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Suprema Webinar
BioStar 2 New Features
BioStar 2 API New Features

Speaker

Laney Lee
Technical Consulting Engineer | Suprema

Peter Kweon
Technical Consulting Engineer | Suprema

Date | February 22, 2022

How can you find Webinar Contents?

1) Email
- ✓ Suprema Team will provide the presentation and the recorded video link to the registered emails.
- ✓ It will take about 7 days after reviewing the files with Q&A list.
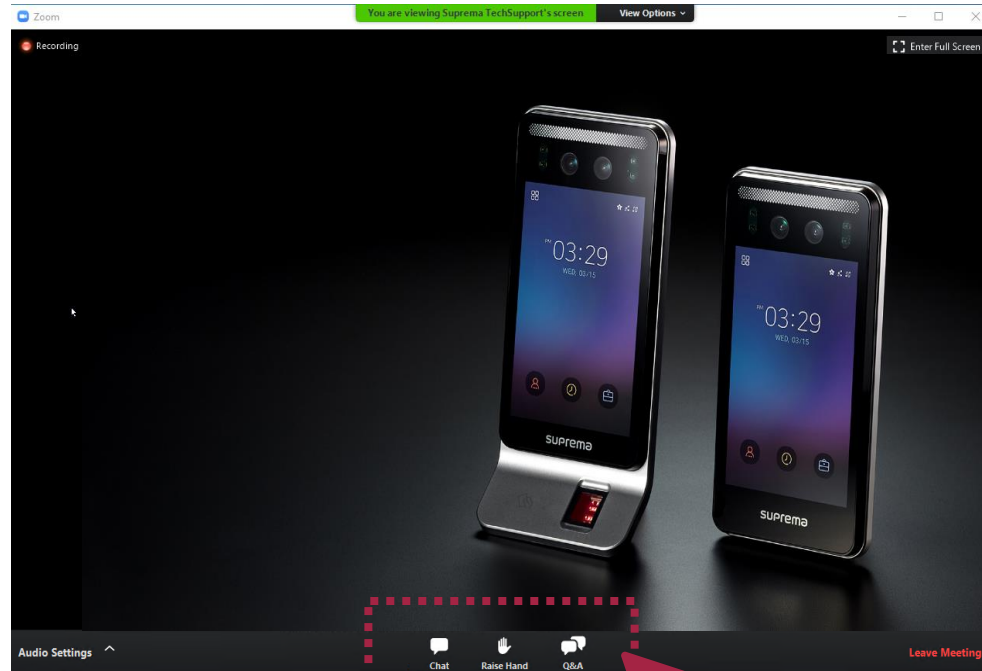
2) Suprema Connect Website
- ✓ We will post the recorded video to the site.
- ✓ https://www.supremainc.com/connect/index.asp
- ✓ Please google Suprema Connect.
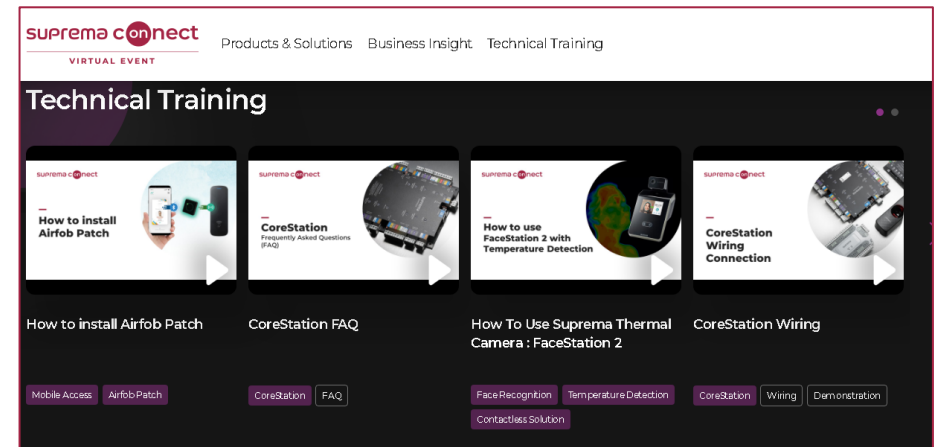
3) Suprema Technical Support Site
- ✓ You can find the information with Q&A list on the website below.
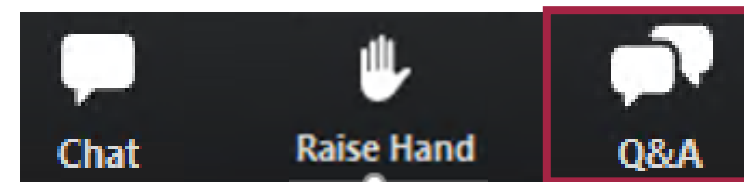- ✓ Please search Suprema Webinar in the support page, or simply google it.
- ✓ https://support.supremainc.com

How can you ask questions during a webinar?

Click!

How to find the necessary icons
✓ Please move your mouse to the bottom of your screen, the 3 icons will appear.

[Q&A] box

✓ During the webinar, you can leave your questions in the Q&A box anytime. Suprema Panels will answer in real time.

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Suprema Webinar
BioStar 2 New Features
V2.8.12 to V2.8.14

Speaker

Laney Lee
Technical Consulting Engineer | Suprema

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Contents

01

BioStar 2.8.12

X-Station 2 Fingerprint model

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BioStar 2.8.12

Support a New Device

X-Station 2 Fingerprint model (XS2-ODPB, XS2-OAPB)

XS2-ODPB, XS2-OAPB
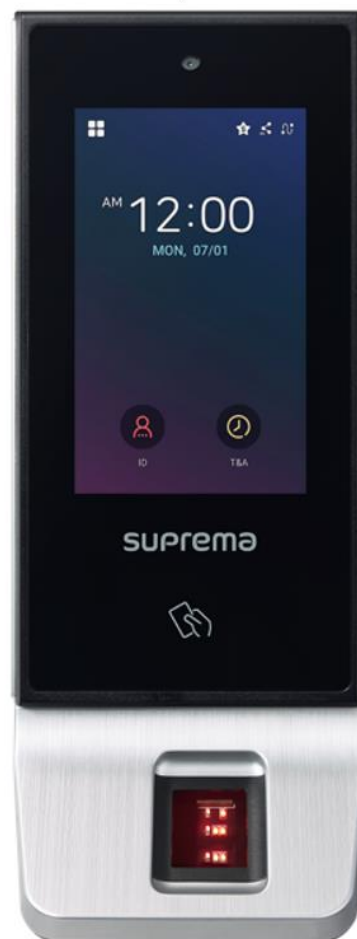
IP65
PoE (Power over Ethernet)
Camera
4" IPS Color LCD
Multi RFID Support

EM	EM
MFIARE	MFIARE
DESFire	DESFire
Felica	Felica
	HID Prox
	HID iClass

NFC/BLE
-Suprema Mobile Access
Ethernet
RS-485(OSDP)
Wiegand
2 TTL Inputs
1 Relay
Fingerprint Sensor

BioStar 2.8.12

Support a New Device

X-Station 2 Fingerprint model (XS2-ODPB, XS2-OAPB)

Introducing X-Station 2 fingerprint model
Products & Solutions

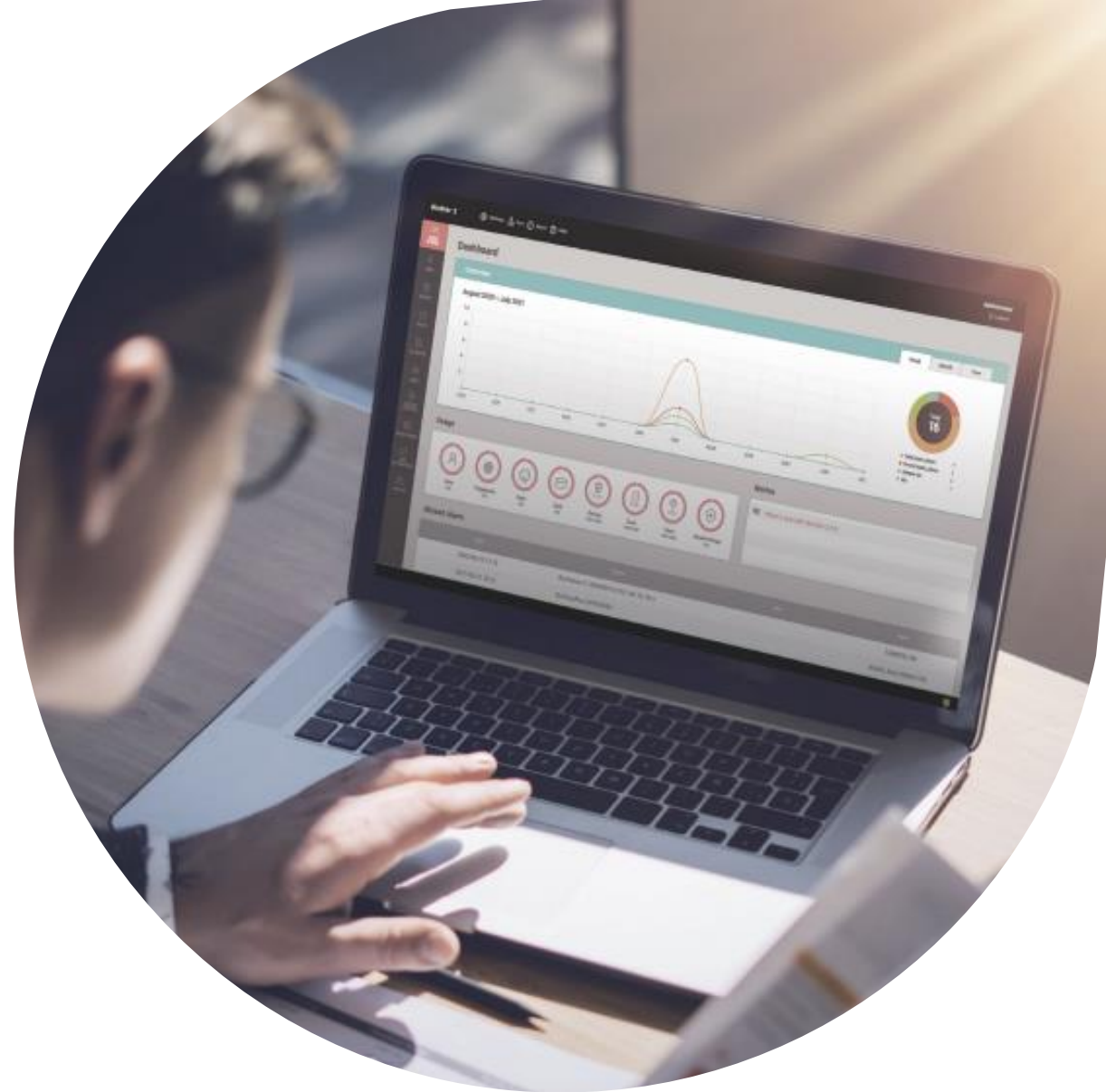**Suprema Connect Website**
- ✓ https://www.supremainc.com/connect/index.asp
- ✓ Please google Suprema Connect.

02

BioStar 2.8.13

BioStar 2 Time Attendance Improvements

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BioStar 2.8.13

BioStar 2 Time Attendance Improvements and Bug Fixes

1. **BioStar 2 T&A API Improvements**
   1) **Support T&A Report API**

- **Relevant Article: [BioStar 2 TA API] How to retrieve REPORT in json format via BioStar 2 TA API**

   2) **Update T&A APIs**
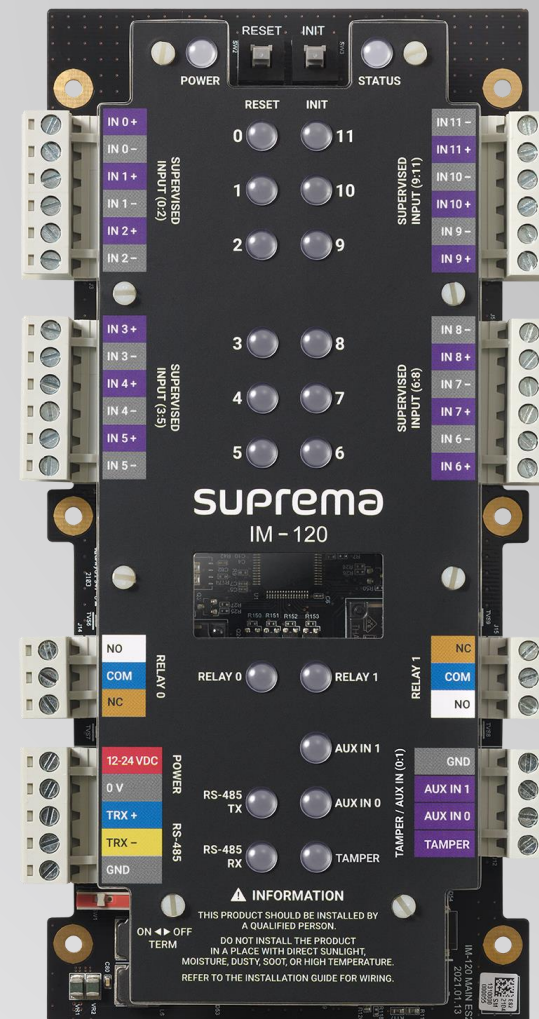
BioStar 2.8.13

BioStar 2 Time Attendance Improvements and Bug Fixes

2. Change the TLS version of the T&A Server: V1.2

3. Support Private SSL Certificates with a Specific Passphrase on the T&A Server
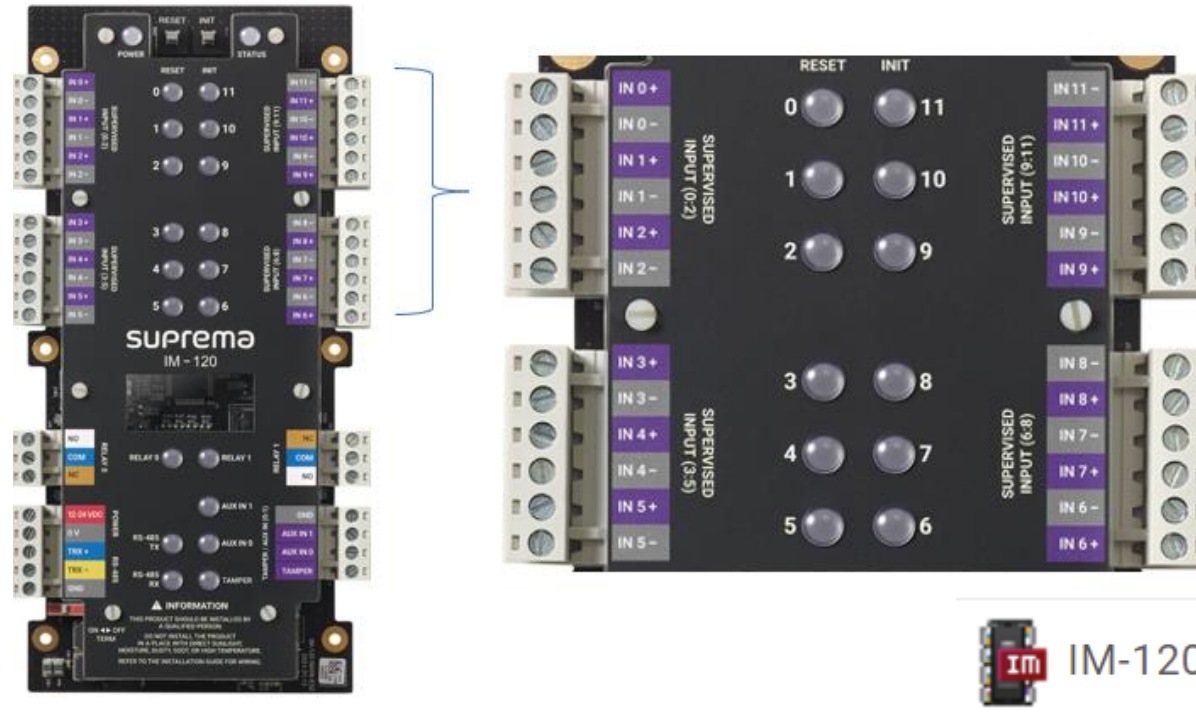
03

BioStar 2.8.14

IM-120
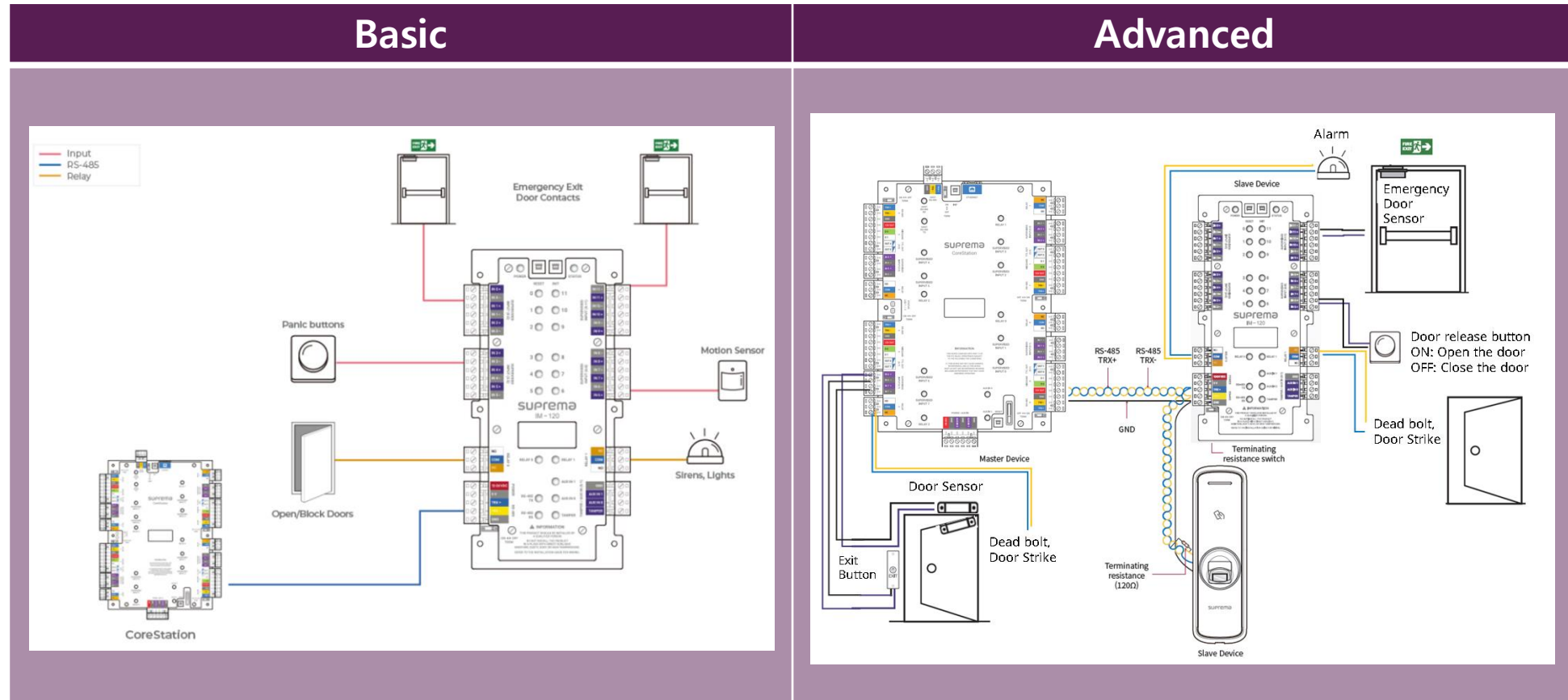OpenJDK
Vulnerability Improvements

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BioStar 2.8.14

Support a New Device

IM-120 (Input Module)

IM-120

- ✓ Can control up to 12 supervised inputs.
- ✓ 2 AUX, 1 tamper switch, 2 relays.

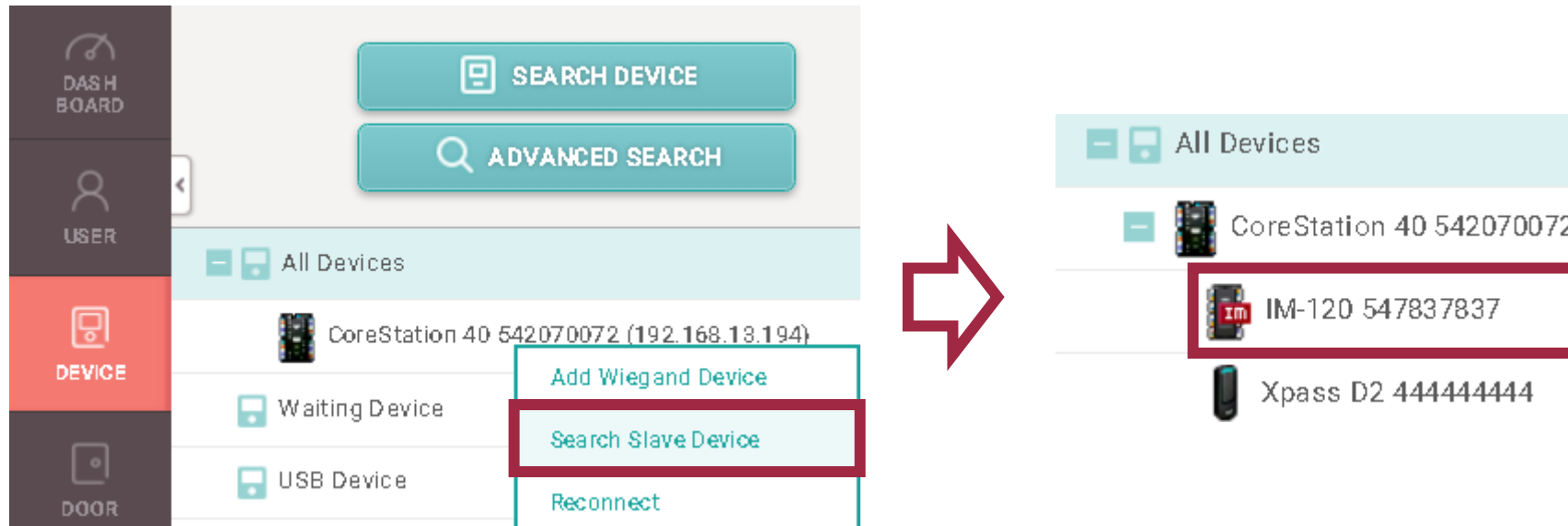- • Relevant Article: [BioStar 2] New Product Launch: IM-120 (Multiple Input Extension Module)

BioStar 2.8.14

Support a New Device

IM-120 (Input Module)

- • Relevant Article: [BioStar 2] New Product Launch: IM-120 (Multiple Input Extension Module)

BioStar 2.8.14

How to configure Inputs and Linkage

- **Prepare a CoreStation (V1.5.2 or above) and IM-120**
- **Connect via RS-485**

- **Relevant Article: [BioStar 2] New Product Launch: IM-120 (Multiple Input Extension Module)**

BioStar 2.8.14

How to configure Inputs and Linkage

Click [IM-120] to configure the Input and linkage setting.

Enter the Name of Inputs you want to connect to the physical inputs and select the option from the [Supervised Input Register] list with the switch types.

> **N/O: Normally Open**
> **N/C: Normally Closed**

Input

Configuration

Index	Name	Supervised Input Resister	Switch	Duration(ms)
Tamper	Tamper	Unsupervised	N/O	50
Aux 0	Aux0	Unsupervised	N/O	50
Aux 1	Aux1	Unsupervised	N/O	50
Input 0	11F Door Release Button	Unsupervised	N/O	50
Input 1	Input1	Unsupervised	N/O	50
Input 2	Input2	Unsupervised	N/O	50
Input 3	11F Emergency Door Status	4.7kΩ	N/C	50

- • Relevant Article: [BioStar 2] New Product Launch: IM-120 (Multiple Input Extension Module)

BioStar 2.8.14

How to configure Inputs and Linkage

Set the linkage for relay 0 or relay 1 when there are input detections.
* **Fault** (cut and short) is only activated when the supervised input is enabled by selecting a resistance value in the [Supervised Input Resister].

BioStar 2.8.14

How to configure Inputs and Linkage

IM-120 Inputs and Relays Demonstrations
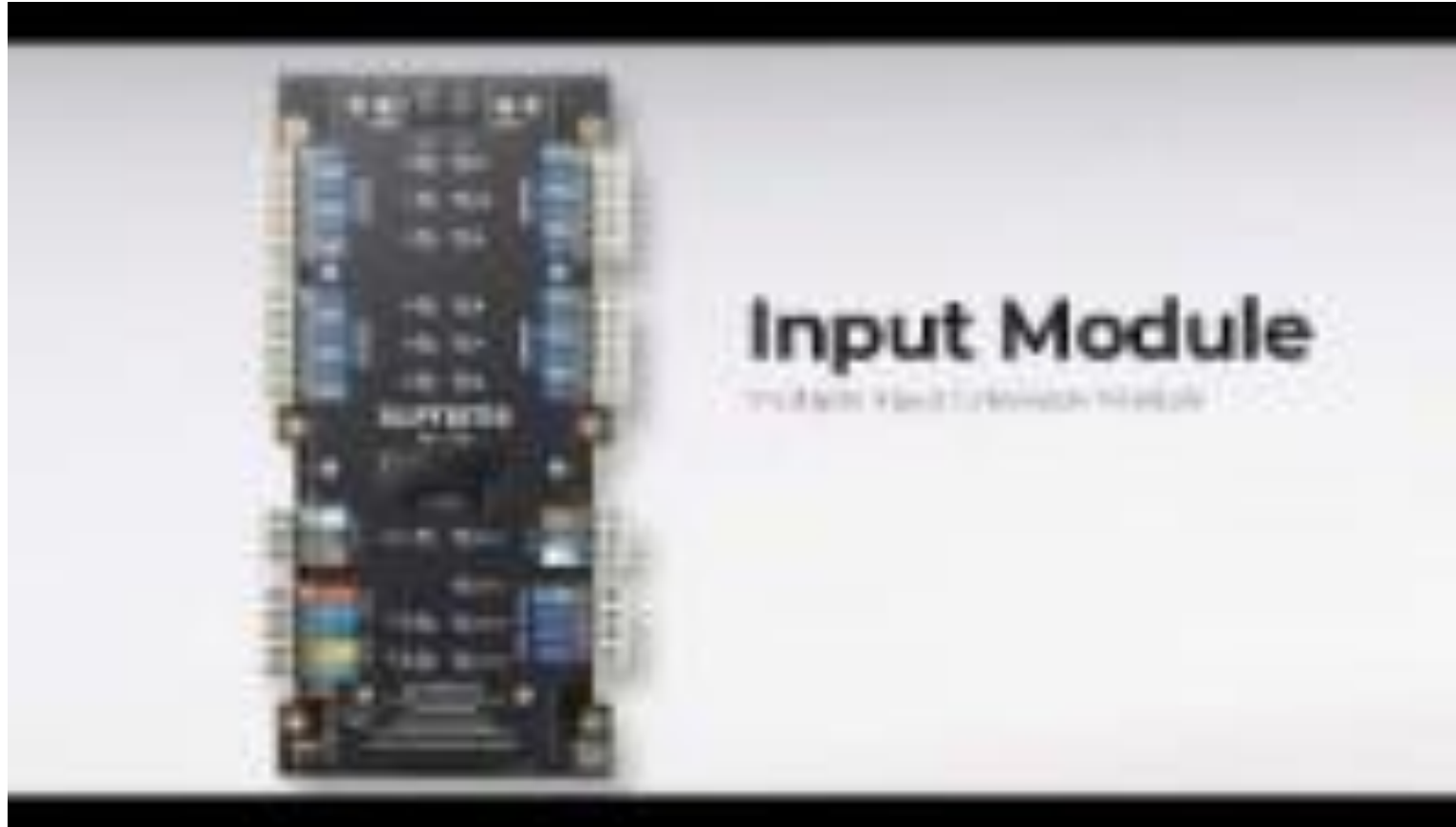
- **Relevant Article: [BioStar 2] New Product Launch: IM-120 (Multiple Input Extension Module)**

BioStar 2.8.14

Input Module Introduction

IM-120 (Input Module)

Suprema Connect Website
- ✓ https://www.supremainc.com/connect/index.asp
- ✓ Please google Suprema Connect.

BioStar 2.8.14

Support OpenJDK

Minimum System Requirements

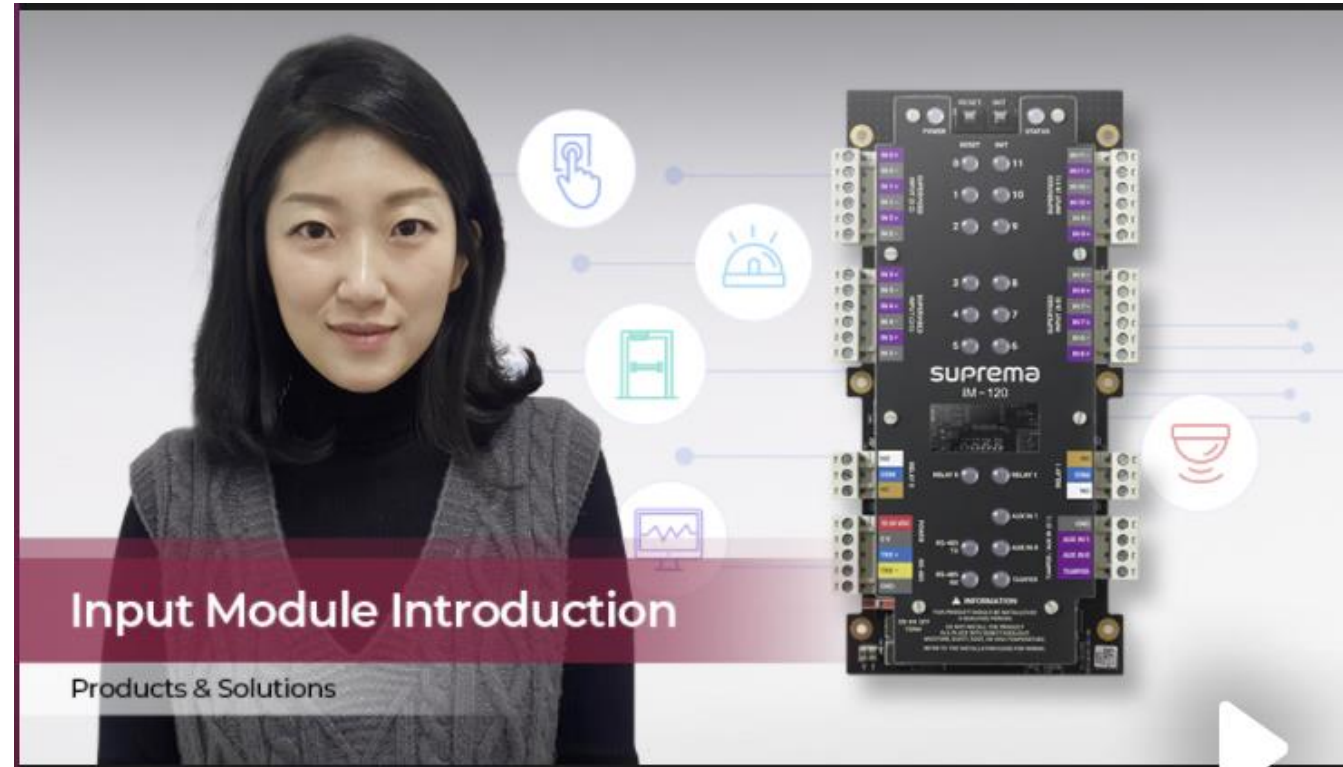| Item		Small	Medium	Enterprise
Environment	Total Devices	50	100	1,000
System requirement (Server)	OS	Windows 7(SP1 or higher), Windows 8, Windows 8.1, Windows 10, Windows Server 2008 R2(SP2 or higher), Windows Server 2012, Windows Server 2012 R2, Windows Server 2016, Windows Server 2019 • Windows virtual environments on Mac Boot Camp are not supported.		
	Database	MariaDB 10.1.10, MS SQL Server 2012, MS SQL Server 2014 SP2, MS SQL Server 2016 SP1, MS SQL Server 2017, MS SQL Server 2019		
	CPU	2 GHz Dual Core	4 GHz Quad Core	4 GHz 16 Core
	RAM	8 GB	16 GB	32 GB
	SSD	512 GB	1 TB	1 TB
System requirement (Client)	CPU	1 GHz	1 GHz	1 GHz
	RAM	4 GB	4 GB	4 GB
	Web Browser	Google Chrome 75 or later		

Up to V2.8.13

- Oracle JAVA

V2.8.14 and later

- OpenJDK 15

BioStar 2.8.14

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Improved security vulnerabilities

- Applied Log4j 2 v2.16.0

- Applied OpenSSL 1.1.1k

- Applied jQuery 3.4.1

- Prevention for SQL Injection attack

BioStar 2.8.14

Regarding log4j2 vulnerability on BioStar 2

Q1 We are using Suprema BioStar version 1.93. Could you inform us if affected by our current version?

• BioStar 1.93 and old version of BioStar 1 software are based on C++ programming. There is NO impact of the log4j2 vulnerability.

Q2 Should I delete the existing log4j2.yml in C:\Program Files\BioStar 2(x64) (64-bit) or C:\Program Files\BioStar 2 (32 bit)?

• You can overwrite the "log4j2.yml" patch file or replace it to the patch file from the linked article.
• Relevant Article: [Security Notice] Regarding log4j2 vulnerability on BioStar 2

Q3 I have old BioStar 2 software. Should I use the patch file and follow the guideline?

• BioStar 2.5 or lower version does not use JAVA, so it does NOT fall under the related vulnerability.

Q4 "Suprema Fingerprint Scanner Driver 1" is not impacted?

• Suprema Fingerprint Scanner Driver is NOT impacted.

Q5 I need to update the log4j2 version to 2.17.0 because of the security reason of our security tool.

• We have a patch file of BioStar 2.8.14. Please generate a ticket in the [Suprema Support] website if you need to have the patch file based on v2.8.14.
• We will support log4j2 2.17.1 on BioStar 2.8.15 and later.

BioStar 2.8.14

Other Major Improvements

- **BioStar 2 server performance improvements**

- **BioStar 2 New Local API Swagger updates**

- **Support 26-bit Wiegand card migration through [BioStar 1.x to BioStar 2.x Migration Tool].**

04

Major Bug Fixes

BioStar V2.8.12 – V2.8.14

Major Bug Fixes

BioStar 2.8.12

1. The logo image was not displayed in the email when issuing the visual face enrollment link after setting a company logo in the Visual Face Mobile Enrollment under EMAIL SETTING. (Affects version: v2.8.11)

2. An error message was not displayed when a user tried to upload a company logo image which exceeded a maximum capacity of 5 MB. (Affects version: v2.8.11)

3. The QR Use value was not updated in the database when connecting X-Station 2 to BioStar 2 for the first time. (Affects version: v2.8.11)

BioStar 2.8.13

1. When returning to the individual summary report and edit history report list after checking details of a selected report, the item selection did not work properly in the list. (Affects version: v2.7.10)

2. Punch out rounding setting was not applied to the individual summary report. (Affects version: v2.8.5)

3. T&A synchronization was abnormally interrupted when BioStar 2 was upgraded to v2.8.9 or later under the following conditions. (Affects version: v2.8.9)
   - BioStar 2 v2.8.5 or later / Use MS SQL Server database / Connect the Wiegand Reader 1 to DM-20

4. When using MS SQL Server database, T&A synchronization was abnormally interrupted if a large number of user data was deleted. (Affects version: v2.8.9)

5. When deleting a user or user group, T&A synchronization was abnormally interrupted because the related data was not completely deleted. (Affects version: v2.8.9)

6. Wiegand devices connected to the DM-20 were not displayed on the Time & Attendance device list. (Affects version: v2.8.9)

Major Bug Fixes

BioStar 2.8.14 (1)

1. When using the 'Specific Devices' Automatic User Synchronization option, it did not sync if the user ID contains some symbols (_) (Affects version: v2.7.11).

2. When using the 'Specific Devices' Automatic User Synchronization option, the synchronization logic operated as 'All Devices' when executing Write Smart Card (Affects version: v2.7.11).

3. Chrome autocomplete function was mapped incorrectly in the information input field on the Add User screen (Affects version: v2.7.8).

4. Some languages were displayed as question marks in Audit Trail when using MS SQL Server database (Affects version: v2.7.0).

5. When using the Visual Face as a user profile image, it exceeded the allowed size of the profile image and did not sync to devices (Affects version: v2.8.6).

6. When setting the logo image as the home screen for FaceStation F2, the image was not applied in the correct resolution for the device (Affects version: v2.8.6).

7. It was not possible to enter uppercase letters in the server address when using 'Device → Server Connection' (Affects version: v2.7.0).

8. Custom user field data was not reflected in the T&A report (Affects version: v2.8.3).

9. Fixed an issue where key values were exposed when fetching smart card layouts using API. (Affects version: v2.0)

Major Bug Fixes

BioStar 2.8.14 (2)

10. The server crashed intermittently.
    - C server crash occurred when database inquiry failed while creating user group cache (Affects version: v2.0).
    - Lock handling was missing in serviceTask JsonResult (Affects version: v2.0).

11. When running 'Manage Users in Device' by selecting a device that supports only cards, the status of the user with the enrolled fingerprint was displayed as 'Different' (Affects version: v2.0).

12. When generating more than 10 events by selecting 'Input (Event Name Change)' in the Trigger & Action settings of CoreStation, it did not work properly. (Affects version: v2.8.8)

13. When using server matching with FaceStation 2's authentication mode set to Card+Face, the face authentication mode did not work after card authentication (Affects version: v2.8.6).
    This modification will be applied to devices with firmware version 1.5.1 or later installed.

14. During 'All Devices' Automatic User Synchronization, the access group and door synchronization results were not updated intermittently (Affects version: v2.0).

15. Devices were disconnected when the amount of data was large during Automatic User Synchronization (Affects version: v2.0).

16. When adding a user using API, it was possible to create a user ID with a value not supported by BioStar 2 (Affects version: v2.8.1).

17. When importing users with CSV import, 'Upload successful' message was displayed even if there was information that was not updated (Affects version: v2.3.0).

Major Bug Fixes

BioStar 2.8.14 (3)

18. When a device that does not support the intelligent slave sent OSDP ID as an invalid value, BioStar 2 initialized the value to 0, updating RS-485 settings and disconnecting the existing RS-485 connection (Affects version: v2.8.10).

19. Even though the server matching is supported, the function was not displayed on the settings of BioStation 2 (Affects version: v2.2.2).

20. When a user has abnormal profile image, the user sync process was not finished properly (Affects version: v2.8.0).

05

Upcoming BioStar2 Introduction

BioStar V2.8.15 and Later

Upcoming BioStar2 Introduction

BioStar 2.8.15

1. Support Log4j 2.17.1

2. Improve the BioStar 2 operation when using the 'Specific Devices' Automatic User Synchronization option

Expected Release Schedule: End of February
* This version is an urgent release. Bugs which you were informed to be fixed in V2.8.15 before January 15, 2022, will be fixed in V2.8.16 or later.

BioStar 2.8.16

1. Improve issues which were fixed in V2.8.15
   - Items informed before January 15, 2022

2. Support X-Station 2 as Slave of CoreStation

3. Improve deleting unassigned cards

Expected Release Schedule: April

BioStar 2.8.17

1. Improve BioStar 2 Time Attendance issues which were fixed in V2.8.16
   - Items informed before January 15, 2022

Expected Release Schedule: TBD

How can you ask questions during a webinar?

How to find the necessary icons
- ✓ Please move your mouse to the bottom of your screen, the 3 icons will appear.

Click!

[Q&A] box

- ✓ During the webinar, you can leave your questions in the Q&A box anytime. Suprema Panels will answer in real time.

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—

Suprema Webinar
BioStar 2 API New Features
TA API with V2.8.13

Speaker

Peter Kweon
Technical Consulting Engineer | Suprema

Date | February 22, 2022

Contents

TA API Swagger

In addition to BioStar 2 New Local API,
BioStar 2.8.13 was released with TA API for TA tasks.

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TA API Swagger

What is BioStar 2 TA?

**BioStar 2 TA Beginner (Crash Course)
provided at Suprema Technical Support Portal**

TA API Swagger

BioStar 2 TA API development background

- Partners had to update TA information in their BioStar 2 in order to create reports that will be used for their integrations.
- By providing API's to update their TA reports, Suprema provides convenient interface for the integration users.

- BioStar 2 TA API had been added with BioStar 2.8.13.
- Users can use TA API without any installation.

TA API Swagger

TA API Swagger : **https://(BioStar 2 IP):(TA Port)/docs/#**

https://localhost:3002/docs/# || https://(Your BioStar IP) :3002/docs/# || https://127.0.0.1 :3002/docs/#

02

TA API Main Features

- **Login**
- **Time Code**
- Shift
- Schedule Template
- Rule
- Schedule
- Holiday
- Leave
- Punch Log
- Report
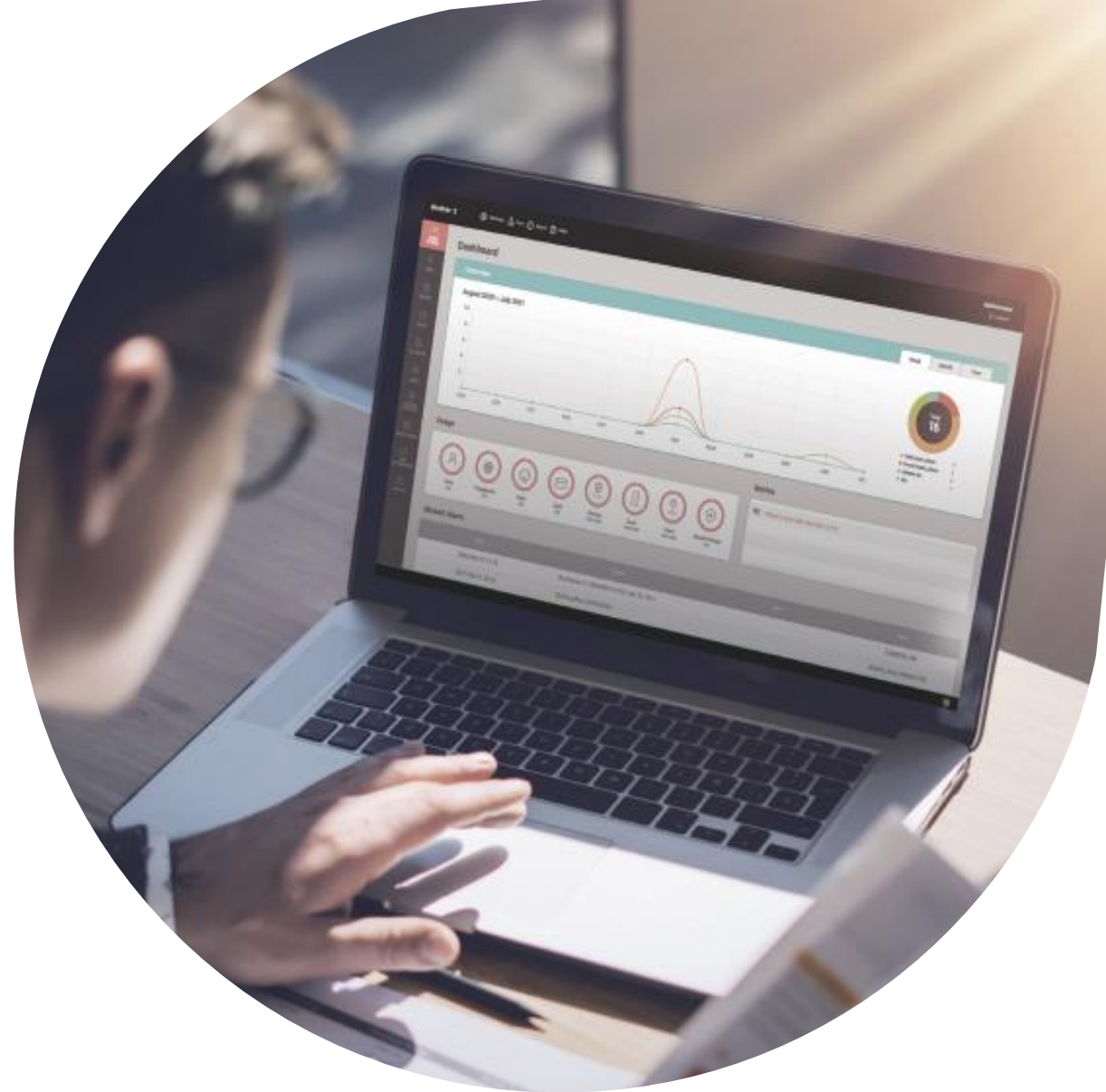
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TA API Main Features

Login

1. /login
2. /login/sso -> Login Using Single Sign On

Auth

POST	/login
POST	/login/sso
GET	/logout

1 /login

Parameters

Parameter	Value	Description	Parameter Type	Data Type
user	```{ "password": "PASSWORD@", "user_id": "admin" }```	User	body	Model | Model Schema

Parameter content type: application/json

LoginUser {
mobile_app_version (string, optional): Mobile App Version,
mobile_device_type (string, optional): Mobile Device Type ('ANDROID' = Android Device, 'IOS' = Apple Device) = ['ANDROID' or 'IOS'],
mobile_os_version (string, optional): Mobile OS Version,
notification_token (string, optional): Notification Token (Google GCM Registration ID or Apple Push Notification Device Token),
password (string): User Password,
user_id (string): User ID / Login ID / Email
}

2 /login/sso

Parameters

Parameter	Value	Description
sso	```{ "biostar_session_id": "e315ae94e69b4750806a62f888e539fa", "user_id": "1" }```	Single Sign On data

Parameter content type: application/json

'Bs-session-id' from AC API login response

You must enter USER ID.
Not a login ID

TA API Main Features

Time Code

GET /pay_codes

Time Code

GET	/pay_codes
POST	/pay_codes
POST	/pay_codes/delete
GET	/pay_codes/{id}
PUT	/pay_codes/{id}
DELETE	/pay_codes/{id}

GET /pay_codes

Response Class (Status 200)

Model | Model Schema

```
{
  "message": "string",
  "records": [
    {
      "accumulate_toward_overtime": true,
      "color": "string",
      "count_as_attendance": true,
      "description": "string",
      "id": "string",
      "name": "string",
```

Response Content Type application/json ▾

Parameters

Parameter	Value
name	
offset	0
limit	5

Request URL

```
https://localhost:3002/tna/pay_codes?o
```

Response Body

```
{
  "message": "Processed Successfully"
  "message_key": "SUCCESSFUL",
  "language": "en",
  "status_code": "SUCCESSFUL",
  "total": 4,
  "records": [
    {
      "id": 5,
      "name": "Time Code 1",
      "description": "Time Code 1",
      "time_rate": 1,
      "color": "#f00",
      "count_as_attendance": false,
      "accumulate_toward_overtime": false,
      "track_on_leave_management": true,
      "type": "WORKED"
    },
    {
      "id": 9,
```

ADD TIME CODE

Shift | Schedule | Report ⚙

- Time Code
- Shift
- Schedule Template
- Rule

Time Code

	Time Code
☐	Time Code 1
☐	Time Code 2
☐	Time Code 3
☐	Time Code 4
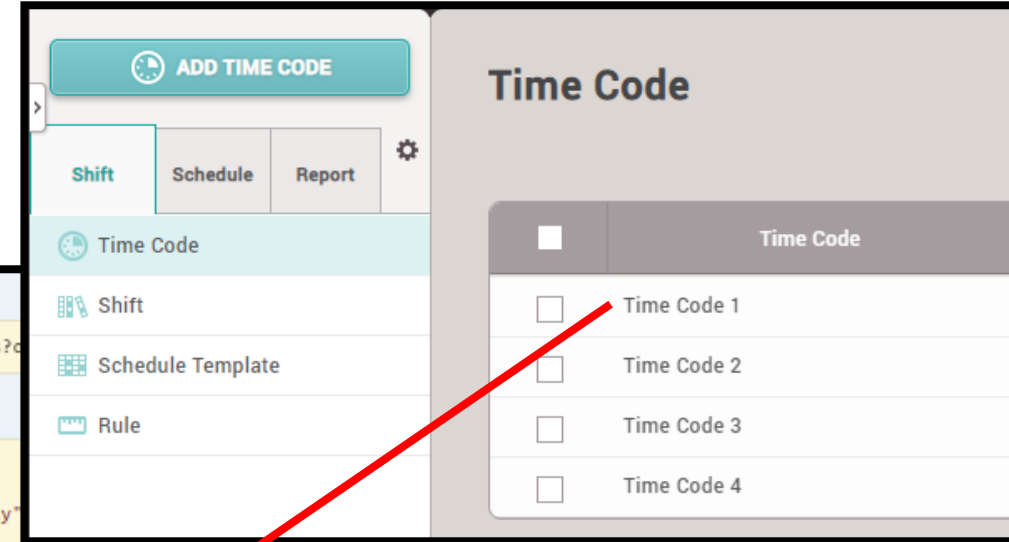
TA API Main Features

Time Code

POST /pay_codes

POST	/pay_codes

Parameters

Parameter	Value
| pay_code | ```
{
  "accumulate_toward_overtime": false,
  "color": "#f00",
  "count_as_attendance": true,
  "description": "string",
  "name": "Time Code 21",
  "time_rate": 1,
  "track_on_leave_management": true,
  "type": "not_worked"
}
``` |

Configurable

- Name: Time Code 3
- Description: Time Code 3
- Type: ◯ Attendance management ◯ Overtime management ◉ Leave management
- Option: ◯ Worked ◉ Not Worked

- Name: Time Code 4
- Description: Time Code 4
- Type: ◉ Attendance management ◯ Overtime management ◯ Leave management
- Time Rate: 1
- Color: 🟩

TA API Main Features

TA API Main Features

They are configurable!!

BioStar 2 T&A API

About

Auth

Time Code

Shift

Schedule Template

Rule

Schedule

User

User Group

Holiday

Leave

Punch Log

Device

Register

Setting

Reference

Report

03

Report.json

Daily
Edit History
Leave
Exception
Individual

Report.json

Report Types

1. Daily Report
2. Edit History Report
3. Leave Report
4. Exception Report
5. Individual Report

Possible Report Types via API

1. REPORT_DAILY
2. REPORT_DAILY_SUMMARY
3. REPORT_INDIVIDUAL
   - Report_filter_type: INDIVIDUAL_FILTER_SUMMARY
   - Report_filter_type: INDIVIDUAL_FILTER_DETAIL
4. REPORT_INDIVIDUAL_SUMMARY
5. REPORT_LEAVE
   - Filter: {time_code_id}
6. REPORT_EXCEPTION
7. REPORT_EDIT_HISTORY
8. REPORT_WORKWEEK

Search Conditions

Filter Conditions

* Name	Daily Report
* Report Type	Daily ▾ Column Setting
* User Group	Permanent 🔍 * User 20130909(TEST 3) + ② 🔍

Save Filter

Report Period

◀ Daily (2022-02-01 ~ 2022-02-01) ▾ ▶

Update Report   CSV Export   PDF Export

Daily Report

⏮ ◀ 1 / 1 ▶ ⏭   50 rows ▾

Date	Name	User ID	Department	Shift	Leave	In	Out	Exception	Regular hours	Overtime hours	Total Work Ho...
2022/02/01	TEST 1	20201201	Permanent	Standard Work h...	-	08:00:00	17:00:00	Early Out	7:15:00	1:00:00	8:15:00
2022/02/01	TEST 2	20201019	Permanent	Standard Work h...	-	-	-	Absence	0:00:00	0:00:00	0:00:00
2022/02/01	TEST 3	20130909	Permanent	Standard Work h...	-	-	-	Absence	0:00:00	0:00:00	0:00:00

Report.json

Report Types

1. Daily Report
2. Edit History Report
3. Leave Report
4. Exception Report
5. Individual Report

Report

POST /report.json

Implementation Notes
Get attendance report in json format

Response Class (Status 200)
Model | Model Schema

```
{
  "json_file_path": "string",
  "message": "string",
  "status_code": "string"
}
```

Response Content Type application/json

Parameters

Parameter	Value
body	(required)

Parameter content type: application/json

Data Type

Model | Model Schema

ReportGetInJSON {
    columns (object),
    end_datetime (date): The end datetime of the report range. And end datetime in YYYY-MM-DD format (ex. 2015-06-10),
    group_id (long, optional),
    limit (long): Number of results,
    offset (integer): Results data offset,
    rebuild_time_card (boolean),
    report_type (string): the type of report to be generated individual, daily or others,
    start_datetime (date): The start datetime of the report range. And start datetime in YYYY-MM-DD format (ex. 2015-06-10),
    user_id_list (long)
}

Report.json

Report Types

1. **Daily Report**
2. Edit History Report
3. Leave Report
4. Exception Report
5. Individual Report

Report.json

Report Types

1. Daily Report
2. Edit History Report
3. Leave Report
4. Exception Report
5. Individual Report

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Report.json

Report Types

1. Daily Report
2. Edit History Report
3. **Leave Report**
4. Exception Report
5. Individual Report

Pay Code ID is required


```
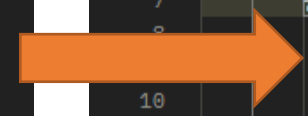POST          https://localhost:3002/tna/report.json ...

Params    Authorization    Headers (10)    Body ●    Pre-request Script    Tests

● none    ● form-data    ● x-www-form-urlencoded    ● raw    ● binary    ● GraphQL

 1  {
 2      "limit": 50,
 3      "offset": 0,
 4      "type": "callCreateReport",
 5      "start_datetime": "2021-01-03",
 6      "end_datetime": "2022-03-03",
 7      "report_type": "REPORT_LEAVE",
 8      "report_filter_type":"INDIVIDUAL_FILTER_SUMMARY",
 9      "user_id_list": [
10          "1",
11          "2",
12          "3",
13          "12",
14          "20201201"
15      ],
16      "sort_columns": [],
17      "filter": [
18          14
19      ],
20      "columns": [
21          {
22              "na
23              "fi
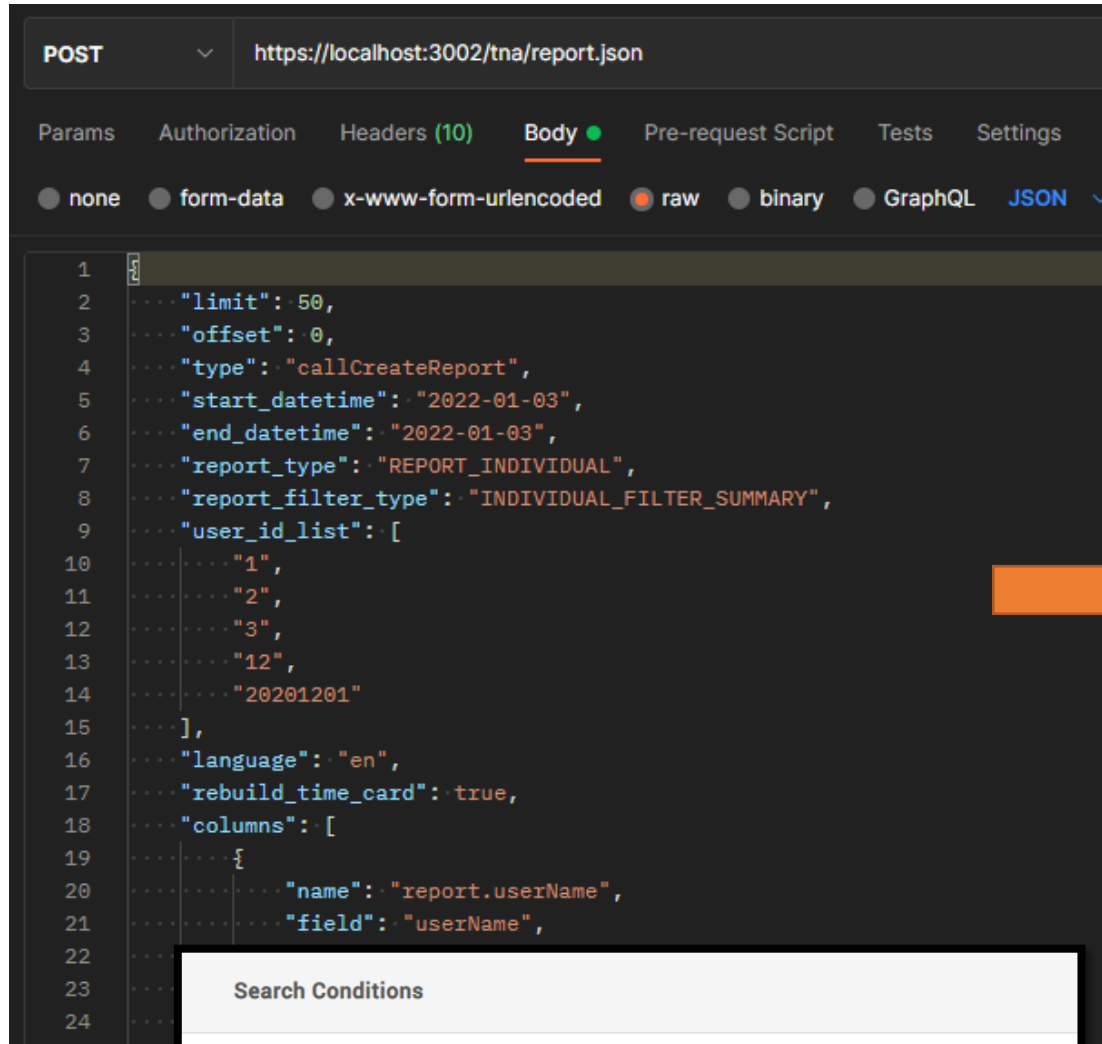```

```
Body    Cookies (1)    Headers (12)    Test Results

Pretty    Raw    Preview    Visualize    JSON ∨

 1  {
 2      "message": "Processed Successfully",
 3      "message_key": "SUCCESSFUL",
 4      "language": "en",
 5      "status_code": "SUCCESSFUL",
 6      "records": [
 7          {
 8              "datetime": "2022/02/10",
 9              "userName": "TEST 1",
10              "userId": "20201201",
11              "userGroupName": "Permanent",
12              "shift": "Standard Work hour management",
13              "leave": "Leave",
14              "leavePeriod": "2022/02/10 09:00:00 ~ 2022/02/10 18:00:00",
15              "flexibleLeaveHours": "-",
16              "leaveApprovedComment": "1"
17          }
18      ],
19      "total": 1
20  }
```

Search Conditions

Filter Conditions

* Name   Daily Report

* Report Type   Leave   Column Setting

Report.json

Report Types

1. Daily Report
2. Edit History Report
3. Leave Report
4. **Exception Report**
5. Individual Report

Report.json

Report Types

1. Daily Report
2. Edit History Report
3. Leave Report
4. Exception Report
5. **Individual Report**

BioStar 2.8.14

Things to know

- **/tna/report.json API does not export any documents(CSV, PDF...etc.)**

- **/tna/report.json API only returns the appropriate report information in JSON format to the response body.**

- **/tna/report.json API can return different type of reports according to the input(request body).**

- **/tna/report.json API for LEAVE REPORT requires PAY_CODE_ID in its "filter" parameter.**

Body | Cookies (1) | Headers (12) | Test Results

Pretty | Raw | Preview | Visualize | JSON

```json
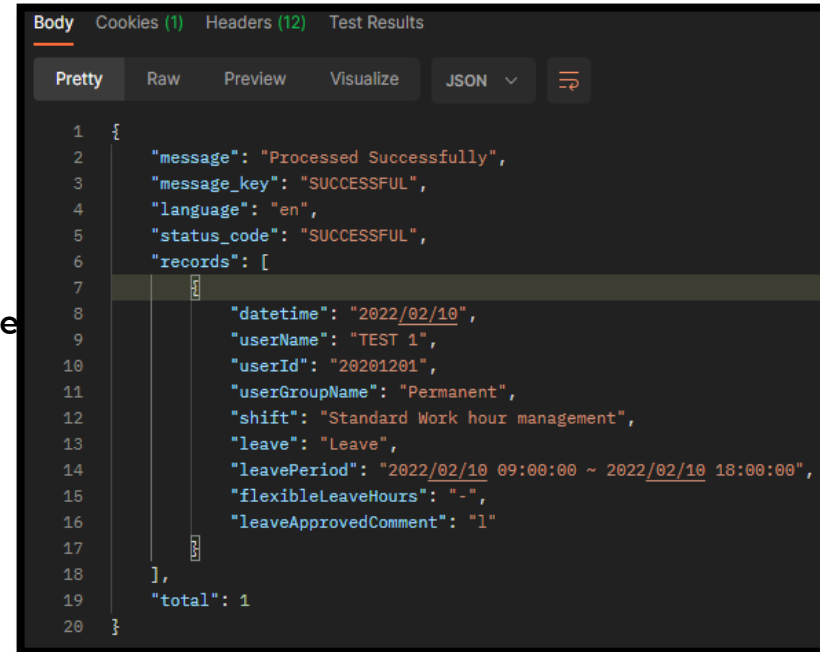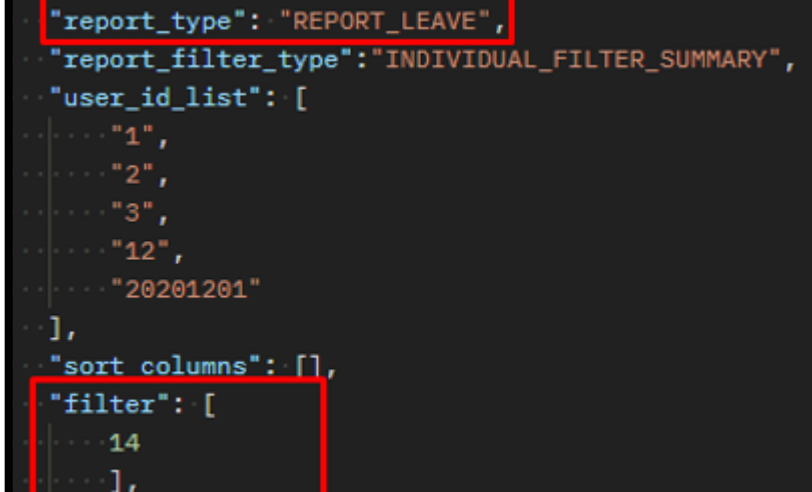1   {
2       "message": "Processed Successfully",
3       "message_key": "SUCCESSFUL",
4       "language": "en",
5       "status_code": "SUCCESSFUL",
6       "records": [
7           {
8               "datetime": "2022/02/10",
9               "userName": "TEST 1",
10              "userId": "20201201",
11              "userGroupName": "Permanent",
12              "shift": "Standard Work hour management",
13              "leave": "Leave",
14              "leavePeriod": "2022/02/10 09:00:00 ~ 2022/02/10 18:00:00",
15              "flexibleLeaveHours": "-",
16              "leaveApprovedComment": "1"
17          }
18      ],
19      "total": 1
20  }
```

"Report_Type" values:
- REPORT_DAILY
- REPORT_DAILY_SUMMARY
- REPORT_INDIVIDUAL
- REPORT_INDIVIDUAL_SUMMARY
- REPORT_LEAVE
- REPORT_EXCEPTION
- REPORT_EDIT_HISTORY
- REPORT_WORKWEEK

```json
"report_type": "REPORT_LEAVE",
"report_filter_type":"INDIVIDUAL_FILTER_SUMMARY",
"user_id_list": [
    "1",
    "2",
    "3",
    "12",
    "20201201"
],
"sort columns": [],
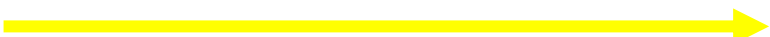"filter": [
    14
],
```

04

BioStar 2 <> Postman DEMO

Let's compare BioStar 2 T&A Report and API Report

suprema connect

BioStar 2.8.14

Things to know

- **Daily Report** ⟶ • **"report_type": "REPORT_DAILY"**

- **Individual Report** ⟶ • **"report_type": "REPORT_INDIVIDUAL"**

- **Leave Repot** ⟶ • **"report_type": "REPORT_LEAVE"**

- **Exception Report** ⟶ • **"report_type": "REPORT_EXCEPTION"**

- **Modified Punch Log History** ⟶ • **"report_type": "REPORT_EDIT_HISTORY"**

05

Q&A

How can you ask questions during a webinar?
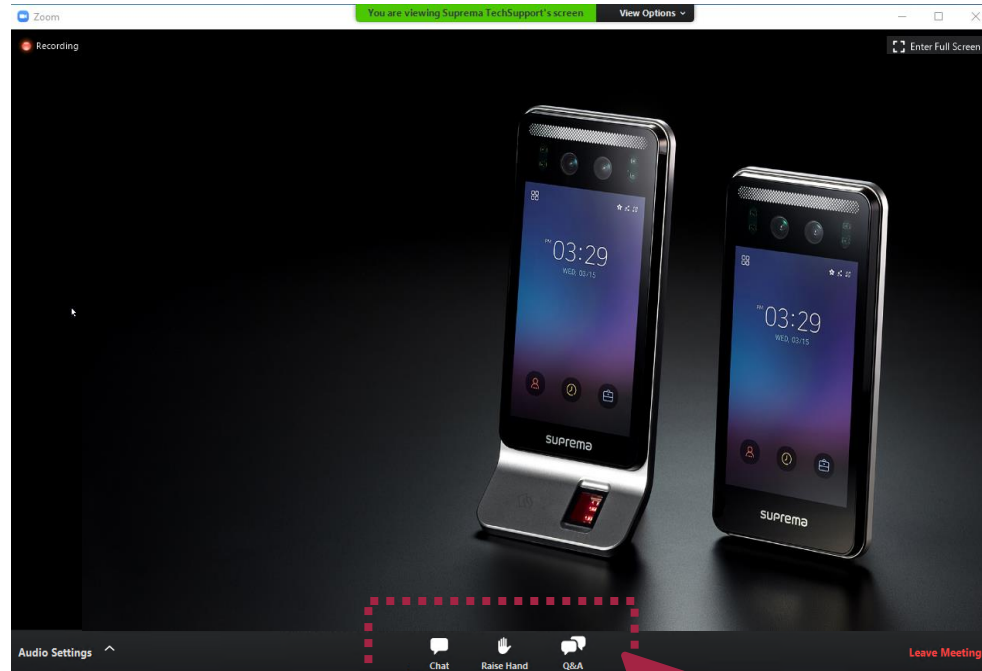
Click!

How to find the necessary icons
- ✓ Please move your mouse to the bottom of your screen, the 3 icons will appear.
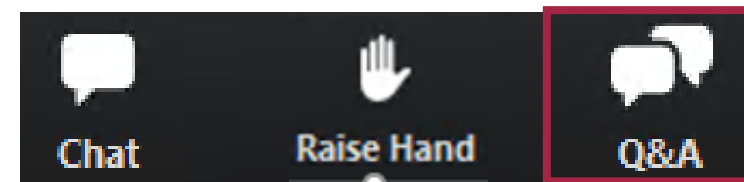
[Q&A] box

- ✓ During the webinar, you can leave your questions in the Q&A box anytime. Suprema Panels will answer in real time.

Thank you.