StormTune Backend — Quick Run Guide (v1.0)

Purpose: Help partners/devs run the API locally and verify SparkGap Advisory & recommendations.

1) Prerequisites

1   Python 3.11 (or 3.10)

2   pip (comes with Python) & virtualenv (optional)

3   Git (optional) and curl/Postman (for testing)

2) Unzip the Package

Unzip file: stormtune_dev_bundle_backend_only.zip. You should see folders like backend/ and docs/.

3) Install & Run the API

In a terminal:

```
cd backend python -m venv .venv && source .venv/bin/activate # Windows: .venv\Scripts\activate pip
install -r requirements.txt uvicorn app.main:app --reload
```

The API should be live at http://127.0.0.1:8000

4) Test the Endpoint

Use curl:

```
curl -X POST http://127.0.0.1:8000/api/recommend -H "Content-Type: application/json" -d '{
"race_mode": "street", "basic_mode": true, "ecu_brand": null, "ambient": {"temp_c": 25,
"humidity_pct": 60, "baro_hpa": 1013, "iat_c": 35, "clt_c": 90}, "track":
{"surface":"asphalt","condition":"dry","prep":"unprepped","track_temp_c":30}, "vehicle": {"drive"
:"RWD","induction":"turbo","fuel":"Pump","tire":"drag_radial","weight_class":"mid","ignition_stre
ngth":"OEM"}, "baseline": {"launch_rpm":5500,"base_wgdc_pct":55,"afr_target_wot":11.8,"tire_hot_p
ressure_psi":16,"boost_psi":12} }'
```

Expected: JSON with 'corrections', 'spark_gap', and 'insight'.

5) Run Unit Tests (optional)

```
cd backend pytest -q
```

You should see tests for spark-gap logic and the API endpoint pass.

6) OpenAPI Spec (Schema)

Open docs/openapi.yaml in Swagger Editor or Insomnia to inspect the models and try calls.

7) Postman (optional)

If you have the full v1.1/v1.2 bundle, import configs/stormtune_v1.postman_collection.json and stormtune_local.postman_environment.json.

8) Troubleshooting

- **Port in use (8000)**: Change port: `uvicorn app.main:app --reload --port 8010`
- **SSL/Firewall blocks**: Test with http://127.0.0.1:8000 not localhost; check VPN rules.

- **PIP errors on Windows**: Use a clean venv, upgrade pip: `python -m pip install --upgrade pip`
- **Unicode/Path issues**: Avoid special characters in folder names.
- **Slow install**: Ensure internet for first install. Subsequent runs are instant.

That's it — your StormTune backend is running. Share this PDF with partners.