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Information technology – Home electronic system (HES) architecture – Part 5-12: Intelligent grouping and resource sharing for HES Class 2 and Class 3 – Remote access test and verification

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FOREWORD

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International Standard ISO/IEC 14543-5-12 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

The list of all currently available parts of the ISO/IEC 14543 series, under the general title *Information technology – Home electronic system (HES) architecture*, can be found on the IEC website and ISO website.

The text of this standard is based on the following documents:

FDIS	Report on voting
JTC1-SC25/2854/FDIS	JTC1-SC25/2865/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

INTRODUCTION

ISO/IEC 14543-5 (all parts) specifies the services and protocol of the application layer for intelligent grouping and resource sharing (IGRS) devices and services in the home electronic system. Some parts reference Classes 1, 2 and 3, which are HES designations specified in the HES architecture standard, ISO/IEC 14543-2-1.

ISO/IEC 14543-5 (all parts) includes the following parts.

– ISO/IEC 14543-5-1: Core protocol
  - Specifies the TCP/IP protocol stack as the basis and the HTTP protocol as the message-exchange framework among devices.
  - Specifies a series of device and service interaction/invocation standards, including device and service discovery protocol, device and service description, service invocation, security mechanisms, etc.
  - Specifies core protocols for a type of home network that supports streaming media and other high-speed data transports within a home.
– ISO/IEC 14543-5-21 and ISO/IEC 14543-5-22: Application profile
  - Based on the IGRS core protocol.
  - Specifies a device and service interaction mechanism, as well as application interfaces used in IGRS basic applications.
  - Multiple application profiles are specified, including:
    i) ISO/IEC 14543-5-21: AV profile
    ii) ISO/IEC 14543-5-22: File profile
– ISO/IEC 14543-5-3: Basic application
  - Includes an IGRS basic application list.
  - Specifies a basic application framework.
  - Specifies operation details (device grouping, service description template, etc.), function definitions and service invocation interfaces.
– ISO/IEC 14543-5-4: Device validation
  - Defines a standard method to validate an IGRS-compliant device.
– ISO/IEC 14543-5-5: Device type
  - Specifies IGRS device types used in IGRS applications.
– ISO/IEC 14543-5-6: Service type
  - Specifies basic service types used in IGRS applications.
– ISO/IEC 14543-5-7: Remote access system architecture
  - Specifies the architecture and framework for the remote access of IGRS devices and services in the home electronic system. The remote access communications protocol and application profiles are specified in the following parts of ISO/IEC 14543-5:
    i) ISO/IEC 14543-5-8: Remote access core protocol
    ii) ISO/IEC 14543-5-9: Remote access service platform
    iii) ISO/IEC 14543-5-101: Remote media access profile
    iv) ISO/IEC 14543-5-102: Remote universal management profile
    v) ISO/IEC 14543-5-11: Remote user interface
    vi) ISO/IEC 14543-5-12: Remote access test and verification
  - The relationships among these parts are specified in Part 5-7.

– ISO/IEC 14543-5-8: Remote access core protocol
  - Provides detailed system components, system function modules, basic concepts of IGRS remote access elements and their relationships, message exchange mechanisms and security related specifications.
  - Specifies interfaces between IGRS remote access (RA) client and service platforms. Defines co-operative procedures among IGRS RA clients.
– ISO/IEC 14543-5-9: Remote access service platform
  - Specifies the IGRS RA service platform (IRSP) architectures and interfaces among servers in the service platforms.
  - Based on ISO/IEC 14543-5-8: Remote access core protocol.
– ISO/IEC 14543-5-101 and ISO/IEC 14543-5-102: Remote access application profiles
  - Defines a device and service interaction mechanism for various applications
  - Based on the ISO/IEC 14543-5-8: Remote access core protocol
  - Two profiles have been developed:
    i) ISO/IEC 14543-5-101: Remote media access profile. This part defines the common requirements for IGRS RA media users and devices in IGRS networks.
    ii) ISO/IEC 14543-5-102: Remote universal management profile. This part specifies a mechanism for integrating devices with both relatively high and low processing capabilities into IGRS networks. It also specifies universal remote device discovery and a management framework.
  - Additional application profiles will be specified in the future.
– ISO/IEC 14543-5-11: Remote user interface
  - Specifies adaptive user interface generation and remote device control mechanisms suitable for different remote access applications and devices.
– ISO/IEC 14543-5-12: Remote access test and verification
  - Defines a standard method to test and verify IGRS-RA compliant device and service interfaces.

INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) ARCHITECTURE –

Part 5-12: Intelligent grouping and resource sharing for HES Class 2 and Class 3 – Remote access test and verification

1 Scope

This part of ISO/IEC 14543

– specifies the test and verification methods for an IGRS remote access (RA) user or device,
– defines the structure of a user and device testing system for IGRS remote access,
– describes and specifies the exchange process between a user or device-under-test with a standard IGRS RA service platform (IRSP), and
– describes and specifies the rules to have validating messages.

This document is applicable to the test and verification of an IGRS RA device or user.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 14543-5-8, *Information technology – Home electronic system (HES) architecture – Part 5-8: Intelligent grouping and resource sharing for Class 2 and Class 3 – Remote access core protocol*

ISO/IEC 14543-5-9, *Information technology – Home electronic system (HES) architecture – Part 5-9: Intelligent grouping and resource sharing for Class 2 and Class 3 – Remote access service platform*

IETF RFC 4422, *Simple Authentication and Security Layer (SASL)*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 14543-5-8, ISO/IEC 14543-5-9 and the following apply.

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

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

3.1.1
standard device
IGRS RA device that is used as a reference against which a device-under-test is evaluated for conformance to ISO/IEC 14543-5-8

3.1.2
standard IRSP
IGRS RA service platform that is used as a reference against which a device-under-test is evaluated for conformance to ISO/IEC 14543-5-8

3.1.3
standard user
IGRS RA user interface that is used as a reference against which a user-under-test or device-under-test is evaluated for conformance to ISO/IEC 14543-5-8

3.2 Abbreviated terms

IGRS intelligent grouping and resource sharing
IRSP IGRS RA service platform
RA remote access
SASL Simple Authentication and Safety Layer

4 Conformance

For conformance to this document, the following applies.

- IGRS RA test and verification system shall conform to Clause 5.
- The test suite structure shall conform to Clause 6.
- The test and verification for an IGRS RA user shall conform to Clause 7.
- The test and verification for an IGRS RA device shall conform to Clause 8.

5 Overview

5.1 Purpose

ISO/IEC 14543-5-8 may be implemented with various IGRS RA user interfaces and devices. Service providers and product manufacturers may have different implementations. To ensure all users and devices in an IGRS network interconnect properly, test and verification methods are needed.

As with ISO/IEC 14543-5-4, the IGRS RA test is a version of black box testing. Clause 5 specifies the conformance test suites to test and verify the mandatory and optional message exchanges supported by IGRS RA users or devices. The test results are used for verifying that the user interface or device is an IGRS implementation.

5.2 Test configuration

The basic environment configuration for IGRS RA conformance testing is shown in Figure 1.

NOTE The “user” being tested is the interface software that captures user inputs when operating an IGRS system.

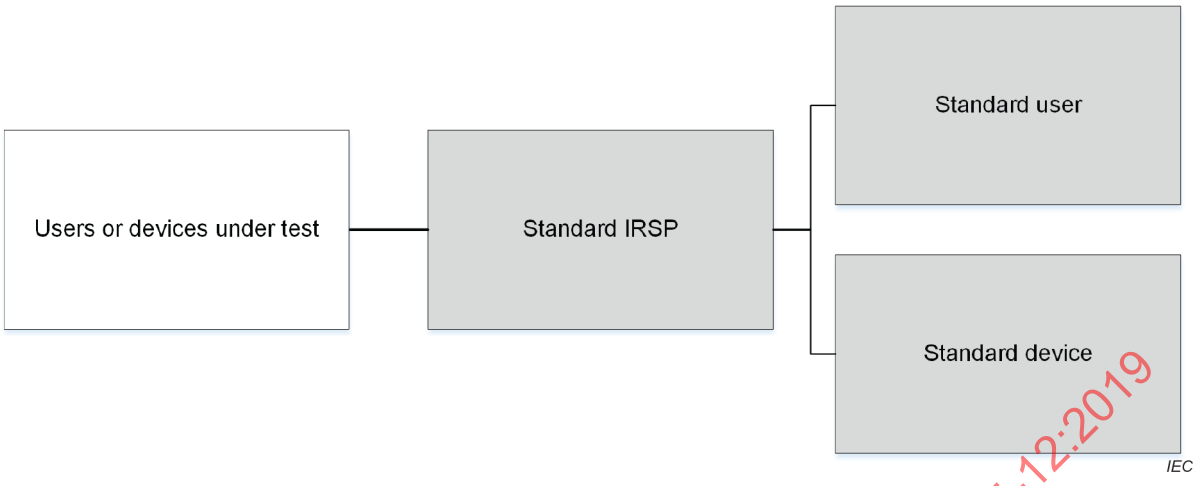

Figure 1 – Environment configuration for IGRS RA conformance test

The user or device-under-test sends various test messages to the standard IRSP or to the standard user or device through a standard IRSP and receives the feedback from the standard IRSP.

IGRS verification does not consider the circumstances where a message is lost from the user or device-under-test in the network transmission link.

5.3 Requirement of verification

According to requirements in ISO/IEC 14543-5-8, IGRS RA users or devices shall pass all related test cases.

5.4 Test environment

Tests shall be implemented in a normal operating environment. The test environment shall satisfy the conditions shown in Table 1.

Table 1 – Test conditions under normal environment

Conditions	Minimum	Maximum
Atmosphere	86 kPa	106 kPa
Temperature	15 °C	30 °C
Relative humidity	20 %	85 %

6 IGRS RA test suite structure

6.1 Structure overview

As shown in Figure 2, there are two hierarchies of IGRS RA conformance test suites.

The first hierarchy includes two suite sets: IGRS RA user conformance test suite for users and IGRS RA device conformance test suite for devices.

The second hierarchy includes detailed test suites according to the various IGRS RA functions specified in ISO/IEC 14543-5-8 in order to test the sub-functions.

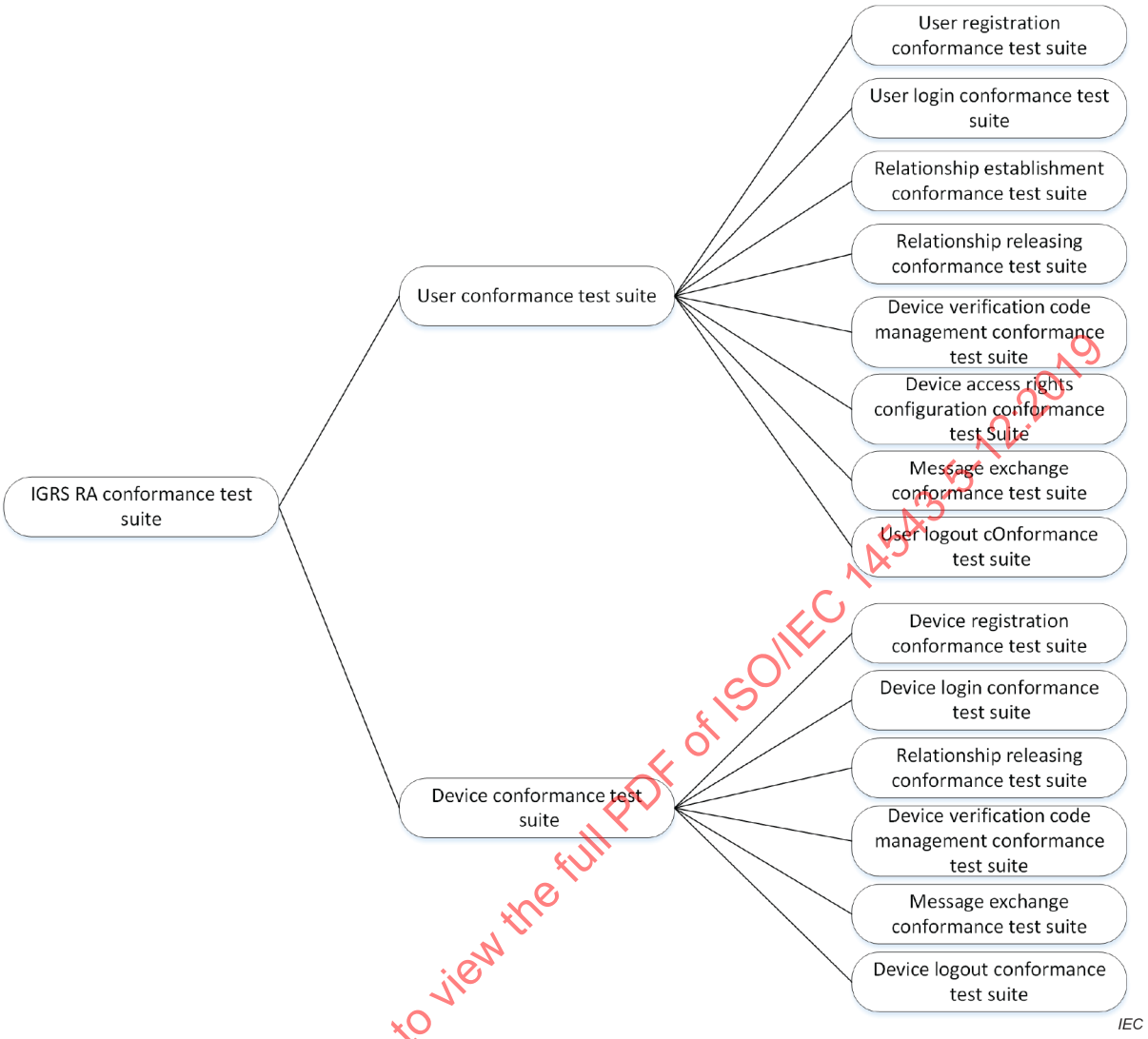

Figure 2 – Structure of IGRS conformance test suite

6.2 IGRS RA user conformance test suite

The IGRS RA user conformance test suite tests the functions initiated by IGRS RA users, including the following eight sub-suites:

a) user register conformance test;
b) user login conformance test;
c) relationship establishment conformance test;
d) relationship releasing conformance test;
e) device verification code management conformance test;
f) device access right configuration conformance test;
g) message exchange conformance test, and
h) user logout conformance test.

6.3 IGRS RA device conformance test suite

The IGRS RA device conformance test suite tests the functions initiated by IGRS RA devices, including the following six sub-suites:

a) device register conformance test;

b) device login conformance test;

c) relationship releasing conformance test;

d) device verification code management conformance test;

e) message exchange conformance test, and

f) device logout conformance test.

6.4 Rules of the test suite

The IGRS RA sub-functional test suites include two categories of contents:

a) Messages and flows involved in the test suite;

b) Test case suite: including preconditions and test cases:

   1) Preconditions list the testing conditions for all test cases.

   2) Test cases include four categories of contents:

      – test purposes;

      – test contents;

      – procedure description; and

      – pass conditions.

7 IGRS RA user conformance test suite

7.1 User register conformance test suite

7.1.1 Message and flow

The user registration flow request message is shown in Figure 2 of ISO/IEC 14543-5-8:2017.

The user-registration-request message is shown in Message 1 of ISO/IEC 14543-5-8:2017.

7.1.2 Test case set

7.1.2.1 Preconditions

Preconditions:

a) The user-under-test and the standard IRSP both have Internet connections.

b) The user-under-test is connected to the standard IRSP.

7.1.2.2 Test case

Description:

a) Test purpose

   Verify that the user-under-test can send a correct registration-request message to the standard IRSP.

b) Verified contents

   See 7.2 of ISO/IEC 14543-5-8:2017.

c) Test procedure description

   Initiate the registration implementation on the user-under-test.

d) Pass conditions

   1) The standard IRSP can receive the registration-request message from the user-under-test.

2) The user-registration message received by the standard IRSP shall comply with the contents of Message 1 specified in ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.2 User login conformance test suite

7.2.1 Message and flow

The user login flow is shown in Figure 3 of ISO/IEC 14543-5-8:2017.

The user-connection-ID–binding-request message is shown in Message 3 of ISO/IEC 14543-5-8:2017.

7.2.2 Test case set

7.2.2.1 Preconditions

Preconditions:

a) The user-under-test and the standard IRSP both have Internet connections.

b) The user-under-test has connected to the standard IRSP.

c) The user-under-test is registered on the standard IRSP and is working normally.

d) The user-under-test follows the Simple Authentication and Safety Layer (SASL) protocol as specified in IETF RFC 4422 to implement the authentication process.

7.2.2.2 Test case

Description:

a) Test purpose

Verify that the user-under-test can send the correct user connection-ID-banding-request message to the standard IRSP.

b) Verified contents

See 8.3 of ISO/IEC 14543-5-8:2017.

c) Test procedure description

Initiate the login function on the user-under-test.

d) Pass conditions

1) The standard IRSP can receive the user connection-ID-binding-request message from the user-under-test.

2) The user connection-ID-binding-request message received by the standard IRSP shall comply with the contents in Message 3 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.3 Relationship establishment conformance test suite

7.3.1 Message and flow

The flow of a relationship establishment requiring approval from the target is shown in Figure 4 of ISO/IEC 14543-5-8:2017.

The flow of a relationship establishment not requiring approval from the target is shown in Figure 5 of ISO/IEC 14543-5-8:2017.

The message, with a device verification code, requesting establishing of a message binding relationship is shown in Message 9 of ISO/IEC 14543-5-8:2017.

7.3.2 Test case set

7.3.2.1 Preconditions

Preconditions:

a) The user-under-test, the target standard user, standard device and the standard IRSP have Internet connections.

b) The user-under-test and the target standard user and device are connected to the standard IRSP.

c) The user-under-test and the target standard user and device are registered and working normally.

d) The user-under-test and the target standard user and device login to the standard IRSP successfully.

e) The user-under-test knows the device verification code of the target standard device.

7.3.2.2 Test case

Description:

a) Test purpose

Verify that the user-under-test can establish a relationship successfully.

b) Verified contents

See 10.3.1 of ISO/IEC 14543-5-8:2017.

c) Procedure description

The user-under-test initiates the request to establish binding relationship with the target standard device.

d) Test pass conditions

1) The standard IRSP can receive the relationship-establish-request message from the user-under-test.

2) The relationship-establish-request message received from the user-under-test by the standard IRSP shall comply with the contents in Message 9 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.4 Relationship releasing conformance test suite

7.4.1 Message and flow

The flow of relationship releasing is shown in Figure 7 of ISO/IEC 14543-5-8:2017.

The relationship-releasing-request message is shown in Message 16 of ISO/IEC 14543-5-8:2017.

7.4.2 Test case

7.4.2.1 Preconditions

Preconditions:

a) The user-under-test, the target standard user, standard device and the standard IRSP have Internet connections.

b) The user-under-test and the target standard user and device are connected to the standard IRSP.

c) The user-under-test and the target standard user and device are registered and working normally.

d) The user-under-test and the target standard user and device login to the standard IRSP successfully.

e) The user-under-test establishes a relationship with the target standard user or device successfully.

7.4.2.2 Test case

Description:

a) Test purpose

Verify that the user-under-test can release the relationship successfully.

b) Verified contents

See 10.4 of ISO/IEC 1453-5-8:2017.

c) Procedure description

The user-under-test sends the relationship-releasing-request message to the standard IRSP successfully.

d) Testing pass conditions

1) The standard IRSP can receive the relationship-releasing-request message from the user-under-test.

2) The relationship-releasing-request message received from the user-under-test by the standard IRSP shall comply with contents in Message 16 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.5 Device verification code management conformance test suite

7.5.1 Message and flow

The device-verification-code-management message initiated by a user manages the device verification code bound by the user. The operations include creating, modifying and deleting the device verification code.

The device-verification-code-management-request message sent by a user is shown in Message 18 of ISO/IEC 14543-5-8:2017.

7.5.2 Test case

7.5.2.1 Preconditions

Preconditions:

a) The user-under-test, the target standard device and the standard IRSP have Internet connections.

b) The user-under-test and the target standard device are connected to the standard IRSP.

c) The user-under-test and the target standard device are registered and working normally.

d) The user-under-test and the target standard device login to the standard IRSP successfully.

e) The user-under-test establishes a relationship with the target standard device successfully.

7.5.2.2 Test case

Description:

a) Test purpose

Verify that the user-under-test can initiate a device-verification-code-management request successfully.

b) Verified contents

See 10.5.1 of ISO/IEC 14543-5-8:2017.

c) Procedure description

The user-under-test sends the device-verification-code-management-request message to the standard IRSP successfully.

d) Pass conditions

1) The standard IRSP can receive the device-verification-code-management-request message from the user-under-test.

2) The device-verification-management-request message received from the user-under-test by the standard IRSP shall comply with the contents in Message 18 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.6 Device access rights configuration conformance test suite

7.6.1 Message and flow

The device access configuration request message sent by the user allows the device owner to grant selected device access right to other users and to reduce the user authentication times required.

The message for device access configuration request sent by user is shown in Message 7 of ISO/IEC 14543-5-8:2017.

7.6.2 Test case

7.6.2.1 Preconditions

Preconditions:

a) The user-under-test, the target standard user and device and the standard IRSP have Internet connections.

b) The user-under-test and the target standard user and device are connected to the standard IRSP.

c) The user-under-test and the target standard user and device are registered and working normally.

d) The user-under-test and the target standard user and device login to the standard IRSP successfully.

e) The user-under-test establishes a relationship with the target standard user or device successfully.

7.6.2.2 Test case

Description:

a) Test purpose

Verify that the user-under-test can send a device access-rights-configuration-request message to the standard IRSP successfully.

b) Verified content

See 9.2 of ISO/IEC 14543-5-8:2017.

c) Procedure description

The user-under-test sends a device-access-rights-configuration-request message to the standard IRSP successfully.

d) Pass conditions

1) The standard IRSP can receive the device-access-configuration-request message from the user-under-test.

2) The device-access-configuration-request message received from the user-under-test by the standard IRSP shall comply with the contents in Message 7 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.7 Message exchange conformance test suite

7.7.1 Message and flow

The flow of message exchanges sent by the user to another user or device that needs a response is shown in Figure 8 of ISO/IEC 14543-5-8:2017.

The flow of message exchanges sent by the user to another user or device that does not need a response is shown in Figure 9 of ISO/IEC 14543-5-8:2017.

The flow of message exchange sent by the user to an IRSP is shown in Figure 10 of ISO/IEC 14543-5-8:2017.

The exchange-request message sent from the user to a target user or device that needs a response is shown in Message 24 of ISO/IEC 14543-5-8:2017.

The exchange-request message sent from the user to a target user or device that does not need a response is shown in Message 26 of ISO/IEC 14543-5-8:2017.

The exchange-request message from the user to the IRSP that needs a response is shown in Message 27 of ISO/IEC 14543-5-8:2017.

7.7.2 Test case set

7.7.2.1 Preconditions

Preconditions: apply to test case 1 to test case 3.

a) The user-under-test, the target standard user, standard device and the standard IRSP have Internet connections.

b) The user-under-test and the target standard user and device are connected to the standard IRSP.

c) The user-under-test and the target standard user and device are registered and working normally.

d) The user-under-test and the target standard user and device login to the standard IRSP successfully.

e) The user-under-test establishes a relationship with the target standard user or device successfully.

7.7.2.2 Test case 1

Description:

a) Testing purpose

Verify that the user-under-test can initiate a message-exchange-request message to the standard IRSP successfully. This message needs a response from the target standard user or device.

b) Verified content

See 11.2 of ISO/IEC 14543-5-8:2017.

c) Procedure description

The user-under-test sends a message-exchange-request message that needs a response from the target user or device to the standard IRSP successfully.

d) Pass conditions

1) The standard IRSP can receive the message-exchange-request message from the user-under-test.

2) The message-exchange-request message received from the user-under-test by the standard IRSP shall comply with contents in Message 24 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.7.2.3 Test case 2

Description:

a) Test purpose

Verify that the user-under-test can initiate a message-exchange-request message to the standard IRSP successfully. This message does not need a response from the target standard user or device.

b) Verified content

See 11.3 of ISO/IEC 14543-5-8:2017.

c) Procedure description

The user-under-test sends a message-exchange-request message that does not need a response to the standard IRSP successfully.

d) Pass conditions

1) The standard IRSP can receive the message-exchange-request message from the user-under-test.

2) The message-exchange-request message received from the user-under-test by the standard IRSP shall comply with contents in Message 26 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.7.2.4 Test case 3

Description:

a) Test purpose

Verify that the user-under-test can initiate a message-exchange-request message to another server in the standard IRSP, or a third party server outside of the standard IRSP successfully.

b) Verified contents

See 11.4 of ISO/IEC 14543-5-8:2017.

c) Procedure description

The user-under-test sends a message-exchange-request message to the standard IRSP successfully.

d) Pass conditions

1) The standard IRSP can receive the message-exchange-request message from the user-under-test.

2) The message-exchange-request message received from the user-under-test by the standard IRSP shall comply with contents in Message 27 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

7.8 User logout conformance test suite

7.8.1 Message and flow

The logout flow initiated by user is shown in Figure 14 of ISO/IEC 14543-5-8:2017.

The logout message sent by user is shown in Message 30 of ISO/IEC 14543-5-8:2017.

7.8.2 Test case set

7.8.2.1 Preconditions

Preconditions:

a) The user-under-test and the standard IRSP both have Internet connections.
b) The user-under-test is connected to the standard IRSP.
c) The user-under-test is registered and working normally.
d) The user-under-test logins to the standard IRSP successfully.

7.8.2.2 Test case

The description for this test case is shown below:

a) Testing purpose

   Verify the user-under-test can initiate a logout-request message to the standard IRSP successfully.

b) Verified contents

   See 12.1 of ISO/IEC 14543-5-8:2017.

c) Procedure description

   The user-under-test sends logout message to the standard IRSP successfully.

d) Pass conditions

   1) The standard IRSP can receive the logout message from the user-under-test.
   2) The logout message received from the user-under-test by the standard IRSP shall comply with contents in Message 30 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

8 IGRS RA device conformance test suite

8.1 Device registration conformance test suite

8.1.1 Message and flow

The device registration flow is shown in Figure 2 of ISO/IEC 14543-5-8:2017.

The device registration request message is shown in Message 2 of ISO/IEC 14543-5-8:2017.

8.1.2 Test case set

8.1.2.1 Preconditions

Precondition:

a) The device-under-test and the standard IRSP both have Internet connections.
b) The device-under-test connects to the standard IRSP.

8.1.2.2 Test case

Description:

a) Test purpose

   Verify that the device-under-test can send a correct registration-request message to a standard IRSP.

b) Verified contents

   See 7.3 of ISO/IEC 14543-5-8:2017.

c) Test procedure description

Initiate the registration implementation on the device-under-test.

d) Pass conditions

1) The standard IRSP can receive the registration-request message from the device-under-test.

2) The device-registration message received by the standard IRSP shall comply with contents in Message 2 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

8.2 Device login conformance test suite

8.2.1 Message and flow

The device login flow is shown in Figure 3 of ISO/IEC 14543-5-8:2017.

The device connection ID binding message is shown in Message 5 of ISO/IEC 14543-5-8:2017.

8.2.2 Test case set

8.2.2.1 Preconditions

Preconditions:

a) The device-under-test and the standard IRSP both have Internet connections.

b) The device-under-test has connected to the standard IRSP.

c) The device-under-test is registered on the standard IRSP and working normally.

d) The device-under-test follows the SASL protocol as specified in IETF RFC 4422 to implement the authentication process.

8.2.2.2 Test case

Description:

a) Testing purpose

Verify that the device-under-test can send a correct device-connection-ID-banding-request message to the standard IRSP.

b) Verified contents

See 8.5 of ISO/IEC 14543-5-8:2017.

c) Procedure description

Initiate the login function on the device-under-test.

d) Pass conditions

1) The standard IRSP can receive the device-connection-ID-binding message from the device-under-test.

2) The device-connection-ID-binding message received by the standard IRSP shall comply with the contents in Message 5 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

8.3 Relationship releasing conformance test suite

8.3.1 Message and flow

The flow of relationship releasing is shown in Figure 7 of ISO/IEC 14543-5-8:2017.

The relationship releasing request message sent by an IGRS RA device is shown in Message 17 of ISO/IEC 14543-5-8:2017.

8.3.2 Test case set

8.3.2.1 Preconditions

Preconditions:

a) The device-under-test, the target standard user, standard device and the standard IRSP have Internet connections.

b) The device-under-test and the target standard user and device are connected to the standard IRSP.

c) The device-under-test and the target standard user and device are registered and working normally.

d) The device-under-test and the target standard user and device login to the standard IRSP successfully.

e) The device-under-test establishes a relationship with the target standard user or device successfully.

8. 3. 2. 2 Test case

Description:

a) Test purpose

Verify that the device-under-test can release the relationship successfully.

b) Verified contents

See 10.4 of ISO/IEC 14543-5-8:2017.

c) Procedure description

The device-under-test sends the relationship-releasing-request message to the standard IRSP successfully.

d) Pass conditions

1) The standard IRSP can receive the relationship-releasing-request message from the device-under-test.

2) The relationship-releasing-request message received from the device-under-test by the standard IRSP shall comply with contents in Message 17 of ISO/IEC 14543-5-8:2017 and shall meet the requirements of each field.

8.4 Device verification code management conformance test suite

8.4.1 Message and flow

The device-verification-code–management-request message initiated by a device is used to manage the device verification code. The message can create, modify and delete the device verification code.

The device-verification-code-management-request message sent by device is shown in Message 21 of ISO/IEC 14543-5-8:2017.

8.4.2 Test case

8.4.2.1 Preconditions

Preconditions:

a) The device-under-test, the target standard device and the standard IRSP have Internet connections.

b) The device-under-test and the target standard device are connected to the standard IRSP.

c) The device-under-test and the target standard device are registered and working normally.