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Information technology — Home Electronic System (HES) interfaces

Part 4-2: Common user interface and cluster-to-cluster interface to support interworking among home cluster systems — Interfaces, services and objects

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The UK participation in its preparation was entrusted to Technical Committee TCT/7, Telecommunications - Installation requirements.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Part 4-2: Common user interface and cluster-to-cluster interface to support interworking among home cluster systems – Interfaces, services and objects

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The text of this International Standard is based on the following documents:

Draft	Report on voting
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Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

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This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1, and the ISO/IEC Directives, JTC 1 Supplement available at www.iec.ch/members_experts/refdocs and www.iso.org/directives.

A list of all parts in the ISO/IEC 10192 series, published under the general title *Information technology – Home Electronic System (HES) interfaces*, can be found on the IEC website.

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INTRODUCTION

A home cluster system is implemented by interconnecting several devices to deliver one or more applications. A cluster can function independently of other clusters. Cluster devices include sensors, actuators, a controller, and user interfaces. Multiple home cluster systems can be installed and operated in a single home for the following reasons.

- There are various types of application domains in the home such as lighting, safety, air conditioning, telecommunications, audio and video, etc. One or more applications are implemented by the constituents of a cluster. Therefore, if a user purchases several applications, they will be implemented by one or more home cluster systems.
- Home application vendors usually provide systems implemented in clusters of required devices. Depending on the user's needs, several application systems, possibly from different manufacturers, can be installed in a home as separate clusters.

A customer can access the functions provided by a cluster via a user interface associated with that cluster. With multiple clusters it is important for a user to learn how to operate a range of different interfaces. This document provides the cluster-to-cluster interworking foundation necessary for a single common user interface to manage applications in multiple clusters.

Application-to-application and the resulting device-to-device collaboration are essential for providing integrated services in a multi-device Home Electronic System (HES) environment. For example, if a fire monitoring system detects a fire, it is important that the indoor lights are turned on and the fire announcement is broadcast through available speakers in the house for prompt evacuation of the residents, the ventilation blowers are stopped to avoid spreading the fire, and the public fire service is contacted. This needs collaboration among fire detectors, indoor lights, speakers, HVAC and telecommunication devices. If the devices are located in different clusters, cluster-to-cluster interworking is essential for collaboration among them.

In practice, a safety monitoring cluster can send out a fire-detected message and a lighting cluster can be ready to activate a lighting scene that alerts the occupant by turning on or flashing the appropriate lights. However, these two clusters usually do not have a way to communicate with each other especially if supplied by different manufacturers possibly using different protocols and messages. This document solves that problem by providing the necessary interworking and interoperability functionality to ensure that the clusters can work together.

When the cluster systems are in different HANs or use different protocols, interworking is accomplished using the HES gateway (ISO/IEC 15045 series) and related interoperability standards (ISO/IEC 18012 series). For interworking between cluster systems using the same protocols and belonging to the same HAN, HES gateway services can optionally be used if the cybersecurity, privacy and safety features of the HES gateway are desired. The functions specified in this document do not require the Internet to operate but can connect to the Internet if the application requires.

This document specifies the architecture for interworking home cluster systems where

– the home cluster systems use different HANs or protocols, or
– the home cluster systems use the same HANs and protocols plus the services of the HES gateway.

Figure 1 shows the core interoperability and HES gateway standards. Figure 2 shows the common user interface series of standards designated ISO/IEC 10192-4, *Information technology – Home Electronic System (HES) interfaces – Common user interface and cluster-to-cluster interface to support interworking among home cluster systems*. ISO/IEC 10192-4 consists of three parts:

Part 4-1: Architecture

Part 4-2: Interfaces, services and objects

Part 4-3: Messaging

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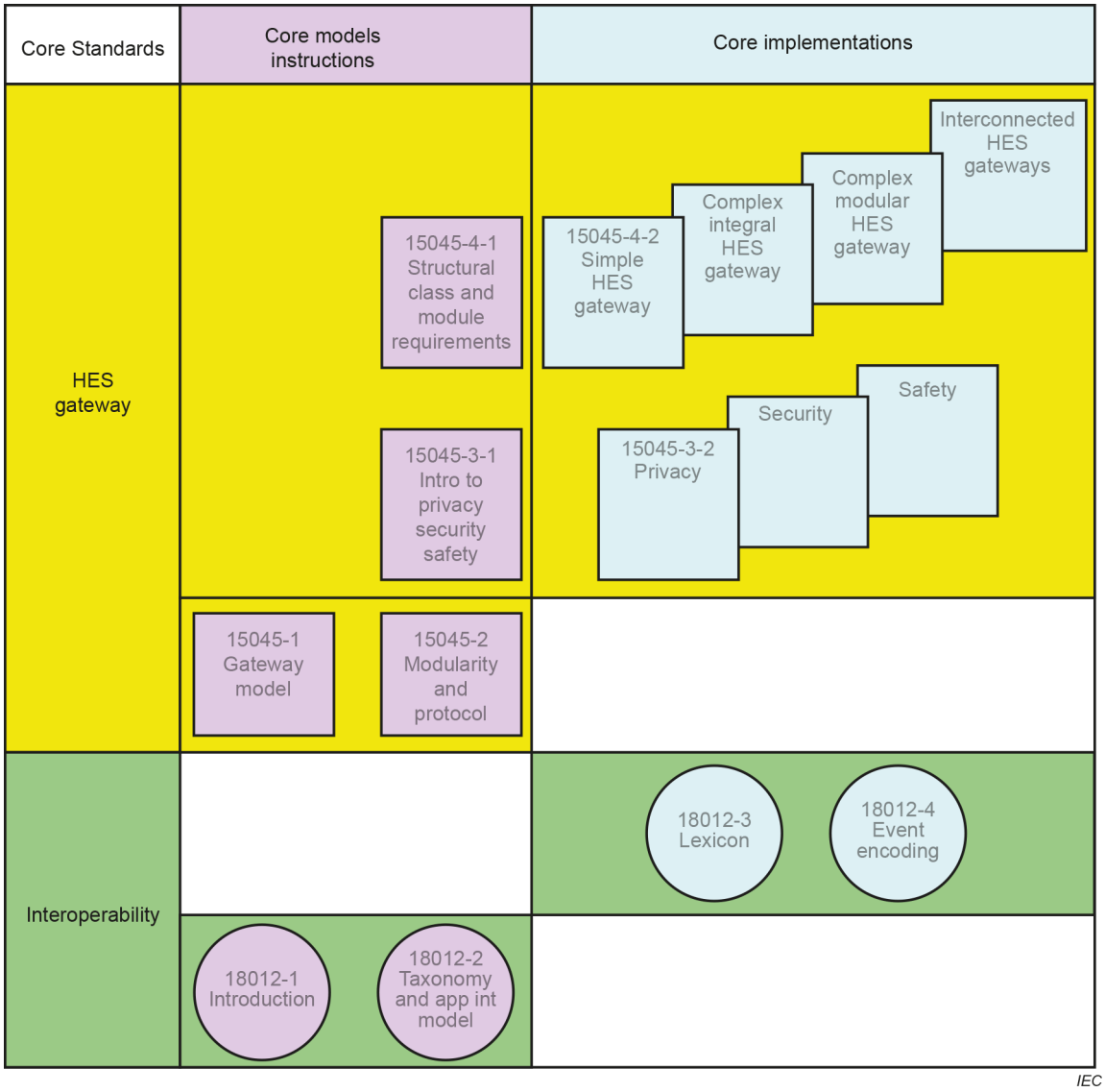

Figure 1 – Core interoperability and HES standards

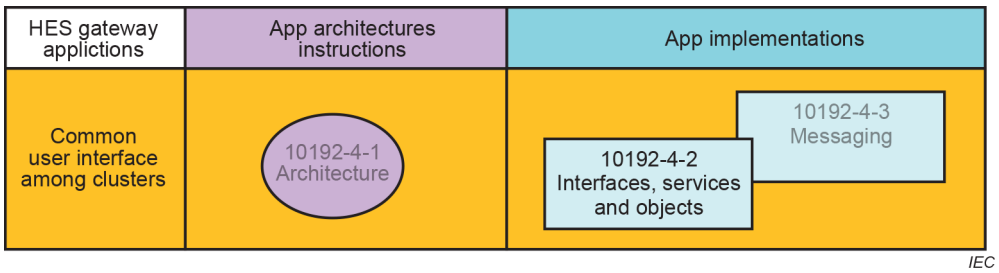

Figure 2 – HES gateway applications standards

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