



## Product - Analytics

# Tyrrell Analytics

## Improving operational efficiency

- Fault Detection and Diagnostics
- Energy Management
- Integrate multiple data sources
- Automatically generate reports
- Exception reporting
- Saving blue-chip clients up to 30% on their energy spend.
- Customers such as Accenture, Morgan Stanley, AVIVA





# Energy Analytics

Compare multiple values against pre-defined KPIs. This graph shows the run hours on a Supply Fan from the BMS.

- Identifies normal operating hours and highlights total time running out of hours.
- Creates alerts to show inefficient operation and shows you how much those are costing the business
- Create virtual meters to calculate energy used and wasted through inefficiencies.
- Highlights wasted energy and carbon with clear advisory insights to resolve issues pushed to users





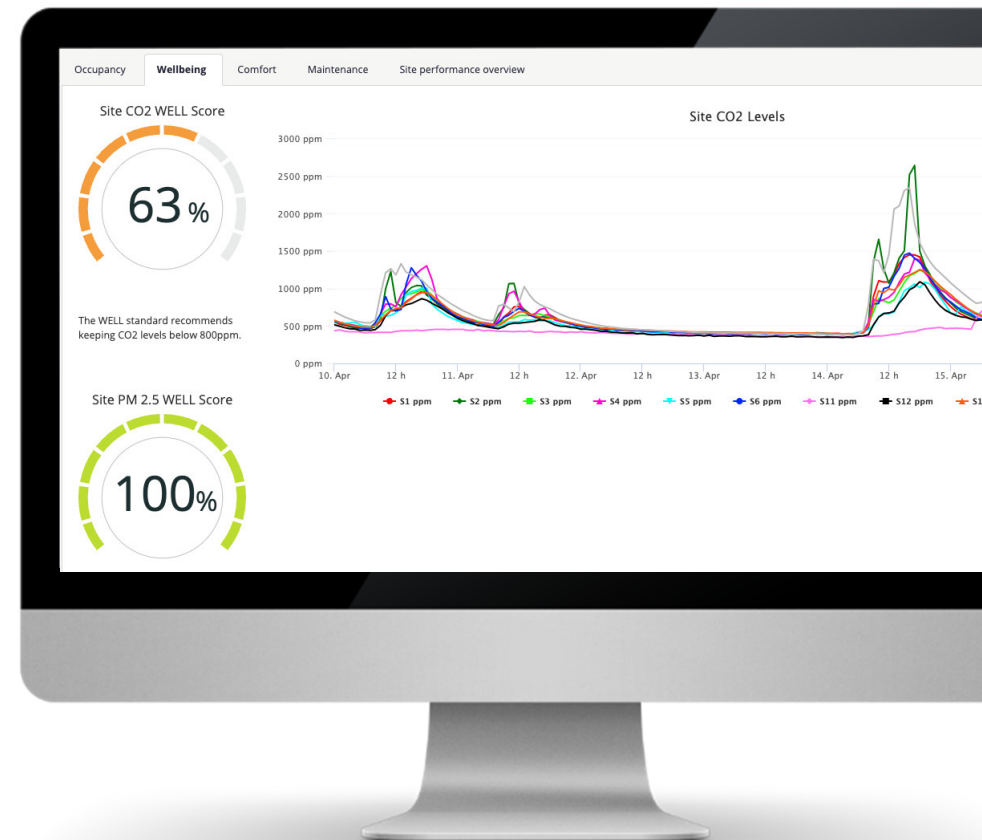
# Wellbeing

Assess and analyse **Indoor Environmental Quality** data historically and with the help of our insights engine, ensuring your workplace is a healthy and productive environment.

- Thermal Comfort
- Indoor Air Quality
- IEQ Index



Automated Reports user reports and dashboards ensure compliance with global standards such as WELL, using data from connected IOT devices, existing BMS systems, conference systems and via API based subscriptions.





# Space Utilization

Assess and analyse **Indoor Environmental Quality** data historically and with the help of our insights engine, ensuring your workplace is a healthy and productive environment.

- Thermal Comfort
- Indoor Air Quality
- IEQ Index

Automated Reports user reports and dashboards ensure compliance with global standards such as WELL, using data from connected IOT devices, existing BMS systems, conference systems and via API based subscriptions.

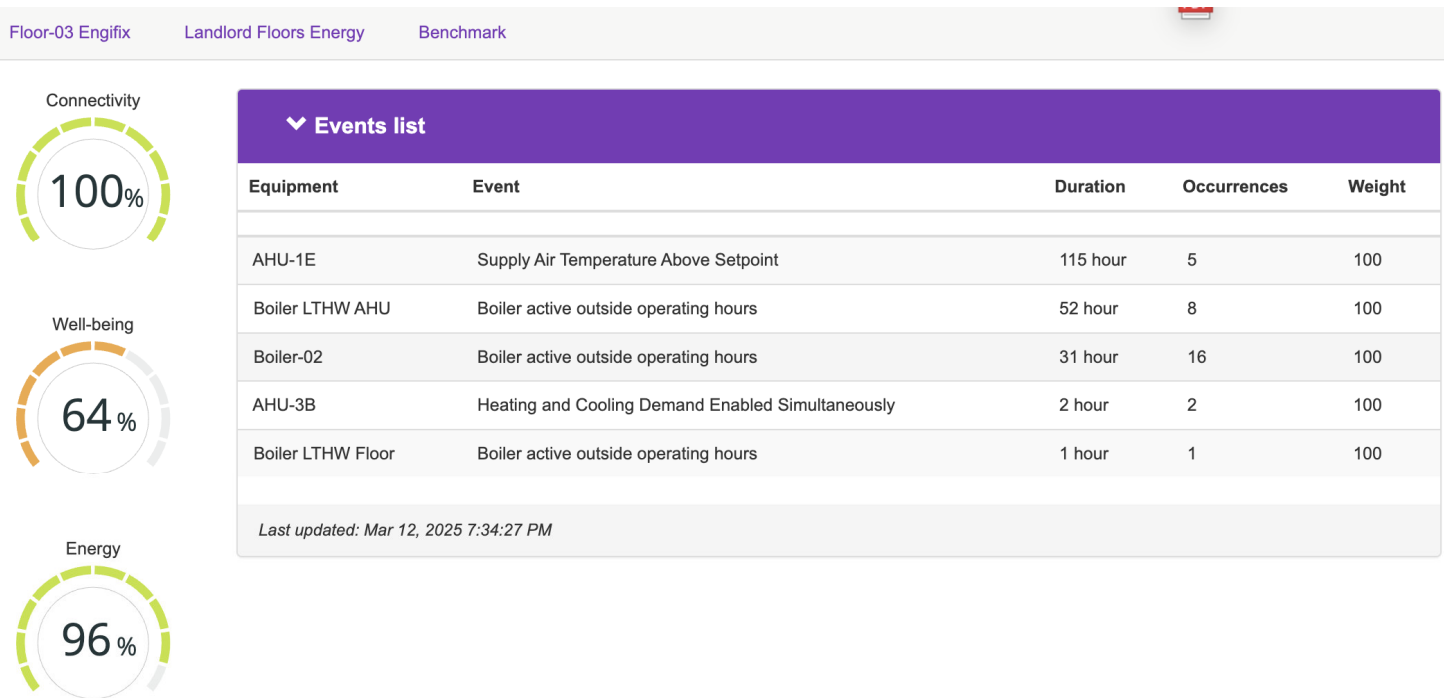


# Powerful Insights

Automated Insights based on a huge library of predefined rules, such as:

- o Plant operating out of hours
- o Passing valves
- o Heating and cooling concurrently

Send alerts via Email or Webhook to 3rd party application.

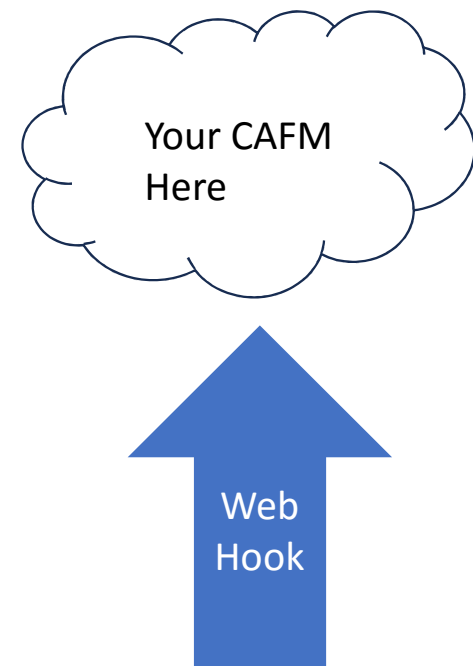




Send FDD alerts from the rules engine via Webhook to trigger workflows in your CAFM system!

Alerts are stored in the Analytics app and can be forwarded to the relevant team or person via Email, or using a Twilio connection (at additional cost) to send all alerts into a Teams channel or even via WhatsApp.

Rules for distribution of alerts depends on severity, device type, time and location.



| Equipment | Event                                             | Duration | Occurrences | Weight |
|-----------|---------------------------------------------------|----------|-------------|--------|
| AHU-3B    | Heating and Cooling Demand Enabled Simultaneously | 2 hour   | 2           | 100    |



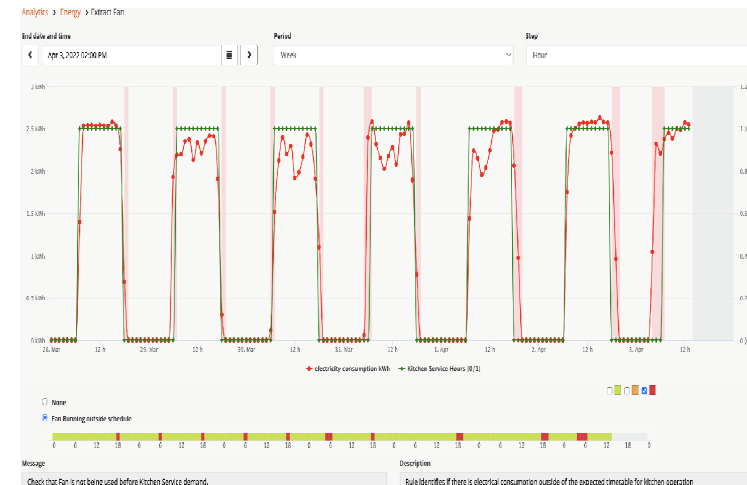
## Tyrrell Analytics

### Dashboard:

- Your data visualised your way
- Create and visualise KPIs for critical data such as WELL or Energy use (EUI).
- Have different dashboards based on each user.

### Energy and occupancy data reports

- Automated reports showing your insights:
  - Peak occupancy
  - Peak energy use
  - Occupancy v Energy v Comfort



# UDMI Device Qualification

2  
7

|                                                                                   |               |                                                                                               |                              |             |                   |                                                                                                                |                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------|------------------------------|-------------|-------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |               | Device Qualification ▾                                                                        |                              |             |                   | Demo Site - housing, Leigh  |                                                                                                                                                                                                                                                                   |
| ▼ Reports                                                                         |               | Search...  |                              |             |                   |                                                                                                                |                                                                                                                                                                                                                                                                   |
| Date ▼                                                                            | Supplier      | Manufacturer                                                                                  | Model                        | Description | Mac Address       | Qualified                                                                                                      |                                                                                                                                                                                                                                                                   |
| dd/MM/yy HI                                                                       | search        | search                                                                                        | search                       | search      | search            | search                                                                                                         |                                                                                                                                                                                                                                                                   |
| 21/09/23 09:48                                                                    |               |                                                                                               |                              |             | 00:00:54:37:68:D7 | PENDING                                                                                                        |          |
| 21/09/23 09:48                                                                    | AF Switchgear | MOXA SWITCH /<br>Provided AF Switchgear                                                       | 0000                         |             | 00:90:E8:00:00:10 | UNQUALIFIED                                                                                                    |          |
| 11/09/23 09:46                                                                    | Schinlder     | Schinlder                                                                                     | CUBE TIESSE                  |             | 00:0D:5A:10:01:FD | QUALIFIED                                                                                                      |          |
| 07/09/23 15:34                                                                    | FMS           | Avigilion                                                                                     | H4 Video Intercom            |             | 00:18:85:4B:E7:75 | PENDING                                                                                                        |       |
| 17/08/23 09:46                                                                    | FMS           | Gallegher                                                                                     | Controller-6000<br>Standard  |             | 00:90:1D:03:66:3D | QUALIFIED                                                                                                      |    |
| 17/08/23 09:21                                                                    | FMS           | Gallegher                                                                                     | Controller-6000 Two<br>Doors |             | 00:90:1D:02:C1:CE | QUALIFIED                                                                                                      |    |

# UDMI Device Qualification



 **Device Onboarding** Report Editor test, Nieuwegein 

Select a model to view its devices:

Onboard multiple devices:

Onboard a single device:

Export as Excel file:

▼ **Devices**

Approve all devices of this model

| Manufacturer                        | Model                               | BDNS Type                           | Description                         | MAC                                 | Date ▼                                      | Approved |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------------|----------|
| <input type="text" value="search"/> | <input type="text" value="search"/> | <input type="text" value="search"/> | <input type="text" value="search"/> | <input type="text" value="search"/> | <input type="text" value="dd/MM/yy HH:mm"/> |          |

Last updated:

Use the dropdown above to select a model and view its devices.

 **Device Onboarding** Report Editor test, Nieuwegein 

Select a model to view its devices:

Onboard multiple devices:

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Export as Excel file:

▼ **Devices**

Approve all devices of this model

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Last updated:

Use the dropdown above to select a model and view its devices.

Import progress

Progress by Manufacturer and Model:

|                    |                       |
|--------------------|-----------------------|
| Tridium, JACE8000  | Updated: 2 Added: 0   |
| <div></div>        | 100%                  |
| Kaliterra, SE-200P | Updated: 85 Added: 0  |
| <div></div>        | 100%                  |
| Xovis, PC25E-UL    | Updated: 262 Added: 0 |
| <div></div>        | 100%                  |

OK

# Device provisioning App




Device Onboarding
View
Demo Site - housing, Leigh


Select a model

Kaiterra, SE-200P

Xovis, PC2SE-UL  
Milesight, UG63  
Milesight, UG56  
Tridium, JACE8000  
Kaiterra, SE-200P

Onboard multiple devices

Upload Excel file

Onboard a single device

Onboard new device

Export as Excel file

Export

Approve all devices of this model

Search...

|          | BDNS Type | Description | MAC       | Date ▼            | Approved       |                                                                                                                                                                                                                              |
|----------|-----------|-------------|-----------|-------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| search   | search    | search      | search    | M/d/yy h:mm a     |                |                                                                                                                                                                                                                              |
| Kaiterra | SE-200P   | EAPPL       | IAQ_45002 | 88:C9:B3:D0:60:69 | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div>     |
| Kaiterra | SE-200P   | EAPPL       | IAQ_51002 | 88:C9:B3:D0:5F:85 | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div>     |
| Kaiterra | SE-200P   | EAPPL       | IAQ_50003 | 88:C9:B3:D0:55:77 | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div>     |
| Kaiterra | SE-200P   | EAPPL       | IAQ_47001 | 88:C9:B3:D0:56:3F | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div>     |
| Kaiterra | SE-200P   | EAPPL       | IAQ_45006 | 88:C9:B3:D0:5F:50 | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div>     |
| Kaiterra | SE-200P   | EAPPL       | IAQ_52004 | 88:C9:B3:D0:57:C1 | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div>     |
| Kaiterra | SE-200P   | EAPPL       | IAQ_47002 | 88:C9:B3:D0:64:B8 | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div>   |
| Kaiterra | SE-200P   | EAPPL       | IAQ_53007 | 88:C9:B3:D0:55:8D | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div> |
| Kaiterra | SE-200P   | EAPPL       | IAQ_53004 | 88:C9:B3:D0:55:C2 | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div> |
| Kaiterra | SE-200P   | EAPPL       | IAQ_50004 | 88:C9:B3:D0:66:D2 | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div> |
| Kaiterra | SE-200P   | EAPPL       | IAQ_53006 | 88:C9:B3:D0:67:DC | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div> |
| Kaiterra | SE-200P   | EAPPL       | IAQ_46001 | 88:C9:B3:D0:55:BA | 15/01/24 10:12 | <input checked="" type="checkbox"/> <div>   </div> |

# UDMI commissioning app

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0



Reports

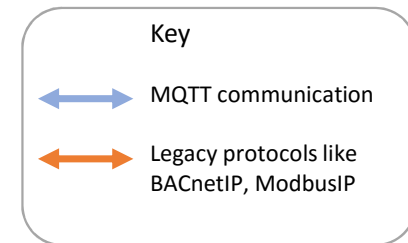
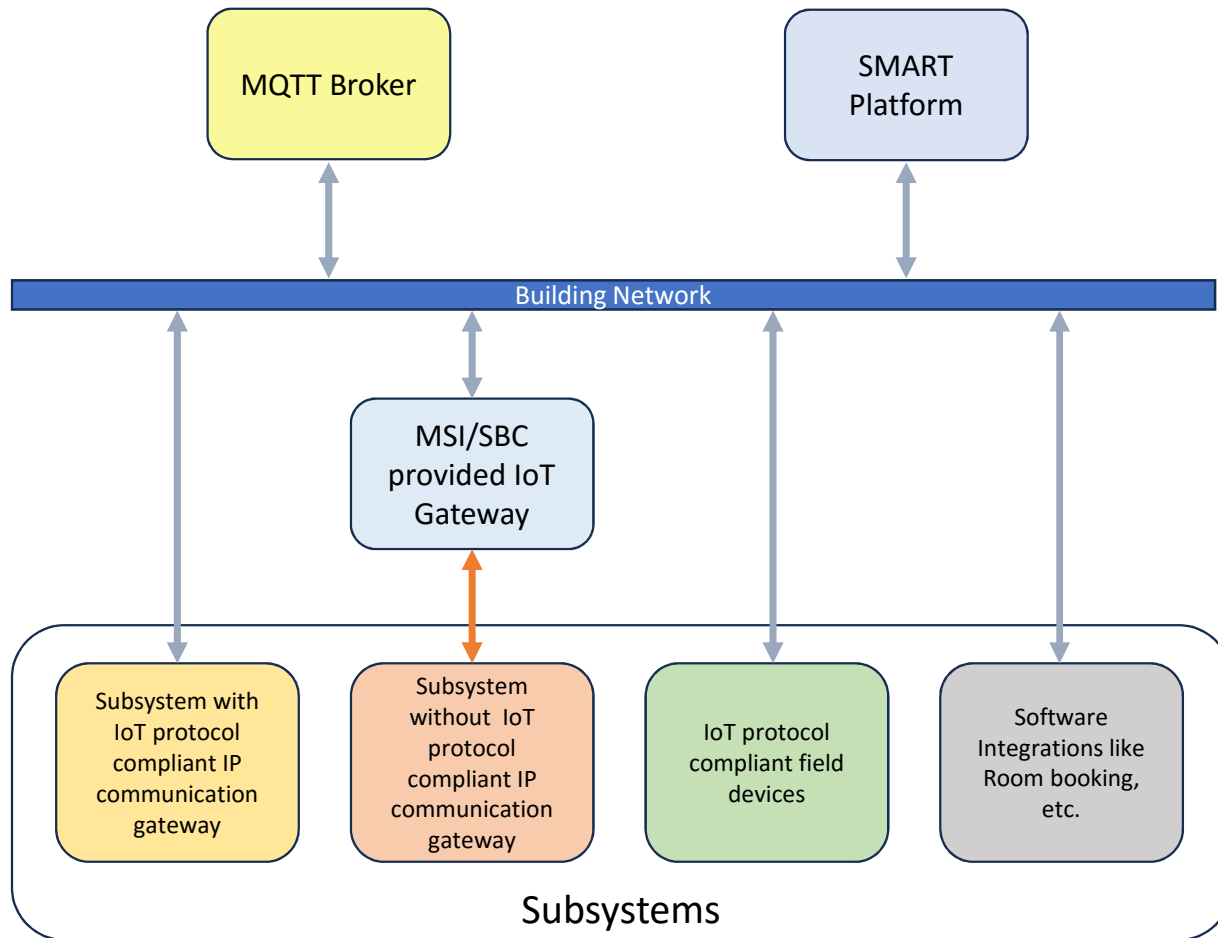
Commissioning Dashboard

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     |              | <input type="checkbox"/> |            | >    | <input type="checkbox"/> |
| GB-EDH-B4    | ELV-1      | B4-0-LB1  | Elevator - Building 4 Bank 1-1 | 2023/08/14   | <input type="checkbox"/> | 2023/08/16 | >    | <input type="checkbox"/> |
| GB-EDH-B5    | ELV-1      | B5-0-LB1  | Elevator - Building 5 Bank 1-1 | 2023/08/14   | <input type="checkbox"/> |            | >    | <input type="checkbox"/> |

# System Architecture



- Each sub-system will be configured such that each device/IoT gateway will expose points in the specified IoT messaging protocol (MQTT). If sub-system devices cannot publish data in MQTT, Tyrrell Systems will provide an integration gateway, and the sub-system contractor will need to make the data available over an open protocol.

