



ISO/IEC 15045-3-2

Edition 1.0 2024-10

INTERNATIONAL STANDARD



Information technology - Home Electronic System (HES) gateway –
Part 3-2: Privacy, security, and safety – Privacy framework

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
0.1 Overview.....	6
0.2 Relation to existing work.....	6
0.3 Privacy in HES gateway.....	6
0.4 Future features.....	7
1 Scope.....	8
2 Normative references.....	8
3 Terms, definitions and abbreviated terms.....	8
3.1 Terms and definitions.....	8
3.2 Abbreviated terms.....	10
4 Conformance.....	10
5 Considerations, architecture and requirements.....	10
5.1 Overview.....	10
5.2 Premises and personally identifiable information (PII).....	11
5.3 PII parties.....	12
5.4 Privacy principles.....	12
5.4.1 Privacy principles summary.....	12
5.4.2 Consent and choice.....	12
5.4.3 Purpose legitimacy and specification.....	14
5.4.4 Collection limitation.....	14
5.4.5 Data minimization.....	15
5.4.6 Use, retention and disclosure limitation.....	15
5.4.7 Accuracy and quality.....	16
5.4.8 Openness, transparency and notice.....	16
5.4.9 Individual participation and access.....	17
Annex A (informative) Mapping ISO/IEC 29100 to the HES gateway.....	18
Annex B (normative) Permitted PII flows.....	19
B.1 General.....	19
B.2 Local device or user to controller service module (Scenario A).....	20
B.3 Controller service module to processor service module (Scenario B).....	21
B.4 Processor service module to controller service module (Scenario C).....	22
B.5 Controller service module to local device or user (Scenario D).....	23
B.6 Local device or user to processor service module (Scenario E).....	24
B.7 Processor service module to local device or user (Scenario F).....	25
B.8 Controller service module to remote device or user (Scenario G).....	25
B.9 Processor service module to remote device or user (Scenario H).....	26
B.10 Remote device or user not allowed to view local device directly.....	27
Annex C (informative) Use of other privacy standards, including JTC 1.....	28
Bibliography.....	29
Figure 1 – ISO/IEC 15045-3-2 within the core interoperability and HES gateway standards.....	7
Figure 2 – HES gateway architecture for privacy.....	11
Figure 3 – Conditioning for input of binding map allows blocking of PII processing.....	14

Figure A.1 – System layout for ISO/IEC 29100..... 18

Figure B.1 – Local device or user to controller service module 20

Figure B.2 – Example of controller service module to processor service module 21

Figure B.3 – Processor service module to controller service module 22

Figure B.4 – Controller service module to local device or user 23

Figure B.5 – Local device or user to processor service module 24

Figure B.6 – Processor service module to local device or user 25

Figure B.7 – Controller service module to remote device or user..... 25

Figure B.8 – Processor service module to remote device or user 26

Figure B.9 – Data flow not allowed..... 27

Table 1 – Summary of HES gateway privacy principles 12

Table A.1 – ISO/IEC 29100 and HES gateway terms 18

Table B.1 – Permitted PPII flow 19

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INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) GATEWAY –

Part 3-2: Privacy, security, and safety – Privacy framework

FOREWORD

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ISO/IEC 15045-3-2 has been prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology. It is an International Standard.

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

Draft	Report on voting
JTC1-SC25/3190/CDV	JTC1-SC25/3261/RVC

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.

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 15045 series, published under the general title *Information technology – Home Electronic System (HES) gateway*, can be found on the IEC and ISO websites.

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INTRODUCTION

0.1 Overview

The Home Electronic System (HES) is a set of standards that supports communication, control, and monitoring applications for homes and buildings. However, homes and buildings present a heterogeneous and evolving networked environment, where many of these networks and applications (including some that are based on HES standards) are not directly interoperable with each other. HES standards achieve interoperability through the ISO/IEC 15045 series, which relies on the ISO/IEC 18012 series to support functional interworking among the dissimilar home devices, applications, protocols, and networks found in this environment. The ISO/IEC 15045 series and ISO/IEC 18012 series were created to render all protocols interoperable.

The HES gateway enables an open and adaptable market for incompatible products by specifying a standardized modular system intended to provide interoperability among the diversity of networks found in homes and buildings. The HES interoperability process does not require modification of the various networks, applications, or protocols that use it. Appropriate interworking functions translate network messages through interface modules to a common lexicon expression that is then exchanged using a private internal network bus protocol. A protected application platform using a bus protocol supports an expanding array of services for both the applications and the network.

In summary, the ISO/IEC 15045 series specifies a standardized modular dedicated private internal network system that includes:

- interfaces (i.e. interface modules) for communication and semantic translation among dissimilar home area networks (HANs), and between a HAN and external wide area networks (WANs),
- a platform for supporting a variety of application services (i.e. service modules), and
- a secure communication path among these modular elements with access restricted to the appropriate elements in order to protect data, safety and privacy.

0.2 Relation to existing work

The concepts of product interoperability are introduced in ISO/IEC 18012-1. The interworking function (IWF) is specified in ISO/IEC 18012-2. The message content, including applications, interface and service objects will be specified in ISO/IEC 18012-3. The method and format of communication packet exchanges or direct API exchanges within a gateway will be specified in ISO/IEC 18012-4.

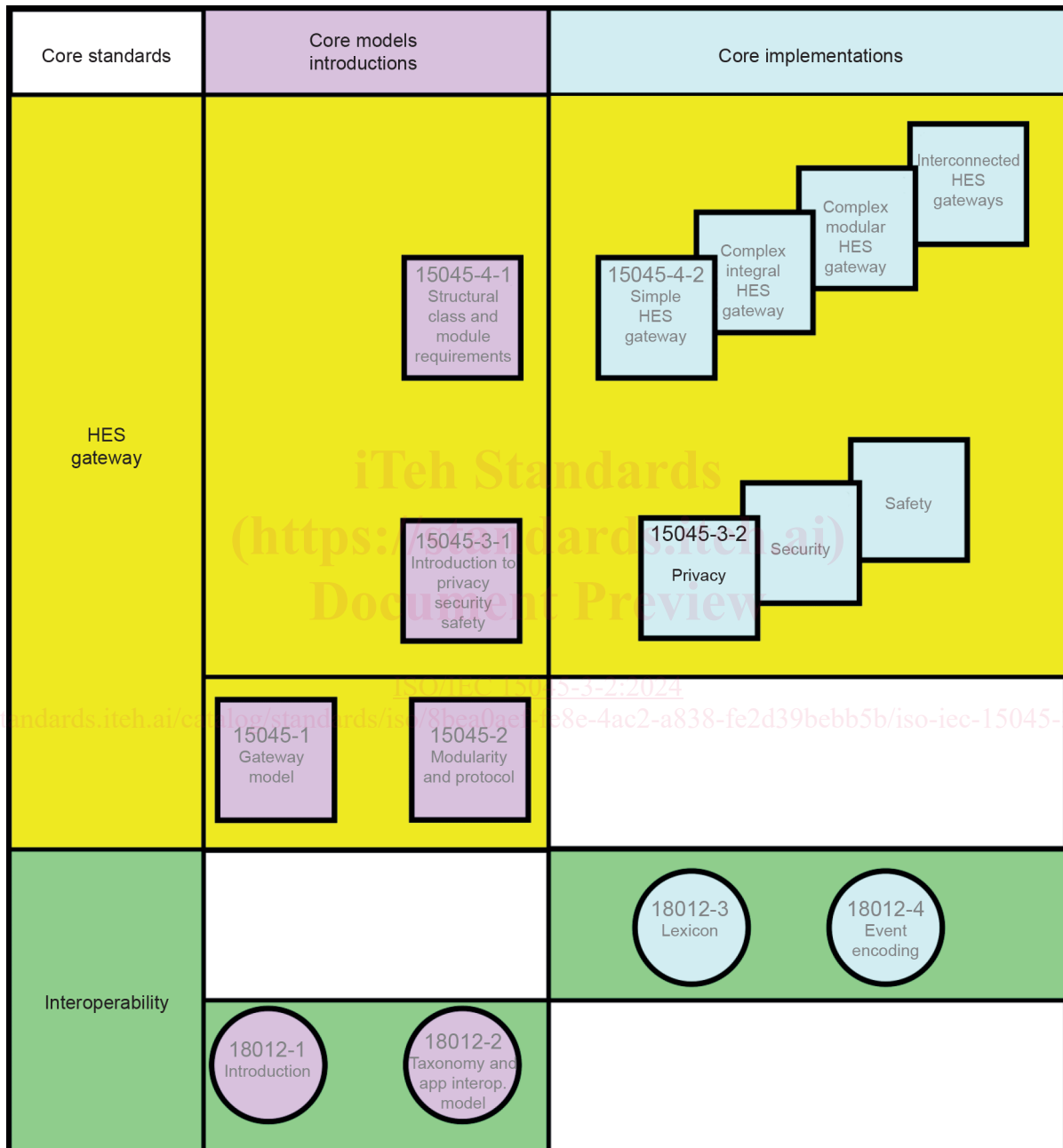
0.3 Privacy in HES gateway

The HES gateway is described in ISO/IEC 15045-1. Several structural configurations of the HES gateway are described in ISO/IEC 15045-4-1. All structural classes use the HES interoperability system described above. However, for classes that use physically separated modules, communication among modular elements is provided by a dedicated private serial bus (i.e. Ethernet) and utilizes a set of protocols now known as the common language internal protocol (CLIP), originally called the GL bus in ISO/IEC 15045-2. All HES gateway structural class configurations use the same interworking functions, including lexicon, and event encoding.

Privacy, security and safety requirements for the HES gateway are specified in ISO/IEC 15045-3-1. ISO/IEC 15045-3-2 (this document) provides specifications that fulfil the privacy requirements of ISO/IEC 15045-3-1. These privacy considerations are based upon ISO/IEC 29100.

The privacy aspects in this document are focused on individual premises, and not focused on apartment complexes or multi-family dwellings. Such situations are handled with "interconnected gateways" structural class. A future part of the ISO/IEC 15045-4 series will detail the privacy considerations and enhancements relating to these types of dwellings.

Figure 1 shows the core interoperability and HES gateway series of standards and where this document fits into the HES gateway series.



IEC

Figure 1 – ISO/IEC 15045-3-2 within the core interoperability and HES gateway standards

0.4 Future features

The HES gateway is structured to provide a foundation upon which features can be added as appropriate while maintaining the privacy, security, safety and interoperability capabilities. The interoperable objects, domains and services defined in the HES Lexicon can be expanded.

INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) GATEWAY –

Part 3-2: Privacy, security, and safety – Privacy framework

1 Scope

This document specifies cybersecurity requirements for protecting the privacy of premises and personally identifiable information through the use of the HES gateway and related HES standards. This document applies a set of principles including those specified in ISO/IEC 29100 that are applicable to the HES gateway such as consent, purpose legitimacy, collection limitation, data minimization, retention, accuracy, openness, and individual access.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1.1

binding map

table that links inputs to outputs

3.1.2

controller service module

HES gateway service module that performs setup and configuration

Note 1 to entry: This module is similar to the "PII controller" in ISO/IEC 29100.

3.1.3

HES gateway

electronic device that transfers messages among WANs and HANs providing interoperability, privacy, security and safety in accordance with the requirements of the ISO/IEC 15045 series and ISO/IEC 18012 series standards

Note 1 to entry: For an HES gateway, a WAN is a network outside the protected area and a HAN is a network inside the protected area.

[SOURCE: ISO/IEC 15045-3-1:2024, 3.1.3]

3.1.4

HES gateway system

HES gateway use case with specific in-premises networks and devices, and potentially off-premises networks

[SOURCE: ISO/IEC 15045-3-1:2024, 3.1.4]

3.1.5

home electronic system

HES

collection of devices and components operating within the premises and interconnected over one or more networks, in conformance with HES-related ISO/IEC standards

Note 1 to entry: The referenced ISO/IEC standards normally include HES in the title of each standard

[SOURCE: ISO/IEC 15045-3-1:2024, 3.1.2]

3.1.6

home electronic system common language message exchange

HES-CLME

protocol for messaging among HES gateway modules

3.1.7

local

logically situated within the premises

[SOURCE: ISO/IEC 15045-3-1:2024, 3.1.5]

3.1.8

PPII third party

entity or person having access to some premises and personally identifiable information (PPII) intended or not by the other parties

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3.1.9

premises and personally identifiable information

PPII

information associated with a premises or an individual that can be identified or linked to the premises or individual

3.1.10

privacy

freedom from being observed or disturbed

[SOURCE: ISO/IEC 15045-3-1:2024, 3.1.6]

3.1.11

processor service module

HES gateway service module that operates real time functions

Note 1 to entry: This module is similar to the "PII processor" in ISO/IEC 29100.

3.1.12

remote

logically situated outside the premises

[SOURCE: ISO/IEC 15045-3-1:2024, 3.1.7]