AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

IOT315

Accelerate your IoT designs with IoT communication modules

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aws

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Agenda

Solving challenges with AWS IoT ExpressLink

AWS IoT ExpressLink secure connectivity

AWS IoT ExpressLink telematics

AWS IoT ExpressLink over-the-air updates

Open discussion

Wrap-up

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Why do you need AWS IoT ExpressLink?

Streamlines provisioning and connectivity

Built-in AWS IoT credentials, Transport Layer Security (TLS), AWS IoT endpoint connectivity, and AWS IoT operation encapsulation.

Reduces host processor requirements

TLS, TCP/IP, and cryptography libraries run on the module, freeing flash and RAM for core applications on the microcontroller or microprocessor.

Simplifies programmability

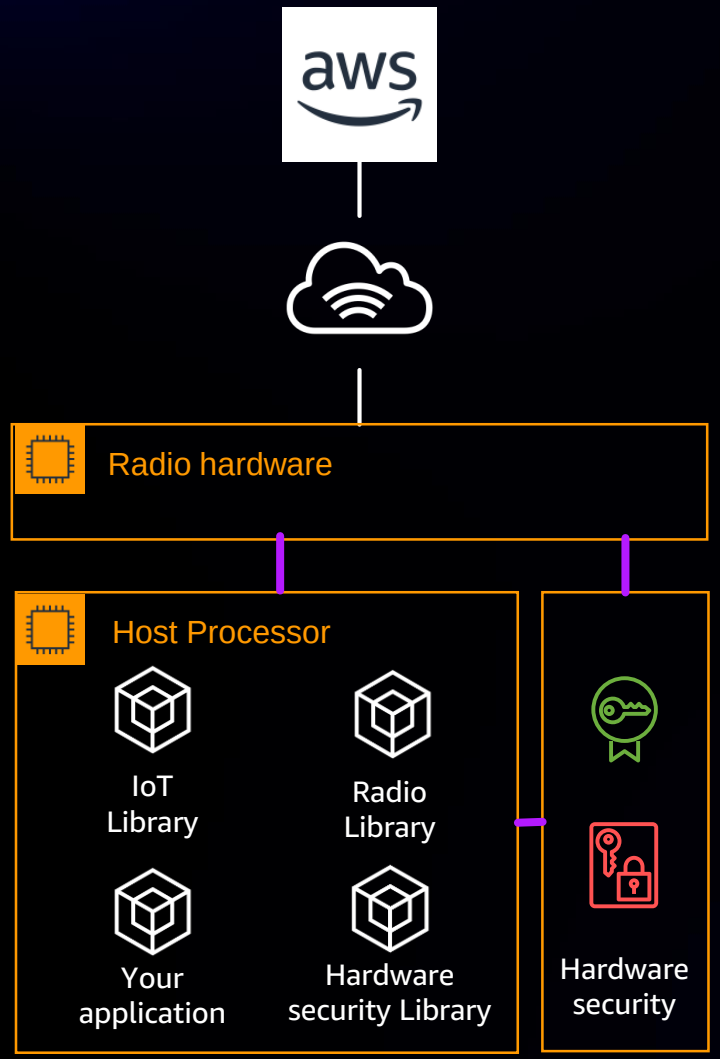
Traditional ATtention (AT) command mechanisms from host to module over serial connections reduces integration complexity.

Simplifies integration across hardware capabilities

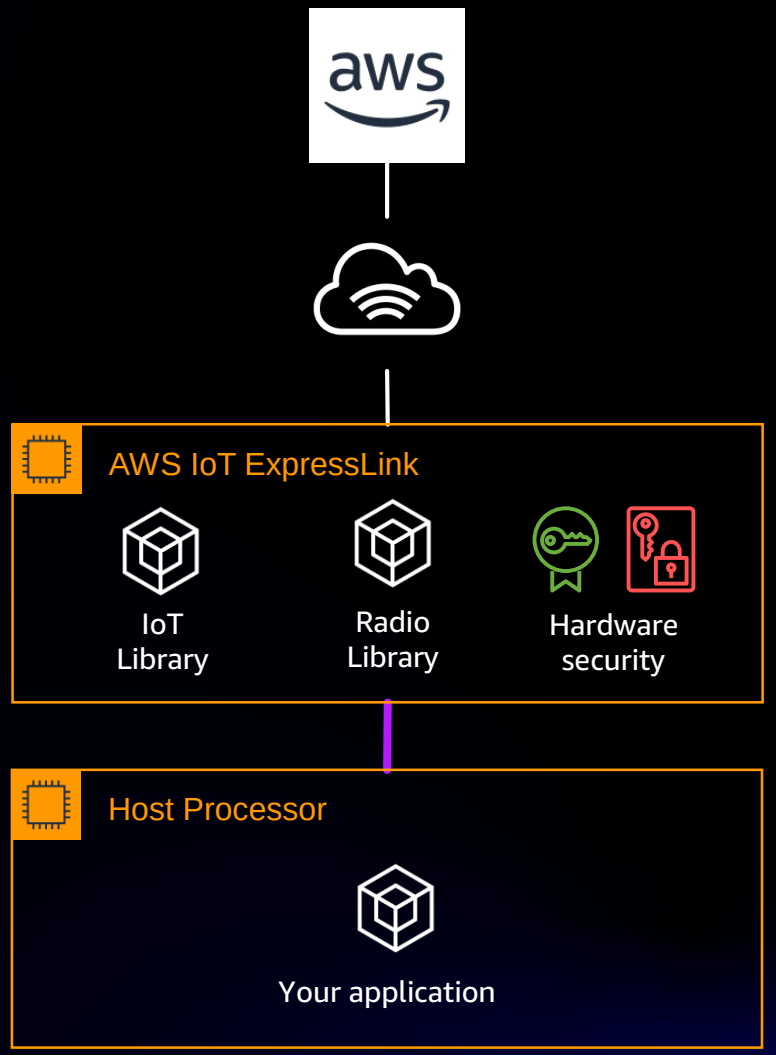
Bundled best practices eliminates the traditional orchestration between host core, communications module, and security module.

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Without AWS IoT ExpressLink



With AWS IoT ExpressLink



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AWS IoT ExpressLink secure connectivity

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AWS IoT ExpressLink secure connectivity

`AT+CONNECT`

Secure connectivity with a single command.
A single command does all the heavy lifting for you – no more vendor specific connect and disconnect logic.

IoT ExpressLink handles all the secure hardware wiring so your app enjoys safe and secure connectivity driven by an immutable root of trust and certificates issued by the manufacturer.

`AT+DISCONNECT`

`AT+SLEEP{n}`

Control the connectivity life cycle.
Actions to disconnect and put the module into low power gives you the control you need to manage behavior influenced by issues such as power and radio range.

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AWS IoT ExpressLink secure connectivity demonstration

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AWS IoT ExpressLink telematics

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AWS IoT ExpressLink telematics overview

```
AT+CONF TopicRoot={root}
AT+CONF Topic{n}={value}
```

Example:

```
AT+CONF TopicRoot=795025edef
AT+CONF Topic0=temp
AT+CONF Topic1=message
```

Configure topics for simplified programmability.
Topic configuration simplifies how your application references topics and reduces the amount of data transferred across serial for every invocation.

```
AT+SEND {topic} message
AT+SEND{n} message
```

Example:

```
AT+SEND 795025edef/temp 98.7
AT+SEND0 98.7
```

Publish to topics in a long or short form.
Invoking the publish operation using the full topic name or the topic reference. For example, use topic references when sending data having different purposes.

```
AT+SUBSCRIBE{n}
AT+GET{n}
```

Example:

```
AT+SUBSCRIBE1
AT+GET1
```

Subscribe to topics and receive data the way you want it.
Subscribing to and receiving data from a topic requires topic configuration unless receiving all data from any topic.

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AWS IoT ExpressLink telematics demonstration

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AWS IoT ExpressLink over-the-air updates

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AWS IoT ExpressLink over-the-air updates

MODULE AND HOST PROCESSOR FIRMWARE UPDATE

Start secure and stay secure

Manufacturer-provided AWS IoT ExpressLink firmware updates maintain module security driven by AWS IoT Device Management

AT+OTA ACCEPT	Acknowledging and accepting update availability Your host application decides when to accept an update download and by means of an AWS IoT Jobs notification
AT+OTA APPLY	Apply a module update and reset on your terms. Subscribing to and receiving data from a topic requires topic configuration unless receiving all data from any topic.
AT+OTA READ {count} Example: AT+OTA READ 256	Apply a host processor update and reset on your terms. Read the bytes from the module so the application can persist the firmware update bytes to an A/B flash partition.

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AWS IoT ExpressLink over-the-air updates demonstration

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AWS IoT ExpressLink concepts recap

- Simplify connectivity, provisioning, programmability, and design-in
- Built-in security reduces design and integration concerns
- Simplified publishing and subscribing reduces application complexity
- Keep devices secure on both the module and host processor with over-the-air updates

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Open discussion

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Call to action

- Ask your AWS team about AWS IoT ExpressLink
- See additional details about AWS IoT ExpressLink
  - https://aws.amazon.com/iot-expresslink
- Ask our partners for evaluation kits
  - https://aws.amazon.com/iot-expresslink/partners
- Evaluate AWS IoT ExpressLink for your next design

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Thank you!

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