



# Smart Buildings SHOW

9-10 October 2024 • ExCeL London



## Smart Enablement *Best Practices*



oneSIGHT  
SOLUTIONS

# Introduction

Duncan Greene

*Project Infrastructure Lead*

## One Sightsolutions

- UK Leading Product Distributor
- Master Systems Integrator & Consultancy
- Software Development
- Multiple Award-Winning Training Provider



**Visit us at Stand B27**



# Smart Buildings in 2024



### One Sightsolutions HQ

Hart House, High Street, Hartley Wintney, Hampshire, RG27 8PE

#### Building Insights

**31.4 kW**  
Instant Power

Total Energy Consumption  
Last 7 Days

**2**  
EV Chargers Free

Building Occupancy  
Last 7 Days

**18.0**  
People in Building

**9**  
Free Hot Desks

**15°C**  
Light Rain

High 16°C  
Low 14°C  
Wind N @ 3 km/h  
Humidity 97%  
Pressure 997MB

**1**  
Meeting Rooms Free

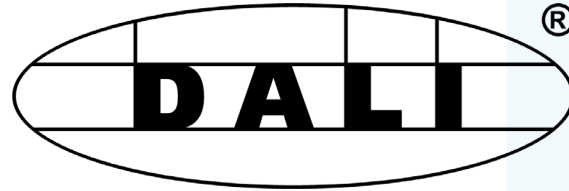
**01**  
Active Alarms

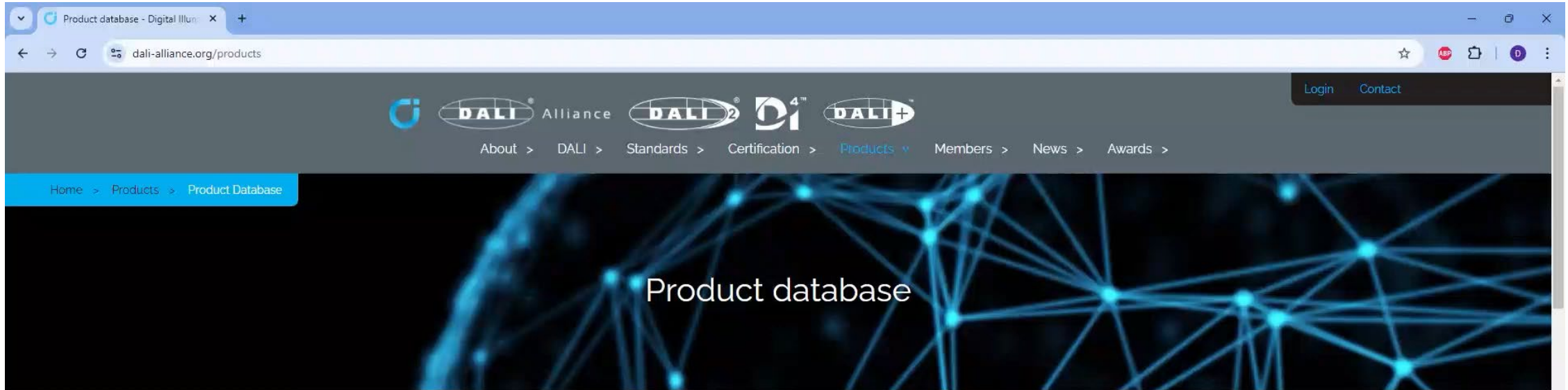
Mon 16.4°C / 13.5°C  
Tue 17.4°C / 13.2°C  
Wed 15°C / 12.2°C  
Thu 18°C / 10.5°C  
Fri 13.4°C / 5.9°C

# Systems



# Standards





## Product Database

The Product Database contains all certified DALI-2 and D4i components, as well as registered DALI version-1 control gear.

NOTE: The product information displayed in this database relates to the specific product that was tested. Certification is only valid for products where the brand shown on the product, its GTIN, firmware and hardware versions match those in this product database, and the product has a valid ID (serial number) that is unique in combination with the GTIN. If these conditions are not met, the product certification is invalid. The GTIN, ID, firmware and hardware versions can be read from memory bank 0.

- ▶ **Certified products** have successfully completed the **DALI-2** certification process, which is operated by the DALI Alliance (DiiA) and includes verification of test results.
- ▶ **D4i certification** is an extension of DALI-2 certification (all D4i devices are also DALI-2 devices).
- ▶ **Registered products** are **DALI version-1** control gear that have been successfully tested by the member or a test-house. There is no verification step for DALI version-1. Registration is now closed.

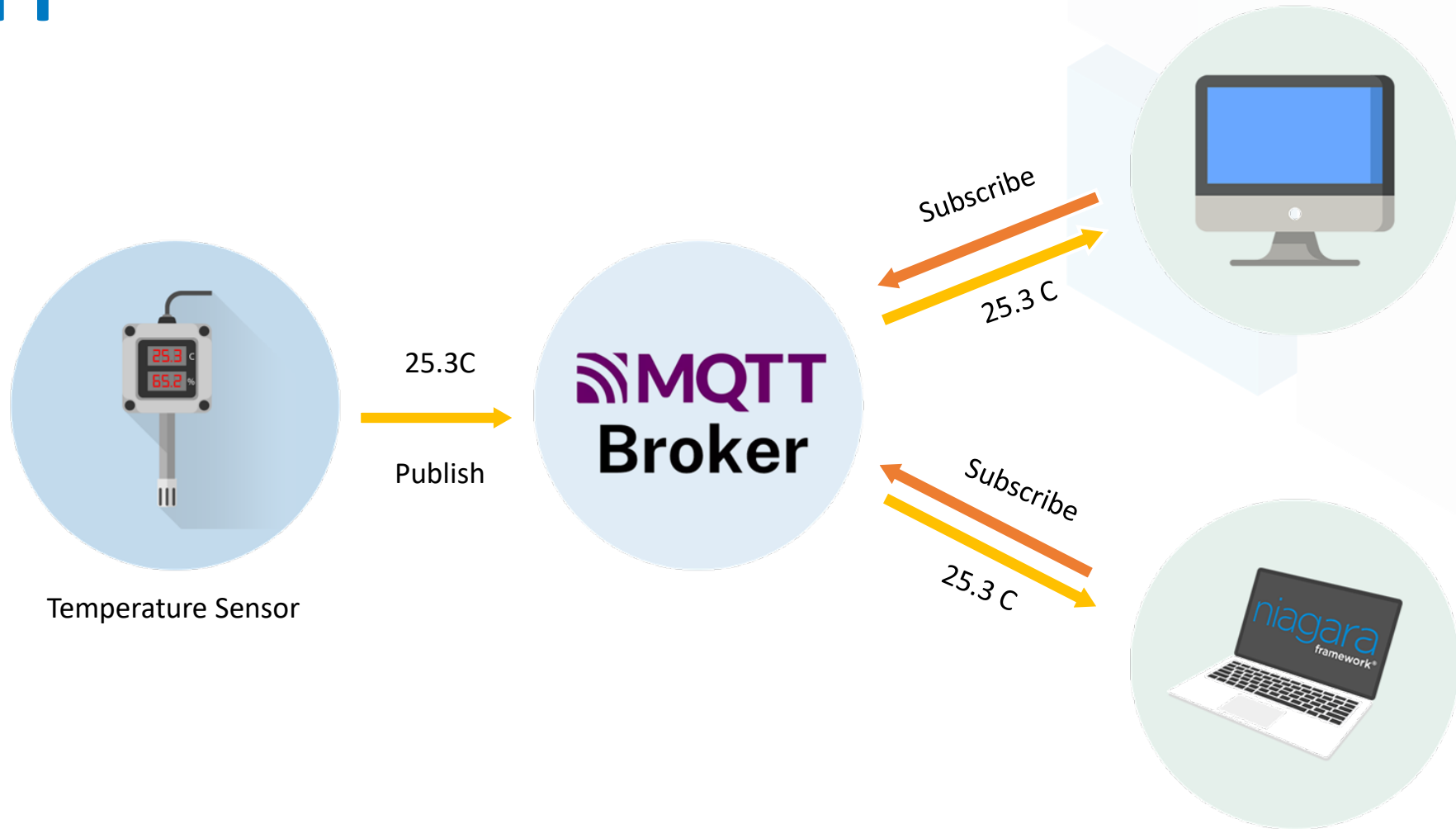
**Component brands:** All brands used by DALI Alliance member companies for their DALI components are listed here >> [Component brands](#)

**Luminaires:** Luminaires are not listed in the product database >> [More information on luminaires](#)

**Control devices:** Certified DALI-2 control devices are all shown in the database below. A separate listing shows control devices that are not certified but have certain limited rights to use the DALI word trademark >> [List of non-certified control devices](#)

Search the Database

# MQTT



# Unruly JSON

```
{} Untitled-7 ●  
1 {  
2   "BrightnessLevelOutOf100": {  
3     "value": 100  
4   },  
5   "brightnesscmd": {  
6     "value": true  
7   },  
8   "LampFaultyOrNot": {  
9     "value": "Yes"  
10  },  
11  "BatteryKnackered?": {  
12    "value": "Very"  
13  },  
14  "Battery_Charge_Amount": {  
15    "value": 67  
16  }  
17 }  
18  
19  
20  
21
```



# UDMI JSON

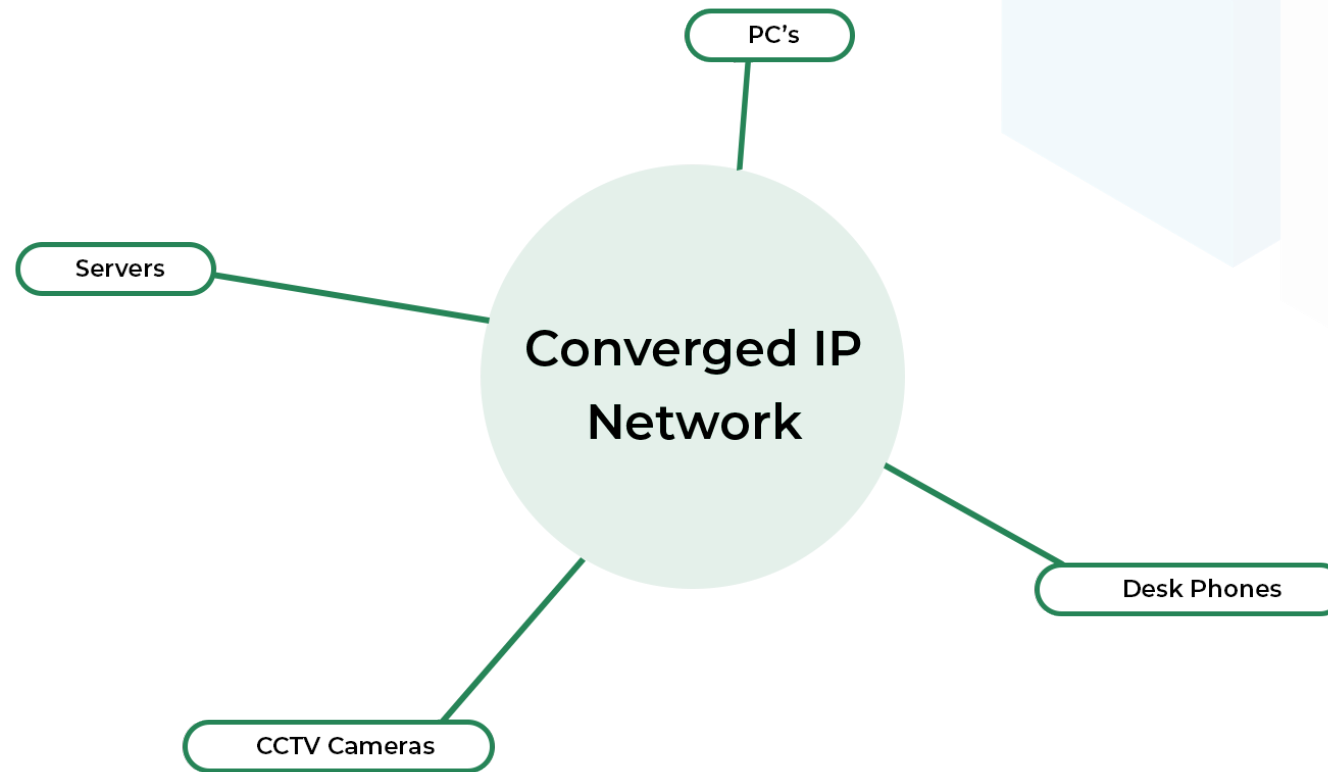
```
{} Untitled-1 ●
1  {
2    "version": "1.5.0",
3    "timestamp": "2024-09-24T07:10:15.363Z",
4    "points": {
5      "brightness_status": {
6        "present_value": 100
7      },
8      "brightness_setpoint": {
9        "present_value": 100
10     },
11     "lamp_fault_status": {
12       "present_value": false
13     },
14     "battery_fault_status": {
15       "present_value": true
16     },
17     "battery_charge_level": {
18       "present_value": 67
19     }
20   }
21 }
22
```

<https://faucetsdn.github.io/udmi/>

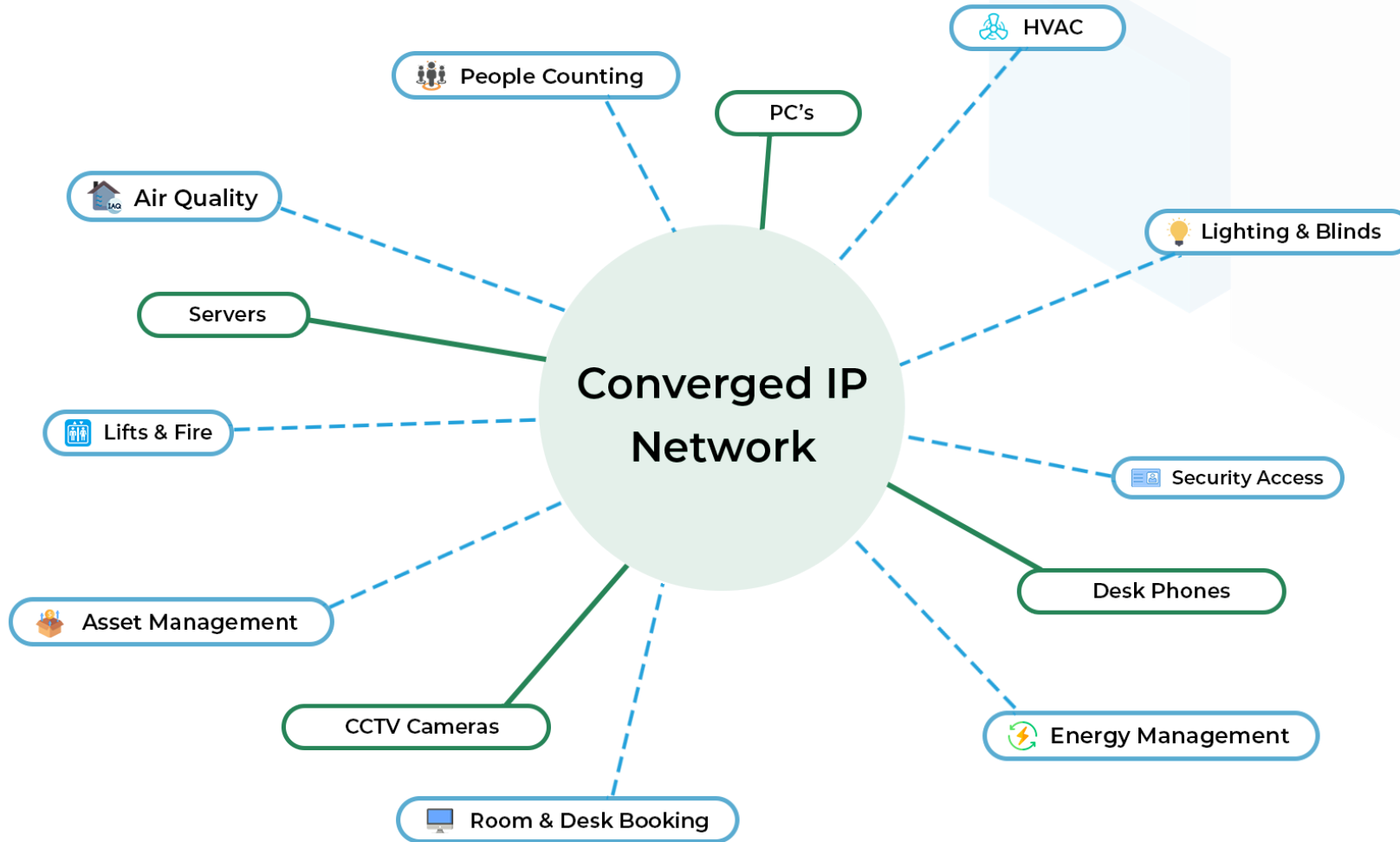
# Security



# Converged IP Networks



# Now with Smart Building Systems



# Secure Smart Building Protocols



[www.VDEinfo.com](http://www.VDEinfo.com)  
ID. 40054125  
Tested by VDE Germany



[www.VDEinfo.com](http://www.VDEinfo.com)  
ID. 40054126  
Tested by VDE Germany



# PSTI Regulations



The image is a screenshot of a GOV.UK webpage. At the top left is the GOV.UK logo, which consists of a crown icon followed by the text 'GOV.UK'. Below the logo is a blue horizontal bar. Underneath the bar is a breadcrumb trail: 'Home > Government > Cyber security'. The main content area features the text 'Policy paper' in a smaller font, followed by a large, bold title: 'The UK Product Security and Telecommunications Infrastructure (Product Security) regime'. Below the title is a paragraph of text: 'The UK's consumer connectable product security regime came into effect on 29 April 2024. Businesses in the supply chains of these products now need to be compliant with the legislation.'

# Naming



# Naming

LIGHT1

EM\_LIGHT1

EM\_LIGHT1.FL

EM\_LIGHT1.FL/ROOF

EM\_LIGHT1.FL/ROOF-FoH

EM\_LIGHT1.LED/ROOF-FoH



# Building Device Naming Standards

Q Search this file

1	asset_description	asset_abbreviation
2	access control - RFID controller	RFIDC
3	access control - RFID reader	RFIDR
4	access control - access control system	ACS
5	access control - audio intercom	AIC
6	access control - biometric reader	BIOR

## Examples

Name example for a lighting fixture: **LT-15**

Name example for an air handling unit: **AHU-3**

Name example for a distribution board: **DB-2**

## Format

**<X>-<Y>**

where:

**X** = <type\_abbreviation> (alphabetic characters only, variable length, between 2 and 6 characters)

**Y** = <building\_unique\_incremental\_number> (variable length, unique integer numbers by building, non zero padded)

<https://theodi.github.io/BDNS/>

# Naming

The problem with zero padding... ..Is LT-003 the same light fitting as LT-3?

LT-1303

Is that the 3<sup>rd</sup> light fitting on the 13<sup>th</sup> floor?

Is that the 303<sup>rd</sup> light fitting on the 1<sup>st</sup> floor?

Is that the 3<sup>rd</sup> light fitting on the 130<sup>th</sup> floor?

# Digital Building Ontology

```
383 wetbulb: "Describes air temperature measured at 100% relative h
384 point_type:
385 accumulator: "The total accumulated quantity (e.g., total energ
386 alarm: "A point that interprets some input values qualitatively
387 capacity: "A design parameter quantity (e.g., des
388 counter: "Special case of accumulator that assume
389 command: "The signal given to make an action happ
390 count: "Total count of actions or requests."
391 label: "Identifying alias for component or system
392 mode: "Distinct mode of operation within system.
393 requirement: "A lower limit design parameter (e.g
394 sensor: "Component used to measure some quality o
395 setpoint: "Control target of process or system."
396 status: "The multistate value indicating an obser
397 specification: "The specified design value for a
```

<https://github.com/google/digitalbuildings>

## Practice

To the right are several subfields that are needed to construct a field.

`secondary_return_water_?_?`

### Which subfield should come first?

Select the best answer from the options listed below.

sensor - Point type

water - Descriptor

secondary - Descriptor

temperature - Measurement

return - Descriptor

Good job! 🎉

Any of the descriptor subfields would work here, since the order of descriptors isn't strictly enforced.

Remember, descriptor subfields are used to specify the exact function of the field within the context of the entity. Descriptors can be used multiple times in a field, but you should use as few descriptors as possible.

Although the order of descriptors is not strictly enforced, you should always rely on readability and precedent to determine ordering. In this case, `secondary_return_water_...` is preferred because it is more intuitive to read than `return_secondary_water_...`, `water_return_secondary_...`. Plus, there's already a precedent set in the ontology for it, which should be adhered to as much as possible.



# Testing



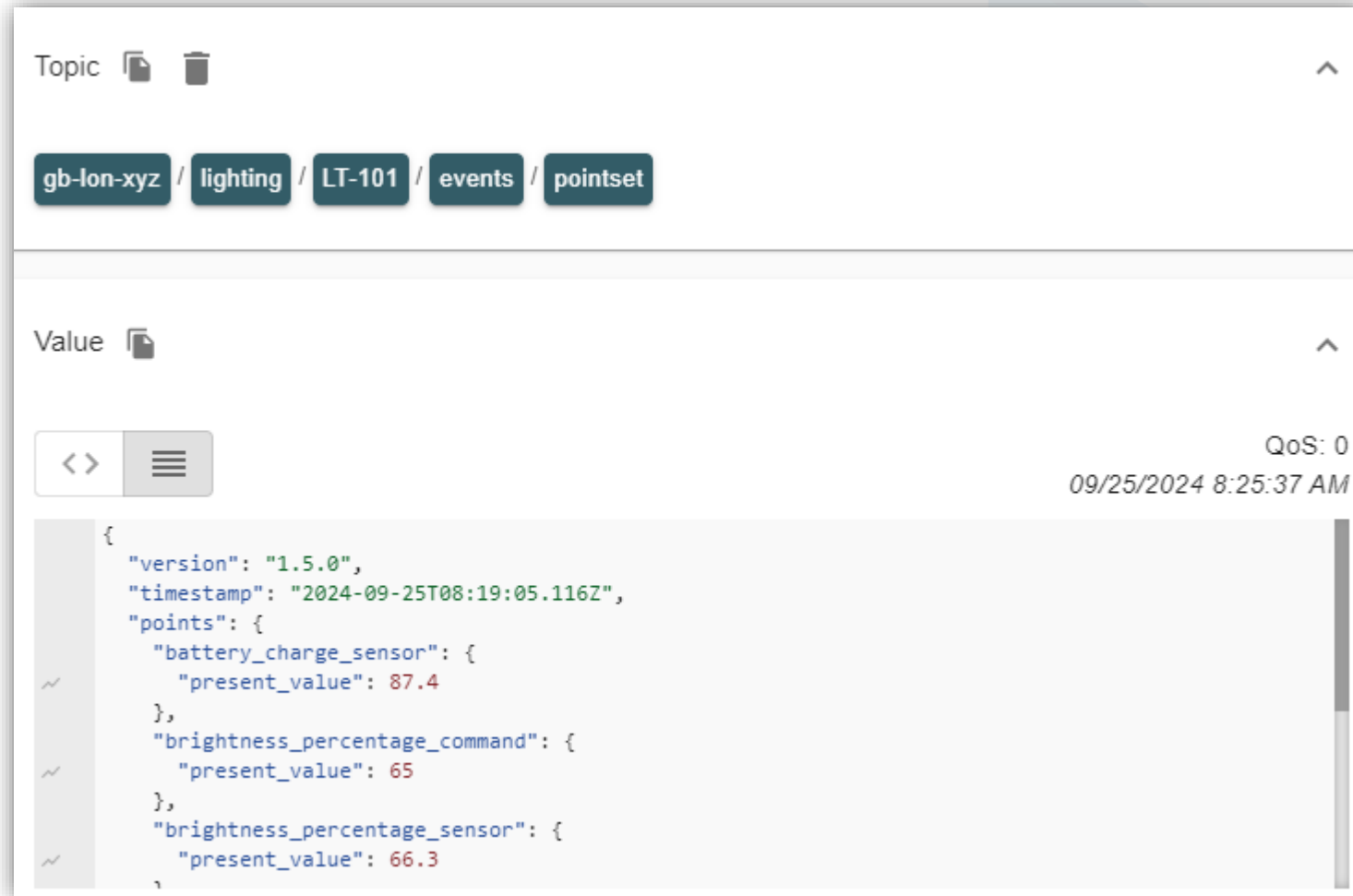
## Testing – Don't ignore it, do it right





# Validation




# UDMI over MQTT Publish Message





The screenshot displays an MQTT message viewer interface. At the top, the topic is shown as a breadcrumb: `gb-lon-xyz / lighting / LT-101 / events / pointset`. Below the topic, the message value is shown as a JSON object. The JSON payload includes a version, a timestamp, and a list of points with their respective sensor and command data.

Topic  

`gb-lon-xyz / lighting / LT-101 / events / pointset`

Value 

QoS: 0  
09/25/2024 8:25:37 AM

```
{
  "version": "1.5.0",
  "timestamp": "2024-09-25T08:19:05.116Z",
  "points": [
    {
      "battery_charge_sensor": {
        "present_value": 87.4
      },
      "brightness_percentage_command": {
        "present_value": 65
      },
      "brightness_percentage_sensor": {
        "present_value": 66.3
      }
    }
  ]
}
```

# Regular Expressions for Mobile Numbers

The screenshot shows the regex101.com website interface. The browser address bar displays 'regex101.com'. The page header includes the site name 'regular expressions 101' and navigation links for 'social', 'donate', and 'info'. The main content area is titled 'REGULAR EXPRESSION' and shows the regex `/07([0-9]{9})` with a status of '4 matches (30 steps, 100µs)'. Below this, the 'TEST STRING' section lists several phone numbers. The first four numbers are highlighted with green and blue boxes, indicating they match the regex: 07981053995, 07923566576, 07923957629, and 07981053996. The fifth number, 06981053997, is not highlighted, indicating it does not match. A timer in the bottom right corner shows '6:12'.



# Regular Expressions for BDNS Equipment Names

The screenshot shows the regex101.com website interface. The browser tab is titled 'regex101: build, test, and debug'. The address bar shows 'regex101.com'. The page header includes 'regular expressions 101' and navigation links for 'social', 'donate', and 'info'. The main content area is titled 'REGULAR EXPRESSION' and shows the regex pattern `[A-Z]{2,6}-[1-9][0-9]*` with flags `/gm`. A green box indicates '6 matches (30 steps, 125µs)'. Below the input field is a 'TEST STRING' section containing a list of equipment names: `LT-130006`, `LT-187006`, `LT-910006`, `FCU-1607`, `AHU-1`, and `QQQ-1`. Each name is highlighted in blue. A status bar at the bottom right of the test string area shows '1:1 - match 1'.

# Regular Expressions for BDNS Equipment Names

The screenshot shows the regex101.com website interface. The regular expression `[A-Z]{2,6}-[1-9][0-9]*` is entered in the 'REGULAR EXPRESSION' field. The 'TEST STRING' field contains several equipment names. The results show 6 matches, with the first match being 'LT-130006'. A dropdown menu is open, showing a list of matches with their corresponding equipment names. The match 'PWV' is highlighted with a red box.

Equipment Name	Match
LT-130006	
LT-187006	
LT-910006	
FCU-1607	
AHU-1	
QQQ-1	
distribution piped services - pipework	
pump - process water pump	PWP
valve - process water valve	PWV
coil - run around coil	RAC
heat emitter - radiator	RAD
electric distribution - rising busbar	RBB
av equipment - room booking panel	RRP

# Regular Expressions for BDNS Equipment Names

The screenshot shows the regex101.com website interface. The browser tab is titled "regex101: build, test, and debug". The address bar shows "regex101.com". The page header includes "regular expressions 101" and navigation links for "social", "donate", and "info".

The main content area is titled "REGULAR EXPRESSION" and shows a complex regular expression: `/ SWHP|TC|TCD|TCV|TDSW|TDY|TEF|TF|TK|TL|TMCLK|TMUP|TMUV|TMV|TP|TPAN|TPE|TPS|TR|TRH|TRHC|TRP|TST|TSTAT|TW|TXMR|UFM|UFT|UH|UL|UPS|UPSB|UPSMS|UVDU|VAM|VAS|VAV|VAVCTR|VCD|VCP|VDW|VEND|VFD|VLV|VMIX|VP|VRF|VRV|VS|VSD|VSFLT|VVT|VVTB|WAC|WANT|WAP|WCC|H|WCR|WD|WDO|WDR|WHAV|WL|WLC|WM|WMS|WNG|WPD|WRCVR|WRP|WRT|WRTR|WSEND|WSH|WSHP|WSR|WST|WSTBIN|WSTC|WSTFD|WSTWG|WVFS|WWP)-[1-9][0-9]* / gm`. The expression is designed to match various equipment names followed by a hyphen and a numeric suffix. The matches are displayed in a list below the expression.

The matches are:

- LT-130006
- LT-187006
- LT-910006
- FCU-1607
- AHU-1
- QQQ-1

The status bar at the bottom right of the interface shows "1:1 - match 1, group 1".

# Equipment Naming Convention

LT-130006

Type Abbreviation

Zone Number (1 digit)

Floor Number (2 digits)

Incremental Number (3 digits)

# Regular Expressions for BDNS Equipment Names

The screenshot shows the regex101.com website interface. The browser tab is titled "regex101: build, test, and debug". The address bar shows "regex101.com". The page header includes "regular expressions 101" and navigation links for "social", "donate", and "info".

The main content area is titled "REGULAR EXPRESSION" and shows a complex regular expression: `:/ SWHP|TC|TCD|TCV|TDSW|TDY|TEF|TF|TK|TL|TMCLK|TMUP|TMUV|TMV|TP|TPAN|TPE|TPS|TR|TRH|TRHC|TRP|TST|TSTAT|TW|TXMR|UFM|UFT|UH|UL|UPS|UPSB|UPSMS|UVDU|VAM|VAS|VAV|VAVCTR|VCD|VCP|VDW|VEND|VFD|VLV|VMIX|VP|VRF|VRV|VS|VSD|VSFLT|VVT|VVTB|WAC|WANT|WAP|WCC|H|WCR|WD|WDO|WDR|WHAV|WL|WLC|WM|WMS|WNG|WPD|WRCVR|WRP|WRT|WRTR|WSEND|WSH|WSHP|WSR|WST|WSTBIN|WSTC|WSTFD|WSTWG|WVFS|WVP)-[0-9]{6}/gm`. The expression is highlighted in green, and the final part `-[0-9]{6}` is highlighted in orange and blue. A status bar indicates "3 matches (5899 steps, 420µs)".

The "TEST STRING" section contains a list of equipment names: `LT-130006`, `LT-187006`, `LT-910006`, `FCU-1607`, `AHU-1`, and `QQQ-1`. The first three strings are highlighted in green, indicating they are matches. A status bar at the bottom right shows "1:1 - match 1, group 1".

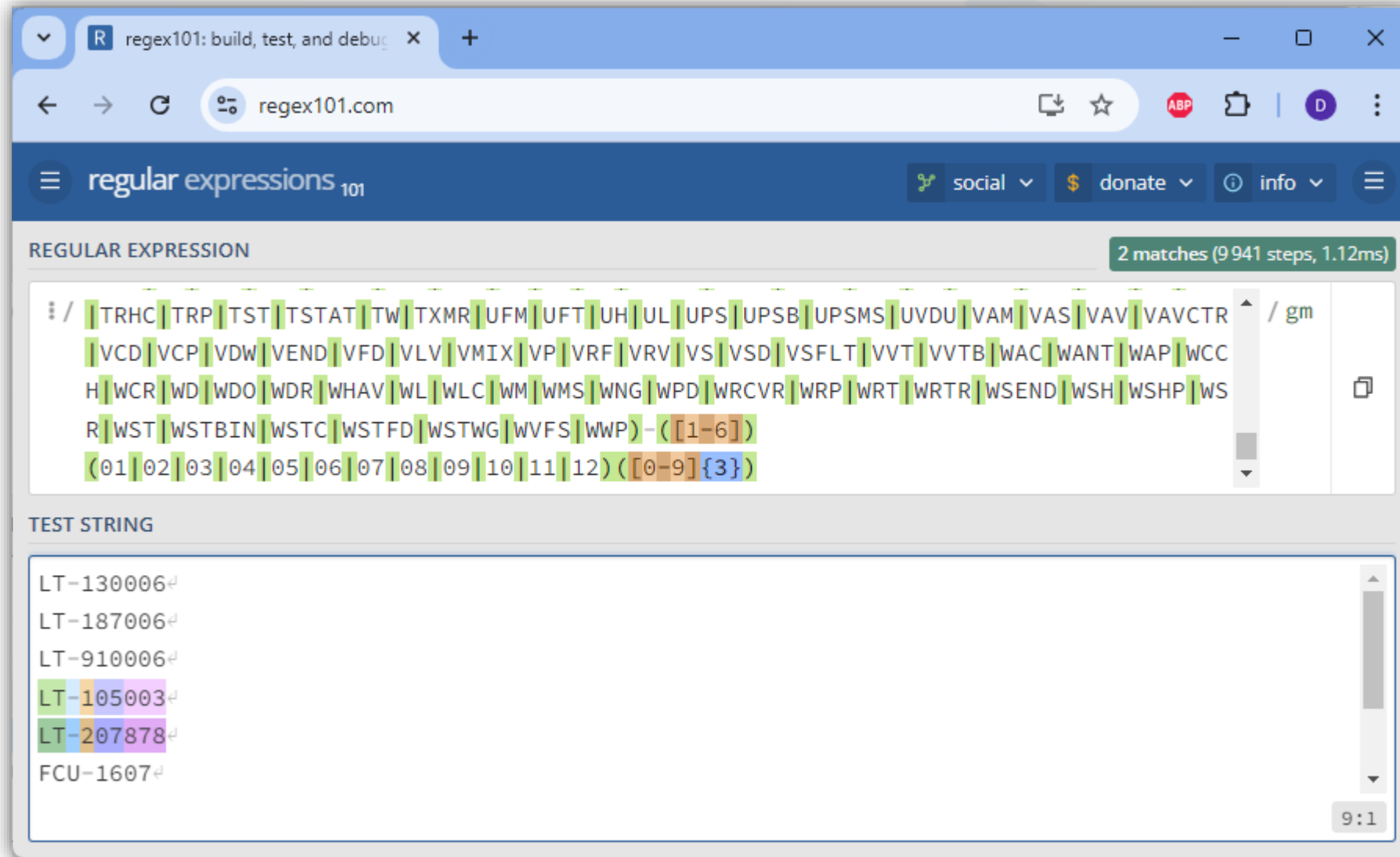
# Regular Expressions for BDNS Equipment Names

The screenshot shows the regex101.com website interface. The browser tab is titled "regex101: build, test, and debug". The address bar shows "regex101.com". The page header includes "regular expressions 101" and navigation links for "social", "donate", and "info".

The main content area is titled "REGULAR EXPRESSION" and shows a complex regular expression: `/ [TRHC|TRP|TST|TSTAT|TW|TXMR|UFM|UFT|UH|UL|UPS|UPSB|UPSMS|UVDU|VAM|VAS|VAV|VAVCTR|VCD|VCP|VDW|VEND|VFD|VLV|VMIX|VP|VRF|VRV|VS|VSD|VSFLT|VVT|VVTB|WAC|WANT|WAP|WCC|H|WCR|WD|WDO|WDR|WHAV|WL|WLC|WM|WMS|WNG|WPD|WRCVR|WRP|WRT|WRTR|WSEND|WSH|WSHP|WSR|WST|WSTBIN|WSTC|WSTFD|WSTWG|WVFS|WWP) - ([1-6]) (01|02|03|04|05|06|07|08|09|10|11|12) ([0-9]{3}) / gm`. The expression is highlighted in green, and the flags `/ gm` are shown to the right. A status bar indicates "no match (8 951 steps, 625µs)".

The "TEST STRING" section contains a list of equipment names: `LT-130006`, `LT-187006`, `LT-910006`, `FCU-1607`, `AHU-1`, and `QQQ-1`. A zoom level of "1:1" is shown in the bottom right corner.

# Regular Expressions for BDNS Equipment Names

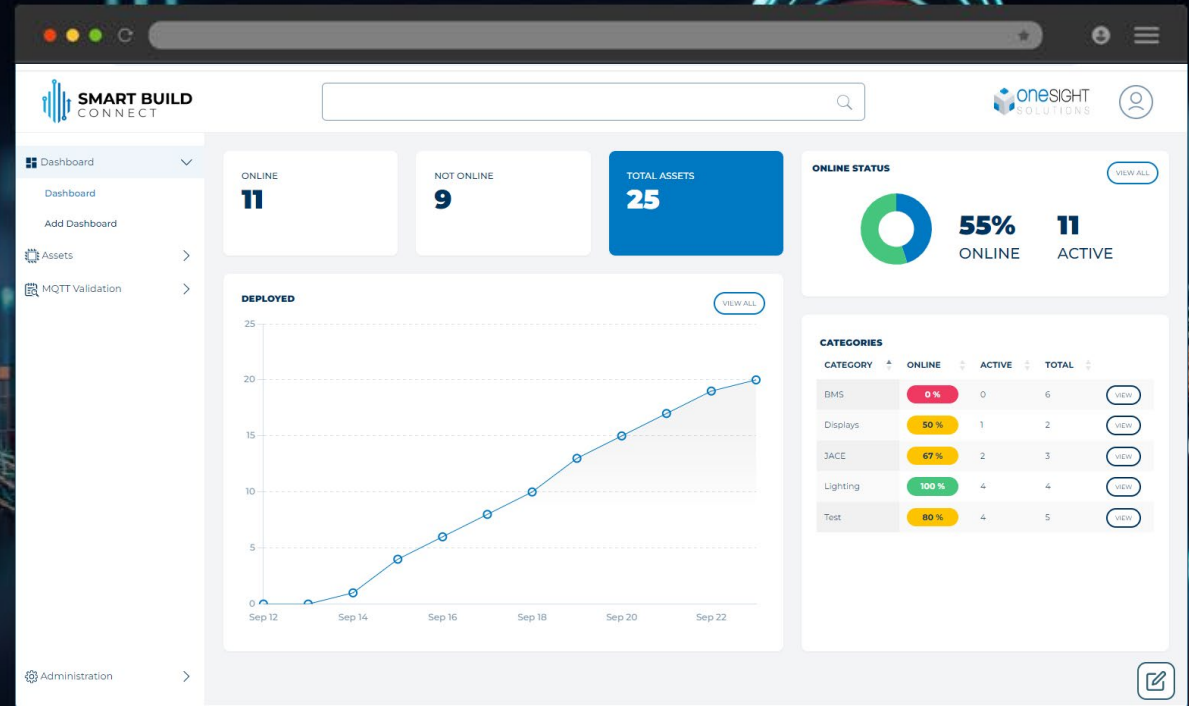


The screenshot shows the regex101.com website interface. The browser tab is titled "regex101: build, test, and debug". The address bar shows "regex101.com". The page title is "regular expressions 101". The main content area displays a regular expression: `/ [TRHC|TRP|TST|TSTAT|TW|TXMR|UFM|UFT|UH|UL|UPS|UPSB|UPSMS|UVDU|VAM|VAS|VAV|VAVCTR|VCD|VCP|VDW|VEND|VFD|VLV|VMIX|VP|VRF|VRV|VS|VSD|VSFLT|VVT|VVTB|WAC|WANT|WAP|WCC|H|WCR|WD|WDO|WDR|WHAV|WL|WLC|WM|WMS|WNG|WPD|WRCVR|WRP|WRT|WRTR|WSEND|WSH|WSHP|WSR|WST|WSTBIN|WSTC|WSTFD|WSTWG|WVFS|WWP] - ([1-6]) ([01|02|03|04|05|06|07|08|09|10|11|12]) ([0-9]{3}) / gm`. The matches section shows two matches: "LT-105003" and "LT-207878". The test string section contains the following text: "LT-130006", "LT-187006", "LT-910006", "LT-105003", "LT-207878", and "FCU-1607".



**A NEW platform for better SMART Enablement through time savings & risk reduction. Promoting the use of standard tooling & open technology to ensure data integrity and ownership is maintained.**

***The future for smart building Contractors and Commissioning Teams***





# Smart Enablement Best Practices – Smart Build Connect

**AUDIT**

ASSETS **81**

OFFLINE **1** | ERRORS **0** | DUPLICATES **0** | DUPLICATE GUID **0**

ASSET	CATEGORY	AREA	DEPLOYED ON	IMPORTED
CNTR-1001	JACE	Basement	N/A	YES
CNTR-1002	JACE	Basement	N/A	YES
CNTR-1003	JACE	Basement	N/A	YES
DS-2001	DISPLAY	Basement	10th Oct 2023	YES
DS-2002	DISPLAY	Basement	10th Oct 2023	YES

**BMS VALIDATION STATUS** 100% VALID 359 COUNT

**EMS VALIDATION STATUS** 100% VALID 144 COUNT

**LIGHTING VALIDATION STATUS** 100% VALID 3057 COUNT

**FIRE ALARM VALIDATION STATUS** 100% VALID 627 COUNT

**SECURITY VALIDATION STATUS (CCTV/ACCESS/INTRUDER)** 100% VALID 94 COUNT

**MANAGE ASSETS**

ASSET	CATEGORY	AREA	DEPLOYED ON	STATUS
CNTR-1001	JACE	Basement	N/A	ONLINE
CNTR-1002	JACE	Basement	N/A	ONLINE
CNTR-1003	JACE	Basement	N/A	ONLINE
DS-2001	DISPLAY	Basement	10th Oct 2023	ONLINE
DS-2002	DISPLAY	Basement	10th Oct 2023	ONLINE
TEST-1001	NETDEVICE	Unknown	N/A	OFFLINE ABSENT
TEST-1002	NETDEVICE	Unknown	10th Oct 2023	ONLINE TRIP
TEST-1003	NETDEVICE	Unknown	10th Oct 2023	ONLINE TRIPLED
TEST-1004	NETDEVICE	Unknown	10th Oct 2023	ONLINE VALIDATED
TEST-1005	NETDEVICE	Unknown	N/A	ONLINE
TEST-1006	NETDEVICE	Unknown	N/A	ABSENT

**ONLINE** 5 | **VENDORS** 3 | **TOTAL ASSETS** 81

**STATUS** 83% ONLINE 5 ACTIVE

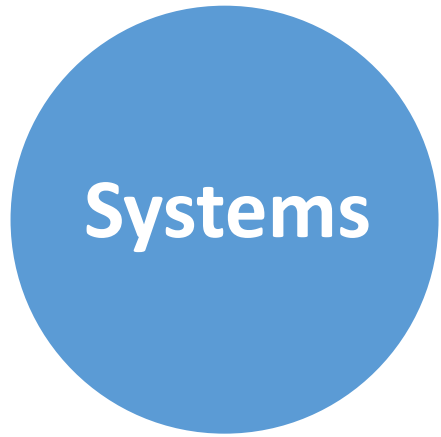
**DEPLOYED OVER**

CATEGORY	ONLINE	ACTIVE	TOTAL
Default	0	0	0
DISPLAY	2	2	2
JACE	0	1	1
NETDEVICE	3	16	19

# Summary



# Best Practices



# Digital Building Council

The Digital Buildings Council (DBC) is a new not-for-profit group of industry specialists who see a more collaborative and interconnected approach as the means of breaking down silos and providing the necessary clarity and assurance to help fulfil the potential of digital buildings.

Visit us at Stand B27 and C55



*Thank you*  
**Questions?**



**Scan the QR code to download a PDF copy of this slideshow**

**Visit us at Stand B27**