Mesh Model (MMDL)

***Bluetooth*® Implementation Conformance Statement (ICS) Proforma**

- **Revision:** MMDL.ICS.p5
- **Revision Date:** 2023-09-19
- **Prepared By:** Mesh Working Group
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Contents

1 Identification of the implementation

1.1 Implementation Under Test (IUT) identification

Identification of the Implementation Under Test (IUT) is to be filled in to provide as much detail as possible regarding version numbers and configuration options.

An ICS contact person to respond to queries regarding information supplied in this ICS proforma is named in the Declaration of Compliance: Summary of Selected Specifications in Implementation.

1.2 Transports

Table 1a: Transport Requirements

Item	Transport	Reference	Status
1	Profile supported over BR/EDR	[1]	C.1
2	Profile supported over LE	[1]	M

C.1: Excluded for this Profile.

1.3 Versions

Table 0a: No longer used

Table 0b: X.Y Versions

Item	Version	Reference	Status
1	Mesh Model Specification v1.0	[1]	C.1
2	Mesh Model Specification v1.1	[1]	C.1

C.1: Mandatory to support one and only one.

Table 0c: X.Y.Z Versions

Item	Version	Reference	Status
1	Mesh Model Specification v1.0.1	[1]	C.1

C.1: Optional IF MMDL 0b/1 “Mesh Model Specification v1.0”, otherwise Excluded.

Table 0d: Target X.Y or Later Versions

Item	Version	Reference	Status
1	Mesh Model Specification v1.1 or later	[1]	C.1

C.1: Excluded IF MMDL 0b/1 “Mesh Model Specification v1.0”, otherwise Mandatory.

Table 1: No longer used

1.4 Generic Server Models

Table 2: Generic Server Models

Item	Model	Reference	Status
1	Generic OnOff Server	[1] 3.3.1	O
2	Generic Level Server	[1] 3.3.2	O
3	Generic Default Transition Time Server	[1] 3.3.3	O
4	Generic Power OnOff Server	[1] 3.3.4	C.1
5	Generic Power OnOff Setup Server	[1] 3.3.5	C.2

Item	Model	Reference	Status
6	Generic Power Level Server	[1] 3.3.6	C.3
7	Generic Power Level Setup Server	[1] 3.3.7	C.4
8	Generic Battery Server	[1] 3.3.8	O
9	Generic Location Server	[1] 3.3.9	O
10	Generic Location Setup Server	[1] 3.3.10	C.5
11	Generic User Property Server	[1] 3.3.11	O
12	Generic Admin Property Server	[1] 3.3.12	C.6
13	Generic Manufacturer Property Server	[1] 3.3.13	C.6
14	Generic Client Property Server	[1] 3.3.14	O

C.1: Optional IF MMDL 2/1 “Generic OnOff Server”, otherwise Excluded.

C.2: Mandatory IF MMDL 2/3 “Generic Default Transition Time Server” AND MMDL 2/4 “Generic Power OnOff Server”, otherwise Excluded.

C.3: Optional IF MMDL 2/2 “Generic Level Server” AND MMDL 2/4 “Generic Power OnOff Server”, otherwise Excluded.

C.4: Mandatory IF MMDL 2/5 “Generic Power OnOff Setup Server” AND MMDL 2/6 “Generic Power Level Server”, otherwise Excluded.

C.5: Mandatory IF MMDL 2/9 “Generic Location Server”, otherwise Excluded.

C.6: Optional IF MMDL 2/11 “Generic User Property Server”, otherwise Excluded.

1.5 Generic Client Models

Table 3: Generic Client Models

Item	Model	Reference	Status
1	Generic OnOff Client	[1] 3.4.1	O
2	Generic Level Client	[1] 3.4.2	O
3	Generic Default Transition Time Client	[1] 3.4.3	O
4	Generic Power OnOff Client	[1] 3.4.4	O
5	Generic Power Level Client	[1] 3.4.5	O
6	Generic Battery Client	[1] 3.4.6	O
7	Generic Location Client	[1] 3.4.7	O
8	Generic Property Client	[1] 3.4.8	O

Table 4: Generic OnOff Client

Prerequisite: MMDL 3/1 “Generic OnOff Client”

Item	Capability	Reference	Status
1	Generic OnOff Get/Status	[1] 3.4.1.2	C.1
2	Generic OnOff Set/Status	[1] 3.4.1.2	C.1
3	Generic OnOff Set Unacknowledged	[1] 3.4.1.2	C.1

C.1: Mandatory to support at least one.

Table 5: Generic Level Client

Prerequisite: MMDL 3/2 "Generic Level Client"

Item	Capability	Reference	Status
1	Generic Level Get/Status	[1] 3.4.2.2	C.1
2	Generic Level Set/Status	[1] 3.4.2.2	C.1
3	Generic Level Set Unacknowledged	[1] 3.4.2.2	C.1
4	Generic Delta Set/Status	[1] 3.4.2.2	C.1
5	Generic Delta Set Unacknowledged	[1] 3.4.2.2	C.1
6	Generic Move Set/Status	[1] 3.4.2.2	C.1
7	Generic Move Set Unacknowledged	[1] 3.4.2.2	C.1

C.1: Mandatory to support at least one.

Table 6: Generic Default Transition Time Client

Prerequisite: MMDL 3/3 "Generic Default Transition Time Client"

Item	Capability	Reference	Status
1	Generic Default Transition Time Get/Status	[1] 3.4.3.2	C.1
2	Generic Default Transition Time Set/Status	[1] 3.4.3.2	C.1
3	Generic Default Transition Time Set Unacknowledged	[1] 3.4.3.2	C.1

C.1: Mandatory to support at least one.

Table 7: Generic Power OnOff Client

Prerequisite: MMDL 3/4 "Generic Power OnOff Client"

Item	Capability	Reference	Status
1	Generic OnPowerUp Get/Status	[1] 3.4.4.2	C.1
2	Generic OnPowerUp Set/Status	[1] 3.4.4.2	C.1
3	Generic OnPowerUp Set Unacknowledged	[1] 3.4.4.2	C.1

C.1: Mandatory to support at least one.

Table 8: Generic Power Level Client

Prerequisite: MMDL 3/5 "Generic Power Level Client"

Item	Capability	Reference	Status
1	Generic Power Level Get/Status	[1] 3.4.5.2	C.1
2	Generic Power Level Set/Status	[1] 3.4.5.2	C.1
3	Generic Power Level Set Unacknowledged	[1] 3.4.5.2	C.1
4	Generic Power Last Get/Status	[1] 3.4.5.2	C.1
5	Generic Power Default Get/Status	[1] 3.4.5.2	C.1
6	Generic Power Default Set/Status	[1] 3.4.5.2	C.1
7	Generic Power Default Set Unacknowledged	[1] 3.4.5.2	C.1

Item	Capability	Reference	Status
8	Generic Power Range Get/Status	[1] 3.4.5.2	C.1
9	Generic Power Range Set/Status	[1] 3.4.5.2	C.1
10	Generic Power Range Set Unacknowledged	[1] 3.4.5.2	C.1

C.1: Mandatory to support at least one.

Table 9: Generic Location Client

Prerequisite: MMDL 3/7 "Generic Location Client"

Item	Capability	Reference	Status
1	Generic Location Global Get/Status	[1] 3.4.7.2	C.1
2	Generic Location Global Set/Status	[1] 3.4.7.2	C.1
3	Generic Location Global Set Unacknowledged	[1] 3.4.7.2	C.1
4	Generic Location Local Get/Status	[1] 3.4.7.2	C.1
5	Generic Location Local Set/Status	[1] 3.4.7.2	C.1
6	Generic Location Local Set Unacknowledged	[1] 3.4.7.2	C.1

C.1: Mandatory to support at least one.

Table 10: Generic Property Client

Prerequisite: MMDL 3/8 "Generic Property Client"

Item	Capability	Reference	Status
1	Generic User Properties Get/Status	[1] 3.4.8.2	C.1
2	Generic User Property Get/Status	[1] 3.4.8.2	C.1
3	Generic User Property Set/Status	[1] 3.4.8.2	C.1
4	Generic User Property Set Unacknowledged	[1] 3.4.8.2	C.1
5	Generic Admin Properties Get/Status	[1] 3.4.8.2	C.1
6	Generic Admin Property Get/Status	[1] 3.4.8.2	C.1
7	Generic Admin Property Set/Status	[1] 3.4.8.2	C.1
8	Generic Admin Property Set Unacknowledged	[1] 3.4.8.2	C.1
9	Generic Manufacturer Properties Get/Status	[1] 3.4.8.2	C.1
10	Generic Manufacturer Property Get/Status	[1] 3.4.8.2	C.1
11	Generic Manufacturer Property Set/Status	[1] 3.4.8.2	C.1
12	Generic Manufacturer Property Set Unacknowledged	[1] 3.4.8.2	C.1
13	Generic Client Properties Get/Status	[1] 3.4.8.2	C.1

C.1: Mandatory to support at least one.

1.6 Sensor Server Models

Table 11: Sensor Server Models

Item	Model	Reference	Status
1	Sensor Server	[1] 4.3.1	O
2	Sensor Setup Server	[1] 4.3.2	C.1

C.1: Mandatory IF MMDL 11/1 “Sensor Server”, otherwise Excluded.

1.7 Sensor Client Models

Table 12: Sensor Client Models

Item	Model	Reference	Status
1	Sensor Client	[1] 4.4.1	O

Table 13: Sensor Client

Prerequisite: MMDL 12/1 “Sensor Client”

Item	Capability	Reference	Status
1	Sensor Descriptor Get/Status	[1] 4.4.1.2	C.1
2	Sensor Cadence Get/Status	[1] 4.4.1.2	C.1
3	Sensor Cadence Set/Status	[1] 4.4.1.2	C.1
4	Sensor Cadence Set Unacknowledged	[1] 4.4.1.2	C.1
5	Sensor Settings Get/Status	[1] 4.4.1.2	C.1
6	Sensor Setting Get/Status	[1] 4.4.1.2	C.1
7	Sensor Setting Set/Status	[1] 4.4.1.2	C.1
8	Sensor Setting Set Unacknowledged	[1] 4.4.1.2	C.1
9	Sensor Data Get/Status	[1] 4.4.1.2	C.1
10	Sensor Column Get/Status	[1] 4.4.1.2	C.1
11	Sensor Series Get/Status	[1] 4.4.1.2	C.1

C.1: Mandatory to support at least one.

1.8 Time and Scenes Server Models

Table 14: Time and Scenes Server Models

Item	Model	Reference	Status
1	Time Server	[1] 5.3.1	O
2	Time Setup Server	[1] 5.3.2	C.1
3	Scene Server	[1] 5.3.3	O
4	Scene Setup Server	[1] 5.3.4	C.2
5	Scheduler Server	[1] 5.3.5	C.4
6	Scheduler Setup Server	[1] 5.3.6	C.3

C.1: Mandatory IF MMDL 14/1 “Time Server”, otherwise Excluded.

C.2: Mandatory IF MMDL 14/3 “Scene Server” AND MMDL 2/3 “Generic Default Transition Time Server”, otherwise Excluded.

C.3: Mandatory IF MMDL 14/4 “Scene Setup Server” AND MMDL 14/5 “Scheduler Server” AND MMDL 2/5 “Generic Power OnOff Setup Server”, otherwise Excluded.

C.4: Optional IF MMDL 14/3 “Scene Server”, otherwise Excluded.

1.9 Time and Scenes Client Models

Table 15: Time and Scenes Client Models

Prerequisite: MMDL 3/2 “Generic Level Client”

Item	Model	Reference	Status
1	Time Client	[1] 5.4.1	O
2	Scene Client	[1] 5.4.2	O
3	Scheduler Client	[1] 5.4.3	O

Table 16: Time Client

Prerequisite: MMDL 15/1 “Time Client”

Item	Capability	Reference	Status
1	Time Get/Status	[1] 5.4.1.2	C.1
2	Time Set/Status	[1] 5.4.1.2	C.1
3	Time Zone Get/Status	[1] 5.4.1.2	C.1
4	Time Zone Set/Status	[1] 5.4.1.2	C.1
5	TAI-UTC Delta Get/Status	[1] 5.4.1.2	C.1
6	TAI-UTC Delta Set/Status	[1] 5.4.1.2	C.1
7	Time Role Get/Status	[1] 5.4.1.4	C.1
8	Time Role Set/Status	[1] 5.4.1.4	C.1

C.1: Mandatory to support at least one.

Table 17: Scene Client

Prerequisite: MMDL 15/2 “Scene Client”

Item	Capability	Reference	Status
1	Scene Get/Status	[1] 5.4.2.2	C.1
2	Scenes Get/Status	[1] 5.4.2.2	C.1
3	Scene Store/Status	[1] 5.4.2.2	C.1
4	Scene Store Unacknowledged	[1] 5.4.2.2	C.1
5	Scene Recall/Status	[1] 5.4.2.2	C.1
6	Scene Recall Unacknowledged	[1] 5.4.2.2	C.1

C.1: Mandatory to support at least one.

Table 18: Scheduler Client

Prerequisite: MMDL 15/3 "Scheduler Client"

Item	Capability	Reference	Status
1	Scheduler Get/Status	[1] 5.4.3.2	C.1
2	Scheduler Action Get/Status	[1] 5.4.3.2	C.1
3	Scheduler Action Set/Status	[1] 5.4.3.2	C.1
4	Scheduler Action Set Unacknowledged	[1] 5.4.3.2	C.1

C.1: Mandatory to support at least one.

1.10 Lighting Server Models

Table 19: Lighting Server Models

Item	Model	Reference	Status
1	Light Lightness Server	[1] 6.4.1	C.1
2	Light Lightness Setup Server	[1] 6.4.2	C.2
3	Light CTL Server	[1] 6.4.3	C.3
4	Light CTL Temperature Server	[1] 6.4.4	C.4
5	Light CTL Setup Server	[1] 6.4.5	C.5
6	Light HSL Server	[1] 6.4.6	C.3
7	Light HSL Hue Server	[1] 6.4.7	C.6
8	Light HSL Saturation Server	[1] 6.4.8	C.6
9	Light HSL Setup Server	[1] 6.4.9	C.7
10	Light xyL Server	[1] 6.4.10	C.3
11	Light xyL Setup Server	[1] 6.4.11	C.8

C.1: Optional IF MMDL 2/2 "Generic Level Server" AND MMDL 2/4 "Generic Power OnOff Server", otherwise Excluded.

C.2: Mandatory IF MMDL 2/5 "Generic Power OnOff Setup Server" AND MMDL 19/1 "Light Lightness Server", otherwise Excluded.

C.3: Optional IF MMDL 19/1 "Light Lightness Server", otherwise Excluded.

C.4: Mandatory IF MMDL 19/3 "Light CTL Server", otherwise Excluded.

C.5: Mandatory IF MMDL 19/2 "Light Lightness Setup Server" AND MMDL 19/3 "Light CTL Server", otherwise Excluded.

C.6: Mandatory IF MMDL 19/6 "Light HSL Server", otherwise Excluded.

C.7: Mandatory IF MMDL 19/2 "Light Lightness Setup Server" AND MMDL 19/6 "Light HSL Server", otherwise Excluded.

C.8: Mandatory IF MMDL 19/2 "Light Lightness Setup Server" AND MMDL 19/10 "Light xyL Server", otherwise Excluded.

1.11 Lighting Control Models

Table 20: Lighting Control Models

Item	Model	Reference	Status
1	Light LC Server	[1] 6.5.1	C.1
2	Light LC Setup Server	[1] 6.5.3	C.2

C.1: Optional IF MMDL 19/1 “Light Lightness Server”, otherwise Excluded.

C.2: Mandatory IF MMDL 20/1 “Light LC Server”, otherwise Excluded.

1.12 Lighting Client Models

Table 21: Lighting Client Models

Item	Model	Reference	Status
1	Light Lightness Client	[1] 6.6.1	O
2	Light CTL Client	[1] 6.6.2	O
3	Light HSL Client	[1] 6.6.3	O
4	Light xyL Client	[1] 6.6.4	O
5	Light LC Client	[1] 6.6.5	O

Table 22: Light Lightness Client

Prerequisite: MMDL 21/1 “Light Lightness Client”

Item	Capability	Reference	Status
1	Light Lightness Get/Status	[1] 6.6.1.2	C.1
2	Light Lightness Set/Status	[1] 6.6.1.2	C.1
3	Light Lightness Set Unacknowledged	[1] 6.6.1.2	C.1
4	Light Lightness Linear Get/Status	[1] 6.6.1.3	C.1
5	Light Lightness Linear Set/Status	[1] 6.6.1.3	C.1
6	Light Lightness Linear Set Unacknowledged	[1] 6.6.1.3	C.1
7	Light Lightness Last Get/Status	[1] 6.6.1.4	C.1
8	Light Lightness Default Get/Status	[1] 6.6.1.5	C.1
9	Light Lightness Default Set/Status	[1] 6.6.1.5	C.1
10	Light Lightness Default Set Unacknowledged	[1] 6.6.1.5	C.1
11	Light Lightness Range Get/Status	[1] 6.6.1.6	C.1
12	Light Lightness Range Set/Status	[1] 6.6.1.6	C.1
13	Light Lightness Range Set Unacknowledged	[1] 6.6.1.6	C.1

C.1: Mandatory to support at least one.

Table 23: Light CTL Client

Prerequisite: MMDL 21/2 "Light CTL Client"

Item	Capability	Reference	Status
1	Light CTL Get/Status	[1] 6.6.2.2	C.1
2	Light CTL Set/Status	[1] 6.6.2.2	C.1
3	Light CTL Set Unacknowledged	[1] 6.6.2.2	C.1
4	Light CTL Temperature Get/Status	[1] 6.6.2.3	C.1
5	Light CTL Temperature Set/Status	[1] 6.6.2.3	C.1
6	Light CTL Temperature Set Unacknowledged	[1] 6.6.2.3	C.1
7	Light CTL Default Get/Status	[1] 6.6.2.4	C.1
8	Light CTL Default Set/Status	[1] 6.6.2.4	C.1
9	Light CTL Default Set Unacknowledged	[1] 6.6.2.4	C.1
10	Light CTL Temperature Range Get/Status	[1] 6.6.2.5	C.1
11	Light CTL Temperature Range Set/Status	[1] 6.6.2.5	C.1
12	Light CTL Temperature Range Set Unacknowledged	[1] 6.6.2.5	C.1

C.1: Mandatory to support at least one.

Table 24: Light HSL Client

Prerequisite: MMDL 21/3 "Light HSL Client"

Item	Capability	Reference	Status
1	Light HSL Get/Status	[1] 6.6.3.2	C.1
2	Light HSL Set/Status	[1] 6.6.3.2	C.1
3	Light HSL Set Unacknowledged	[1] 6.6.3.2	C.1
4	Light HSL Target Get/Status	[1] 6.6.3.2	C.1
5	Light HSL Default Get/Status	[1] 6.6.3.3	C.1
6	Light HSL Default Set/Status	[1] 6.6.3.3	C.1
7	Light HSL Default Set Unacknowledged	[1] 6.6.3.3	C.1
8	Light HSL Range Get/Status	[1] 6.6.3.4	C.1
9	Light HSL Range Set/Status	[1] 6.6.3.4	C.1
10	Light HSL Range Set Unacknowledged	[1] 6.6.3.4	C.1
11	Light HSL Hue Get/Status	[1] 6.6.3.5	C.1
12	Light HSL Hue Set/Status	[1] 6.6.3.5	C.1
13	Light HSL Hue Set Unacknowledged	[1] 6.6.3.5	C.1
14	Light HSL Saturation Get/Status	[1] 6.6.3.6	C.1
15	Light HSL Saturation Set/Status	[1] 6.6.3.6	C.1
16	Light HSL Saturation Set Unacknowledged	[1] 6.6.3.6	C.1

C.1: Mandatory to support at least one.

Table 25: Light xyL Client

Prerequisite: MMDL 21/4 "Light xyL Client"

Item	Capability	Reference	Status
1	Light xyL Get/Status	[1] 6.6.4.2	C.1
2	Light xyL Set/Status	[1] 6.6.4.2	C.1
3	Light xyL Set Unacknowledged	[1] 6.6.4.2	C.1
4	Light xyL Target Get/Status	[1] 6.6.4.2	C.1
5	Light xyL Default Get/Status	[1] 6.6.4.3	C.1
6	Light xyL Default Set/Status	[1] 6.6.4.3	C.1
7	Light xyL Default Set Unacknowledged	[1] 6.6.4.3	C.1
8	Light xyL Range Get/Status	[1] 6.6.4.4	C.1
9	Light xyL Range Set/Status	[1] 6.6.4.4	C.1
10	Light xyL Range Set Unacknowledged	[1] 6.6.4.4	C.1

C.1: Mandatory to support at least one.

Table 26: Light LC Client

Prerequisite: MMDL 21/5 "Light LC Client"

Item	Capability	Reference	Status
1	Light LC Mode Get/Status	[1] 6.6.5.2	C.1
2	Light LC Mode Set/Status	[1] 6.6.5.2	C.1
3	Light LC Mode Set Unacknowledged	[1] 6.6.5.2	C.1
4	Light LC OM Get/Status	[1] 6.6.5.3	C.1
5	Light LC OM Set/Status	[1] 6.6.5.3	C.1
6	Light LC OM Set Unacknowledged	[1] 6.6.5.3	C.1
7	Light LC Light OnOff Get/Status	[1] 6.6.5.4	C.1
8	Light LC Light OnOff Set/Status	[1] 6.6.5.3	C.1
9	Light LC Light OnOff Set Unacknowledged	[1] 6.6.5.3	C.1
10	Light LC Property Get/Status	[1] 6.6.5.5	C.1
11	Light LC Property Set/Status	[1] 6.6.5.5	C.1
12	Light LC Property Set Unacknowledged	[1] 6.6.5.5	C.1

C.1: Mandatory to support at least one.

1.13 Multiple Elements

Table 27: States on Secondary Elements

Item	State	Reference	Status
1	Generic OnOff State on Secondary Elements	[1] 6.5.1	C.1
2	Generic Level State on Secondary Elements	[1] 6.4.3, 6.4.6	C.2

C.1: Mandatory IF MMDL 20/1 "Light LC Server", otherwise Optional.

C.2: Mandatory IF MMDL 19/3 “Light CTL Server” OR MMDL 19/6 “Light HSL Server”, otherwise Optional.

2 References

[1] Mesh Model Specification, Version 1.0 or later

3 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
0	1.0.0	2017-07-12	Approved by BTI. Prepared for TCRL 2017-1 publication.
	1.0.1r00-01	2018-05-08 – 2018-06-05	TSE 10102 (rating 4): Added new section “Multiple Elements”. TSE 10763 (rating 1): Changed the second column in Tables 11, 12, 14, 15, 19, 20, 21 from "Capability" to "Model".
1	1.0.1	2018-06-27	Approved by BTI. Prepared for TCRL 2018-1 publication.
	1.0.2r00	2018-10-03	TSE 10836 (rating 1): Changed Table 8 title to "Generic Power Level Client".
	1.0.1.0r00	2018-11-09	Updated version number from 1.0.2 to 1.0.1.0 to align with adoption of the specification version 1.0.1. Added table 0b and item 0b/1 for the new version.
2	1.0.1.0	2018-11-21	Approved by BTI. Prepared for TCRL 2018-2 publication.
	1.0.1.1r00–r02	2019-04-08 – 2019-06-18	TSE 11412 (rating 2): Updated Tables 3, 15, and 21 and deleted resulting unused notes after tables. TSE 10991 (rating 1): Updated all instances of “Unreliable” to “Unacknowledged”.
3	1.0.1.1	2019-07-25	Approved by BTI. Prepared for TCRL 2019-1 publication.
	p4r00–r04	2020-02-25 – 2020-11-18	TSE 13571 (rating 2): Added a conditional to Table 14 and updated item MMDL 14/5 with new conditional. TSE 15664 (rating 2): Updated conditionals in Table 14 to address invalid dependency requirements. Consistency Checker fixes and template-related editorials, including revising document number and assigning previous v1.0.1.1 as p3.
4	p4	2020-12-22	Approved by BTI on 2020-12-02. Prepared for TCRL 2020-1 publication.
	p5r00–r03	2023-06-16 – 2023-07-27	Incorporated test issue ES-23065 with updates for MMDL v1.1: Added Tables 1a and 0d, deleted Tables 0a and 1 because they are no longer used, and updated Tables 0b and 0c. Updated references list. Incorporated template-related updates. Deleted draft revision history comments prior to p0.
5	p5	2023-09-19	Approved by BTI on 2023-08-27. MMDL v1.1 adopted by the BoD on 2023-09-12. Prepared for publication.

Acknowledgments

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