

Fleet Hub Technical White Paper

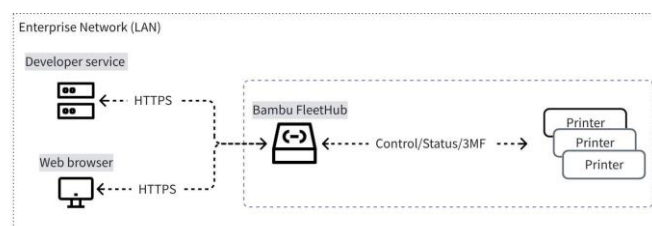
v1.0

Version

Version	Date	Description
v1.0	2026-05-20	Initial version

Preface

Bambu Lab Fleet Hub is an on-premise integration platform, and based on secure hardware and software design, that delivers secure local API access to Bambu 3D printer fleets. Deployed within your infrastructure, it enables seamless connectivity with existing corporate systems, while ensuring data storage and transmission paths remain fully controllable by your organization.



- **Enterprise Security** – Pure LAN deployment with end-to-end TLS/mTLS encryption and hardware secure boot, keeping model files within your governed network paths.
- **Scalable Stability** – Fleet Hub supports concurrent management of up to 50 printers, delivering real-time status sync, HMS alerts, and filament modifying with batch print initialization across devices.
- **Seamless System Connectivity** – Unified, well-documented RESTful APIs abstract protocol complexities, enabling rapid ERP/MES integration and unified management across Bambu Lab printer models.

See *Bambu Lab Fleet Hub Security White Paper v1.0* for detailed security specifications.

Please note: Printers managed by Fleet Hub operate exclusively on LAN and cannot be accessed via Bambu Handy or cloud services.

1. Product Introduction



1.1 Hardware Parameters

Parameter	Specification
Dimensions (L x W x H)	100mm x 85mm x 28mm
Casing Material	Aluminum alloy
Processor	Quad-core ARM
Memory	2GB
Storage	64GB eMMC
Network	Ethernet, 100Mbps bandwidth
Ambient temperature	Operating Temperature: 0°C to 40°C

Power Requirements	5V 3A
Typical Power	5W
Power Interface	Type-C

1.2 Hardware Interface Description

Interface	Description
USB Type-A Interface	Used for USB flash drive during upgrades and log exports
Network Port	Establishes communication links with printers and developer API integrations
DC-JACK	Type-C power interface
MicroSD Card Slot	Reserved, currently not supported
LEDs	3 LED indicators for SYS NET and USB

1.3 LED Indicators

Three dual-color LEDs indicate system status (green/off during normal operation).

- **SYS LED:**

Status	SYS LED
System initialization	Solid red
Hub is activated	Solid green
Hub is not activated	Slow green blink (0.5Hz)
Hub is undergoing an upgrade	Fast green blink (2Hz)
unrecoverable software failure	Slow red blink

(persists after restart. Contact technical support)	
Firmware upgrade failed	Fast red blink

- **NET LED:**

Status	NET LED
No Ethernet connection	LED off
DHCP in progress	Slow green blink
DHCP failed	Solid red
IP assigned but no gateway	Slow red blink
Network connected	Solid green

- **USB LED:**

Status	USB LED
No USB device	LED off
USB read-only or unsupported format	Solid red
USB connected and idle	Solid green
USB active — do not remove	Slow green blink

1.4 Software Components

Module	Component Name	Version
Kernel	Linux	v6.1
Crypto library	openssl	v3.2.1
	go	v1.2
MQTT Broker	mochi-mqtt	v2.6.0

Web Server	lighttpd	v1.4.73
HTTP Server	go-zero	v1.6.3
NTP Server	chrony	v4.6.1

HTTP Server: Provides developer APIs and printer-specific APIs.

i) Developer APIs: Provides API services for managing and controlling multiple printers - Fleet Hub's primary function.

ii) Printer-specific APIs: Used for transferring model files, firmware, and camera snapshots.

MQTT Broker: Establishes MQTT channels with printers using a publish-subscribe mechanism, the channels are used solely for communication between the Hub and the printers. Fleet Hub serves as the broker, transmitting control commands to printers and receiving status messages.

Web Server: Provides printer management for printer binding and firmware updates, as well as an operations and maintenance interface for viewing Hub device status, updating Hub firmware, and log exporting.

1.5 Network Ports

Port	Function description
TCP/443	TLS based Web Server, enabled only after a Web account has been configured
TCP/1883	mTLS based MQTT Broker for printers connection
TCP/8888	mTLS based HTTP Server
UDP/1990 1991 2021 2022	SSDP

1.6 Supported Printer List

Printer Model	Minimum Firmware Version	Detailed Information	Firmwares
---------------	--------------------------	----------------------	-----------

A1/A1 Mini	v01.08.00.00	See details Wiki	Download
P1P/P1S	v01.09.00.00	See details Wiki	
X1C	v01.09.00.00	See details Wiki	
X1E	v01.01.03.12	See details Wiki	
H2D	v01.02.00.00	See details Wiki	
H2D Pro	v01.01.00.00	See details Wiki	
H2S	v01.02.00.00	See details Wiki	
P2S	v01.02.00.00	See details Wiki	
X2D	v01.01.00.00	See details Wiki	

2. Hub System Functions

2.1 Network Connection

2.1.1 DHCP Network Configuration

Connect the network cable to enable automatic IP assignment via DHCP.

The NET LED turns solid green upon successful network connection.

2.1.2 Static IP Configuration

Configure static IP when DHCP assignment fails or specific addressing is required.

After inserting the USB flash drive with the following configuration file, the static IP function will be enabled.

- File name: "set_net_ip"
- File content format:

```
Go
```

```
ip=10.20.xx.xx
dns1=10.20.xx.xx
dns2=10.20.xx.xx
gateway=10.20.xx.xx
mask=255.255.255.0
```

If the content of this file is empty, the hub will resume the DHCP dynamic IP application method.

2.1.3 Connect to Enterprise Network

Enterprise networks provide enhanced security through advanced access controls. Enterprise connectivity requires additional authentication files configured via USB.

- File name: "enterprise_network"
- Consult IT department for authentication requirements and credential files.

Fleet Hub Supported Enterprise Network Configuration Table

Mode	enterprise_network config format	Mode	enterprise_network config format
TLS	eap=TLS identity=username ca_cert=CA.cer private_key=test.pfx password=userpasswd domain=user_company_domain.com	TTLS	eap=TTLS identity=username password=userpasswd domain=user_company_domain.com phase2=MSCHAPV2
TLS	eap=TLS identity=username private_key=test.pfx password=userpasswd	TTLS	eap=TTLS identity=username password=userpasswd domain=user_company_domain.com phase2=MSCHAPV2 ca_cert=CA.cer
PEAP	eap=PEAP identity=username password=userpasswd phase2=MSCHAPV2	TTLS	eap=TTLS identity=username password=userpasswd domain=user_company_domain.com

			phase2=MSCHAP
TTL S	eap=TTLS identity=username password=userpasswd domain=user_company_domain.com phase2=MSCHAPV2 ca_cert=CA.cer	TTLS	eap=TTLS identity=username password=userpasswd domain=user_company_domain.com phase2=MSCHAP ca_cert=CA.cer

2.1.4 SSDP Device Discovery

Fleet Hub supports SSDP-based device discovery, enabling automatic detection of Hub devices within the same subnet.

Discovery requests use multicast address 239.255.255.250 on UDP port 1990/1991. Also supports device discovery via ports 2021/2022 using the SSDP broadcast address 255.255.255.255, suitable for network environments that do not support multicast.

Fleet Hub responds with device information including IP address, serial number, and service port.

If the user has access to view network devices, they can search for Fleet Hub within the router management interface or other network device management tools. When connected, Fleet Hub exhibits the following characteristics:

- Device name: "Bambu-Fleet Hub-XXXXX", Where XXXXX represents the last 5 digits of the device's SN.
- MAC: The device MAC address falls within the range 5C-F8-38-31-XX-XX.

2.1.5 Manually Obtain Device IP

Use USB flash drive to retrieve device IP when SSDP does not detect the Hub device.

Insert USB drive and wait 20 seconds for automatic creation of status.txt containing network configuration. The "manual ip" false option indicates that the current IP address was obtained via DHCP.

```
Plain Text
status.txt
{
```



```
    "network": {
      "dns1": "192.168.0.101",
      "dns2": "192.168.0.102",
      "gateway": "10.20.202.1",
      "ip": "10.20.202.32"
      "mac": "26:FC:00:00:00:00",
      "manual ip": false,
      "mask": "255.255.255.0"
    },
    "upgrade": {
      "version": "01.00.01.00"
    }
  }
}
```

2.2 Device Activation

Activate Fleet Hub before initial use through the following process.

2.2.1 Developer Center Authorization Configuration

After reading and agreeing to the Developer Agreement in the Developer Center, complete the developer authorization. The developer may then proceed to configure the security credentials, including the Activation Key and Client Certificate.

2.2.1.1 Activation Key

This key serves as the credential used by developers to access Bambu cloud services during the Fleet Hub activation process. During device activation, the system utilizes this key to submit the necessary device identifiers and certificate information, thereby retrieving the data required to complete the activation. This key is not used for local API communication within Fleet Hub.

Key format: fh_sk_live_<40-char-random>

```
JSON
Activation Key
fh_sk_live_0123456789012345678901234567890123456789
```

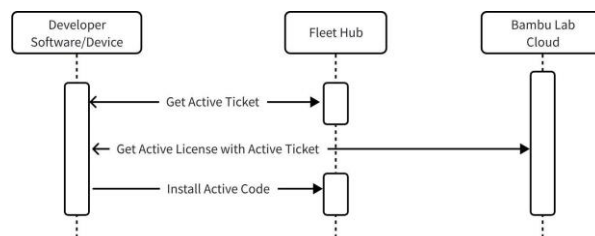
2.2.1.2 Client Certificate

This certificate is used by clients to establish secure communication with the Fleet

Hub API. Fleet Hub employs a mutual TLS (mTLS) mechanism for authentication; the endpoint certificates used during this communication are X.509 certificates issued by Bambu Lab.

Developers are required to pre-generate a public-private key pair and upload the public key to the Developer Center. Upon confirmation, a client certificate will be automatically issued for that public key. Currently, the system supports the issuance and storage of up to five client certificates. A signature algorithm of at least RSA 2048 must be used.

2.2.2 Activation Flow



Activation verifies developer service certificates and generates activation tickets. The Active Ticket contains Fleet Hub's SN and the developer certificate information.

Upload activation tickets to Bambu Lab cloud to receive Active Code. Fleet Hub will verify the signature information of the Active Code; if verified, activation is successful.

Successful activation displays solid green SYS LED.

Factory reset clears all activation data and returns device to unactivated state.

2.2.3 Local Account

Fleet Hub isolates the Local API Account and the Web Client Account. During Fleet Hub deployment, users can set separate account passwords. The Local API Account is used for subsequent API calls and is therefore mandatory; the Web Client Account is used to enable the Web Client and is optional.

2.2.3.1 Local API Account

- A Local API account must be created during activation. This serves as the credential for subsequent HTTP access and login.
- Only one local API account is supported.

- The account and secret key are stored only in the secure area inside the Hub.
- Passwords require a minimum of 8 characters with mixed case, numbers, and symbols.

2.2.3.2 Local Web Account

- The Web account is independent of the local API account and can only be created via protocol interaction using the API account.
- The web account is optional. You can log in to the built-in web only after creating it.
- Only one web account is supported.
- The account and secret key are stored only in the secure area inside the Hub.
- Passwords require a minimum of 8 characters with mixed case, numbers, and symbols.

2.2.4 Token

After successfully logging into Fleet Hub with the Fleet Hub API Account, the developer service will obtain a token for subsequent API requests. This token is implemented using the open standard JWT and is only valid for a short period. After it expires, you can log in again to obtain a new token.

2.3 HTTP API

The HTTP API serves as the primary means of interaction with Fleet Hub.

The following is a list of the key functionalities provided by the HTTP API.

Functions	Access Credential
Hub device activation	Client Certificate
Printer discovery	Local API Account
Printer bind/unbind	Local API Account
Printer status and control	Local API Account
Printer firmware management	Local API Account

Print job management	Local API Account
Web account set/delete	Local API Account
Hub Management	Local API Account
Hub factory reset	Local API Account

See *Bambu Fleet Hub HTTP API v1.0.0* for detailed HTTP API specifications.

2.4 Hub Maintenance System

Hub maintenance system provides system information, firmware updates, and log export capabilities. Access via Web Client or USB flash drive interface.

2.4.1 Obtaining System Information

Displays device serial number, firmware version, network status, and storage capacity.

- USB method: Automatic status.txt generation after 20 seconds
- Web Client: refer to "[5. Web Client Guidelines](#)"

2.4.2 Offline System Firmware Upgrade

Offline firmware upgrade via signed packages. Use firmware packages unmodified from Bambu Lab. Signed and encrypted firmware ensures integrity. The upgrade process validates package signatures. Firmware decrypted and flashed only after signature verification.

Please note that the Hub verifies the firmware package name during the upgrade process; therefore, do not modify the name of the firmware package after downloading it from Bambu.

- USB upgrade method:
 - Create empty "upgrade" trigger file
 - Place firmware file in USB root and insert into powered hub
 - Trigger file auto-clears after completion

> USB Drive (F:) > Search US

Sort View Eject

Name	Date modified	Type	Size
offline-ota-v1_v01.00.01.03-20260116204546.zip	1/17/2026 12:13 PM	zip Archive	383,930 KB
status.txt	1/14/2026 5:35 PM	Text Document	1 KB
upgrade	1/17/2026 12:17 PM	File	0 KB

- Web Client: refer to "[5. Web Client Guidelines](#)"

Rapid green SYS LED indicates upgrade in progress

2.4.3 Exporting System Logs

Export encrypted logs for diagnostic analysis when issues occur. Logs encrypted with AES-256-CBC for security.

- USB method:
 - Create "log_export" trigger file
 - Insert USB and wait for solid LED before removal
 - Logs saved to /export folder on USB drive
 - Trigger file auto-clears after export completion

> This PC > USB Drive (E:) >

Sort View Eject

Name	Date modified	Type	Size
factory_reset	4/28/2026 10:43 AM	File	0 KB
log_export	4/28/2026 10:44 AM	File	0 KB
upgrade	4/28/2026 10:45 AM	File	0 KB
status	4/28/2026 10:35 AM	Text Document	1 KB
offline-ota-v1_v01.00.05.00-20260306014259	3/24/2026 8:15 PM	zip Archive	384,072 KB

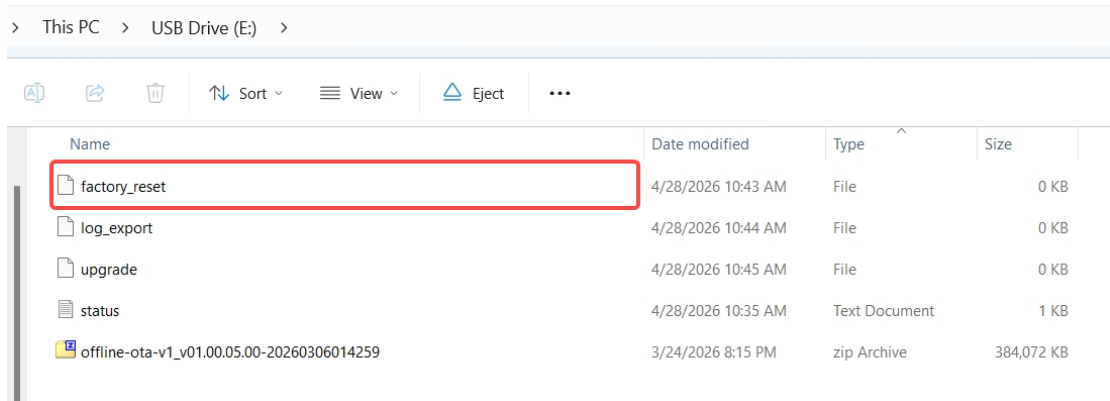
- Web Client: refer to "[5. Web Client Guidelines](#)"

2.5 Factory Reset

Factory reset clears activation data, cache, and system logs. Auto-restart to unactivated state completes in ~60 seconds. Slow green SYS LED flash indicates unactivated state.

Two methods available:

- API command: `/factory/reset`
- USB flash drive method
 - Create "factory_reset" trigger file
 - Insert USB with trigger file to initiate reset
 - Trigger file auto-removes after completion



3. Print Functions

3.1 Printer Bind

3.1.1 Printer Discovery

Printers supports SSDP device discovery functionality, and the Hub supports passive SSDP listening to discover printers located within the same subnet.

For printers situated in a different subnet with the Hub, the Hub also supports active scanning of specified segments to discover printers.

Discovery returns printer model, serial number, IP address, and status information. Some devices may show as already bound to other systems.

Two methods available:

- API commands:
 - `/v1/hub/scan_printers` : Scan for printers within a specified network segment range.
 - `/v1/hub/local_printers`: Monitoring detects all printers within the same subnet with the Hub.
- Web Client: refer to "[5. Web Client Guidelines](#)"

3.1.2 Printer Bind And Unbind

Bind printers using serial numbers and IP addresses via API calls.

Query printer status and modify device names through API calls. Unbind printers via API when no longer needed; devices can rebound later. Maximum capacity: 50 concurrent printer connections.

Two methods available:

- API command: `/v1/hub/bind`
- Web Client: refer to "[5. Web Client Guidelines](#)"

3.1.3 Studio Compatibility

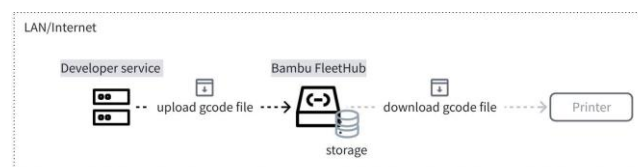
Once the printer has been bound with the Hub, users can still connect to and operate the printer using the Bambu Studio desktop software, facilitating tasks such as calibration and filament modifies.

3.2 Print Job

The Fleet Hub API provides operations such as starting, pausing, resuming, and stopping print jobs, as well as modifying filaments. Before initiating a print job, the corresponding gcode.3mf file must be prepared in advance; currently, two methods are supported for sending gcode.3mf files to the printer: direct gcode.3mf file transfer and downloading via a specified model URL.

3.2.1 Directly transfer gcode.3mf file

Developers upload gcode.3mf files to the Hub via an API; internally, the Hub allocates 40GB of storage space for caching and managing these files. The Hub utilizes the MD5 hash of each gcode.3mf file as an index to enhance storage and retrieval efficiency.



When initiating a print task, developers can either simultaneously upload a

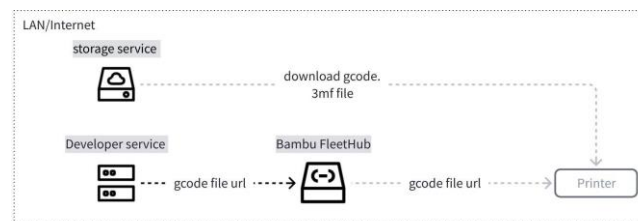
gcode.3mf file or use the MD5 hash of an already uploaded gcode.3mf file as an API parameter to select the specific file to be printed.

A single print job can target multiple printers simultaneously. MQTT protocol delivers print commands to target printers. Printers download model files via HTTPS and initiate printing.

When storage space falls below the specified threshold, periodic cleanup is triggered; this process prioritizes the deletion of gcode.3mf files that have remained unused for an extended period, as well as those uploaded earliest.

3.2.2 Download By Specified Model URL

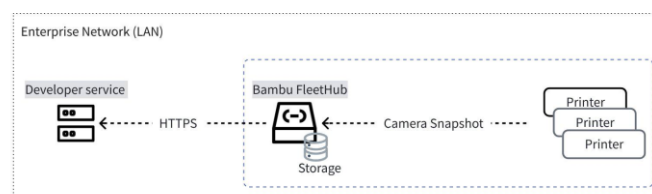
Developers need deploy a storage service to provide download URLs for gcode.3mf files, thereby enabling printers to bypass local forwarding via the Hub and download the files directly.



Direct downloads require HTTPS protocol. Self-signed certificates require CA injection via Fleet Hub API. Certificate format: PEM only.

3.2.3 Printer Camera Snapshot

Printers automatically upload bed snapshots via HTTP. Fleet Hub maintains the latest snapshot cache. Access the latest snapshots via API for remote monitoring.



4. Quick Start Guide

4.1 Demo Code

Bambu Lab provides a set of Fleet Hub API demo code, basically covering all the use cases of Fleet Hub APIs. Users can refer to this demo code during development and integration. Subsequent chapters will also demonstrate the use of the demo code via CLI, applying it to several main scenarios.

Requirements:

- Python version: later than v3.10
- Python modules
 - *requests* >= v2.28.0
 - *urllib3* >= v1.26.0

Folder/File	Description
/base_lib	Common functions for HTTPS access and configuration file parsing
/cert	Server certificates and client certificates required for TLS and activation
/file	Sample code for operating model files and printer firmware
/hub	Sample code for Hub activation, configuration, and upgrade
/printer_control	Sample code for print job control and filament configuration
/user	Sample code for creating and deleting a web account
test_cfg.ini	The configuration parameters include the IP address of the Hub, the login account, and the settings required for running the demo code

4.2 Developer Center Authorization

Enter the Developer Center, read the Developer Agreement and Privacy Statement, and click to complete the authorization.

Developer Authorization

Developer authorization enables Fleet Hub technical access capabilities. Once enabled, you can create device activation keys, issue client certificates used to establish secure communication with the Fleet Hub API, and access API documentation and sample code for interface validation and integration development. You can complete the process online after reviewing and agreeing to the relevant terms.

For business cooperation inquiries, please contact us through the Technical & Business Support channel.

Apply for Authorization

☐ I have read and agree to the [Developer Agreement](#) and [Privacy Statement](#)

4.2.1 Generating an Activation Key

Click "Generate Activation Key" to have the system automatically generate one. Please safeguard this activation key carefully; if lost, it cannot be recovered. However, developers may click "Reset Activation Key" on this page to generate a new one.

Activation Key

A credential used to access cloud services during Fleet Hub activation. During device activation, the system uses this key to submit the device identification and certificate information required for activation, obtain the necessary activation data, and complete the activation process. This key is not used for Fleet Hub local API communication.

Generate Activation Key

4.2.2 Client Certificate Issuance

Client certificates require the developer to pre-generate the necessary public-private key pair. You may refer to the instructions below for generation; please ensure that the generated private key is securely safeguarded.

Python

Command

```
openssl genrsa -out private.key 4096
openssl rsa -in private.key -pubout
```

Paste the public key generated by the command into the Developer Center page and click "Issue". The certificate will then be generated in the Client Certificates section, where developers can download and use it at any time.

Client Certificate Issuance

After you upload a client public key, the system will issue a client certificate for that key to establish secure communication between the client and the Fleet Hub API. Fleet Hub uses mutual TLS (mTLS) for identity authentication, and the endpoint certificates used in communication are X.509 certificates issued by Bambu Lab.

Paste your public key here (-----BEGIN PUBLIC KEY-----)

```
To generate a key pair locally, run:
openssl genrsa -out private.key 4096
openssl rsa -in private.key -pubout

Then copy the public key output and paste it here.
```

Please paste the public key in text format. Up to 5 client certificates can be issued and stored at a time. RSA 4096 signing algorithm is recommended.

Issue

Client Certificate

Issued Date	Expiry Date	Action
2026-05-09T06:40:30Z	2029-05-08T06:40:30Z	Download Delete

4.3 Network Connection

After connecting the network cable to the device, use DHCP to obtain an IP address or refer to "[2.1.2 Static IP Configuration](#)" section to set the device's IP address.

Check that the NET LED indicator has turned green.

4.4 Device Discovery

Run the demo code: "hub\find_v1_hub.py"

After scanning, information such as the serial number (SN) and IP address of Fleethu devices deployed on this subnet can be obtained.

```
Python
Command
python .\hub\find_v1_hub.py
```

```
Python
Outputs
Discovering Bambu V1 devices using SSDP...
Attempting SSDP discovery for Bambu devices...
This will detect devices on the same subnet.
Sending SSDP discovery request to 239.255.255.250:1990
```

```
Listening for responses for 5 seconds...
Discovery timeout reached.
No Bambu V1 devices found.
Found 2 device(s):
```

```
Device 1:
  IP: 10.20.211.83
  Port: 8888
  Name: Fleet Hub
  Location: 10.20.211.95
  Server ID: 34K000000000000002
  State: NoActivate
  Type: release
  Owner: free
```

4.5 Hub Activation

Run the demo code: "hub\activate.py"

- Edit the "server_ip" field in the "test_cfg.ini" file to the actual IP address of the hub.
 - The "server_ip" is found in the previous step "**Device Discovery**". If not, users can refer to "[2.1.4 SSDP Device Discovery](#)"
- Also users can modify the Local API Account with "local_account" and "local_passwd" in the "test_cfg.ini"
- "client_public_certificate" is the client certificate, and "client_private_key" is the private key corresponding to the public key of that certificate

```
Plain Text
test_cfg.ini
[local_server_access]
server_ip = 10.20.211.83
server_port = 8888
local_account = admin
local_passwd = Qwer1234.
client_public_certificate = cert/hub_client.bambulab.com.chain.crt
client_private_key = cert/hub_client.bambulab.com.key
```

```
Python
Command
```

```
python .\hub\activate.py
```

Python Outputs

```
=====
====
Hub Activation Flow Script (API Key)
=====
====
Status Code: 200
Response: {"message":"success","code":0,"ticket":""}
Successfully obtained ticket
URL: https://api.bambulab.net/v1/iot-
service2/api/fleet_hub/activate
Ticket: eyJ0aWNrZXQiOiJ7XCJ0...
Cloud activation successful
Response content: {
  "message": "",
  "code": 0,
  "error": null,
  "activation_code": "=="
}
Obtained activation_code: ==
URL: https://10.20.211.67:8888/v1/hub/activation/tickets/current
Request body: {'activation_code': '==', 'user_name': 'admin',
'password': 'Qwer1234.'}
Activation Code: eyJjb2RlIjoie1wiZGV2...
Status Code: 200
Response: {"message":"success","code":0,"token":"...}
Activation successful, obtained token

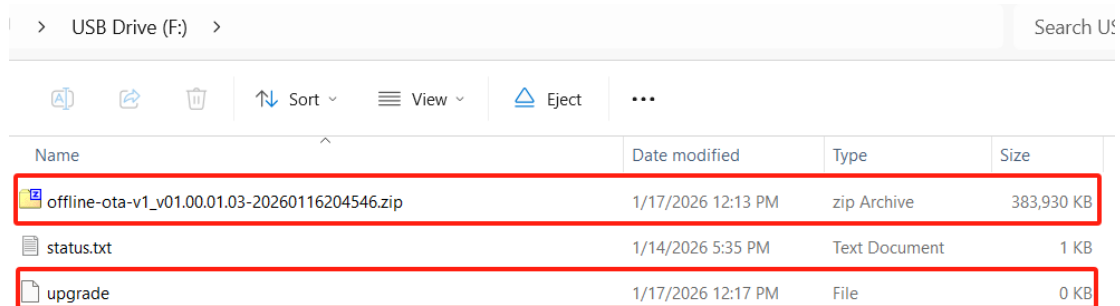
=====
====
All steps completed! Hub activation successful!
=====
====
Activation Token: ...
=====
=====
```

Check that the SYS LED indicator has turned green from the status green light blinks slowly.

4.6 Upgrade Hub Firmware With U-Disk

Fetch the latest offline system firmware version from Bambu Lab. Check if the "upgrade"->"version" in status.txt is the latest version. If not, continue to upgrade.

- Create Empty file name: "upgrade"



Name	Date modified	Type	Size
offline-ota-v1_v01.00.01.03-20260116204546.zip	1/17/2026 12:13 PM	zip Archive	383,930 KB
status.txt	1/14/2026 5:35 PM	Text Document	1 KB
upgrade	1/17/2026 12:17 PM	File	0 KB

- Place the offline upgrade package in the root directory of the USB drive, then insert the drive into the powered-on hub.
- Rapid green SYS LED indicates upgrade in progress.
- The "upgrade" file will be automatically cleared after the upgrade completes.

4.7 Printer Discovery

Run the demo code: "printer_control\device_scan.py"

- Edit the "device_scan_prefix" "device_scan_begin" "device_scan_end" fields in "test_cfg.ini" to specify target scan subnet
 - Which means scanning the subnet from "device_scan_prefix" + "device_scan_begin" to "device_scan_prefix" + "device_scan_end".

```
Plain Text
test_cfg.ini
[printer_control]
device_scan_prefix = 10.20.214
device_scan_begin = 0
device_scan_end = 255
```

```
Python
Command
python .\hub\device_scan.py
```

Python

Outputs

Printer 1:

```
printer sn: 01P09A230300020
printer ip: 10.20.214.227
printer model: P1S
printer name: P1S
printer model: free
```

Printer 2:

```
printer sn: 32X43a043cc0bf2d11
printer ip: 10.20.214.27
printer model: P1S
printer name: 3DP-32X-d11
printer model: occupied
```

...

4.8 Add Printers To Hub

Run the demo code: "printer_control\device_bind.py"

- Based on the "device scan" results, select the printer whose status is "free".
- Edit the "device_sn" and "device_ip" fields in "test_cfg.ini"

Plain Text

test_cfg.ini

[local_server_access]

device_sn = 01P09A230300020

device_ip = 10.20.214.227

Python

Command

python .\printer_control\device_bind.py

Python

Outputs

Status Code: 200

Response: {"message":"","code":0,"ticket_id":3,"ticket":"..."}

```
Status Code: 200
Response: {"message":"success","code":0,"token":"..."}
Status Code: 200
Response: {"message":"","code":0}
```

4.9 Start A Print Job

Run the demo code: "printer_control\device_print.py"

- Generate a G-code file and edit the "device_print_file_path" field in "test_cfg.ini" to select the G-code file to printer

```
Plain Text
test_cfg.ini
[printer_control]
device_print_file_path = 3mf_file/test.gcode.3mf
```

```
Python
Command
python .\printer_control\device_print.py
```

```
Python
Outputs
Status Code: 200
Response: {"message":"","code":0,"ticket_id":3,"ticket":"..."}
Status Code: 200
Response: {"message":"success","code":0,"token":"..."}
Status Code: 200
Response: {"message":"","code":0}
```

For other printing parameters such as multi-hot ends and AMS, please refer to the *Bambu Fleet Hub HTTP API v1.0.0* .

4.10 Get Printer Report Status

After the printer is added to the hub, it will periodically push status information to the hub.

Run the demo code: "printer_control\device_get_one.py", which will try to fetch the

status of the printer specified with "device_sn" and "device_ip".

```
Python
Command
python .\printer_control\device_get_one.py
```

```
Python
Outputs
Status Code: 200
Response: {"message":"","code":0,"ticket_id":6,"ticket":"..."}
Status Code: 200
Response: {"message":"success","code":0,"token":""}
Status Code: 200
  sn: 01P09A230300020
  model: P1S
  name: P1S
  ip: 10.20.214.227
  status: FINISH
  info: {'nozzle_temper': 30.625,
        'nozzle_target_temper': 0,
        'bed_temper': 24.1875,
        'bed_target_temper': 0,
        'chamber_temper': 5,
        'mc_print_stage': '1',
        'heatbreak_fan_speed': '0',
        'cooling_fan_speed': '0',
        ...
        }
-----
```

4.11 Factory reset

Run the demo code: "hub\hub_factory_reset.py"

```
Python
Command
python .\hub\hub_factory_reset.py
```

```
Python
```

Outputs

Status Code: 200

Response: {"message":"","code":0,"ticket_id":100,"ticket":"..."}

Status Code: 200

Response: {"message":"success","code":0,"token":"..."}

Status Code: 200

Response: {"message":"success","code":0}

After auto-restart, the Slow green SYS LED flash indicates unactivated state.

5. Web Client Guidelines

Create Web Account via API after Fleet Hub activation to enable Web Client access.

5.1 Web Client Supported Functions

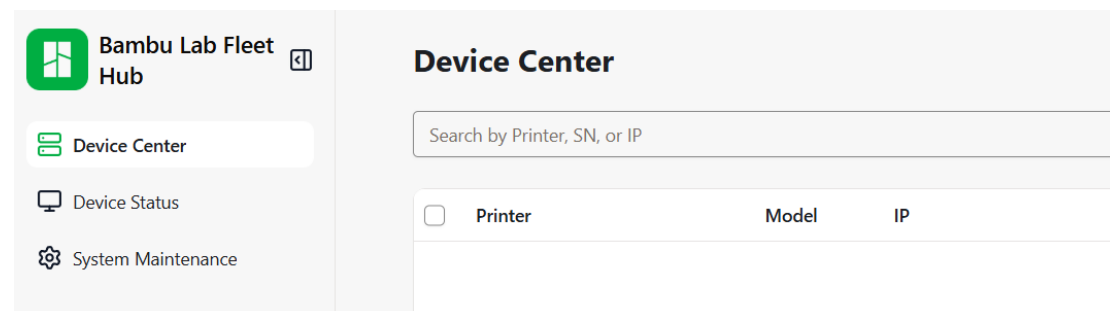
Access Fleet Hub Web Client via https://IP and accept the self-signed certificate.

Web Client provides visual interface for deployment and maintenance operations.

Device Center: Monitor printer status and manage device binding.

Device Status: View system information, network status, and storage usage.

System Maintenance: Perform firmware upgrades and export system logs.



5.2 Create Local Web Account

Run the demo code: "user\add_web_user.py"

- Edit the "web_user_name" and "web_user_passwd" field in the "test_cfg.ini"

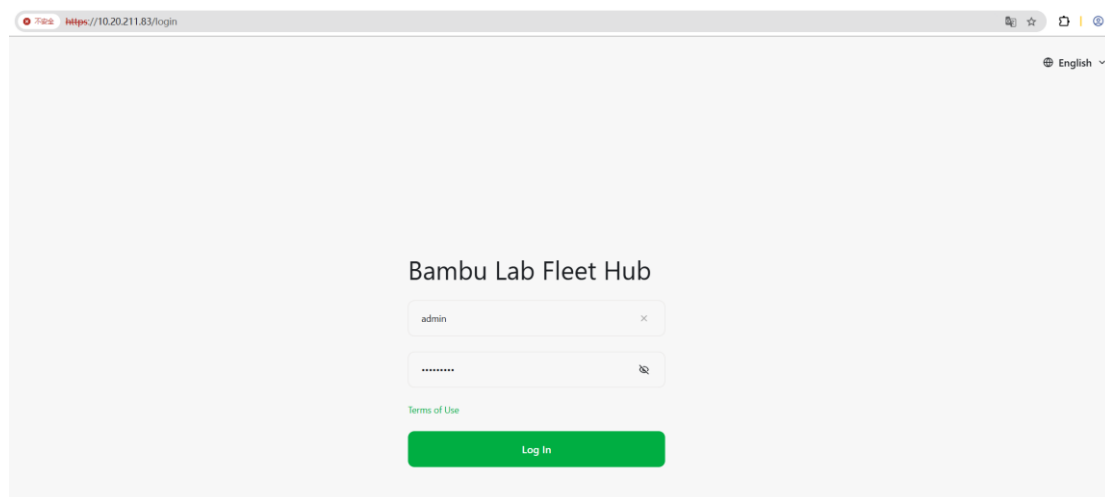
Plain Text

```
test_cfg.ini
[user]

web_user_name = admin
web_user_passwd = Qwer1234.
```

```
Python
Command
python .\user\add_web_user.py
```

Then users can access HTTPS://IP and login with the "web_user_name" and "web_user_passwd". Since the Web client's root certificate is self-signed, some browsers may display a warning; please trust the page to continue accessing the website.



5.2.1 Accessing Via Domain Name

Hub supports domain-based access to the Web Client via mDNS: `https://bambu-Fleet Hub-${SN_suffix}.local`, where SN_suffix is the last 5 digits of the Hub SN.

Requirements:

- Ensure that the Hub and the PC are on the same subnet.
- Supported operating systems:
 - Windows: `BonjourPSSetup` must be installed in advance. Please download and install it yourself.
 - Mac OS: No special handling is required.

5.3 Hub Maintenance System

5.3.1 Obtaining System Information

- Web Client: Device Status page

The screenshot shows the 'Bambu Lab Fleet Hub' interface with a sidebar containing 'Device Center', 'Device Status', and 'System Maintenance'. The 'Device Status' page is active, displaying the following information:

Basic Info	
Hardware Model	Bambu Lab Fleet Hub V1
SN	34K19A01A620200016
System Package Version	01.00.02.03

Network	
IP Address	10.25.110.40
Gateway	10.25.110.1
Subnet Mask	255.255.254.0
MAC Address	5C:F8:38:31:35:1F

NTP Settings

Enable Network Time Protocol (NTP)
Disabled by default. Once enabled, time will be automatically calibrated via the network. ☐

Storage

USB Drive Status	Not Exist
Internal Storage	0.0 GB / 40.0 GB Used

5.3.2 Offline System Firmware Upgrade

Fetch the latest offline system firmware version from Bambu Lab. Check if the "System Package Version" in "System maintenance"->"Upgrade" is the latest version. If not, continue to upgrade.

Click "System maintenance"->"Upgrade"->"Offline Upgrade" and then click "Add files to ..." in the pop up box "Upload Offline Package" and select the firmware. Finally, click "Upload" and wait for the upgrade result.

The device will restart during this process, and users will need to login to the website again.

The screenshot shows the 'Bambu Lab Fleet Hub' interface with the 'Upgrade' page selected. The 'System Package Version' is 01.00.02.03. The 'Offline Upgrade' section is active. A dialog box titled 'Upload Offline Package' is open, displaying the following text:

The device will automatically restart during the upgrade process. Please do not perform the upgrade during the "Initiate Task" stage to prevent task initiation failure. Existing printing tasks will not be affected.

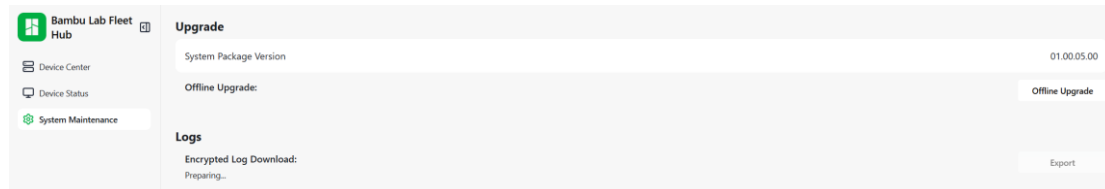
Below the text is a green dashed box with a plus sign and the text "Add files to upload (or drag and drop to upload)". At the bottom of the dialog are 'Cancel' and 'Upload' buttons.

In the background, a file explorer window is open, showing a list of files. The selected file is 'offline-ota-v1_01.00.05.00-20200305.zip' with a size of 384,072 KB.

Rapid green SYS LED indicates upgrade in progress

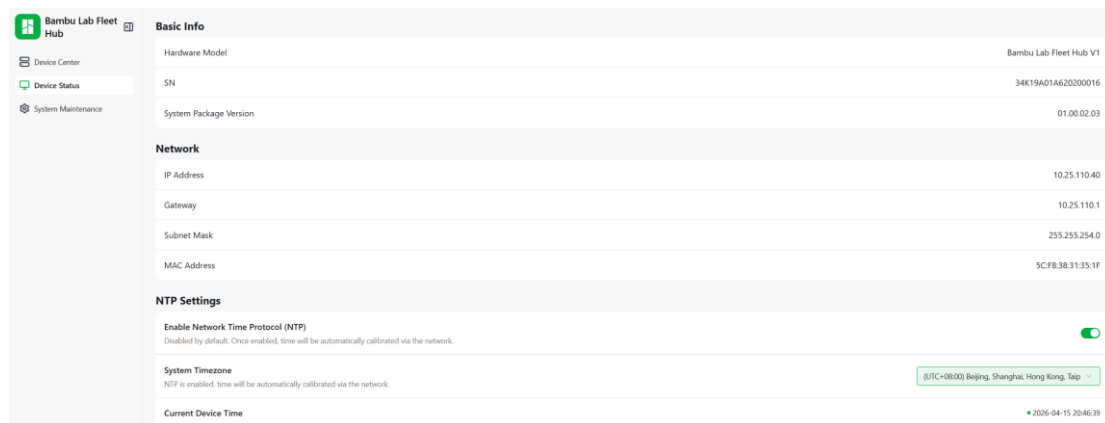
5.3.3 Exporting System Logs

- Web Client: System Maintenance -> Logs -> Export
 - Browser auto-downloads encrypted log archive



5.3.4 Enable NTP Service And Set Time Zone

- Web Client: Device Status -> NTP Settings -> Enable Network Time Protocol(NTP)
 - Once enabled, users can select a time zone from the "System Timezone" drop-down menu.
 - The NTP service is disabled by default.



5.4 Printer Discovery

- Web Client: Device Center -> Add Printers
 - "Search Nearby": Discover printers in local subnet
 - "Search Printers": Scan specified subnets (add and configure the target IP range first)

Add Printer

Configure IP Range.

192 0 0 0 — 192 0 0 255 × Add

10.20.214.0 - 10.20.214.255

Search Printers



Available Printers (14)

Unavailable Printers (109)

Search Nearby

☐	Printer	Model	IP	Connection Status
☐	3DP-030-007aa	A1 mini	10.20.214.137	Connect
☐	3DP-030-598	A1 mini	10.20.214.96	Connect
☐	3DP-03W-239-X1E	X1E	10.20.214.39	Connect

5.5 Printer Bind

- Manage printers via Web Client: Device Center.
- Click "Connect" within the "Available Printers" in "Printer Discovery" to bind the printers
- Then the "Device Center" will list the bound printers, users can click "Delete" to unbind it

Device Center							Add Printers
Search by Printer, SN, or IP				All Status	All Models		
☐	Printer	Model	IP	SN	Version	Status	Action
☐	3DP-030-007aa	A1 mini	10.20.214.137	0309AA392000007	01.07.00.00	Online	Edit Delete

5.6 Printer Firmware Upgrade

- Users can access the printer upgrade page via the "Upgrade Firmware" option on the "Device Center" page of the Web client.
- After selecting the printers for batch upgrade, select the corresponding firmware package to perform the upgrade.
- Supports simultaneous firmware upgrades for multiple printers of the same model, and allows you to select previously uploaded firmware packages from "History Versions".

