

# Food Waste API Service Specification for the IWMIS

**Version:** 0.8.0

**Base URL:** <https://iwmis.epd.gov.hk>

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## 1. Overview

### The Food Waste API Service

- allows clients to submit and track food waste recycling transactions at kiosks.
  - enables clients to submit and track the operational status of food waste kiosks.
  - The API supports bulk submission and provides validation feedback.
- 

## 2. Authentication

- **URL:** `/api/auth/token`
- **Method:** GET
- **Content-Type:** application/json
- **Description:** Get Authentication Token
- **Headers:**
  - X-Login-Name:** {API Client Name}
  - X-Login-API-Token:** {API Client API Token}
- **Request Body:** nil
- **Response:** 200 OK returns authentication token  
401 Unauthorized

### 3. Endpoints

#### 3.1. Post Food Waste Records

##### 3.1.1. End Point

- **URL:** /api/food-waste-reports
- **Method:** POST
- **Content-Type:** application/json
- **Description:** Submit one or more food waste recycling records.

##### *Request Header*

Authorization: Bearer { authentication token}

##### *Request Body*

FoodWasteReportsRequest object.

##### *Responses*

- **200 OK**  
Returns a FoodWasteReportsResponse object.
- **400 Bad Request**  
Returned only if the overall request data structure is invalid (e.g., not a valid JSON).
- **401 Unauthorized**  
Return error = invalid\_authentication\_token.

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##### 3.1.2. Schemas

##### FoodWasteReportsRequest

| Field        | Type   | Required | Description                        |
|--------------|--------|----------|------------------------------------|
| reportFormat | String | Yes      | Report format, allowed values: csv |
| reportHeader | String | Yes      | Report header in csv format        |
| reportData   | Array  | Yes      | Array of report data in csv format |

reportData fields:

| Field         | Type    | Required | Description                                                   |
|---------------|---------|----------|---------------------------------------------------------------|
| machineID     | String  | Yes      | Unique machine ID                                             |
| recycleWeight | integer | Yes      | Weight of waste recycled (in grams or as specified by system) |
| greenScore    | number  | Yes      | Reward points, must be multiple of 0.01                       |

|                 |        |     |                                                  |
|-----------------|--------|-----|--------------------------------------------------|
| status          | String | Yes | Status of the transaction                        |
| memberID        | String | Yes | Member card identifier                           |
| transactionID   | String | Yes | Unique transaction ID                            |
| transactionTime | String | Yes | Time of transaction, format: YYYY-MM-DD HH:MM:SS |

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#### FoodWasteReportsResponse

| Field       | Type            | Required | Description                                                     |
|-------------|-----------------|----------|-----------------------------------------------------------------|
| received    | number          | No       | Number of rows of data received                                 |
| success     | Number          | No       | Number of rows of data successfully imported                    |
| failed      | Number          | No       | Number of rows of data failed to import                         |
| error       | Array or string | No       | Human-readable error message                                    |
| completedAt | String          | Yes      | Completed process the request time, format: YYYY-MM-DD HH:MM:SS |

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#### ValidationErrorItem

| Field         | Type   | Required | Description           |
|---------------|--------|----------|-----------------------|
| error         | string | Yes      | Error code            |
| machineID     | string | Yes      | Unique machine ID     |
| transactionID | String | Yes      | Unique transaction ID |
| message       | string | Yes      | Error description     |

---

### 3.1.3. Examples

#### Request Example

**POST** /api/food-waste-reports

Request Header:

**Authorization:** Bearer xxxxxxxxxxxxxxxxxxxxxx

Request Body:

```
{
  "reportFormat": "csv",
  "reportHeader": "machineID,recycleWeight,greenScore,status,memberID,transactionID,transactionTime",
  "reportData": [
    "XX-XXXXX-00000,2500,12.50,valid,XXXXXXXXXX,XXX-1000001,\"2025-08-02 14:59:30\"",
    "XX-XXXXX-00001,5000,25.00,valid,XXXXXXXXXX,XXX-1000002,\"2025-08-02 15:01:43\""
  ]
}
```

---

#### Response Example - Success

```
{
  "received": 2,
  "success": 2,
  "failed": 0,
  "completedAt": "2025-08-05 14:30:00"
}
```

---

#### Response Example – Mixed Results

```
{
  "received": 2,
  "success": 1,
  "failed": 1,
  "error": [
    {
      "error": "invalid_recycleWeight",
      "machineID": "XX-XXXXX-00001",
      "transactionID": "d09207d4-xxxx-xxxx-xxxx-cd56554512e0",
      "message": "recycleWeight must be greater than 0"
    }
  ]
}
```

```
    }  
  ],  
  "completedAt": "2025-08-05 14:30:00"  
}
```

---

#### Response Example - Request Format Error

```
{  
  "error": "invalid_request_format",  
  "completedAt": "2025-08-05 14:30:00"  
}
```

---

#### Response Example - Unauthorized Error

```
{  
  "error": "invalid_authentication_token",  
  "completedAt": "2025-08-05 14:30:00"  
}
```

---

### 3.1.4. Error Codes

| HTTP Code | Meaning      | Description                                                            |
|-----------|--------------|------------------------------------------------------------------------|
| 200       | OK           | Request processed successfully.                                        |
| 400       | Bad Request  | The overall request data structure is invalid (e.g., not a valid JSON) |
| 401       | Unauthorized | Invalid authentication token is provided.                              |

---

#### Notes:

- All required fields must be present; missing required fields will cause validation errors.

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## 3.2. Post Food Waste Kiosk Status Records

### 3.2.1. End Point

- **URL:** /api/food-waste-kiosk-status
- **Method:** POST
- **Content-Type:** application/json
- **Description:** Submit one or more food waste kiosk status records.

#### Request Header

Authorization: Bearer { authentication token}

#### Request Body

Array of [FoodWasteKioskStatusRequest](#) object.

#### Responses

- **200 OK**  
Returns a [FoodWasteKioskStatusResponse](#) object.
- **400 Bad Request**  
Returned only if the overall request data structure is invalid (e.g., not a valid JSON).
- **401 Unauthorized**  
Return error = invalid\_authentication\_token.

---

### 3.2.2. Schemas

#### [FoodWasteKioskStatusRequest](#)

| Field      | Type    | Required | Description                                                                                                                                                                                                                                                                 |
|------------|---------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| machineID  | string  | Yes      | Unique machine ID                                                                                                                                                                                                                                                           |
| locationID | string  | Yes      | Location ID                                                                                                                                                                                                                                                                 |
| level      | integer | Yes      | 1 – means normal<br>2 – means error<br>0 – means recovered from previous error                                                                                                                                                                                              |
| code       | string  | Yes      | HKPC code, refer to Appendix – HKPC Mapping Code<br>The bin full percentage will be captured when the code is any of the following: 551, 552, 553, 554, 555, 556, 557, 558, or 559 (95% or full).<br>If the code is 601, the corresponding bin status should be greyed out. |
| message    | string  | Yes      | Description of the code                                                                                                                                                                                                                                                     |

|           |        |     |                                               |
|-----------|--------|-----|-----------------------------------------------|
| timestamp | string | Yes | Report timestamp, format: YYYY-MM-DD HH:MM:SS |
|-----------|--------|-----|-----------------------------------------------|

---

#### FoodWasteKioskStatusResponse

| Field       | Type            | Required | Description                                                     |
|-------------|-----------------|----------|-----------------------------------------------------------------|
| received    | number          | No       | Number of rows of data received                                 |
| success     | Number          | No       | Number of rows of data successfully imported                    |
| failed      | Number          | No       | Number of rows of data failed to import                         |
| error       | Array or string | No       | Human-readable error message                                    |
| completedAt | String          | Yes      | Completed process the request time, format: YYYY-MM-DD HH:MM:SS |

---

#### ValidationErrorItem

| Field     | Type   | Required | Description       |
|-----------|--------|----------|-------------------|
| error     | string | Yes      | Error code        |
| machineID | string | Yes      | Unique machine ID |
| message   | string | Yes      | Error description |

---

### 3.2.3. Examples

#### Request Example

**POST** /api/food-waste-kiosk-status

Request Header:

**Authorization:** Bearer xxxxxxxxxxxxxxxxxxxxxx

Request Body:

```
[
  {
    "machineID": "SBIN-CORNERSTONE-00031",
    "locationID": "YTM/SPM/OLYMC2/001",
    "level": 1,
    "code": "551",
    "message": "W 10% full (Food waste recycling bin) [FOODWASTE]",
    "timestamp": "2025-07-02 04:47:59"
  }, {
    "machineID": "SBIN-CORNERSTONE-00032",
    "locationID": "YTM/SPM/OLYMC2/002",
    "level": 1,
    "code": "551",
    "message": "W 10% full (Food waste recycling bin) [FOODWASTE]",
    "timestamp": "2025-07-02 04:47:59"
  }
]
```

---

#### Response Example - Success

```
{
  "received": 1,
  "success": 1,
  "failed": 0,
  "completedAt": "2025-08-05 14:30:00"
}
```

---

#### Response Example - Mixed Results

```
{
  "received": 1,
  "success": 0,
  "failed": 1,
  "error": [
    {
```

```
    "error": "invalid_level",
    "machineID": "XX-XXXXX-00001",
    "message": "level must be integer"
  }
],
"completedAt": "2025-08-05 14:30:00"
}
```

---

#### Response Example - Request Format Error

```
{
  "error": "invalid_request_format",

  "completedAt": "2025-08-05 14:30:00"
}
```

---

#### Response Example - Unauthorized Error

```
{
  "error": "invalid_authentication_token",
  "completedAt": "2025-08-05 14:30:00"
}
```

---

### 3.2.4. Error Codes

| HTTP Code | Meaning      | Description                                                |
|-----------|--------------|------------------------------------------------------------|
| 200       | OK           | Request processed successfully.                            |
| 400       | Bad Request  | Request data structure is invalid (e.g., not a valid JSON) |
| 401       | Unauthorized | Invalid authentication token is provided.                  |

---

#### Note:

- All required fields must be present; missing required fields will cause validation errors.

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## Appendix – HKPC Mapping Code

| Contractor Code | Description                                       | HKPC Code | Level |
|-----------------|---------------------------------------------------|-----------|-------|
| 3010            | Full (Food waste recycling bin)                   | 559       | 2     |
| 3011            | W 10% full (Food waste recycling bin) [FOODWASTE] | 551       | 1     |
| 3012            | W 20% full (Food waste recycling bin) [FOODWASTE] | 552       | 1     |
| 3013            | W 30% full (Food waste recycling bin) [FOODWASTE] | 553       | 1     |
| 3014            | W 40% full (Food waste recycling bin) [FOODWASTE] | 554       | 1     |
| 3015            | W 50% full (Food waste recycling bin) [FOODWASTE] | 555       | 1     |
| 3016            | W 60% full (Food waste recycling bin) [FOODWASTE] | 556       | 1     |
| 3017            | W 70% full (Food waste recycling bin) [FOODWASTE] | 557       | 1     |
| 3018            | W 80% full (Food waste recycling bin) [FOODWASTE] | 558       | 1     |
| 3019            | W 95% full (Food waste recycling bin) [FOODWASTE] | 559       | 1     |
| <not provided>  | Out of service                                    | 601       | 2     |
| 3027            | Door opened                                       | 3027      | 2     |
| 3027            | Door closed                                       | 3027      | 0     |
| 3035            | Top cover failed to open                          | 3035      | 2     |
| 3035            | Top cover can fully open now                      | 3035      | 0     |
| 3036            | Top cover failed to close                         | 3036      | 2     |
| 3036            | Top cover can fully close now                     | 3036      | 0     |
| 3037            | Top cover close sensor resumed normal             | 3037      | 0     |
| 3037            | Top cover close sensor failed                     | 3037      | 2     |
| 3040            | Tank state = empty/error                          | 3040      | 2     |
| 3060            | UPS activated                                     | 3060      | 2     |
| 3060            | UPS returned idle                                 | 3060      | 0     |
| 3081            | Bin sensor cannot get weight or weight error      | 3081      | 0     |
| 3081            | Bin sensor cannot get weight or weight error      | 3081      | 2     |
| 3082            | Temperature abnormal                              | 909       | 0     |
| 3082            | Temperature abnormal                              | 909       | 2     |