



ZigBee Cluster Library Scenes Cluster (0x0005) Test Specification Version 1.0

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Abstract This document describes the certification tests for devices which implement the ZCL Scenes cluster.

Keywords ZCL, Scenes, cluster

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Revision history

| Revision | Date | Details | Editor |
|----------|-----------------------------------|--|---------------|
| 00 | April, 2015 | Created from ZHA and ZLL test specifications. | Phil Jamieson |
| 01 | August 12 th , 2015 | Resolved comments received since the Hull test event in June 2015. | Phil Jamieson |
| 02 | September 30 th , 2015 | Added the new mandatory global attributes. | Phil Jamieson |
| 03 | October 30 th , 2015 | Addressed comments from GTE #3 and the v0.9 ballot. | Phil Jamieson |
| 04 | March 1 st , 2016 | Addressed comments from the ZigBee 3.0 SVEs. | Phil Jamieson |
| 05 | April 18 th , 2016 | Changed status to "approved" and version to 1.0. | Phil Jamieson |

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1 Introduction

This document contains the PICS, test specification and PICS/test case cross reference for the ZCL *scenes* cluster.

1.1 Conformance levels

The key words "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED" and "MAY" in this document are to be interpreted as described in [R4].

2 References

2.1 ZigBee Alliance documents

[R1] ZigBee Cluster Library Specification, ZigBee Alliance document 07-5123.

[R2] ZCL General Test Specification, ZigBee Alliance document 15-0xxx.

[R3] ZCL Scenes Cluster XML PICS, ZigBee Alliance document 15-0xxx.

2.2 IETF documents

[R4] S. Bradner, Key words for use in RFCs to Indicate Requirement Levels, IETF RFC 2119, March 1997.

3 PIXIT items

| Item number | Feature | Support |
|-------------|---|---|
| S.PIXIT01 | How many scene table entries are automatically created on the device when factory new? | <i>"Number of entries"</i> |
| S.PIXIT02 | Which scene IDs per group ID are automatically configured on the device when factory new? | <i>E.g. 0x0000: 0x00 0x0001: 0x01, 0x02</i> |

4 PICS

All references are for the ZigBee Cluster Library specification [R1] unless otherwise indicated.
An XML version of these PICS is also available in [R3].

4.1 Usage

| Item number | Feature | Reference | Status | Support |
|-------------|--|-----------|--------|---------|
| S.S | Does the device implement the <i>scenes</i> cluster as a server? | 3.7.2 | O | Yes/No |
| S.C | Does the device implement the <i>scenes</i> cluster as a client? | 3.7.3 | O | Yes/No |

4.2 Server

4.2.1 Attributes

| Item number | Feature | Reference | Status | Support |
|-------------|--|-------------------------|--------|---------|
| S.S.A0000 | Does the device implement the <i>SceneCount</i> attribute? | Table 3.37, 3.7.2.2.1.1 | S.S: M | Yes/No |
| S.S.A0001 | Does the device implement the <i>CurrentScene</i> attribute? | Table 3.37, 3.7.2.2.1.2 | S.S: M | Yes/No |
| S.S.A0002 | Does the device implement the <i>CurrentGroup</i> attribute? | Table 3.37, 3.7.2.2.1.3 | S.S: M | Yes/No |
| S.S.A0003 | Does the device implement the <i>SceneValid</i> attribute? | Table 3.37, 3.7.2.2.1.4 | S.S: M | Yes/No |
| S.S.A0004 | Does the device implement the <i>NameSupport</i> attribute? | Table 3.37, 3.7.2.2.1.5 | S.S: M | Yes/No |
| S.S.A0005 | Does the device implement the <i>LastConfiguredBy</i> attribute? | Table 3.37, 3.7.2.2.1.6 | S.S: O | Yes/No |
| S.S.Afffd | Does the device implement the <i>ClusterRevision</i> global attribute? | Table 2-1, 2.3.5.1.1 | S.S: M | Yes/No |

4.2.2 Commands received

| Item number | Feature | Reference | Status | Support |
|-------------|---|-----------------------|--------|---------|
| S.S.C00.Rsp | Does the device implement receiving the <i>Add scene</i> command? | Table 3.39, 3.7.2.4.2 | S.S: M | Yes/No |

| Item number | Feature | Reference | Status | Support |
|-------------|--|------------------------|--------|---------|
| S.S.C01.Rsp | Does the device implement receiving the <i>View scene</i> command? | Table 3.39, 3.7.2.4.3 | S.S: M | Yes/No |
| S.S.C02.Rsp | Does the device implement receiving the <i>Remove scene</i> command? | Table 3.29, 3.7.2.4.4 | S.S: M | Yes/No |
| S.S.C03.Rsp | Does the device implement receiving the <i>Remove all scenes</i> command? | Table 3.29, 3.7.2.4.5 | S.S: M | Yes/No |
| S.S.C04.Rsp | Does the device implement receiving the <i>Store scene</i> command? | Table 3.29, 3.7.2.4.6 | S.S: M | Yes/No |
| S.S.C05.Rsp | Does the device implement receiving the <i>Recall scene</i> command? | Table 3.29, 3.7.2.4.7 | S.S: M | Yes/No |
| S.S.C06.Rsp | Does the device implement receiving the <i>Get scene membership</i> command? | Table 3.29, 3.7.2.4.8 | S.S: M | Yes/No |
| S.S.C40.Rsp | Does the device implement receiving the <i>Enhanced add scene</i> command? | Table 3.29, 3.7.2.4.9 | S.S: O | Yes/No |
| S.S.C41.Rsp | Does the device implement receiving the <i>Enhanced view scene</i> command? | Table 3.29, 3.7.2.4.10 | S.S: O | Yes/No |
| S.S.C42.Rsp | Does the device implement receiving the <i>Copy scene</i> command? | Table 3.29, 3.7.2.4.11 | S.S: O | Yes/No |

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111 4.2.3 Commands generated

| Item number | Feature | Reference | Status | Support |
|-------------|---|-----------------------|--------|---------|
| S.S.C00.Tx | Does the device implement sending the <i>Add scene response</i> command? | Table 3.40, 3.7.2.5.1 | S.S: M | Yes/No |
| S.S.C01.Tx | Does the device implement sending the <i>View scene response</i> command? | Table 3.40, 3.7.2.5.2 | S.S: M | Yes/No |
| S.S.C02.Tx | Does the device implement sending the <i>Remove scene response</i> command? | Table 3.40, 3.7.2.5.3 | S.S: M | Yes/No |
| S.S.C03.Tx | Does the device implement sending the <i>Remove all scenes response</i> command? | Table 3.40, 3.7.2.5.4 | S.S: M | Yes/No |
| S.S.C04.Tx | Does the device implement sending the <i>Store scene response</i> command? | Table 3.40, 3.7.2.5.5 | S.S: M | Yes/No |
| S.S.C06.Tx | Does the device implement sending the <i>Get scene membership response</i> command? | Table 3.40, 3.7.2.5.6 | S.S: M | Yes/No |
| S.S.C40.Tx | Does the device implement sending the <i>Enhanced add scene response</i> command? | Table 3.40, 3.7.2.5.7 | S.S: O | Yes/No |

| Item number | Feature | Reference | Status | Support |
|-------------|--|-----------------------|--------|---------|
| S.S.C41.Tx | Does the device implement sending the <i>Enhanced view scene response</i> command? | Table 3.40, 3.7.2.5.8 | S.S: O | Yes/No |
| S.S.C42.Tx | Does the device implement sending the <i>Copy scene response</i> command? | Table 3.40, 3.7.2.5.9 | S.S: O | Yes/No |

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113 4.3 Client

114 4.3.1 Attributes

| Item number | Feature | Reference | Status | Support |
|-------------|--|----------------------|--------|---------|
| S.C.Afffd | Does the device implement the <i>ClusterRevision</i> global attribute? | Table 2-1, 2.3.5.1.1 | S.C: M | Yes/No |

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116 4.3.2 Commands received

| Item number | Feature | Reference | Status | Support |
|-------------|---|-----------------------|--------|---------|
| S.C.C00.Rsp | Does the device implement receiving the <i>Add scene response</i> command? | Table 3.40, 3.7.2.5.1 | S.C: O | Yes/No |
| S.C.C01.Rsp | Does the device implement receiving the <i>View scene response</i> command? | Table 3.40, 3.7.2.5.2 | S.C: O | Yes/No |
| S.C.C02.Rsp | Does the device implement receiving the <i>Remove scene response</i> command? | Table 3.40, 3.7.2.5.3 | S.C: O | Yes/No |
| S.C.C03.Rsp | Does the device implement receiving the <i>Remove all scenes response</i> command? | Table 3.40, 3.7.2.5.4 | S.C: O | Yes/No |
| S.C.C04.Rsp | Does the device implement receiving the <i>Store scene response</i> command? | Table 3.40, 3.7.2.5.5 | S.C: O | Yes/No |
| S.C.C06.Rsp | Does the device implement receiving the <i>Get scene membership response</i> command? | Table 3.40, 3.7.2.5.6 | S.C: O | Yes/No |
| S.C.C40.Rsp | Does the device implement receiving the <i>Enhanced add scene response</i> command? | Table 3.40, 3.7.2.5.7 | S.C: O | Yes/No |
| S.C.C41.Rsp | Does the device implement receiving the <i>Enhanced view scene response</i> command? | Table 3.40, 3.7.2.5.8 | S.C: O | Yes/No |
| S.C.C42.Rsp | Does the device implement receiving the <i>Copy scene response</i> command? | Table 3.40, 3.7.2.5.9 | S.C: O | Yes/No |

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118 **4.3.3 Commands generated**

| Item number | Feature | Reference | Status | Support |
|-------------|--|------------------------|--------|---------|
| S.C.C00.Tx | Does the device implement sending the <i>Add scene</i> command? | Table 3.39, 3.7.2.4.2 | S.C: O | Yes/No |
| S.C.C01.Tx | Does the device implement sending the <i>View scene</i> command? | Table 3.39, 3.7.2.4.3 | S.C: O | Yes/No |
| S.C.C02.Tx | Does the device implement sending the <i>Remove scene</i> command? | Table 3.39, 3.7.2.4.4 | S.C: O | Yes/No |
| S.C.C03.Tx | Does the device implement sending the <i>Remove all scenes</i> command? | Table 3.39, 3.7.2.4.5 | S.C: O | Yes/No |
| S.C.C04.Tx | Does the device implement sending the <i>Store scene</i> command? | Table 3.39, 3.7.2.4.6 | S.C: O | Yes/No |
| S.C.C05.Tx | Does the device implement sending the <i>Recall scene</i> command? | Table 3.39, 3.7.2.4.7 | S.C: O | Yes/No |
| S.C.C06.Tx | Does the device implement sending the <i>Get scene membership</i> command? | Table 3.39, 3.7.2.4.8 | S.C: O | Yes/No |
| S.C.C40.Tx | Does the device implement sending the <i>Enhanced add scene</i> command? | Table 3.39, 3.7.2.4.9 | S.C: O | Yes/No |
| S.C.C41.Tx | Does the device implement sending the <i>Enhanced view scene</i> command? | Table 3.39, 3.7.2.4.10 | S.C: O | Yes/No |
| S.C.C42.Tx | Does the device implement sending the <i>Copy scene</i> command? | Table 3.39, 3.7.2.4.11 | S.C: O | Yes/No |

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5 Test specification

5.1 Introduction

5.1.1 Test case overview

The following test cases are available for the *scenes* cluster:

| Test ID | Description | Reference |
|--------------------------|--|-----------|
| Global tests | | |
| S-TC-01G | Global attributes | 5.2.1 |
| Server side tests | | |
| S-TC-01S | Attributes with server as DUT | 5.3.1 |
| S-TC-02S | Primary functionality with server as DUT | 5.3.2 |
| S-TC-03S | Secondary functionality with server as DUT | 5.3.3 |
| Client side tests | | |
| S-TC-01C | Functionality with client as DUT | 5.4.1 |

5.1.2 Testing tolerances

In test cases where a change in an attribute value is tested over time, it is permitted for the devices involved in the test to be within a tolerance of $\pm 15\%$ of the expected value. As such, these test cases indicate that the attribute value must be approximately equal to an expected value, to which the $\pm 15\%$ tolerance should then be applied. All other attribute values presented are expected to be exact.

5.1.3 Client DUTs

For client test cases only test steps that pertain to commands that are supported on the DUT are required to be executed. All commands in this cluster for which support is indicated in the PICS shall be exercised, using valid, application achievable values.

Note that for the client attribute test case, it is permissible for the client not to be able to execute any of the test steps.

The client SHALL ensure that an application link, e.g. a binding link, exists between itself and the test harness. This should be configured before starting the test.

5.1.4 Test steps manipulating attributes

In test case steps that require more than one attribute to be manipulated (e.g. read), the tester may decide whether it is appropriate or practical to send a single attribute manipulation command, containing multiple attributes, or multiple attribute manipulation commands, each containing a single attribute. The test case is designed to verify the behavior of the device supporting the attribute rather than verifying the attribute manipulation command in question.

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5.2 Generic test cases

5.2.1 S-TC-01G: Global attributes

This test case verifies the behavior of the global attributes of the *scenes* cluster client and server.

In this test, the PICS notation *S.S.Agm* and *S.C.Agm* represents the list of global attributes that are specified as being mandatory for either the server or client, respectively. Similarly, the PICS notation *S.S.Ago* and *S.C.Ago* represents the list of global attributes that are specified as being optional for either the server or client, respectively.

5.2.1.1 Scope

General:

- *Read attributes* command (0x00)
- *Read attributes response* command (0x01)
- *Write attributes* command (0x02)
- *Write attributes response* command (0x04)



Basic cluster (0x0000):

- All global attributes

PICS:

- S.S, S.C
- S.S.Agm, S.C.Agm, S.S.Ago, S.C.Ago

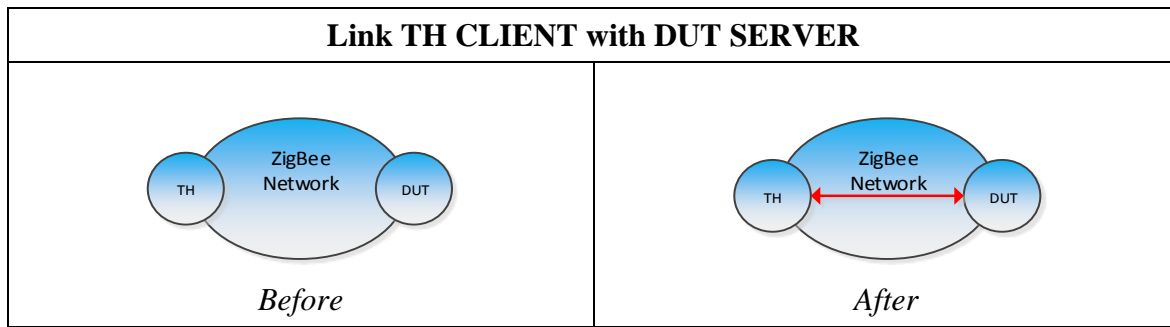
5.2.1.2 Required devices

| Designation | Symbol | Description |
|-------------|---|---|
| DUT |  | Device under test implementing: <ul style="list-style-type: none"> • The <i>scenes</i> cluster server or client. |
| TH |  | Test harness implementing: <ul style="list-style-type: none"> • The <i>scenes</i> cluster client or server, i.e. the opposite cluster instantiation as implemented on the DUT. |

5.2.1.3 Initial conditions

| Item | Initial Conditions |
|------|---|
| 1 | A packet sniffer shall be observing the communication over the air interface. |
| 2 | All devices are factory new and powered off until used. |

170 5.2.1.4 Test preparation



| S-TC-01G: Global attributes | | |
|------------------------------------|--------------------------------------|--|
| Item | Preparation Step | Observation |
| P1 | Form a ZigBee network. | Observe appropriate command frame to form the network. |
| P2 | Power on TH and DUT. | TH and DUT are powered on. |
| P3 | Join TH and DUT to a ZigBee network. | Observe appropriate communication between TH, DUT and any other relevant node on the ZigBee network. |

--- End of test case S-TC-01G preparation ---

173 **5.2.1.5 Test procedure**

| S-TC-01G: Global attributes | | | |
|------------------------------------|---------------------|--|---|
| Item | PICS | Test Harness Step | DUT pass Verification |
| 1 | S.S.Agm, S.C.Agm | TH unicasts a ZCL <i>read attributes</i> command frame to DUT to read each mandatory global attribute of this cluster one at a time. | DUT unicasts a ZCL <i>read attributes response</i> command frame to TH containing each requested attribute. The data type in each command must match the value listed in the specification(s). The data value in each command for the attribute must fall within the valid range described in the specification(s). |
| 2a | S.S.Agm, S.C.Agm | TH unicasts a ZCL <i>write attributes</i> command frame to DUT to write the respective default value to each mandatory global attribute of this cluster one at a time. | DUT unicasts a ZCL <i>write attributes response</i> command frame to TH for each attribute. If the access control of DUT is set to READ, the DUT response will indicate that the attribute write command was not a SUCCESS. If the access control of DUT is set to READ/WRITE, the DUT response will indicate that the write command was a SUCCESS. |
| 2b | S.S.Agm, S.C.Agm | TH unicasts a ZCL <i>read attributes</i> command frame to DUT to read back each attribute written in step 2a. | DUT unicasts a ZCL <i>read attributes response</i> command frame to TH containing the requested attribute. If the <i>Status</i> field of the <i>write attributes response</i> command frame was equal to SUCCESS, the updated value is read back. If the <i>Status</i> field of the <i>write attributes response</i> command frame was not equal to SUCCESS the value is not updated when read back. |

Continued...

| S-TC-01G: Global attributes | | | |
|------------------------------------|---------------------|---|--|
| Item | PICS | Test Harness Step | DUT pass Verification |
| 3 | S.S.Ago, S.C.Ago | TH unicasts a ZCL <i>read attributes</i> command frame to DUT to read each optional global attribute of this cluster one at a time. | DUT unicasts a ZCL <i>read attributes response</i> command frame to TH containing each attribute. If the DUT implements the attribute, the <i>Status</i> field will be equal to SUCCESS and the command will contain the requested attribute. If the DUT does not implement the attribute, the <i>Status</i> field will not be equal to SUCCESS. The data type in each command must match the value listed in the specification(s). The data value in each command for the attribute must fall within the valid range described in the specification(s). |
| 4a | S.S.Ago, S.C.Ago | TH unicasts a ZCL <i>write attributes</i> command frame to DUT to write the respective default value to each optional global attribute of this cluster one at a time. | DUT unicasts a ZCL <i>write attributes response</i> command frame to TH for each attribute. If the attribute is not implemented or the access control of DUT is set to READ, the DUT response will indicate that the attribute write command was not a SUCCESS. If the attribute is implemented and the access control of DUT is set to READ/WRITE, the DUT response will indicate that the write command was a SUCCESS. |
| 4b | S.S.Ago, S.C.Ago | TH unicasts a ZCL <i>read attributes</i> command frame to DUT to read back each attribute written in step 4a. | DUT unicasts a ZCL <i>read attributes response</i> command frame to TH containing the requested attribute. If the <i>Status</i> field of the <i>write attributes response</i> command frame was equal to SUCCESS, the updated value is read back. If the <i>Status</i> field of the <i>write attributes response</i> command frame was not equal to SUCCESS the value is not updated when read back. |

--- End of test case S-TC-01G ---

5.3 Server test cases

5.3.1 S-TC-01S: Attributes with server as DUT

This test case verifies the behavior of the non-global attributes of the *scenes* cluster server.

In this test, the PICS notation *S.S.Am* represents the list of non-global attributes that are specified as being mandatory. Similarly, the PICS notation *S.S.Ao* represents the list of non-global attributes that are specified as being optional.

5.3.1.1 Scope

General:

- *Read attributes* command (0x00)
- *Read attributes response* command (0x01)
- *Write attributes* command (0x02)
- *Write attributes response* command (0x04)



Scenes cluster (0x0005):

- All non-global attributes

PICS:

- S.S,
- S.S.Am, S.S.Ao

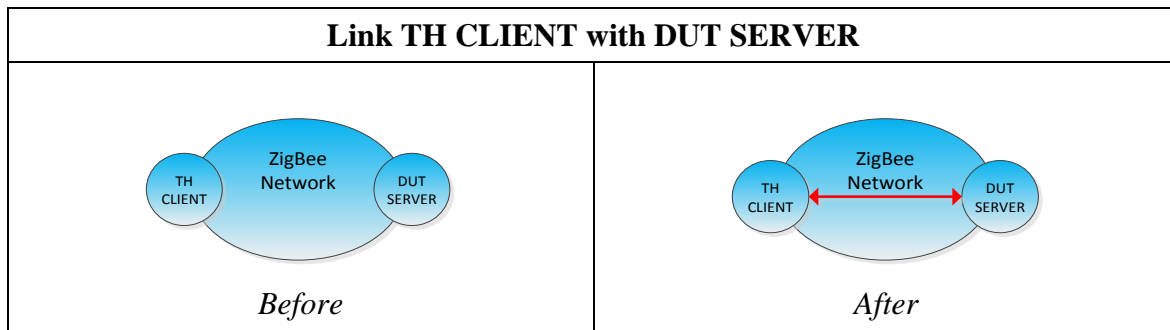
5.3.1.2 Required devices

| Designation | Symbol | Description |
|---------------|---|---|
| TH CLIENT |  | Test harness client implementing: <ul style="list-style-type: none"> • The <i>scenes</i> cluster client. |
| DUT SERVER |  | Device under test server: <ul style="list-style-type: none"> • The <i>scenes</i> cluster server. |

5.3.1.3 Initial conditions

| Item | Initial Conditions |
|------|---|
| 1 | A packet sniffer shall be observing the communication over the air interface. |
| 2 | All devices are factory new and powered off until used. |

197 5.3.1.4 Test preparation



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| S-TC-01S: Attributes with server as DUT | | |
|---|--|--|
| Item | Preparation Step | Observation |
| P1 | Form a ZigBee network. | Observe appropriate command frame to form the network. |
| P2 | Power on TH CLIENT and DUT SERVER. | TH CLIENT and DUT SERVER are powered on. |
| P3 | Join TH CLIENT and DUT SERVER to a ZigBee network. | Observe appropriate communication between TH CLIENT, DUT SERVER and any other relevant node on the ZigBee network. |

--- End of test case S-TC-01C preparation ---

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200 **5.3.1.5 Test procedure**

| S-TC-01S: Attributes with server as DUT | | | |
|--|-------------|---|---|
| Item | PICS | Test Harness Step | DUT pass Verification |
| 1 | S.S.Am | TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read each mandatory attribute of this cluster one at a time. | DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT containing each requested attribute. The data type in each command must match the value listed in the specification(s). The data value in each command for the attribute must fall within the valid range described in the specification(s). |
| 2a | S.S.Am | TH CLIENT unicasts a ZCL <i>write attributes</i> command frame to DUT SERVER to write the respective default value to each mandatory attribute of this cluster one at a time. | DUT SERVER unicasts a ZCL <i>write attributes response</i> command frame to TH CLIENT for each attribute. If the access control of DUT SERVER is set to READ, the DUT SERVER response will indicate that the attribute write command was not a SUCCESS. If the access control of DUT SERVER is set to READ/WRITE, the DUT SERVER response will indicate that the write command was a SUCCESS. |
| 2b | S.S.Am | TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read back each attribute written in step 2a. | DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT containing the requested attribute. If the <i>Status</i> field of the <i>write attributes response</i> command frame was equal to SUCCESS, the updated value is read back. If the <i>Status</i> field of the <i>write attributes response</i> command frame was not equal to SUCCESS the value is not updated when read back. |

Continued...

| S-TC-01S: Attributes with server as DUT | | | |
|--|-------------|--|---|
| Item | PICS | Test Harness Step | DUT pass Verification |
| 3 | S.S.Ao | TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read each optional attribute of this cluster one at a time. | <p>DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT containing each attribute.</p> <p>If the DUT SERVER implements the attribute, the <i>Status</i> field will be equal to SUCCESS and the command will contain the requested attribute. If the DUT SERVER does not implement the attribute, the <i>Status</i> field will not be equal to SUCCESS.</p> <p>The data type in each command must match the value listed in the specification(s). The data value in each command for the attribute must fall within the valid range described in the specification(s).</p> |
| 4a | S.S.Ao | TH CLIENT unicasts a ZCL <i>write attributes</i> command frame to DUT SERVER to write the respective default value to each optional attribute of this cluster one at a time. | <p>DUT SERVER unicasts a ZCL <i>write attributes response</i> command frame to TH CLIENT for each attribute.</p> <p>If the attribute is not implemented or the access control of DUT SERVER is set to READ, the DUT SERVER response will indicate that the attribute write command was not a SUCCESS. If the attribute is implemented and the access control of DUT SERVER is set to READ/WRITE, the DUT response will indicate that the write command was a SUCCESS.</p> |

Continued...

| S-TC-01S: Attributes with server as DUT | | | |
|--|-------------|---|---|
| Item | PICS | Test Harness Step | DUT pass Verification |
| 4b | S.S.Ao | TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read back each attribute written in step 4a. | DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT containing the requested attribute. If the <i>Status</i> field of the <i>write attributes response</i> command frame was equal to SUCCESS, the updated value is read back. If the <i>Status</i> field of the <i>write attributes response</i> command frame was not equal to SUCCESS the value is not updated when read back. |

--- End of test case S-TC-01S ---

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202

5.3.2 S-TC-02S: Primary functionality with server as DUT

This test verifies the primary functionality of the *scenes* cluster.

This test case requires an *application configuration*, *AC*, to be set on the device in order to create a scene. An *AC* is essentially a set of cluster attribute settings which affect the scene and is dependent on the application clusters supported on the server device. When the test calls for a specific *AC_i* it is up to the tester to manipulate the attributes on the DUT according to the supported clusters such that each *AC_i* is unique.

5.3.2.1 Scope

General:

- *Read attributes* command (0x00)
- *Read attributes response* command (0x01)
- *Default response* command (0x0b)

Groups cluster (0x0004):

- *Add group* command (0x00)
- *Add group response* command (0x00)
- *Remove all groups* command (0x04)



Scenes cluster (0x0005):

- *Add scene* command (0x00)
- *Add scene response* command (0x00)
- *View scene* command (0x01)
- *View scene response* command (0x01)
- *Remove scene* command (0x02)
- *Remove scene response* command (0x02)
- *Remove all scenes* command (0x03)
- *Remove all scenes response* command (0x03)
- *Store scene* command (0x04)
- *Store scene response* command (0x04)
- *Recall scene* command (0x05)
- *Get scene membership* command (0x06)
- *Get scene membership response* command (0x06)

PICS:

- G.PIXIT02, G.S.C00.Rsp, G.S.C04.Rsp, G.S.C00.Tx
- S.S
- S.S.A0000 – S.S.A0003
- S.S.C00.Rsp – S.S.C06.Rsp
- S.S.C00.Tx – S.S.C04.Tx, S.S.C06.Tx

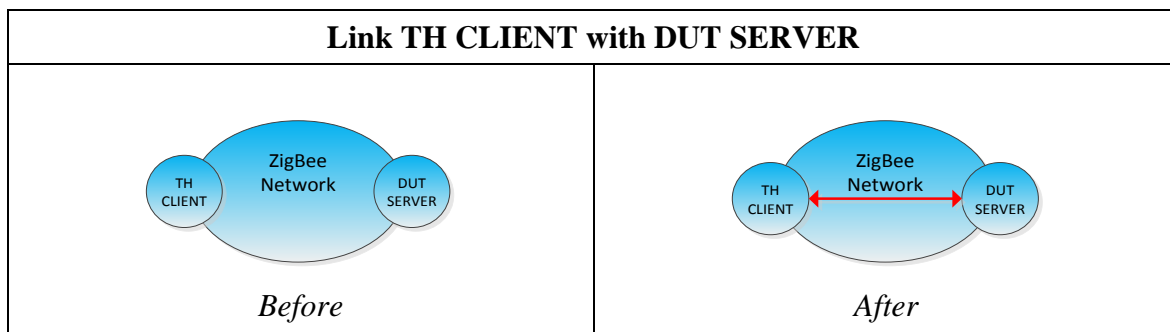
5.3.2.2 Required devices

| Designation | Symbol | Description |
|---------------|---|---|
| TH CLIENT |  | Test harness client implementing: <ul style="list-style-type: none">• The <i>groups</i> cluster client and• The <i>scenes</i> cluster client. |
| DUT SERVER |  | Device under test server implementing: <ul style="list-style-type: none">• The <i>groups</i> cluster server and• The <i>scenes</i> cluster server. |

5.3.2.3 Initial conditions

| Item | Initial Conditions |
|------|---|
| 1 | A packet sniffer shall be observing the communication over the air interface. |
| 2 | All devices are factory new and powered off until used. |

5.3.2.4 Test preparation



| S-TC-02S: Primary functionality with server as DUT | | |
|--|--|--|
| Item | Preparation Step | Observation |
| P1 | Form a ZigBee network. | Observe appropriate command frame to form the network. |
| P2 | Power on TH CLIENT and DUT SERVER. | TH CLIENT and DUT SERVER are powered on. |
| P3 | Join TH CLIENT and DUT SERVER to a ZigBee network. | Observe appropriate communication between TH CLIENT, DUT SERVER and any other relevant node on the ZigBee network. |

--- End of test case S-TC-02S preparation ---

250 **5.3.2.5 Test procedure**

| S-TC-02S: Primary functionality with server as DUT | | | |
|---|----------------------------|---|---|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 0 | G.S.C04.Rsp | TH CLIENT unicasts a ZCL <i>remove all groups</i> command to DUT SERVER. | If requested, DUT SERVER unicasts a ZCL <i>default response</i> command frame to TH CLIENT with the <i>status</i> field equal to 0x00 (SUCCESS). |
| 1a | G.S.C00.Rsp, G.S.C00.Tx | TH CLIENT unicasts a ZCL <i>add group</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>add group response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) and the <i>group ID</i> field set to 0x0001. |
| 1b | S.S.C03.Rsp, S.S.C03.Tx | TH CLIENT unicasts a ZCL <i>remove all scenes</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>remove all scenes response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) and <i>group ID</i> field set to 0x0001. |
| 1c | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to the value <i>SC₀</i> , the <i>group ID</i> field set to 0x0001, the <i>scene count</i> field set to 0x00. |
| 2a | - | TH CLIENT configures <i>AC₁</i> on DUT SERVER for all implemented application clusters supporting scenes. | DUT SERVER is configured with <i>AC₁</i> . |
| 2b | S.S.C04.Rsp, S.S.C04.Tx | TH CLIENT unicasts a ZCL <i>store scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. | DUT SERVER unicasts a ZCL <i>store scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. |
| 3a | - | TH CLIENT configures <i>AC₂</i> on DUT SERVER for all implemented application clusters supporting scenes. | DUT SERVER is configured with <i>AC₂</i> which is different from <i>AC₁</i> . |

Continued...

| S-TC-02S: Primary functionality with server as DUT | | | |
|---|---|---|---|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 3b | S.S.C05.Rsp | TH CLIENT unicasts a ZCL <i>recall scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. | If requested, DUT SERVER unicasts a ZCL <i>default response</i> command frame to TH CLIENT with the <i>status</i> field equal to 0x00 (SUCCESS). DUT SERVER returns to AC ₁ . |
| 3c | S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003 | TH CLIENT unicasts a ZCL <i>read attributes</i> command frame for the <i>SceneCount</i> , <i>CurrentScene</i> , <i>CurrentGroup</i> and <i>SceneValid</i> attributes to DUT SERVER. | DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT. <i>SceneCount</i> attribute has the value (S.PIXIT01 + 1), <i>CurrentScene</i> attribute has the value 0x01, <i>CurrentGroup</i> attribute has the value G ₁ and <i>SceneValid</i> attribute has the value TRUE. |
| 4a | - | By application specific means, remove the power source from DUT SERVER. | DUT SERVER is powered off. |
| 4b | - | By application specific means, return the power source to DUT SERVER. | DUT SERVER is powered on. |
| 4c | - | TH CLIENT configures AC ₂ on DUT SERVER for all implemented application clusters supporting scenes. | DUT SERVER is configured with AC ₂ which is different from AC ₁ . |
| 4d | S.S.C05.Rsp | TH CLIENT unicasts a ZCL <i>recall scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. | If requested, DUT SERVER unicasts a ZCL <i>default response</i> command frame to TH CLIENT with the <i>status</i> field equal to 0x00 (SUCCESS). DUT SERVER returns to AC ₁ . |
| 5 | S.S.C01.Rsp, S.S.C01.Tx | TH CLIENT unicasts a ZCL <i>view scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. | DUT SERVER unicasts a ZCL <i>view scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>group ID</i> field set to 0x0001, the <i>scene ID</i> field set to 0x01, the <i>transition time</i> field set to 0x0000 and a set of extension fields appropriate to AC ₁ . |

Continued...

| S-TC-02S: Primary functionality with server as DUT | | | |
|---|----------------------------|---|---|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 6 | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to one of the values (($SC_0 - 1$), 0xfe or 0xff), the <i>group ID</i> field set to 0x0001, the <i>scene count</i> field set to 0x01 and the <i>scene list</i> field containing only the scene ID 0x01. |
| 7a | S.S.C03.Rsp, S.S.C03.Tx | TH CLIENT unicasts a ZCL <i>remove all scenes</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>remove all scenes response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) and <i>group ID</i> field set to 0x0001. |
| 7b | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to one of the values (SC_0 , 0xfe or 0xff), the <i>group ID</i> field set to 0x0001 and the <i>scene count</i> field set to 0x00. |
| 8a | S.S.C00.Rsp, S.S.C00.Tx | TH CLIENT unicasts a ZCL <i>add scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001, the <i>scene ID</i> field set to 0x01, the <i>transition time</i> field set to 0x0001 and a set of extension fields appropriate to AC_1 . | DUT SERVER unicasts a ZCL <i>add scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. |

Continued...

| S-TC-02S: Primary functionality with server as DUT | | | |
|---|----------------------------|--|---|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 8b | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to one of the values (($SC_0 - 1$), 0xfe or 0xff), the <i>group ID</i> field set to 0x0001, the <i>scene count</i> field set to 0x01 and the <i>scene list</i> field containing only the scene ID 0x01. |
| 9a | S.S.C02.Rsp, S.S.C02.Tx | TH CLIENT unicasts a ZCL <i>remove scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. | DUT SERVER unicasts a ZCL <i>remove scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. |
| 9b | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to one of the values (SC_0 , 0xfe or 0xff), the <i>group ID</i> field set to 0x0001 and the <i>scene count</i> field set to 0x00. |
| 10a | - | TH CLIENT configures AC_2 on DUT SERVER for all implemented application clusters supporting scenes. | DUT SERVER is configured with AC_2 which is different from AC_1 . |
| 10b | S.S.C05.Rsp | TH CLIENT unicasts a ZCL <i>recall scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. | If requested, DUT SERVER unicasts a ZCL <i>default response</i> command frame to TH CLIENT with the <i>status</i> field equal to 0x8b (NOT_FOUND). <i>NOTE: DUT SERVER does nothing else but this is an assumption since this behavior is not described in the ZCL.</i> |

Continued...

| S-TC-02S: Primary functionality with server as DUT | | | |
|---|----------------------------|---|--|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 11a | - | TH CLIENT configures AC_1 on DUT SERVER for all implemented application clusters supporting scenes. | DUT SERVER is configured with AC_1 . |
| 11b | S.S.C04.Rsp, S.S.C04.Tx | TH CLIENT unicasts a ZCL <i>store scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. | DUT SERVER unicasts a ZCL <i>store scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x01. |
| 12a | - | TH CLIENT configures AC_2 on DUT SERVER for all implemented application clusters supporting scenes. | DUT SERVER is configured with AC_2 which is different to AC_1 . |
| 12b | S.S.C04.Rsp, S.S.C04.Tx | TH CLIENT unicasts a ZCL <i>store scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x02. | DUT SERVER unicasts a ZCL <i>store scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) or 0x89 (INSUFFICIENT_SPACE). If the former, the <i>group ID</i> field set to 0x0001 and the <i>scene ID</i> field set to 0x02. <i>NOTE: If the status field is set to INSUFFICIENT_SPACE, the following tests SHALL NOT be executed.</i> |
| 12c | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0001. | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to one of the values (($SC_0 - 2$), 0xfe or 0xff), the <i>group ID</i> field set to 0x0001, the <i>scene count</i> field set to 0x02 and the <i>scene list</i> field containing the scene IDs 0x01 and 0x02. |

Continued...

| S-TC-02S: Primary functionality with server as DUT | | | |
|---|----------------------------|---|--|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 13a | G.S.C00.Rsp, G.S.C00.Tx | If capacity allows, TH CLIENT unicasts a ZCL <i>add group</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0002. | DUT SERVER unicasts a ZCL <i>add group response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) and the <i>group ID</i> field set to 0x0002. |
| 13b | S.S.C03.Rsp, S.S.C03.Tx | TH CLIENT unicasts a ZCL <i>remove all scenes</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0002. | DUT SERVER unicasts a ZCL <i>remove all scenes response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) and <i>group ID</i> field set to 0x0002. |
| 13c | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0002. | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to the value SC_1 , the <i>group ID</i> field set to 0x0002, the <i>scene count</i> field set to 0x00. |
| 14a | - | TH CLIENT configures AC_3 on DUT SERVER for all implemented application clusters supporting scenes. | DUT SERVER is configured with AC_3 which is different to both AC_1 and AC_2 . |
| 14b | S.S.C04.Rsp, S.S.C04.Tx | TH CLIENT unicasts a ZCL <i>store scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0002 and the <i>scene ID</i> field set to 0x03. | DUT SERVER unicasts a ZCL <i>store scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) or 0x89 (INSUFFICIENT_SPACE). If the former, the <i>group ID</i> field set to 0x0002 and the <i>scene ID</i> field set to 0x03. <i>NOTE: If the status field is set to INSUFFICIENT_SPACE, the following tests SHALL NOT be executed.</i> |

Continued...

| S-TC-02S: Primary functionality with server as DUT | | | |
|---|----------------------------|--|---|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 14c | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to 0x0002. | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to one of the values (($SC_1 - 3$), 0xfe or 0xff), the <i>group ID</i> field set to 0x0002, the <i>scene count</i> field set to 0x01 and the <i>scene list</i> field containing only the scene ID 0x03. |

--- End of test case S-TC-02S ---

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5.3.3 S-TC-03S: Secondary functionality with server as DUT

This test verifies the secondary functionality of the *scenes* cluster.

This test case requires an *application configuration*, *AC*, to be set on the device in order to create a scene. An *AC* is essentially a set of cluster attribute settings which affect the scene and is dependent on the application clusters supported on the server device. When the test calls for a specific *AC_i* it is up to the tester to manipulate the attributes on the DUT according to the supported clusters such that each *AC_i* is unique.

This test case requires one group to be configured on the device, *G_I*. Before the test, the tester should evaluate PIXIT items G.PIXIT01 and G.PIXIT02 and select *G_I* accordingly so that the group IDs are different to those of G.PIXIT02. If the device pre-configures all its groups such that a new group cannot be added, then *G_I* needs to be taken from group list of G.PIXIT02.

5.3.3.1 Scope

General:

- *Read attributes* command (0x00)
- *Read attributes response* command (0x01)
- *Default response* command (0x0b)

Groups cluster (0x0004):

- *Add group* command (0x00)
- *Add group response* command (0x00)



Scenes cluster (0x0005):

- *Get scene membership* command (0x06)
- *Get scene membership response* command (0x06)
- *Enhanced add scene* command (0x40)
- *Enhanced add scene response* command (0x40)
- *Enhanced view scene* command (0x41)
- *Enhanced view scene response* command (0x41)
- *Copy scene* command (0x42)
- *Copy scene response* command (0x42)

PICS:

- G.S.C00.Rsp, G.S.C00.Tx
- S.S
- S.S.C06.Rsp, S.S.C40.Rsp – S.S.C42.Rsp
- S.S.C06.Tx, S.S.C40.Tx – S.S.C42.Tx

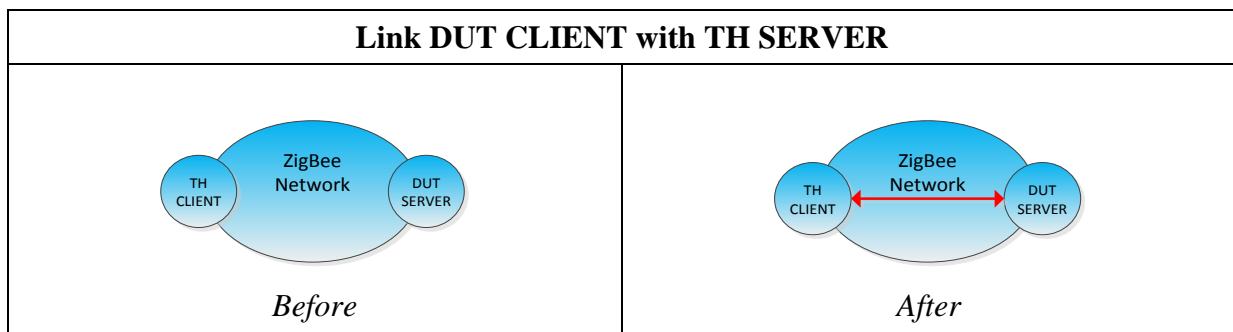
5.3.3.2 Required devices

| Designation | Symbol | Description |
|---------------|---|---|
| TH CLIENT |  | Test harness client implementing: <ul style="list-style-type: none">• The <i>groups</i> cluster client and• The <i>scenes</i> cluster client. |
| DUT SERVER |  | Device under test server implementing: <ul style="list-style-type: none">• The <i>groups</i> cluster server and• The <i>scenes</i> cluster server. |

5.3.3.3 Initial conditions

| Item | Initial Conditions |
|------|---|
| 1 | A packet sniffer shall be observing the communication over the air interface. |
| 2 | All devices are factory new and powered off until used. |

5.3.3.4 Test preparation



| S-TC-03S: Secondary functionality with server as DUT | | |
|--|--|--|
| Item | Preparation Step | Observation |
| P1 | Form a ZigBee network. | Observe appropriate command frame to form the network. |
| P2 | Power on TH CLIENT and DUT SERVER. | TH CLIENT and DUT SERVER are powered on. |
| P3 | Join TH CLIENT and DUT SERVER to a ZigBee network. | Observe appropriate communication between TH CLIENT, DUT SERVER and any other relevant node on the ZigBee network. |

--- End of test case S-TC-03C preparation ---

295 **5.3.3.5 Test procedure**

| S-TC-03S: Secondary functionality with server as DUT | | | |
|---|----------------------------|---|--|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 1a | G.S.C00.Rsp, G.S.C00.Tx | TH CLIENT unicasts a ZCL <i>add group</i> command frame to DUT SERVER with the <i>group ID</i> field set to G_1 . | DUT SERVER unicasts a ZCL <i>add group response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) or 0x8a (DUPLICATE_EXISTS) and the <i>group ID</i> field set to G_1 . |
| 1b | S.S.C03.Rsp, S.S.C03.Tx | TH CLIENT unicasts a ZCL <i>remove all scenes</i> command frame to DUT SERVER with the <i>group ID</i> field set to G_1 . | DUT SERVER unicasts a ZCL <i>remove all scenes response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS) and <i>group ID</i> field set to G_1 . |
| 1c | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to G_1 . | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to the value SC_0 , the <i>group ID</i> field set to G_1 , the <i>scene count</i> field set to 0x00. |
| 2 | S.S.C40.Rsp, S.S.C40.Tx | TH CLIENT unicasts a ZCL <i>enhanced add scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to G_1 , the <i>scene ID</i> field set to 0x01, the <i>transition time</i> field set to 0x000a (1s) and a set of extension fields appropriate to AC_1 . | DUT SERVER unicasts a ZCL <i>enhanced add scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>group ID</i> field set to G_1 and the <i>scene ID</i> field set to 0x01. |
| 3 | S.S.C41.Rsp, S.S.C41.Tx | TH CLIENT unicasts a ZCL <i>enhanced view scene</i> command frame to DUT SERVER with the <i>group ID</i> field set to G_1 and the <i>scene ID</i> field set to 0x01. | DUT SERVER unicasts a ZCL <i>enhanced view scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>group ID</i> field set to G_1 and the <i>scene ID</i> field set to 0x01, the <i>transition time</i> field set to 0x000a (1s) and a set of extension fields appropriate to AC_1 . |

Continued...

| S-TC-03S: Secondary functionality with server as DUT | | | |
|---|----------------------------|--|--|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 4 | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to G_1 . | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to one of the values ($(SC_0 - 1)$, 0xfe or 0xff), the <i>group ID</i> field set to G_1 , the <i>scene count</i> field set to 0x01 and the <i>scene list</i> field containing only the scene ID 0x01. |
| 5a | - | TH CLIENT configures AC_2 on DUT SERVER for all implemented application clusters supporting scenes. | DUT SERVER is configured with AC_2 which is different from AC_1 . |
| 5b | S.S.C05.Rsp | TH CLIENT unicasts a ZCL <i>recall scene</i> command frame to group G_1 with the <i>group ID</i> field set to G_1 and the <i>scene ID</i> field set to 0x01. | If requested, DUT SERVER unicasts a ZCL <i>default response</i> command frame to TH CLIENT with the <i>status</i> field equal to 0x00 (SUCCESS). DUT SERVER returns to AC_1 . |
| 6a | S.S.C42.Rsp, S.S.C42.Tx | TH CLIENT unicasts a ZCL <i>copy scene</i> command frame to DUT SERVER with the <i>mode</i> field set to 0x00, the <i>group identifier from</i> field set to G_1 , the <i>scene identifier from</i> field set to 0x01, the <i>group identifier to</i> field set to G_1 and the <i>scene identifier to</i> field set to 0x02. | DUT SERVER unicasts a ZCL <i>copy scene response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>group identifier from</i> field set to G_1 and the <i>scene identifier from</i> field set to 0x01. |
| 6b | S.S.C06.Rsp, S.S.C06.Tx | TH CLIENT unicasts a ZCL <i>get scene membership</i> command frame to DUT SERVER with the <i>group ID</i> field set to G_1 . | DUT SERVER unicasts a ZCL <i>get scene membership response</i> command frame to TH CLIENT with the <i>status</i> field set to 0x00 (SUCCESS), the <i>capacity</i> field set to one of the values ($(SC_0 - 2)$, 0xfe or 0xff), the <i>group ID</i> field set to G_1 , the <i>scene count</i> field set to 0x02 and the <i>scene list</i> field containing the scene IDs 0x01 and 0x02. |

--- End of test case S-TC-03S ---

5.4 Client test cases

5.4.1 S-TC-01C: Functionality with client as DUT

This case test verifies the functionality of the *scenes* cluster client.

The DUT client SHALL be on the same network as a suitable server, provided by the user, and this device SHALL be used by the client to exercise its functionality. The test case uses the test harness to prompt the user, based on the declared PICS, to exercise the functionality of the *basic* cluster client and to verify the results. A sniffer tool SHALL be used to log the exercised functionality and to determine its validity.

In this test case, the PICS notation S.C.CdTx represents the list of commands that are declared as being transmitted by the DUT.

5.4.1.1 Scope



Scenes cluster (0x0005):

- *Add scene* command (0x00)
- *View scene* command (0x01)
- *Remove scene* command (0x02)
- *Remove all scenes* command (0x03)
- *Store scene* command (0x04)
- *Recall scene* command (0x05)
- *Get scene membership* command (0x06)
- *Enhanced add scene* command (0x40)
- *Enhanced view scene* command (0x41)
- *Copy scene* command (0x42)

PICS:

- S.C
- S.C.C00.Tx – S.C.C06.Tx, S.C.C40.Tx – S.C.C42.Tx

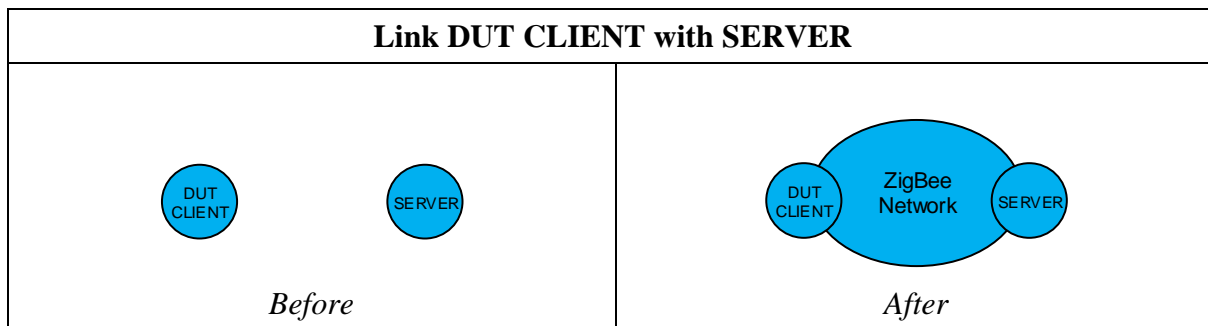
5.4.1.2 Required devices

| Designation | Symbol | Description |
|---------------|---|--|
| DUT CLIENT |  | Device under test client implementing: <ul style="list-style-type: none"> • The <i>scenes</i> cluster client. |
| SERVER |  | Suitable server device implementing: <ul style="list-style-type: none"> • The <i>scenes</i> cluster server. |

5.4.1.3 Initial conditions

| Item | Initial Conditions |
|------|---|
| 1 | A packet sniffer shall be observing the communication over the air interface. |
| 2 | All devices are factory new and powered off until used. |

5.4.1.4 Test preparation



S-TC-01C: Functionality with client as DUT

| Item | Preparation Step | Observation |
|------|--|---|
| P1 | Power on the DUT CLIENT device and the SERVER device. | DUT CLIENT and SERVER are powered on. |
| P2 | Ensure the DUT CLIENT device and the SERVER device are on the same ZigBee network. | Observe appropriate communication between DUT CLIENT, SERVER and any other relevant node on the ZigBee network. |

--- End of test case S-TC-01C preparation ---

5.4.1.5 Test procedure

| S-TC-01C: Functionality with client as DUT | | | |
|---|-------------|--|---|
| Item | PICS | Test Harness Step | DUT Pass Verification |
| 1 | - | Test harness prompts the user with a list of commands, based on the declared PICS, which the DUT CLIENT indicates it can transmit. | None. |
| 2 | S.C.Cd.Tx | None. | DUT CLIENT transmits correctly formed commands in any order and with application achievable values. This is verified using the sniffer log. |
| 3 | - | Prompt the user to verify that the cluster commands listed in step 1 were transmitted during step 2. | During step 2, DUT CLIENT has transmitted every command listed by the test harness in step 1. |
| 4 | - | Prompt the user to verify that the cluster commands not listed in step 1 were not transmitted during step 2. | During step 2, DUT CLIENT has not transmitted any commands from this cluster that were not listed by the test harness in step 1. |

--- End of test case S-TC-01C ---

6 Annex A: PICS to test case cross reference

6.1 Server

| PICS | Test case | | | |
|-------------|-----------|----------|----------|----------|
| | S-TC-01G | S-TC-01S | S-TC-02S | S-TC-03S |
| S.S | X | X | X | X |
| S.S.A0000 | | X | X | |
| S.S.A0001 | | X | X | |
| S.S.A0002 | | X | X | |
| S.S.A0003 | | X | X | |
| S.S.A0004 | | X | | |
| S.S.A0005 | | X | | |
| S.S.Afffd | X | | | |
| S.S.C00.Rsp | | | X | |
| S.S.C01.Rsp | | | X | |
| S.S.C02.Rsp | | | X | |
| S.S.C03.Rsp | | | X | |
| S.S.C04.Rsp | | | X | |
| S.S.C05.Rsp | | | X | |
| S.S.C06.Rsp | | | X | X |
| S.S.C40.Rsp | | | | X |
| S.S.C41.Rsp | | | | X |
| S.S.C42.Rsp | | | | X |
| S.S.C00.Tx | | | X | |
| S.S.C01.Tx | | | X | |
| S.S.C02.Tx | | | X | |
| S.S.C03.Tx | | | X | |
| S.S.C04.Tx | | | X | |
| S.S.C06.Tx | | | X | X |
| S.S.C40.Tx | | | | X |
| S.S.C41.Tx | | | | X |
| S.S.C42.Tx | | | | X |

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| PICS | Test case | |
|-------------|-----------|----------|
| | S-TC-01G | S-TC-01C |
| S.C | X | X |
| S.C.Afffd | X | |
| S.C.C00.Rsp | | X |
| S.C.C01.Rsp | | X |
| S.C.C02.Rsp | | X |
| S.C.C03.Rsp | | X |
| S.C.C04.Rsp | | X |
| S.C.C06.Rsp | | X |
| S.C.C40.Rsp | | X |
| S.C.C41.Rsp | | X |
| S.C.C42.Rsp | | X |
| S.C.C00.Tx | | X |
| S.C.C01.Tx | | X |
| S.C.C02.Tx | | X |
| S.C.C03.Tx | | X |
| S.C.C04.Tx | | X |
| S.C.C05.Tx | | X |
| S.C.C06.Tx | | X |
| S.C.C40.Tx | | X |
| S.C.C41.Tx | | X |
| S.C.C42.Tx | | X |

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