UDMI METHODOLOGY FOR SMART BUILDINGS

Your Keynote Speakers…

Ged Tyrrell
Group CEO

Susan Gibson
Product Owner &
Delivery Manager

Thomas Hynes
Smart Buildings
Integration Manager

TYRRELL BUILDING TECHNOLOGIES GROUP

tyrrell products ltd

IoT and Automation Products, R&D, Distribution and Training

tyrrell systems ltd

Master System Integrator, Maintenance and Support

simxx ANALYTICS LTD

Smart Building, Analytics and Reporting Platform

HALO Smart IoT

HALO Smart Living

Technology and Services to Support Improved Sustainability and ESG Goals

tbt

SMART BUILDING TECHNOLOGY, ENABLEMENT AND BENEFITS BASED ON UDMI

AVAILABLE SMART BUILDING STANDARDS

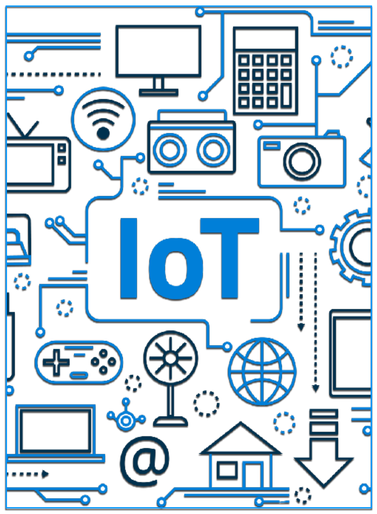
SMART BUILDING LANDSCAPE IN THE UK

SMART BUILDING ASPIRATIONS - WHY?

1. Improves Energy Consumption
2. Ensures Efficient Resource Management
3. Predictive Maintenance
4. Offers Real-Time Insights
5. Leads to Enhanced Productivity
6. Improves Security Standards

UDMI AND THE PROBLEM IT SOLVES

Universal Device Management Interface



Devices

Authentication

Configuration

Device Status

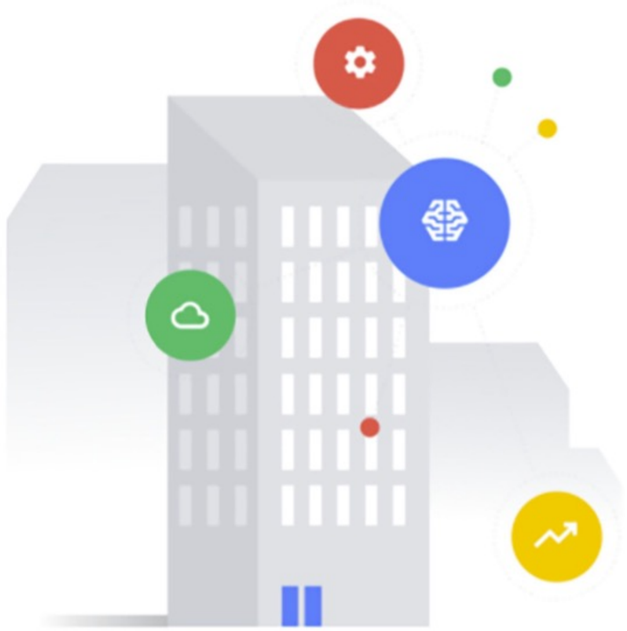
Device Point Data

Cloud Services

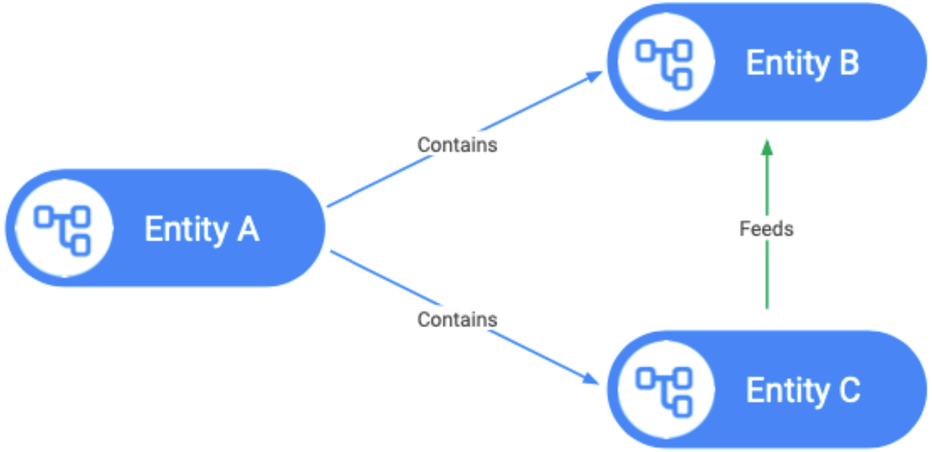
Google Cloud

WHAT IS DBO?

Digital Buildings Ontology



- Entities
- Entity Types
- Properties
- Relationships



Relationship Example

Real World ‘Entity’ Example

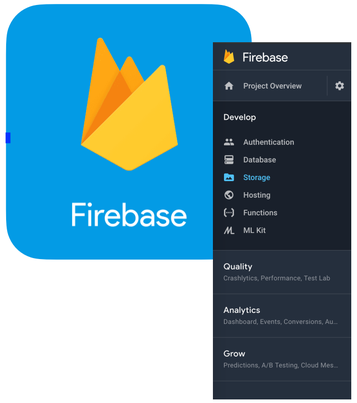
WHAT IS DAQ?

Device Automated Qualification

Test Device
(Controller)

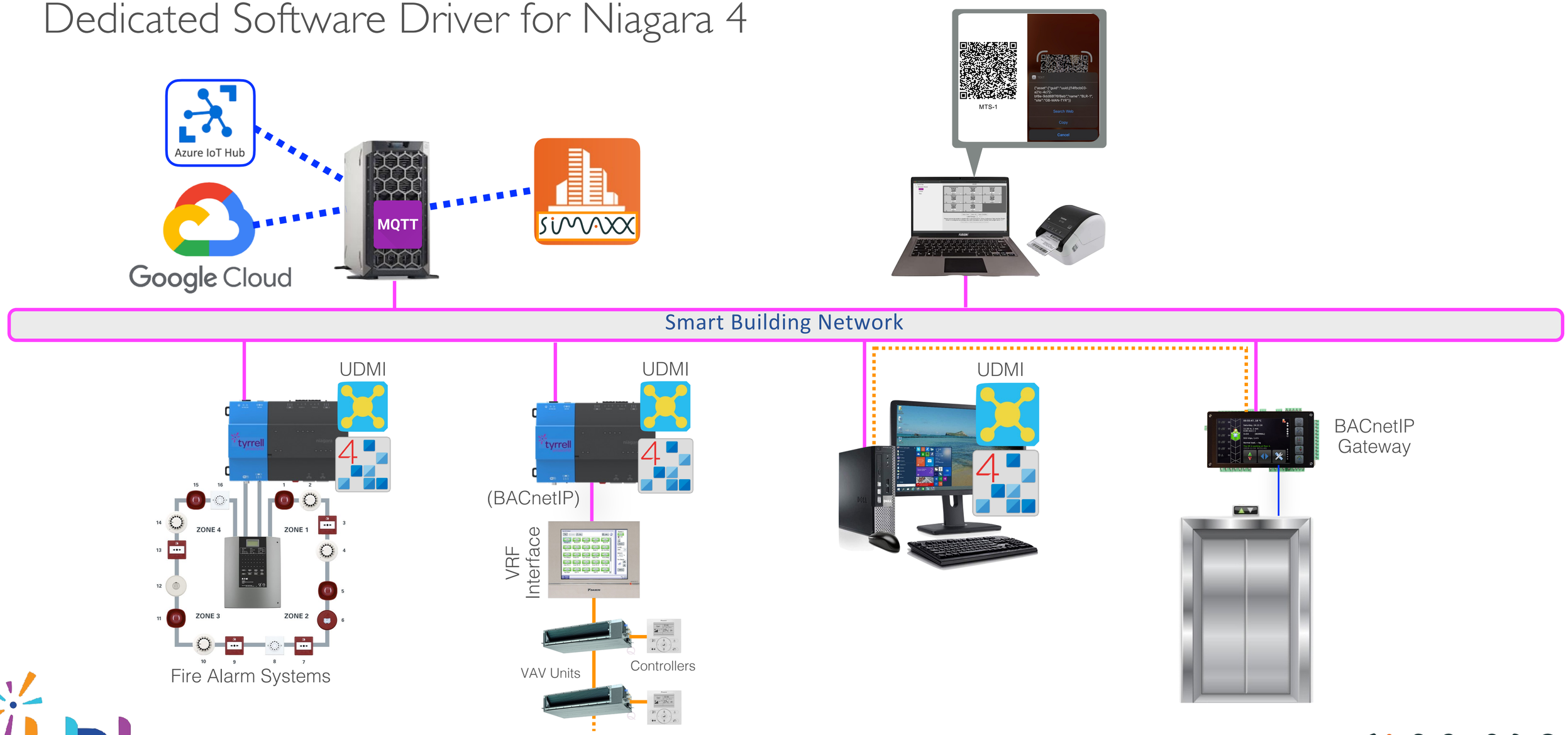
DAQ Framework

DAQ Dashboard



THE UDMI GATEWAY

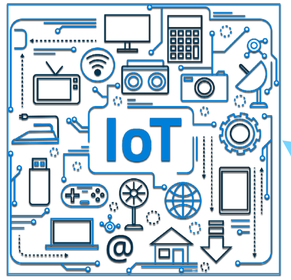
Dedicated Software Driver for Niagara 4



UDMI ENABLED
SMART BUILDING PLATFORM

ABOUT SIMAXX

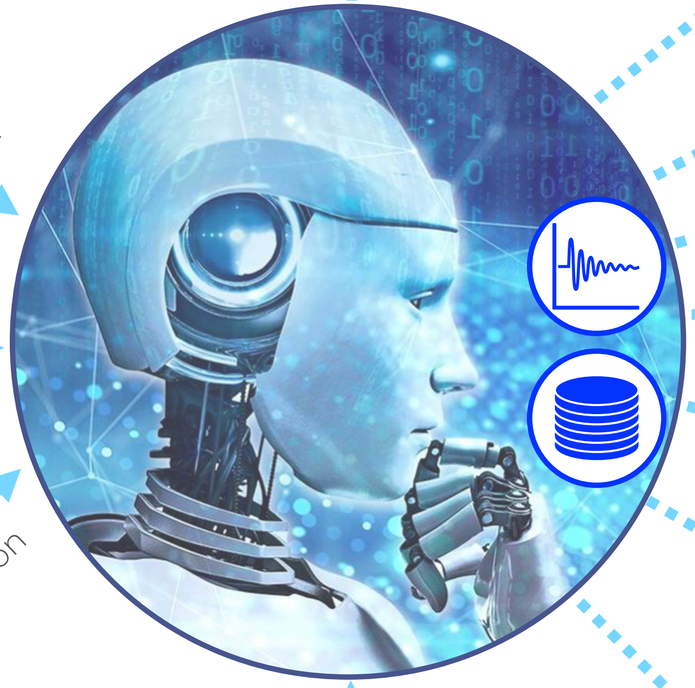
Numerous IoT Based Systems



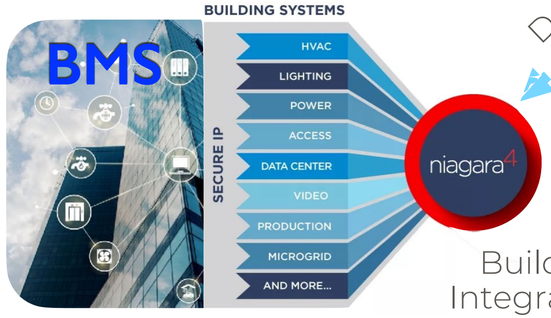
Data and Analytic Optimisation

APIs for Cloud Services

Weather Dat
Sensor AP
SmartMete

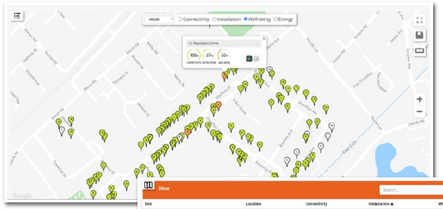


Data and Analytic Optimisation

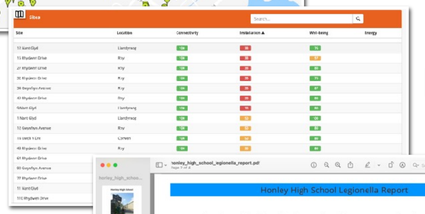


Building Systems Integration via Tridium Niagara

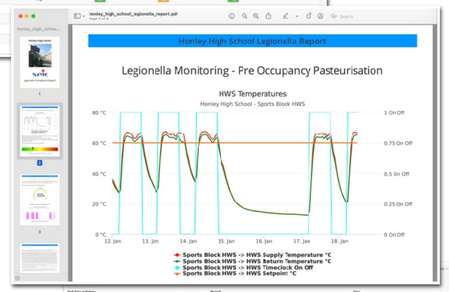
Automated FM Work Order Generation



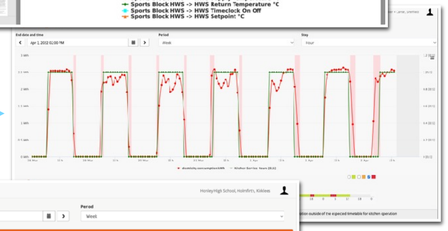
Estate Management



Benchmarking



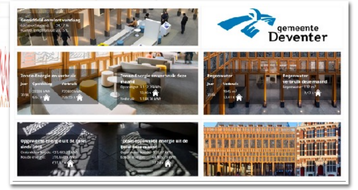
Compliance Reporting



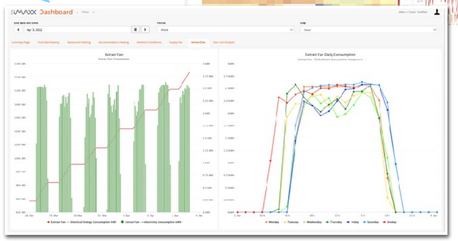
Energy Saving Insights

How to save and optimise

User Dashboards



Green Screens

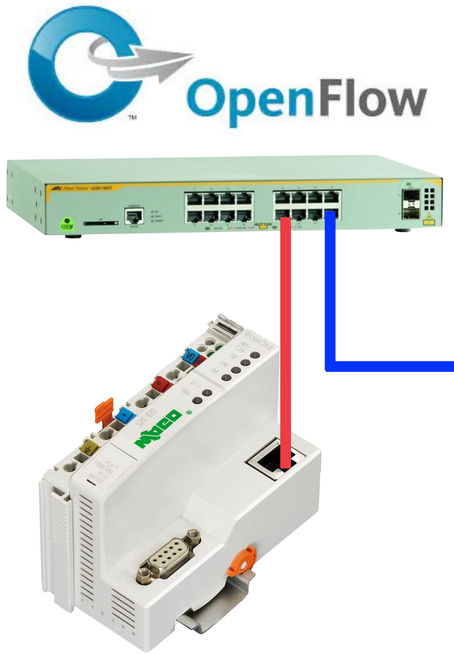


Energy Analysis

HALO Smart IoT

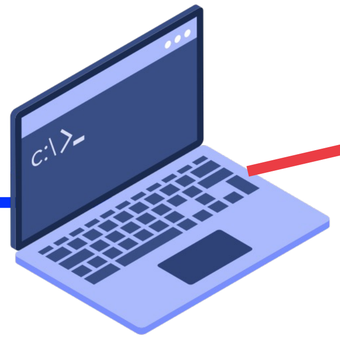
SIMAXX AND S-DAQ

Simaxx Device Automated Qualification



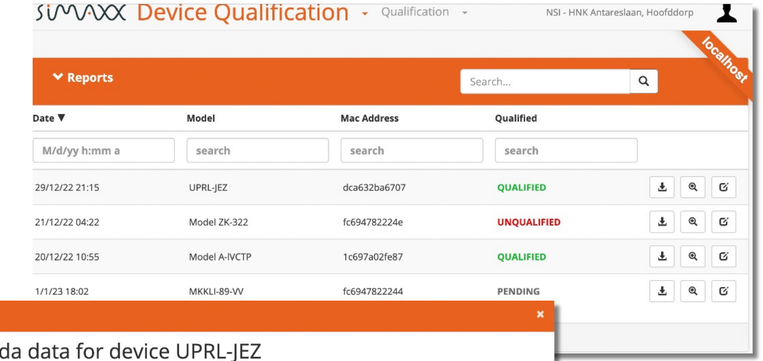
Test Device
(Controller)

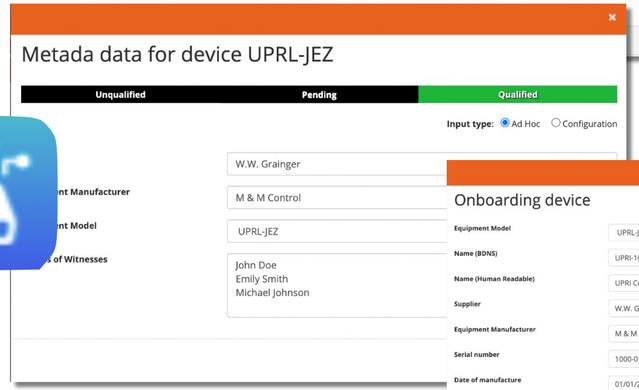
SDAQ Agent

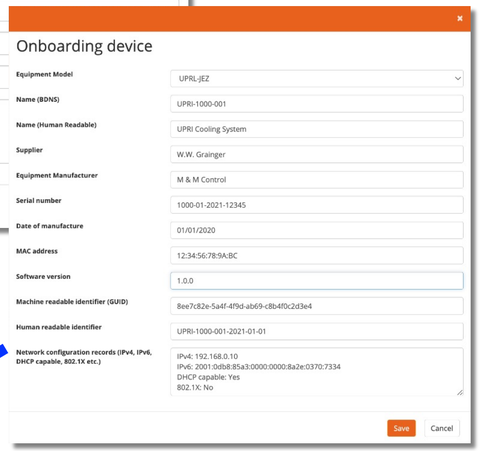


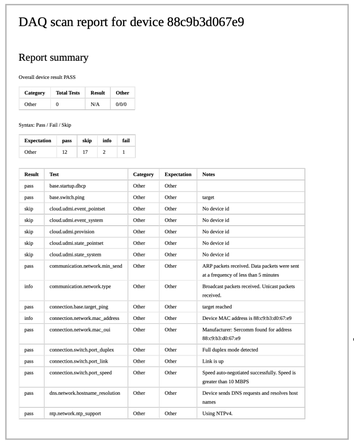
SSL

Simaxx DAQ App



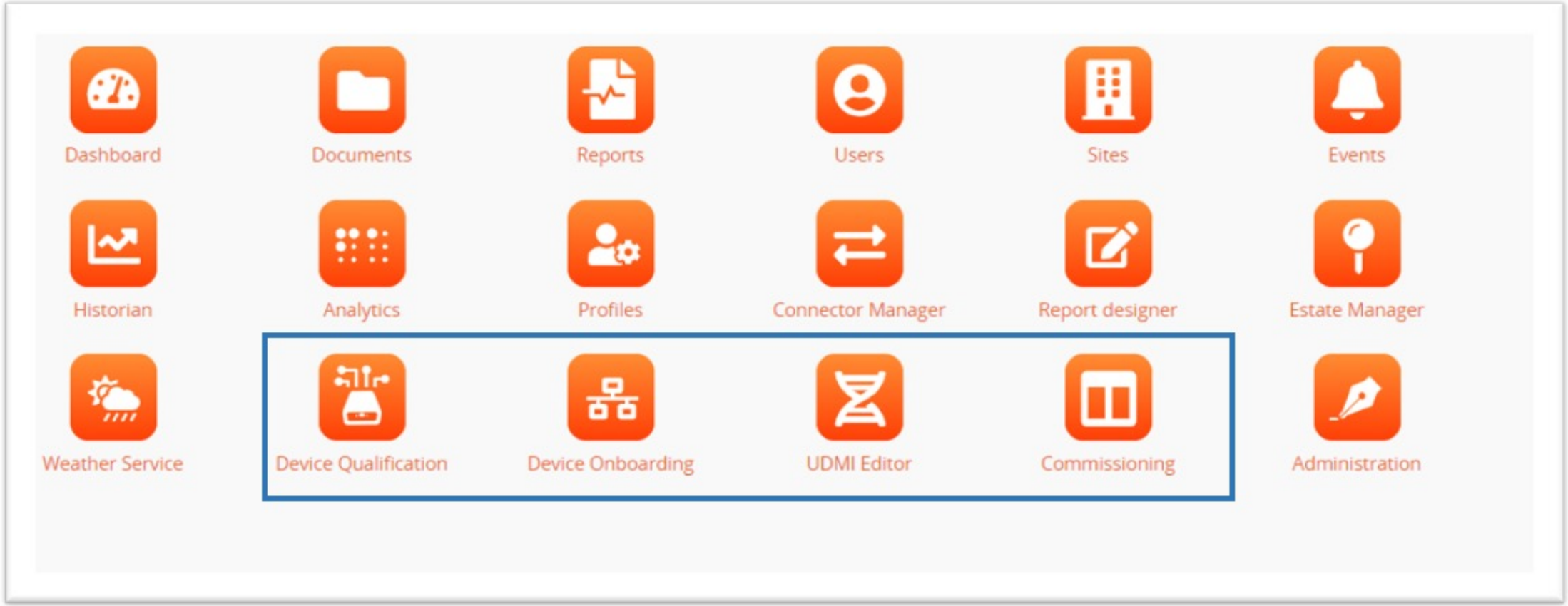




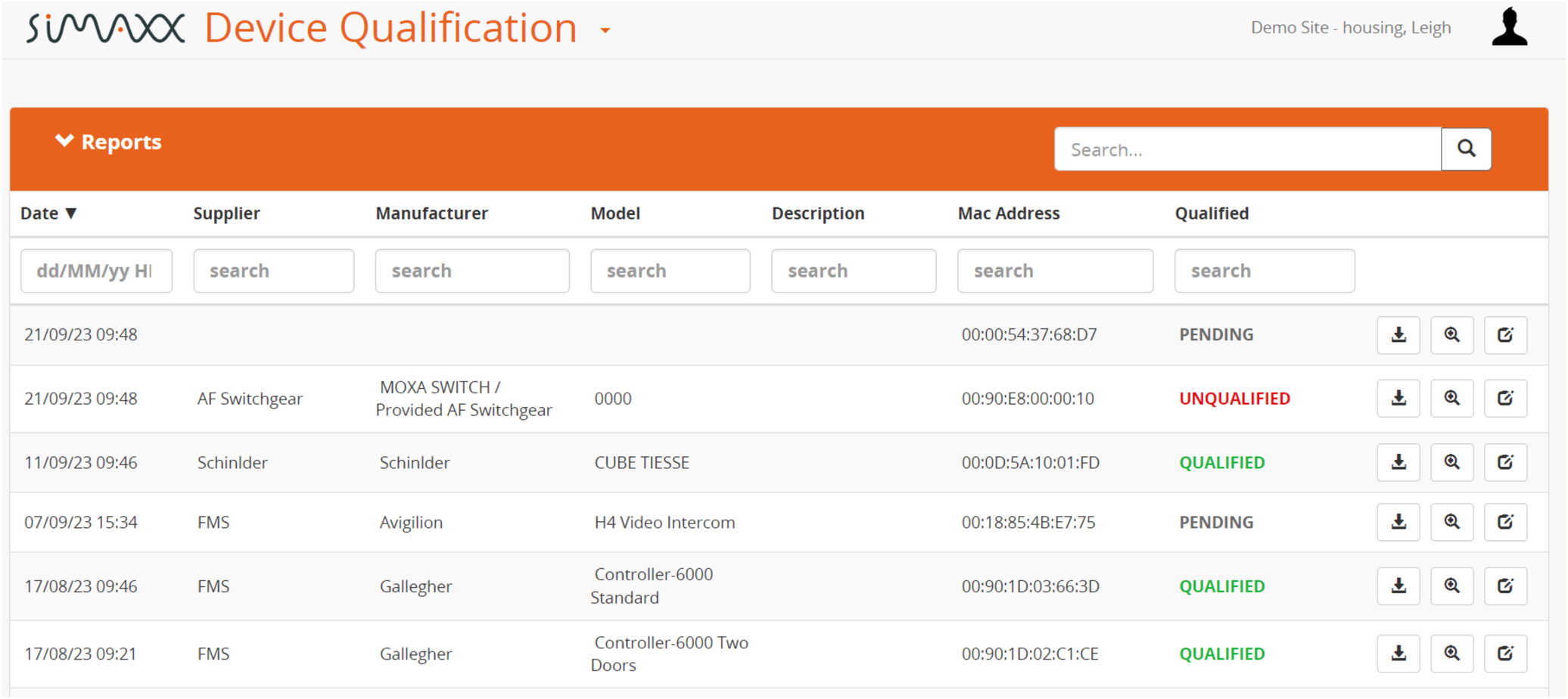


DAQ Device
Test Reports

UDMI APPS IN SIMAXX



DEVICE AUTOMATED QUALIFICATION APP



DEVICE AUTOMATED QUALIFICATION APP

DAQ – Device report test overview (on screen or as PDF)

Report

DAQ scan report for device 88:C9:B3:D0:68:05

Report summary

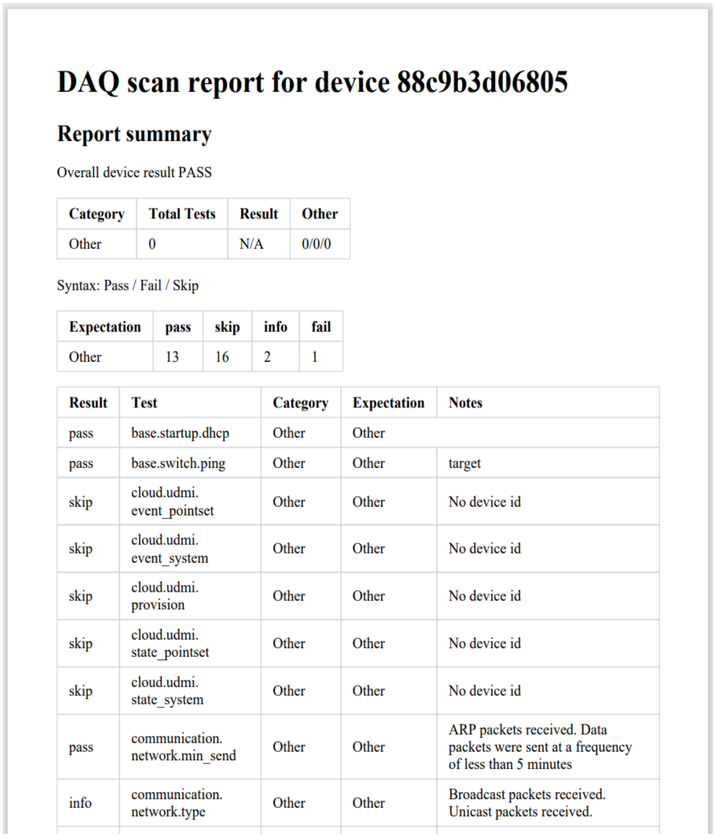
Overall device result PASS

Category	Total Tests	Result	Other
Other	0	N/A	0/0/0

Syntax: Pass / Fail / Skip

Expectation	pass	skip	info	fail
Other	13	16	2	1

Result	Test	Category	Expectation	Notes
pass	base.startup.dhcp	Other	Other	
pass	base.switch.ping	Other	Other	target
skip	cloud.udmi.event_pointset	Other	Other	No device id
skip	cloud.udmi.event_system	Other	Other	No device id
skip	cloud.udmi.provision	Other	Other	No device id
skip	cloud.udmi.state_pointset	Other	Other	No device id
skip	cloud.udmi.state_system	Other	Other	No device id
pass	communication.network.min_send	Other	Other	ARP packets received. Data packets were sent at a frequency of less than 5 minutes
info	communication.network.type	Other	Other	Broadcast packets received. Unicast packets received.
pass	connection.base.target_ping	Other	Other	target reached
info	connection.network.mac_address	Other	Other	Device MAC address is 88:c9:b3:d0:68:05
pass	connection.network.mac_oui	Other	Other	Manufacturer: Sercomm found for address 88:c9:b3:d0:68:05
pass	connection.switch.port_duplex	Other	Other	Full duplex mode detected
pass	connection.switch.port_link	Other	Other	Link is up
pass	connection.switch.port_speed	Other	Other	Speed auto-negotiated successfully. Speed is greater than 10 MBPS
pass	dns.network.hostname_resolution	Other	Other	Device sends DNS requests and resolves host names
pass	ntp.network.ntp_support	Other	Other	Using NTPv4
fail	ntp.network.ntp_update	Other	Other	Device clock not synchronized with



DAQ scan report for device 88c9b3d06805

Report summary

Overall device result PASS

Category	Total Tests	Result	Other
Other	0	N/A	0/0/0

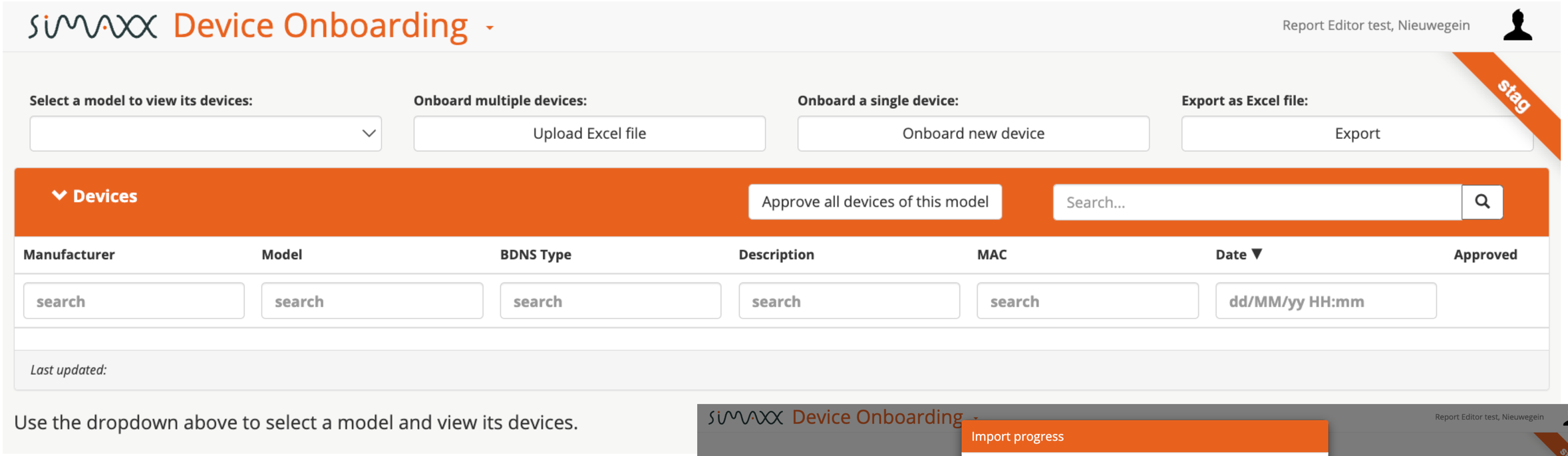
Syntax: Pass / Fail / Skip

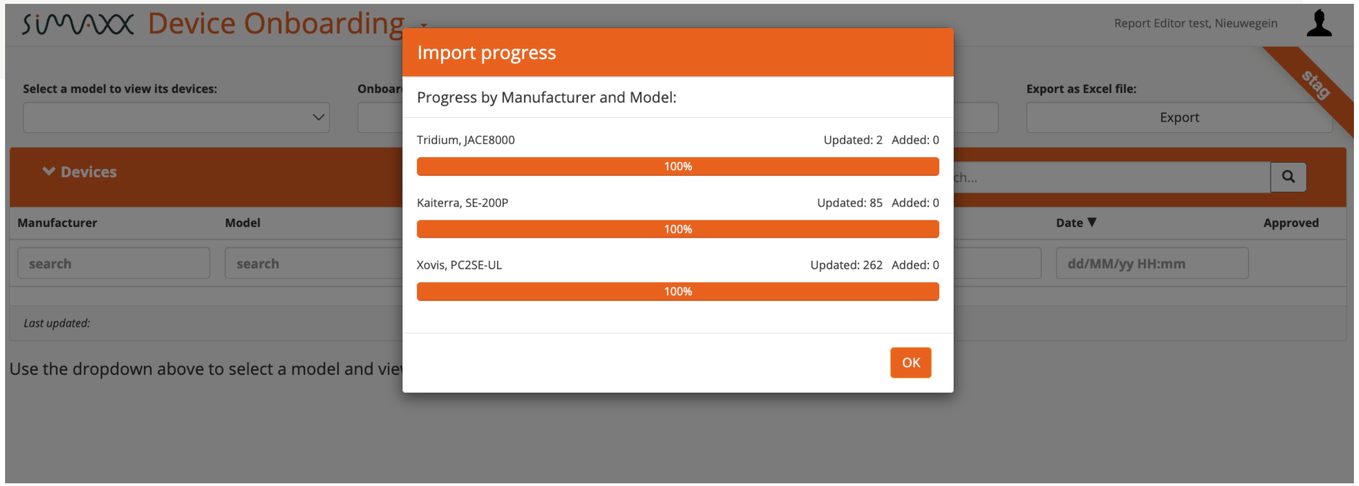
Expectation	pass	skip	info	fail
Other	13	16	2	1

Result	Test	Category	Expectation	Notes
pass	base.startup.dhcp	Other	Other	
pass	base.switch.ping	Other	Other	target
skip	cloud.udmi. event_pointset	Other	Other	No device id
skip	cloud.udmi. event_system	Other	Other	No device id
skip	cloud.udmi. provision	Other	Other	No device id
skip	cloud.udmi. state_pointset	Other	Other	No device id
skip	cloud.udmi. state_system	Other	Other	No device id
pass	communication. network.min_send	Other	Other	ARP packets received. Data packets were sent at a frequency of less than 5 minutes
info	communication. network.type	Other	Other	Broadcast packets received. Unicast packets received.

A Received DAQ report for Device with MAC-address 88:C9:B3:D0:68:05

DEVICE ONBOARDING APP





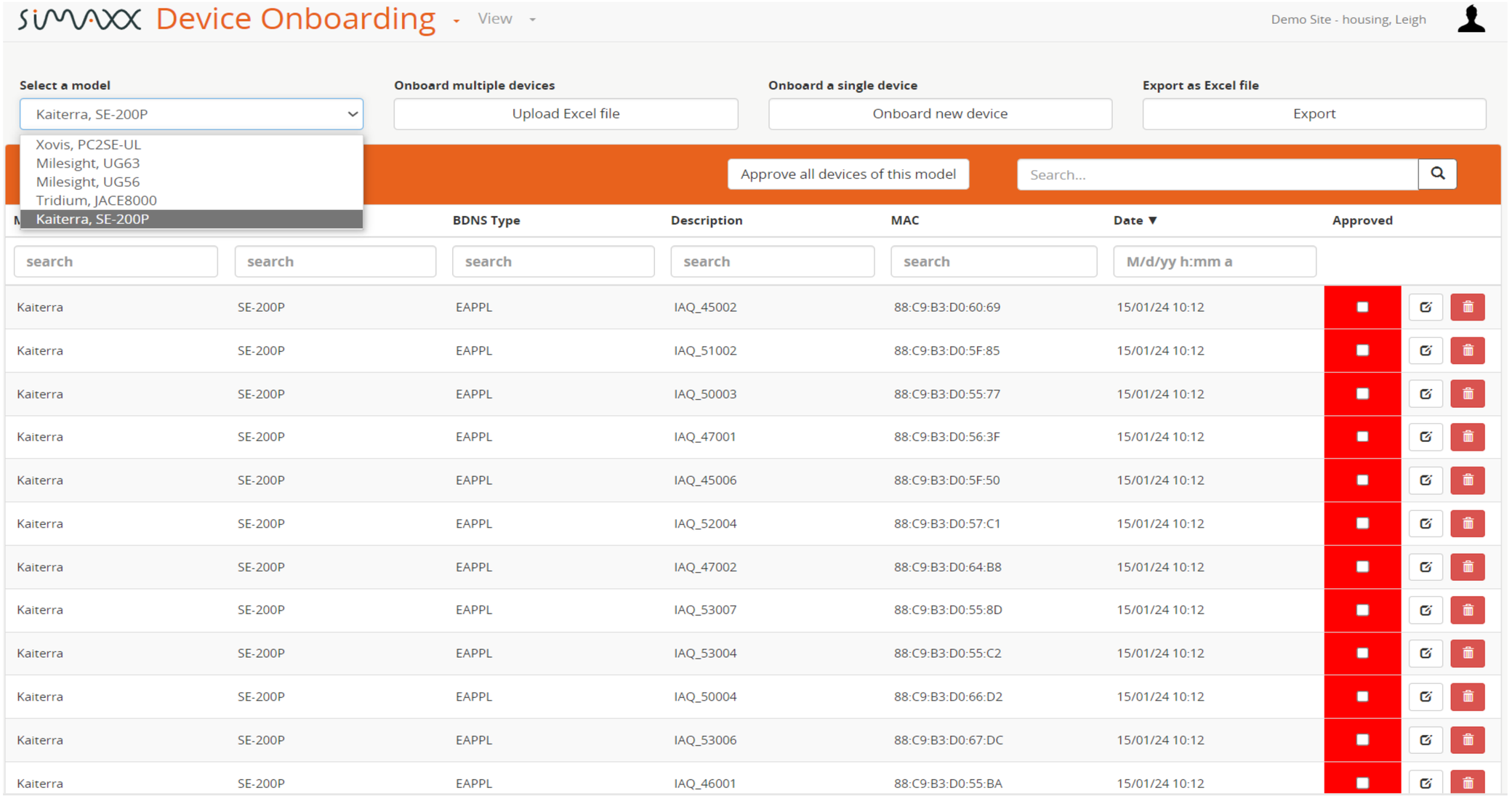
DEVICE ONBOARDING APP

P134 | fx | yes

	A	B	C	D	E	F	H	I	J	K	L	M	N
1	Building	Floor	Description	BDNS Dev Type	Manufacturer	Model	Serial Number	Rev	Firmware Version	OS Version	Driver Version	LAN1 MAC	LAN2 MAC
2	GB-EDH-ATRM	0	JACE-BMS- Atrium	EAPPL	Tridium	JACE8000	80053904		4.11.2.8	tridium-qnx7-n4-titan-am335x-hs (4.11.2.8)		AA:BB:CC:DD:EE:01	
3	GB-EDH-B4	1	JACE-BMS- Building 4	EAPPL	Tridium	JACE8000	80053914		4.11.2.8	tridium-qnx7-n4-titan-am335x-hs (4.11.2.8)		AA:BB:CC:DD:EE:02	
4	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19196		2.3.2			88:C9:B3:D0:55:82	
5	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19169		2.3.2			88:C9:B3:D0:55:67	
6	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23673		2.3.2			88:C9:B3:D0:66:FF	
7	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23303		2.3.2			88:C9:B3:D0:65:8D	
8	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O20440		2.3.2			88:C9:B3:D0:5A:5E	
9	B4	1	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23745		2.3.2			88:C9:B3:D0:67:47	
10	B4	1	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23078		2.3.2			88:C9:B3:D0:64:AC	
11	B4	1	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O22039		2.3.2			88:C9:B3:D0:60:9D	
12	B4	1	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O22034		2.3.2			88:C9:B3:D0:60:98	
13	B4	1	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23225		2.3.2			88:C9:B3:D0:65:3F	
14	B4	1	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19164		2.3.2			88:C9:B3:D0:55:62	
15	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O22027		2.3.2			04:39:26:FE:D7:FD	
16	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19512		2.3.2			88:C9:B3:D0:56:BE	
17	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O22986		2.3.2			88:C9:B3:D0:64:50	
18	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O20367		2.3.2			88:C9:B3:D0:5A:15	
19	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O22064		2.3.2			88:C9:B3:D0:60:B6	
20	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19421		2.3.2			88:C9:B3:D0:56:63	
21	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19140		2.3.2			88:C9:B3:D0:55:4A	
22	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19168		2.3.2			88:C9:B3:D0:55:66	
23	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O21964		2.3.2			88:C9:B3:D0:60:52	
24	B4	2	SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23930		2.3.2			88:C9:B3:D0:68:00	
25	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O21954		2.3.2			88:C9:B3:D0:60:48	
26	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O21951		2.3.2			88:C9:B3:D0:60:45	
27	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23241		2.3.2			88:C9:B3:D0:65:4F	
28	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23302		2.3.2			88:C9:B3:D0:65:8C	
29	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23249		2.3.2			88:C9:B3:D0:65:57	
30	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O21987		2.3.2			88:C9:B3:D0:60:69	
31	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23287		2.3.2			88:C9:B3:D0:65:7D	
32	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O21738		2.3.2			88:C9:B3:D0:5F:70	
33	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23273		2.3.2			88:C9:B3:D0:65:6F	
34	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O21706		2.3.2			88:C9:B3:D0:5F:50	
35	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19252		2.3.2			88:C9:B3:D0:55:BA	
36	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O21792		2.3.2			88:C9:B3:D0:5F:A6	
37	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O22045		2.3.2			88:C9:B3:D0:60:A3	
38	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19216		2.3.2			88:C9:B3:D0:55:96	
39	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19385		2.3.2			88:C9:B3:D0:56:3F	
40	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG21O23090		2.3.2			88:C9:B3:D0:64:B8	
41	B4		SPACE-Sensor	CDS	Kaiterra	SE-200P	VG20O19767		2.3.2			88:C9:B3:D0:57:BD	

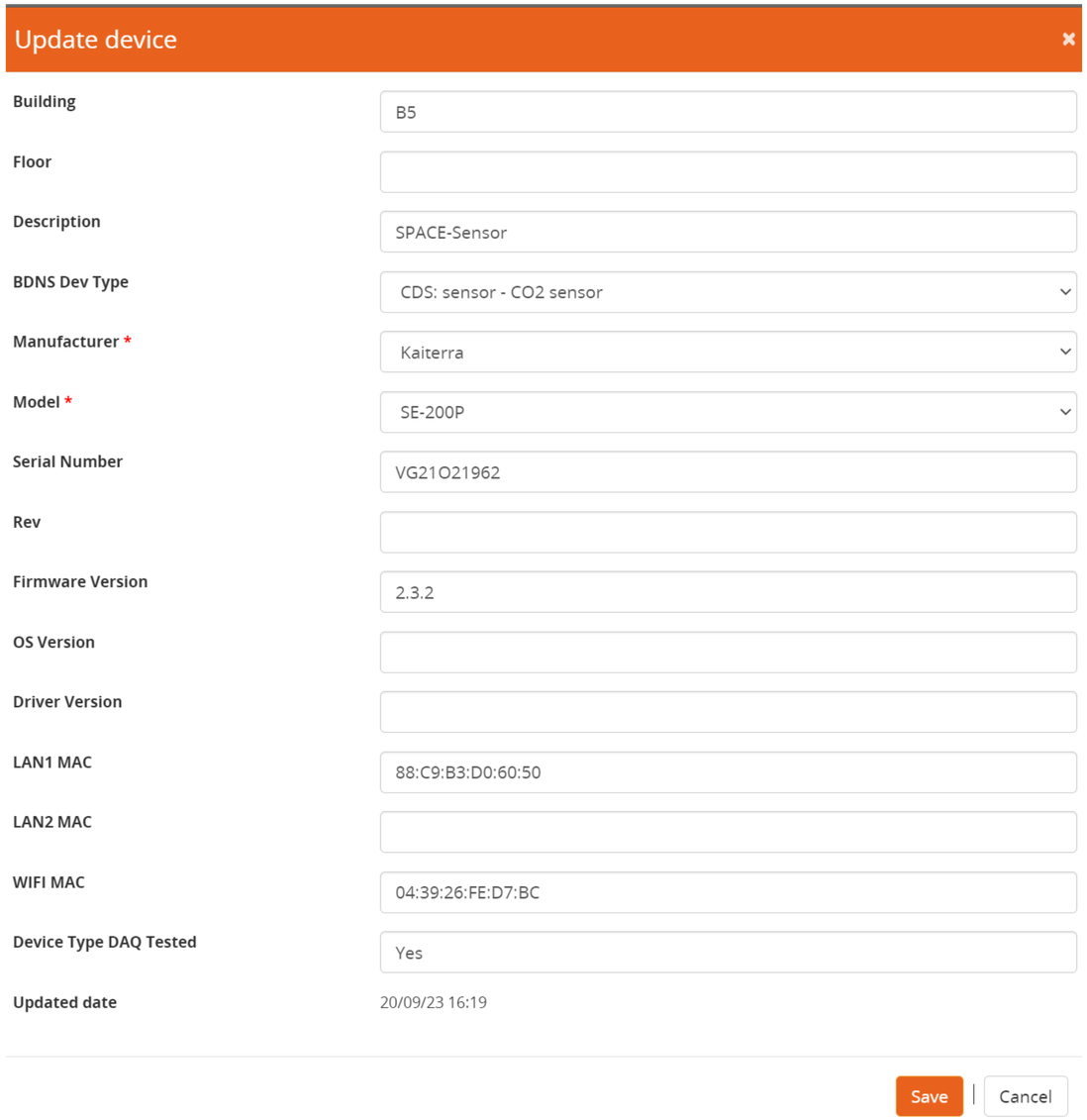
Example | Sub-Systems Network Devices | BDNS Abbreviation Register

DEVICE ONBOARDING APP

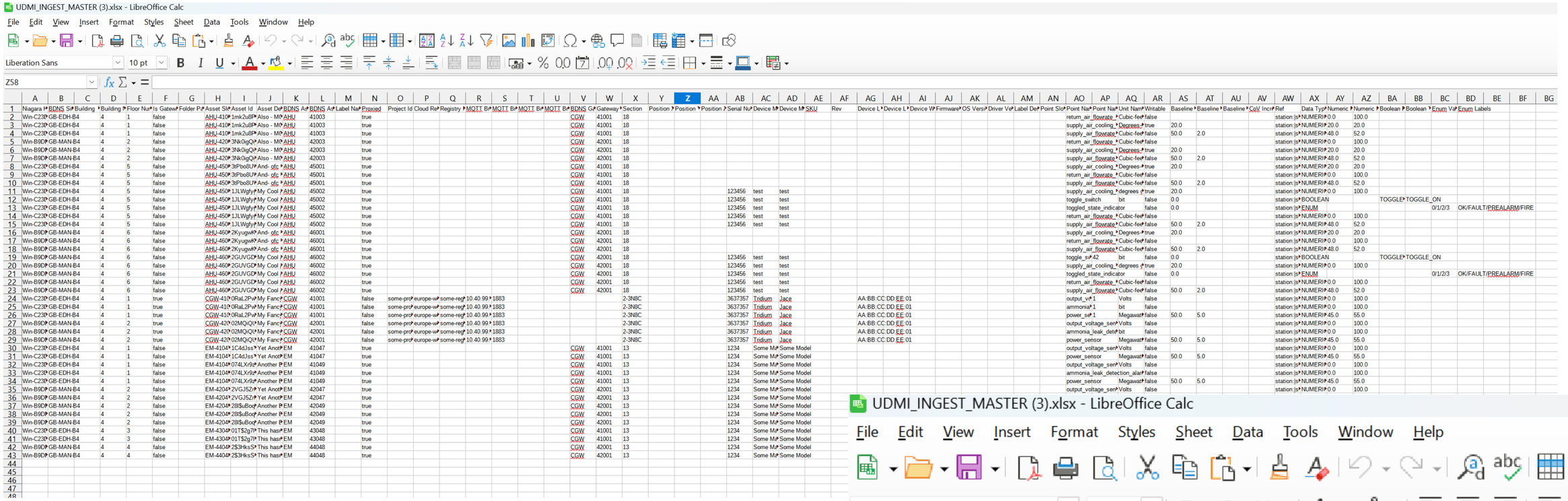


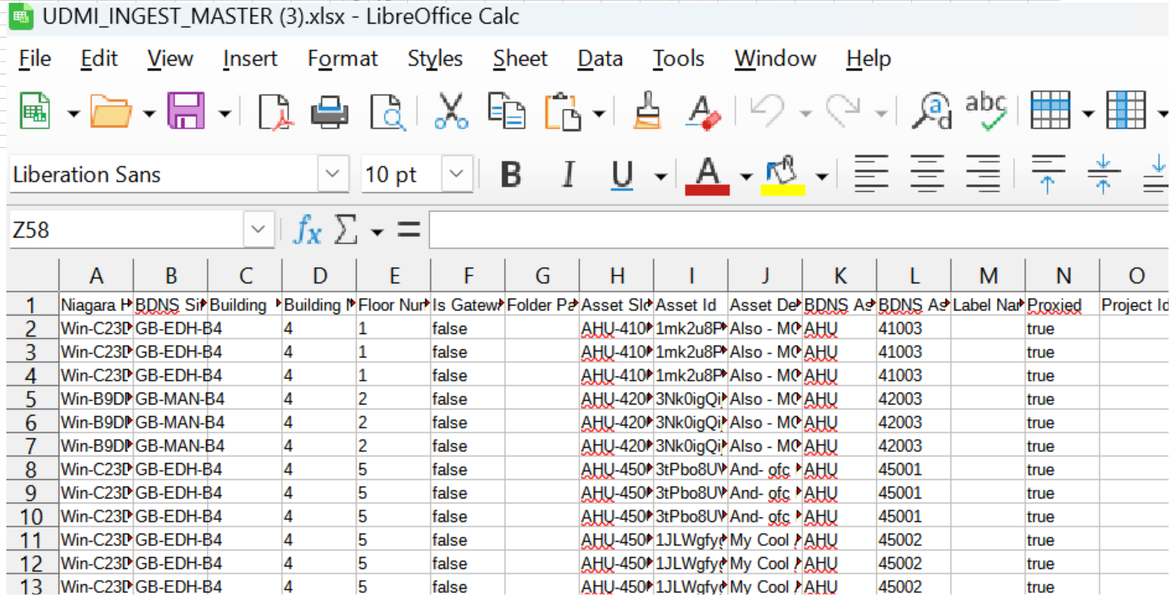
DEVICE ONBOARDING APP

Onboarding overview of a single selected device:-

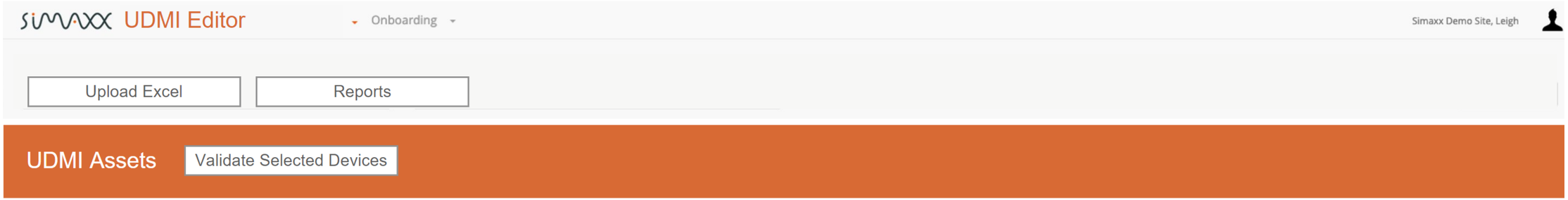


UDMI EDITOR APP





UDMI EDITOR APP



BDNS Site ID	BDNS Asset	Section	Description	Registation Date	Registation Pass	Validate	Valid Date	View
search…	*search…*	*search…*	*search…*	*search…*	*search…*	*search…*	*search…*	
GB-EDH-ATRM	ELV-1	AT-0-LB1	Elevator - Atrium Bank 1-1			☐		>
GB-EDH-B4	ELV-1	B4-0-LB1	Elevator - Building 4 Bank 1-1	2023/08/14		☐	2023/08/16	>
GB-EDH-B5	ELV-1	B5-0-LB1	Elevator - Building 5 Bank 1-1	2023/08/14		☐		>

Upload Excel will ask you to pick a file. Needs feedback if the file fails import (would be helpful if it could tell you why it failed….)

Once uploaded the table will then populate.
Each row will represent an ‘Asset’ (device).
BDNS Site ID represents the 3x Buildings
BDNS Asset is the asset type represented (Lift / AHU / FCU etc)
Section is the physical location in the building the device is located
Description is the human readable field so a ‘normal’ person can understand what the line actually is
Registration Date - The FIRST time the asset was ‘seen’ in a UDMI format (Via the broker).
    Specifically the first time data was sent FROM the JACE to the BROKER.
Registration Pass - Did the received Payload(s) match what Simaxx was expecting
Validate - Will ONLY be possible for registered assets that have valid data.
Validation date - Date & Time of validation.
View - More Info on this asset - SEE THE NEXT SLIDE

ONLY Validated Assets will be allowed to populate time series database with received telemetry

UDMI EDITOR APP

When a UDMI STATE response has been received, the validation steps are carried out automatically

We expect the STATE message to correspond on the following levels: -

- GUID
- ID / TOPIC
- Pointset (points a device is supposed to have)
- Location

UDMI Asset Viewer			
GUID	*Xxxxxxxxxxxxxxxxxxxxx*		
BDNS Site ID	**GB-EDH-ATRM**		
BDNS Asset	*ELV-1*		
Section	*AT-0-LB1*		
Description	Elevator - Atrium Bank 1-1		
Registation Date	*2023/08/14 - PASSED*		
Validate	*2023/08/16*		
UDMI Data	**EXPECTED**	**RECEIVED**	**Valid**
GUID	uuid://3ee82528-38e3-447c-9bf0-c111de6bac24",	*	
ID	*metadata/GB-MAN-BES1_MTS-1*	*	
Pointset	*"Humidity_Sensor": {"units": "Percent-relative-humidity"},* *"Intake_Air_Temperature_Sensor": {"units": "Degrees-Celsius"}*	*	
Location	"section": "ZZ-AHU01", "site": "GB-MAN-TYR"	*	

UDMI MESSAGING AND VALIDATION


```
2023-09-20 12:27:10,660 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:66) - Added row: {Rev=, Gateway Number=, Building Name=, Is Gateway=true, Writable=false, Boolean True Text=, Label Name Suffix=, Serial Number=3637357, Asset Id=02MQiQUB51jwzcbH2NBzyA, Device Make=Tridium, Proxie
2023-09-20 12:27:10,660 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:66) - Added row: {Rev=, Gateway Number=42001, Building Name=, Is Gateway=, Writable=false, Boolean True Text=, Label Name Suffix=, Serial Number=1234, Asset Id=2VGJ5ZrDbFvxcEk1_uyEeG, Device Make=Some Make, Proxie
2023-09-20 12:27:10,661 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:66) - Added row: {Rev=, Gateway Number=42001, Building Name=, Is Gateway=, Writable=false, Boolean True Text=, Label Name Suffix=, Serial Number=1234, Asset Id=2VGJ5ZrDbFvxcEk1_uyEeG, Device Make=Some Make, Proxie
2023-09-20 12:27:10,661 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:66) - Added row: {Rev=, Gateway Number=42001, Building Name=, Is Gateway=, Writable=false, Boolean True Text=, Label Name Suffix=, Serial Number=1234, Asset Id=281$uBoqH7_AUz0rHEiOcZ, Device Make=Some Make, Proxie
2023-09-20 12:27:10,662 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:66) - Added row: {Rev=, Gateway Number=42001, Building Name=, Is Gateway=, Writable=false, Boolean True Text=, Label Name Suffix=, Serial Number=1234, Asset Id=281$uBoqH7_AUz0rHEiOcZ, Device Make=Some Make, Proxie
2023-09-20 12:27:10,662 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:66) - Added row: {Rev=, Gateway Number=42001, Building Name=, Is Gateway=, Writable=false, Boolean True Text=, Label Name Suffix=, Serial Number=1234, Asset Id=281$uBoqH7_AUz0rHEiOcZ, Device Make=Some Make, Proxie
2023-09-20 12:27:10,663 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:66) - Added row: {Rev=, Gateway Number=42001, Building Name=, Is Gateway=, Writable=false, Boolean True Text=, Label Name Suffix=, Serial Number=1234, Asset Id=2$3HksSnrAeh1VPFPw9FjY, Device Make=Some Make, Proxie
2023-09-20 12:27:10,663 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:66) - Added row: {Rev=, Gateway Number=42001, Building Name=, Is Gateway=, Writable=false, Boolean True Text=, Label Name Suffix=, Serial Number=1234, Asset Id=2$3HksSnrAeh1VPFPw9FjY, Device Make=Some Make, Proxie
2023-09-20 12:27:10,664 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:90) - CSV-Parse siteName: GB-MAN-B4
2023-09-20 12:27:10,664 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:96) - CSV-Parse cloudRegion:
2023-09-20 12:27:10,664 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:101) - CSV-Parse registryId:
2023-09-20 12:27:10,664 DEBUG parser.UDMICSVConfigParser (UDMICSVConfigParser.java:73) - CSV-Parse OK Config: com.simaxx.udmi.gateway.lib.UDMIConfigCSV@54d58f1c
2023-09-20 12:27:10,665 DEBUG processor.UDMICSVConfigProcessor (UDMICSVConfigProcessor.java:61) - Processing RAW config...
2023-09-20 12:27:10,859 DEBUG processor.UDMICSVConfigSiteProcessor (UDMICSVConfigSiteProcessor.java:36) - Found existing Site! no update implemented yet
2023-09-20 12:27:10,868 DEBUG processor.UDMICSVConfigDeviceProcessor (UDMICSVConfigDeviceProcessor.java:70) - Found existing device! : updating device according to spreadsheet
2023-09-20 12:27:10,966 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:53) - Creating pointset for device AHU-42003
2023-09-20 12:27:11,002 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:65) - Pointset creation OK!
2023-09-20 12:27:11,004 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point return_air_flowrate_senso is true
2023-09-20 12:27:11,004 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point supply_air_cooling_temperature_setpoin is true
2023-09-20 12:27:11,004 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point supply_air_flowrate_sensor is true
2023-09-20 12:27:11,017 DEBUG processor.UDMICSVConfigDeviceProcessor (UDMICSVConfigDeviceProcessor.java:70) - Found existing device! : updating device according to spreadsheet
2023-09-20 12:27:11,040 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:53) - Creating pointset for device AHU-46001
2023-09-20 12:27:11,062 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:65) - Pointset creation OK!
2023-09-20 12:27:11,062 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point supply_air_cooling_temperature_setpoint is true
2023-09-20 12:27:11,063 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point return_air_flowrate_sensor is true
2023-09-20 12:27:11,063 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point supply_air_flowrate_sensor is true
2023-09-20 12:27:11,071 DEBUG processor.UDMICSVConfigDeviceProcessor (UDMICSVConfigDeviceProcessor.java:70) - Found existing device! : updating device according to spreadsheet
2023-09-20 12:27:11,089 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:53) - Creating pointset for device AHU-46002
2023-09-20 12:27:11,122 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:65) - Pointset creation OK!
2023-09-20 12:27:11,122 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point toggle_switch is true
2023-09-20 12:27:11,123 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point supply_air_cooling_temperature_setpoint is true
2023-09-20 12:27:11,123 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point toggled_state_indicator is true
2023-09-20 12:27:11,123 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point return_air_flowrate_sensor is true
2023-09-20 12:27:11,124 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point supply_air_flowrate_sensor is true
2023-09-20 12:27:11,132 DEBUG processor.UDMICSVConfigDeviceProcessor (UDMICSVConfigDeviceProcessor.java:70) - Found existing device! : updating device according to spreadsheet
2023-09-20 12:27:11,150 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:53) - Creating pointset for device CGW-42001
2023-09-20 12:27:11,177 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:65) - Pointset creation OK!
2023-09-20 12:27:11,178 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point output_voltage_sensor is true
2023-09-20 12:27:11,178 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point ammonia_leak_detection_alarm is true
2023-09-20 12:27:11,179 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point power_sensor is true
2023-09-20 12:27:11,179 DEBUG creator.MQTTBrokerUserCreator (MQTTBrokerUserCreator.java:76) - Found gateway, processing MQTT broker user!
2023-09-20 12:27:11,207 DEBUG creator.MQTTBrokerUserCreator (MQTTBrokerUserCreator.java:84) - MQTT broker user OK! for existing Device
2023-09-20 12:27:11,218 DEBUG processor.UDMICSVConfigDeviceProcessor (UDMICSVConfigDeviceProcessor.java:70) - Found existing device! : updating device according to spreadsheet
2023-09-20 12:27:11,237 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:53) - Creating pointset for device EM-42047
2023-09-20 12:27:11,247 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:65) - Pointset creation OK!
2023-09-20 12:27:11,247 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point output_voltage_sensor is true
2023-09-20 12:27:11,247 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point power_sensor is true
2023-09-20 12:27:11,251 DEBUG processor.UDMICSVConfigDeviceProcessor (UDMICSVConfigDeviceProcessor.java:70) - Found existing device! : updating device according to spreadsheet
2023-09-20 12:27:11,269 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:53) - Creating pointset for device EM-42049
2023-09-20 12:27:11,296 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:65) - Pointset creation OK!
2023-09-20 12:27:11,297 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point output_voltage_sensor is true
2023-09-20 12:27:11,297 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point ammonia_leak_detection_alarm is true
2023-09-20 12:27:11,297 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point power_sensor is true
2023-09-20 12:27:11,303 DEBUG processor.UDMICSVConfigDeviceProcessor (UDMICSVConfigDeviceProcessor.java:70) - Found existing device! : updating device according to spreadsheet
2023-09-20 12:27:11,326 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:53) - Creating pointset for device EM-44048
2023-09-20 12:27:11,342 DEBUG creator.UDMIPointSetCreator (UDMIPointSetCreator.java:65) - Pointset creation OK!
2023-09-20 12:27:11,343 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point output_voltage_sensor is true
2023-09-20 12:27:11,343 DEBUG validator.UDMIPointValidator (UDMIPointValidator.java:65) - pre creation validation for point power_sensor is true
2023-09-20 12:27:11,468 INFO  mqtt.MQTTUDMIConfigSender (MQTTUDMIConfigSender.java:42) - PUBLISHING CONFIG to: /devices/AHU-42003/config
2023-09-20 12:27:11,496 TRACE mqtt.MQTTCallback (MQTTCallback.java:29) - MQTT message delivered org.eclipse.paho.client.mqttv3.MqttDeliveryToken@2c4b736d.
2023-09-20 12:27:11,497 TRACE mqtt.MQTTMessageListener (MQTTMessageListener.java:22) - Got Topic: /devices/AHU-42003/config and Message {"timestamp":"2023-09-20T12:27:11.351+00:00","version":"1.4.1","system":{"last_start":"1970-01-01T00:00:00.000+00:00","min_loglevel":200,"metrics_rate_sec":600}
2023-09-20 12:27:11,499 DEBUG validator.UDMIMessageTopicValidator (UDMIMessageTopicValidator.java:21) - Validation OK for Topic: /devices/AHU-42003/config,
2023-09-20 12:27:11,503 DEBUG validator.UDMIConfigValidator (UDMIConfigValidator.java:38) - existing UDMI Config for timestamp 2023-09-20T12:27:11.351+0000 received
2023-09-20 12:27:11,504 DEBUG validator.UDMIMessageValidator (UDMIMessageValidator.java:30) - Payload validation OK!
2023-09-20 12:27:11,518 TRACE mqtt.MQTTMessageListener (MQTTMessageListener.java:22) - Got Topic: /devices/AHU-42003/events/system and Message {"version":"1.4.1","timestamp":"2023-09-20T12:27:11.505Z","logentries":[{"level":300,"message":"'config' applied ok","category":"system.config.apply","ti
2023-09-20 12:27:11,522 DEBUG validator.UDMIMessageTopicValidator (UDMIMessageTopicValidator.java:21) - Validation OK for Topic: /devices/AHU-42003/events/system,
2023-09-20 12:27:11,523 DEBUG processor.MQTTMessageProcessor (MQTTMessageProcessor.java:175) - Received event:system message: com.simaxx.udmi.gateway.lib.UDMIEventSystem@3fcee61c, Payload: {"version":"1.4.1","timestamp":"2023-09-20T12:27:11.505Z","logentries":[{"level":300,"message":"'config' ap
2023-09-20 12:27:11,537 DEBUG processor.UDMIEventsSystemProcessor (UDMIEventsSystemProcessor.java:30) - NEW: AHU-42003 : com.simaxx.udmi.gateway.lib.UDMIEventSystem@3fcee61c
2023-09-20 12:27:11,537 DEBUG validator.UDMIMessageValidator (UDMIMessageValidator.java:30) - Payload validation OK!
```

UDMI MESSAGING AND VALIDATION

UDMI CONFIG Payload for device AHU-42003 (as per shown log)

```
2023-09-20 12:27:11,468 INFO  mqtt.MQTTUDMIConfigSender (MQTTUDMIConfigSender.java:42) - PUBLISHING CONFIG to: /devices/AHU-42003/config
2023-09-20 12:27:11,496 TRACE mqtt.MQTTCallback (MQTTCallback.java:29) - MQTT message delivered org.eclipse.paho.client.mqttv3.MqttDeliveryToken@2c4b736d.
```


```
{
    "timestamp": "2023-09-20T12:27:11.351+00:00",
    "version": "1.4.1",
    "system": {
        "last_start": "1970-01-01T00:00:00.000+00:00",
        "min_loglevel": 200,
        "metrics_rate_sec": 600
    },
    "pointset": {
        "sample_limit_sec": 1,
        "sample_rate_sec": 600,
        "points": {
            "return_air_flowrate_senso": {
                "ref": "station:|slot:/Fake_UDMI_Points/Atrium_Power",
                "units": "Cubic-feet-per-minute"
            },
            "supply_air_cooling_temperature_setpoin": {
                "ref": "station:|slot:/Fake_UDMI_Points/Atrium_Volts",
                "units": "Degrees-Celsiu"
            },
            "supply_air_flowrate_sensor": {
                "ref": "station:|slot:/Fake_UDMI_Points/BooleanPoint",
                "units": "Cubic-feet-per-minute"
            }
        }
    }
}
```

UDMI MESSAGING AND VALIDATION

UDMI STATE Response from device AHU-42003 on previous CONFIG (as per Log)

```
validator.UDMIMessageTopicValidator (UDMIMessageTopicValidator.java:21) - Validation OK for Topic: /devices/AHU-42003/state,
processor.MQTTMessageProcessor (MQTTMessageProcessor.java:158) - Received state message: com.simaxx.udmi.gateway.lib.dto.mqtt.UDMISta
processor.UDMIStateProcessor (UDMIStateProcessor.java:82) - NEW: AHU-42003 : com.simaxx.udmi.gateway.lib.UDMIState@5a74f945
```


```
{
    "system": {
        "software": {
            "firmware": ""
        },
        "operation": {
            "restart_count": 4,
            "last_start": "2023-09-14T09:39:58.425Z",
            "operational": true
        },
        "serial_no": "",
        "last_config": "2023-09-20T12:27:11.351Z",
        "hardware": {
            "model": "",
            "make": ""
        },
        "status": {
            "level": 300,
            "message": "'config' applied ok",
            "category": "system.config.apply",
            "timestamp": "2023-09-20T12:27:11.505Z"
        }
    },
    "pointset": {
        "state_etag": "331a7866a40dece95875aa5bf82e94f7",
        "points": {
            "return_air_flowrate_senso": {
                "units": "Cubic-feet-per-minute",
                "status": {
                    "level": 300,
                    "message": "'Source Point Value - Status' is '{ok}",
                    "category": "pointset.point.applied",
                    "timestamp": "2023-09-14T09:40:00.781Z"
                }
            },
            "supply_air_cooling_temperature_setpoin": {
                "units": "Degrees-Celsiu",
                "status": {
                    "level": 300,
                    "message": "'Source Point Value - Status' is '{ok}",
                    "category": "pointset.point.applied",
                    "timestamp": "2023-09-14T09:40:00.782Z"
                }
            },
            "supply_air_flowrate_sensor": {
                "units": "Cubic-feet-per-minute",
                "status": {
                    "level": 300,
                    "message": "'Source Point Value - Status' is '{ok}",
                    "category": "pointset.point.applied",
                    "timestamp": "2023-09-14T09:40:00.783Z"
                }
            }
        }
    },
    "version": "1.4.1",
    "timestamp": "2023-09-20T12:27:11.519Z"
}
```

UDMI MESSAGING AND VALIDATION

UDMI EVENT/SYSTEM Response to confirm config has been successful on previous CONFIG (as per Log)

```
mqtt.MQTTMessageListener (MQTTMessageListener.java:22) - Got Topic: /devices/AHU-42003/events/system and Message {"version":"1.4.1","timestamp":"2023-09-20T12:27:11.505
validator.UDMIMessageTopicValidator (UDMIMessageTopicValidator.java:21) - Validation OK for Topic: /devices/AHU-42003/events/system,
processor.MQTTMessageProcessor (MQTTMessageProcessor.java:175) - Received event:system message: com.simaxx.udmi.gateway.lib.UDMIEventSystem@3fcee61c, Payload: {"version'
processor.UDMIEventsSystemProcessor (UDMIEventsSystemProcessor.java:30) - NEW: AHU-42003 : com.simaxx.udmi.gateway.lib.UDMIEventSystem@3fcee61c
validator.UDMIMessageValidator (UDMIMessageValidator.java:30) - Payload validation OK!
```


```
{
    "version": "1.4.1",
    "timestamp": "2023-09-20T12:27:11.505Z",
    "logentries": [{
            "level": 300,
            "message": "'config' applied ok",
            "category": "system.config.apply",
            "timestamp": "2023-09-20T12:27:11.505Z"
        }
    ]
}
```

UDMI MESSAGING AND VALIDATION

UDMI EVENT/POINTSET message for (incoming telemetry)

```
2023-09-20 12:30:17,471 TRACE mqtt.MQTTMessageListener (MQTTMessageListener.java:22) - Got Topic: /devices/AHU-42003/events/pointset and Message {"version":"1.4.1","timestamp":"2023-09-20T12:30:17.437Z","points":{"return_air_flowrate_senso":{"present_value":50.643555438030056},
2023-09-20 12:30:17,474 DEBUG validator.UDMIMessageTopicValidator (UDMIMessageTopicValidator.java:21) - Validation OK for Topic: /devices/AHU-42003/events/pointset,
2023-09-20 12:30:17,476 DEBUG processor.UDMIEventsPointsetProcessor (UDMIEventsPointsetProcessor.java:155) - Received event:pointset message: com.simaxx.udmi.gateway.lib.dto.mqtt.UDMIReceivePointSetDto@708dba65, Payload: {"version":"1.4.1","timestamp":"2023-09-20T12:30:17.437Z"
2023-09-20 12:30:17,513 DEBUG processor.UDMIEventsPointsetProcessor (UDMIEventsPointsetProcessor.java:115) - new sample: { "udmiPointId":"4", "udmiPointName":"return_air_flowrate_senso", "udmiPointId":"4", "timestamp":"1695213017437", "value":"50.643555438030056"}
2023-09-20 12:30:17,540 DEBUG processor.UDMIEventsPointsetProcessor (UDMIEventsPointsetProcessor.java:115) - new sample: { "udmiPointId":"5", "udmiPointName":"supply_air_cooling_temperature_setpoin", "udmiPointId":"5", "timestamp":"1695213017437", "value":"50.60366575920738"}
2023-09-20 12:30:17,615 DEBUG processor.UDMIEventsPointsetProcessor (UDMIEventsPointsetProcessor.java:115) - new sample: { "udmiPointId":"6", "udmiPointName":"supply_air_flowrate_sensor", "udmiPointId":"6", "timestamp":"1695213017437", "value":"0.0"}
2023-09-20 12:30:17,666 DEBUG validator.UDMIMessageValidator (UDMIMessageValidator.java:30) - Payload validation OK!
```


```
{
    "version": "1.4.1",
    "timestamp": "2023-09-20T12:30:17.437Z",
    "points": {
        "return_air_flowrate_senso": {
            "present_value": 50.643555438030056
        },
        "supply_air_cooling_temperature_setpoin": {
            "present_value": 50.60366575920738
        },
        "supply_air_flowrate_sensor": {
            "present_value": 0.0
        }
    }
}
```

UDMI COMMISSIONING APP

simaxx Commissioning Dashboard

Simaxx Demo Site, Leigh

Reports

Commissioning Dashboard

Validate Selected Devices

Print QR Codes

BDNS Site ID	BDNS Asset	Section	Description	Simaxx Valid	Validate	Valid Date	View	QR
search…	*search…*	*search…*	*search…*	*search…*	*search…*	*search…*		
GB-EDH-ATRM	ELV-1	AT-0-LB1	Elevator - Atrium Bank 1-1		☐		>	☐
GB-EDH-B4	ELV-1	B4-0-LB1	Elevator - Building 4 Bank 1-1	2023/08/14	☐	2023/08/16	>	☐
GB-EDH-B5	ELV-1	B5-0-LB1	Elevator - Building 5 Bank 1-1	2023/08/14	☐		>	☐

UDMI COMMISSIONING APP

Current point value auto validation which is carried out includes :-

- Have values changed state within an expected time period?
- Are values between expected low and high?
- Do the points belong to the device?

simaxx Commissioning Dashboard

Simaxx Demo Site, Leigh

Reports

GB-EDH-B5 / ELV-1

Print Qr Code | Commission

Description	Elevator - Atrium Bank 1-1
Registation Date	*2023/08/14 - 08:00:00*
Validated	*2023/08/16 - 09:23:24*
Commissioned	*2023/08/20 - 12:00:01*

GB-EDH-B5 / ELV-1

Point Name	Point Type	Value	Time Stamp	Low Val	High Val	Bool Off	Bool On	Enum Values	Valid	Plot
Point 1	Numeric	21.1°C	2023/08/14 - 08:00:00	-10	40					
Point 2	Boolean	0 (OK)	2023/08/14 - 08:00:00			OK	Alarm			
Point 3	Enumerated	2 (Fire)	2023/08/14 - 08:00:00					Ok/Fault/Fire		

SIMAXX DAQ AND S-DAQ IMPLEMENTATION

QMILEGROUP

- 350,000 sq ft Grade A offices
- 190-room hotel
- 40,000 sq ft provisional retail
- Smart Building provision
- Full systems integration
- Unified data schema

THANK YOU AND ANY QUESTIONS?

Ged Tyrrell
Group CEO

Susan Gibson
Product Owner &
Delivery Manager

Thomas Hynes
Smart Buildings
Integration Manager

www.tbt.group