Requirements and test performed.

Used SSMS, Scalar and Postman

1. Register a Machine

Allow a new machine to be added to the system.

• POST /api/machines

• Accepts machine metadata such as name and location.

• Responds with the registered machine object.

Test:

* If null or empty, returns a 400 bad request and error message for each required field
* If exists returns 409 conflict and error message stating Machine already exists
* If success, responds with 201 created and JSON object

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2. Log Machine Status

Machines should be able to submit updates about their current state.

• POST /api/machines/{id}/status

• Accepts fields like status and timestamp.

• Acceptable statuses might include: idle, running, error, maintenance.

Test:

* If all fields are null or empty, returns a 400 bad request and error message for each required field
* If machine id is null or empty and printerStatus field has data, return 404 not found with error message “Machine with ID {id} not found”
* If machine id has data and printerStatus field has data but machine Id does not exist return 404 not found with error message “Machine with ID XXXXX not found”
* If machine does exist but printerStatus field is null or empty returns 400 bad request and error message "The printerStatus field is required."
* If success, returns 200 OK and JSON Machine Object with new Status entry

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3. View Machine Summary

Allow a manager to retrieve an overview of all registered machines.

• GET /api/machines

• For each machine, return its metadata and most recent status update.

Test:

* Returns 200 Ok and Machine JSON List with most recent Machine Status based on Timestamp

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4. View Machine Detail

Return detailed information for a specific machine.

• GET /api/machines/{id}

• Include metadata, most recent status, and last 5 status logs.

Test:

* If machine id is null or empty return 404 not found with error message “Machine with ID {id} not found”
* If machine id does not exist return 404 not found with error message “Machine with ID XXXXX not found”
* If success, returns 200 OK with Machine JSON Object containing list of last 5 Status entries ordered by Timestamp

SSMS query output to double check Timestamp ordering in JSON list

StatusId Message Timestamp OffsetPrinterPrinterId

PRN005-5 running 2025-08-18 12:13:24.3011286 PRN005

PRN005-3 idle 2025-08-18 12:13:24.3011280 PRN005

PRN005-2 error 2025-08-18 12:01:24.3011278 PRN005

PRN005-1 running 2025-08-18 11:54:24.3011275 PRN005

PRN005-4 maintenance 2025-08-18 11:46:24.3011283 PRN005

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