



PLC Sub-Device Connectivity

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Power Line Communication (PLC) sub-device connectivity is designed to help you easily develop PLC gateways. Tuya's hardware and software-integrated solution provides PLC module and software implementation, allowing you to build a PLC gateway with no code and connect to PLC sub-devices in the Tuya ecosystem. This topic describes how to use the PLC features with the TuyaOS Gateway Development Framework.

1. Background information

Developing a PLC gateway has a high barrier to entry and a long development cycle. Tuya's hardware and software-integrated solution makes complicated gateway development simple. Even if you do not have any PLC knowledge, you can build a PLC gateway cost-effectively.

Connect your hardware to Tuya's PLC module through the serial port and enable PLC features in the software. Then, your product becomes PLC-capable and can connect to Tuya-enabled sub-devices.

2. Development guide

This section describes how to enable PLC features with the TuyaOS Gateway Development Framework by making API calls.

Two interfaces are used to enable PLC features: PLC initialization

`tuya_plc_svc_init` and PLC startup `tuya_plc_svc_start`. They have the same parameters in JSON used for configurations.

2.1. Configuration description

Fields in the JSON data:

Field	Description
<code>dev_name</code>	Specifies the serial port number.
<code>cts</code>	Specifies whether to enable hardware flow control. Valid values: 1 : Enable 0 : Disable Whether to enable hardware flow control depends on the PLC module you use.
<code>baud_rate</code>	The baud rate for serial communication between the PLC module and the gateway's microcontroller chip. Set the baud rate according to the requirements of the PLC module you use.

2.2. Example

```
1 // ...
2 #include "user_plc_svc.h"
3 int main(int argc, char **argv)
4 {
5     ty_cJSON *app_cfg = ty_cJSON_CreateObject();
6     if (app_cfg == NULL) {
7         return OPRT_CJSON_GET_ERR;
8     }
9     ty_cJSON_AddStringToObject(app_cfg, "storage_path", "./");
10    ty_cJSON_AddStringToObject(app_cfg, "cache_path", "/tmp/");
```

```
11
12 // Set a storage path
13 TUYA_CALL_ERR_RETURN(tuya_set_config(app_cfg));
14
15 ty_cJSON *plc_cfg = ty_cJSON_CreateObject();
16 if (plc_cfg == NULL) {
17     return OPRT_CJSON_GET_ERR;
18 }
19 ty_cJSON_AddStringToObject(plc_cfg, "dev_name", "/dev/ttyS2");
20 ty_cJSON_AddNumberToObject(plc_cfg, "cts", 1);
21 ty_cJSON_AddNumberToObject(plc_cfg, "baud_rate", 921600);
22
23 // Initialize the PLC service
24 TUYA_CALL_ERR_RETURN(tuya_plc_svc_init(plc_cfg));
25
26 // Start the PLC service
27 TUYA_CALL_ERR_RETURN(tuya_plc_svc_start(plc_cfg));
28
29 // ...
30
31 return 0;
32 }
```