

# IOTWeek

Dublin — June 20-23, 2022

## What to test for IoT?

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**GLOBAL VISION:**

**IoT TODAY AND BEYOND**

**IOTForum**

# IoT Wireless Communication

- Antenna and radio frequency (RF).
- Wireless connectivity.
- Wireless range.
- Wireless interoperability:
  - Association and disassociation.
  - Different radio options or spectrum ranges (2.4 – 6 GHz for Wi-Fi).
  - Different security modes: for example, WEP and WPA for Wi-Fi.
- Battery life, power consumption.
- Certifications like FCC and cellular certifications in USA.



- Conformance and interoperability:
  - 6LoWPAN
  - 6TiSCH
  - AMQP (Advanced Message Queuing Protocol)
  - CoAP (Constrained Application Protocol)
  - Lightweight M2M
  - LoRa.
  - MQTT (Message Queuing Telemetry Transport)
  - OneM2M
  - Etc.

- In the context of specific applications and use cases:
  - Smart city applications
  - Manufacturing industry
  - eHealth
  - Etc.
- Tests against related standards such as:
  - Web of Things (WoT)
  - IPSO
  - LwM2M
  - SenML (Sensor Measurement Lists)
  - Etc.

- Server/client approach (CoAP for instance).
- Assessment of number of nodes supported.
- Reliability of communications.
- Characterization of the workload.
- Interactions with edge, fog and cloud computing.
- Response time of an IoT system.
- Etc.

- Check the usage of secured protocols (HTTPS).
- Encryption.
- Tokens such JWT (JSON Web Tokens).
- Detection of vulnerabilities.
- Configuration of IoT devices.
- Use of strong passwords.
- Configuration of IoT networks.




- Automated detection of personal/sensitive data exchanged in an IoT deployment:
  - IPv4 and IPv6 addresses
  - MAC addresses
  - Locations
  - Unique identifiers such as IDs, URIs, URNs, email addresses
  - Personal data like names
  - Etc.
- Requirements from GDPR and other similar regulations.

# An example of IoT testbed



IoT Lab is a research platform exploring the potential of crowdsourcing and Internet of Things for multidisciplinary research with more end-user interactions. It gives the power to the crowd to be at the core of the research and innovation process. It gives you the power to change the world and the way we understand it.

**IoT Lab in a nutshell**  
What, How, Who

 IoT Lab

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- Based on crowdsourcing and crowdsensing.
- Access to different types of resources:
  - IoT sensors
  - IoT actuators
  - Sensors installed on smartphones
  - Surveys
  - Mobile application
  - <https://www.iotlab.eu/>



# An example of IoT testbed: IoT Lab

IoT Lab testbed is accessible through:

- Its website: <https://iotlab.eu/>
- jFed tool
- Fed4FIRE+ portal
- SLICES portal

Sort By: Name Creation Date Expiration Date Resource Count

<b>iotlab-test-slice</b> in <i>iotlab_test</i> ❖ Created: Tue, Mar 8, 2022 10:41 AM ⌄ Expiring: Tue, Mar 8, 2022 11:58 AM ### Testbeds: None 📄 RSpec: <a href="#">Request RSpec</a> <a href="#">Manifest RSpec</a>	<b>test</b> in <i>iotlab_test</i> ❖ Created: Fri, Feb 25, 2022 4:16 PM ⌄ Expiring: Fri, Feb 25, 2022 4:28 PM ### Testbeds: None 📄 RSpec: <a href="#">Request RSpec</a>
<b>accelerometer-1101</b> in <i>iotlab_test</i> ❖ Created: Fri, Jan 28, 2022 10:52 AM ⌄ Expiring: Fri, Jan 28, 2022 11:52 AM ### Testbeds: None 📄 RSpec: Not available	<b>accelerometer-1100</b> in <i>iotlab_test</i> ❖ Created: Fri, Jan 28, 2022 10:51 AM ⌄ Expiring: Fri, Jan 28, 2022 11:51 AM ### Testbeds: None 📄 RSpec: Not available

The logo for IOTWeek, with 'IOT' in a multi-colored font (blue, orange, pink) and 'Week' in white. The background is a dark, dimly lit conference hall with rows of chairs and a stage area.

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# Thank you!

**Find more:**

<https://iotlab.com>

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[iotweek.org](https://iotweek.org)