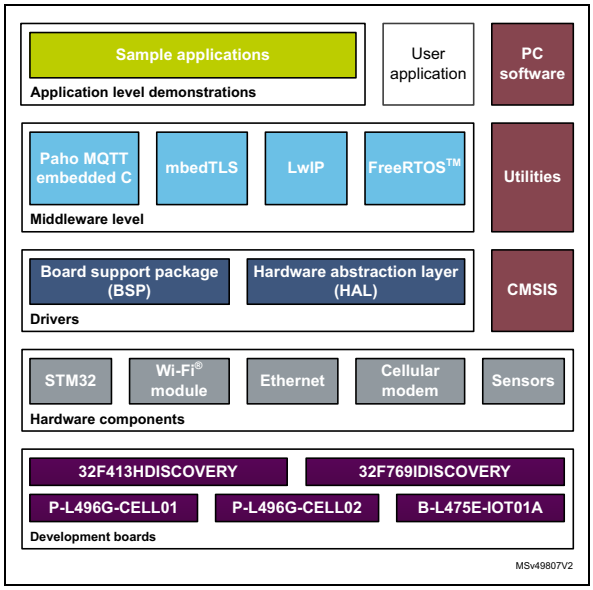
X-CUBE-CLD-GEN

IoT cloud generic software expansion for STM32Cube

Data brief

Features

- Ready-to-run firmware examples with Wi-Fi®, Ethernet, or cellular connectivity to support quick evaluation and development of IoT cloud applications using MQTT and HTTP protocols
- Connectivity to several IoT cloud platforms:
  - MQTT protocol: Eclipse Mosquitto™, Ubidots
  - HTTP protocol: Exosite, Grovestreams, Ubidots
- Cloud communication protocols kept as generic as possible, allowing easy migration of applications to different cloud providers
- TLS encryption
- Cellular, Ethernet and Wi-Fi® connectivity
- Telemetry data reporting
- LED remote control



Description

The X-CUBE-CLD-GEN Expansion Package consists of a set of libraries and application examples for STM32L4 Series, STM32F4 Series, and STM32F7 Series microcontrollers acting as end devices.

X-CUBE-CLD-GEN runs on five platforms. The B-L475E-IOT01A and 32F413HDISCOVERY support Wi-Fi® connectivity with an on-board Inventek ISM43362 module. The 32F769IDISCOVERY board provides a native Ethernet interface. The P-L496G-CELL01 and P-L496G-CELL02 packs, with the 2G/3G Quectel UG96 and LTE Quectel BG96 cellular modem daughterboards respectively, support cellular connectivity.

For the five platforms, the sample applications configure the network connectivity parameters, and illustrate the various ways for a device to interact with the cloud.

An application shows how an MQTT client can connect to an MQTT broker in order to publish data and receive parameter updates or commands from the cloud.

Device authentication through MQTT login and password is supported. TLS encryption, server authentication and device authentication are supported.

The MQTT broker can be a self-administrated server like Eclipse Mosquitto™, or the Ubidots cloud platform.

Other applications also demonstrate how a simple HTTP client can connect to either Exosite, Grovestreams or Ubidots cloud platforms using the HTTP or HTTPS protocol.

The B-L475E-IOT01A board reports telemetry data such as measurement of humidity, temperature, 3-axis magnetic, acceleration, and gyroscope data, atmospheric pressure and distance.

Ordering information

X-CUBE-CLD-GEN is available for free download from the *www.st.com* website.

License

X-CUBE-CLD-GEN is delivered under the *Mix Ultimate Liberty+OSS+3rd-party V1* license.

The software components provided in this package come with different license schemes as shown in *Table 1*.

For more details, refer to the license agreement of each component.

Table 1. Software component license agreements

Software component	Owner	License
cJSON	Dave Gamble and cJSON contributors	MIT
Paho mqtt embedded C	IBM®	Eclipse™ Public License - v 1.0
Board Support Package (BSP)	STMicroelectronics	Open source BSD
Cortex®-M CMSIS	Arm®	Open source BSD
FreeRTOS™	2016 Real Time Engineers Ltd	Modified GNU GPL(1)
HAL STM32 L4/F4/F7	STMicroelectronics	Open source BSD
eS-WiFi Inventek driver	STMicroelectronics	Ultimate Liberty (source release)
LwIP	2001-2004 Swedish Institute of Computer Science	Open source BSD
mbedTLS	Arm®	Apache® License - Version 2.0
Project examples	STMicroelectronics	Ultimate Liberty (source release)

1. The FreeRTOS™ source code is licensed by a modified GNU General Public License, the modification taking the form of an exception. The exception permits the source code of applications that use FreeRTOS™ and are distributed as executables to remain closed source, thus permitting the use of FreeRTOS™ in commercial applications without necessitating that the whole application to be open sourced.

The X-CUBE-CLD-GEN Expansion Package runs on STM32 microcontrollers, based on Arm®(a) cores.

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a. Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

Revision history

Table 2. Document revision history

Date	Revision	Changes
26-Mar-2018	1	Initial release.