
3. Clothes Dryer
4. Dishwasher
5. Range , Oven, Cooktop
6. Countertop Microwave Oven
7. Room Air-Conditioner (window type)