Deployment Guide

CSC-640-MI Telemetry API

Step-by-step deployment using Docker Compose

Prerequisites

Required Software:

- Docker Desktop (includes Docker Compose)
- Git (to clone the repository)

Step 1: Clone the Repository

```
git clone https://github.com/islerm2-nku/CSC-640-MI-Part1.git
cd CSC-640-MI-Part1
```

What's included:

- PHP application code
- Python telemetry parser
- Docker configuration files
- Database migration scripts
- Example telemetry files

Step 2: Build and Start Containers

```
docker-compose up --build -d
```

What this does:

- Builds the web container (PHP + nginx + Python)
- Starts MySQL database container
- Creates network between services
- Exposes port 80 for API access

Wait 10-15 seconds for MySQL to initialize completely

Step 3: Run Database Migration

```
docker-compose run --rm migrate
```

Creates database tables:

- `session_info` - session metadata
- `weather` - track conditions
- `driver` - driver and car information
- `attribute_values` - telemetry time-series data

Output:

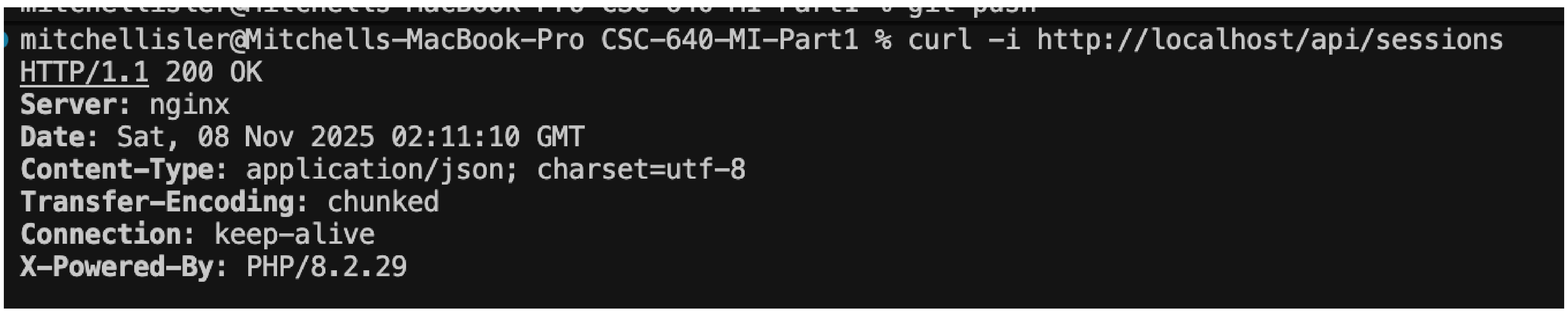
```
Migration complete: session_info, weather, and driver tables created successfully
```

Step 4: Verify Deployment

Test the API is running:

```
curl -i http://localhost/api/sessions
```

Deployment Verification



```
mitchellisler@Mitchells-MacBook-Pro CSC-640-MI-Part1 % curl -i http://localhost/api/sessions
HTTP/1.1 200 OK
Server: nginx
Date: Sat, 08 Nov 2025 02:11:10 GMT
Content-Type: application/json; charset=utf-8
Transfer-Encoding: chunked
Connection: keep-alive
X-Powered-By: PHP/8.2.29
```

nginx response

Key indicators:

- ✅ `HTTP/1.1 200 OK` - successful response
- ✅ `Server: nginx` - nginx web server is running
- ✅ `X-Powered-By: PHP/8.2.29` - PHP is processing requests
- ✅ `Content-Type: application/json` - API is returning JSON

Container Status Check

Verify all containers are running:

```
docker-compose ps
```

Expected output:

```
NAME                      STATUS     PORTS
csc-640-mi-web            Up         0.0.0.0:80->80/tcp
csc-640-mi-db             Up         3306/tcp
```

Alternative:

```
docker ps
```

Viewing Logs

Web container (nginx + PHP):

```
docker-compose logs -f web
```

Database container:

```
docker-compose logs -f db
```

All containers:

```
docker-compose logs -f
```

Troubleshooting

Container won't start:

- Check port 80 isn't already in use: `lsof -i :80`
- Restart Docker Desktop
- Run: `docker-compose down && docker-compose up --build -d`

Migration fails:

- Ensure MySQL is ready: wait 15 seconds after starting
- Check DB logs: `docker-compose logs db`
- Run migration manually: `docker-compose exec web php /var/www/html/db/create_db.php`

Stopping the Application

Stop containers (preserve data):

```
docker-compose stop
```

Stop and remove containers:

```
docker-compose down
```

Stop and remove containers + volumes (deletes database):

```
docker-compose down -v
```

Restarting the Application

After stopping:

```
docker-compose up -d
```

No need to rebuild or re-run migrations unless:

- Database schema changed
- Volumes were deleted with `-v` flag

Summary

Deployment is complete when:

1. ✅ Containers are running (`docker-compose ps`)
2. ✅ Database tables created (migration successful)
3. ✅ API responds to requests (nginx proof screenshot)
4. ✅ Upload endpoint accepts `.ibt` files

Total deployment time: ~2 minutes

Resources:

- API documentation: `API_CURL.md`
- Example files: `telemetry/` directory
- Postman collection: `PostmanCollection.json`

Questions?

Need help?

- Check logs: `docker-compose logs`
- Review README: `README.md`
- Inspect containers: `docker inspect <container>`

Thank you!