

Importing JSON into MySQL with PHP

In the previous tutorial, you created a `security_events` table. In this tutorial, you will read data from a JSON file and import it into MySQL using PHP.

The JSON file contains devices and events. Each event will be inserted into the `security_events` table as a separate database record.

Project Structure

Your project should contain:

```
json-import
├── import_json.php
└── smart_security_data.json
```

Copy the JSON file into your project folder.

Create the Import Script

Create a new file called:

```
import_json.php
```

Add the following code:

```
<?php

$conn = new mysqli(
    "localhost",
    "root",
```

```
    "",
    "project_db"
);

if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}

echo "Database connection successful.";

?>
```

Test the Database Connection

Open:

```
http://localhost/json-import/import_json.php
```

You should see:

```
Database connection successful.
```

Read the JSON File

Add the following code underneath the database connection:

```
$json = file_get_contents(
    "smart_security_data.json"
);

echo $json;
```

Refresh the page.

The contents of the JSON file should be displayed in the browser.

```
{ "homeId": "GC-HOME-014", "location": "Gold Coast", "devices": [ { "deviceId": "CAM-01", "deviceType": "Security Car  
"video_stream", "severity": "high", "accessResult": "authorised" }, { "timestamp": "2026-03-14T02:19:10", "eventType": "re  
"LOCK-02", "deviceType": "Smart Door Lock", "room": "Back Door", "events": [ { "timestamp": "2026-03-13T23:47:02", "
```

Convert the JSON into a PHP Array

Replace:

```
echo $json;
```

with:

```
$data = json_decode(  
    $json,  
    true  
);  
  
print_r($data);
```

Refresh the page.

You should now see a PHP array structure.

```
Array ( [homeId] => GC-HOME-014 [location] => Gold Coast [devices] => Array ( [0] => Array ( [deviceId] :  
[eventType] => motion_detected [dataTransmitted] => video_stream [severity] => high [accessResult] => auth  
=> critical [accessResult] => blocked ) ) [1] => Array ( [deviceId] => LOCK-02 [deviceType] => Smart Door  
=> access_log [severity] => medium [accessResult] => denied ) ) ) )
```

Loop Through the Devices

Replace:

```
print_r($data);
```

with:

```
foreach ($data["devices"] as $device) {  
  
    echo "<h3>";
```

```
echo $device["deviceId"];  
echo "</h3>";  
  
}
```

Refresh the page.

You should see:

```
CAM-01  
  
LOCK-02
```

Loop Through the Events

Replace the previous code with:

```
foreach ($data["devices"] as $device) {  
  
    foreach ($device["events"] as $event) {  
  
        echo $event["eventType"];  
        echo "<br>";  
  
    }  
  
}
```

Refresh the page.

You should see:

```
motion_detected  
remote_access_attempt  
unlock_attempt
```

Prepare the INSERT Statement

Add the following code before the loops:

```
$stmt = $conn->prepare(
    "INSERT INTO security_events (

        device_id,
        device_type,
        room,
        event_timestamp,
        event_type,
        data_transmitted,
        severity,
        access_result

    )
    VALUES (?, ?, ?, ?, ?, ?, ?, ?, ?)"
);
```

This statement will be reused for every event.

Insert the Events

Replace the existing loops with:

```
foreach ($data["devices"] as $device) {

    foreach ($device["events"] as $event) {

        $stmt->bind_param(
            "ssssssss",

            $device["deviceId"],
            $device["deviceType"],
            $device["room"],

            $event["timestamp"],
            $event["eventType"],
            $event["dataTransmitted"],
```

```
        $event["severity"],  
        $event["accessResult"]  
  
    );  
  
    $stmt->execute();  
  
}  
  
}
```

Display a Success Message

Add:

```
echo "Import completed successfully.";
```

after the loops.

The completed import should now run automatically when the page loads.

Run the Import

Open:

```
http://localhost/json-import/import_json.php
```

You should see:

```
Import completed successfully.
```

Verify the Imported Data

Open phpMyAdmin.

Run:

```
SELECT * FROM security_events;
```

You should now see three imported events from the JSON file.

Example:

event_id	device_id	event_type	severity
1	CAM-01	motion_detected	high
2	CAM-01	remote_access_attempt	critical
3	LOCK-02	unlock_attempt	medium

Complete import_json.php File

```
<?php

$conn = new mysqli(
    "localhost",
    "root",
    "",
    "project_db"
);

if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}

$json = file_get_contents(
    "smart_security_data.json"
);

$data = json_decode(
    $json,
    true
);

$stmt = $conn->prepare(
```

```

"INSERT INTO security_events (

    device_id,
    device_type,
    room,
    event_timestamp,
    event_type,
    data_transmitted,
    severity,
    access_result

)
VALUES (?, ?, ?, ?, ?, ?, ?, ?)"
);

foreach ($data["devices"] as $device) {

    foreach ($device["events"] as $event) {

        $stmt->bind_param(
            "ssssssss",

            $device["deviceId"],
            $device["deviceType"],
            $device["room"],

            $event["timestamp"],
            $event["eventType"],
            $event["dataTransmitted"],
            $event["severity"],
            $event["accessResult"]

        );

        $stmt->execute();

    }

}

```



```
echo "Import completed successfully.";
```

```
?>
```

You have successfully imported JSON data into MySQL using PHP.

Next tutorial: **Querying Imported Data with SQL.**

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