NATIONFILES STABILITY INDEX (NFSI) - VALIDATION AND VERIFICATION REPORT

NationFiles Research

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NationFiles

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INTEGRITY AND CREDIBILITY OF THE NFSI

NationFiles and the NFSI are designed to serve as a trusted reference in scientific studies, audits, and regulatory assessments. The following positions underscore traceability and defensibility.

- **No invented values:** All NFSI values and forecasts are produced solely from documented formulas and the sources listed in this report and the data inventory. There are no manual overrides or black-box corrections.
- **Fully code-based and documented:** Every calculation step (Layers 1–4) is implemented in code and described in this report with constants, formulas, and pseudo-code.
- **Provenance and audit trail:** Data origin, licences, and update frequencies are documented in the data inventory and legal sources. Changes to model and data are versioned and traceable via an audit trail.
- **Governance** includes version control, audit trail, and defined processes for external auditors.
- **Algorithmic interpretations** do not represent official assessments. Technical security, audit cycles (e.g. SCA/SAST), and infrastructure are described in the Global Security & Resilience Statement (`/legal/security/`).
- **Error correction for raw data:** report to data@nationfiles.com → source review → correction in the database → automatic recalculation; manual overwriting of scores is excluded (see Independence Statement `/legal/independence/`).

ABSOLUTE TRANSPARENCY

NationFiles is committed to full transparency in the methodology, data, and calculation of the NFSI. There are no hidden parameters, no opaque corrections, and no deliberately withheld information relevant to assessing the index.

What is disclosed:

- All formulas and calculation steps (Layers 1–4), including pseudo-code and the complete constants table, in this report.
- Complete data inventory of all sources with NFSI impact: origin, licence, update frequency, thematic weight. Access to legal sources (`/legal/sources/`).
- No secret weightings: The weight matrix (connector weights, groups) is documented; upon request, authorised auditors can access technical artefacts under audit agreements.
- Changes to model and data are versioned; an audit trail (e.g. timestamps, hashes) ensures traceability. Calculation logs per country/date can be provided during audits to verify intermediate steps.

- No black box: Every published NFSI value can be reconstructed from the documented formulas, constants, and input data. There are no downstream "secret corrections" or manual overrides.

Transparency is not a marketing claim but documented practice: this report and the linked references are the basis.

HOW TO CITE THIS REPORT

This report is citable for media, academia, and public authorities. Use the following:

> *Neawolf Media Group / NationFiles (2026). Validation and Verification Report — NationFiles Stability Index (NFSI). Version 1.0. Aachen. Document ID: VVR-2026-03-07.*

Short:

> *NationFiles (2026). NFSI Validation Report. VVR-2026-03-07.*

SYSTEM ARCHITECTURE AND DATA PIPELINE

Data ingestion → Preprocessing → Layer 1 (indicators, normalization) → Layer 2 (thematic aggregation, 7-day smoothing) → Layer 3 (final score, crash mode) → Delivery via API and feeds.

Fig.: Data flow from ingestion through Layers 1–3 to delivery.

1. Ingestion
2. Preprocessing
3. Layer 1 — Indicators
4. Layer 2 — Thematic aggregation
5. Layer 3 — Final score and crash mode
6. 7-day forecast / API

WEIGHTING, SCALES, AND NORMALIZATION — HOW EVERYTHING IS WEIGHTED

So that the reader can see unambiguously how the system works: all value ranges, normalization rules, and weightings are described here in one place.

smoothing is applied and the raw score is output as `NFSI_Today`. The result is the published NFSI value for that country and date.

DAILY INDICATORS AND THEIR IMPACT ON THE NFSI

The NFSI integrates daily-updated sources that reflect stability in near real time. These include news events (GDELT), media tone, and country-specific risk signals. They enter via defined indicators in Layer 1 and affect the daily value through Layers 2 and 3.

Relevant daily sources: (1) GDELT — Goldstein scale, average tone, and event risk level per country; (2) media sentiment; (3) proprietary news risk signals with 24h/48h windows.

A live signal is formed from averages of Goldstein, tone, and risk level. If average risk exceeds a threshold, a deduction is applied. The result may be smoothed with the established NFSI index (e.g. 40% live, 60% index) to limit noise.

Simplified logic (pseudo-code, not implementation-identical): LIVE_BASE = 50 FOR each source: LIVE_BASE += (Goldstein_avg × k1) + (Tone_avg × k2) + (Sentiment_avg × k2) IF risk_avg > threshold THEN LIVE_BASE −= (risk_avg − threshold) × k3 LIVE_BASE = CLAMP(LIVE_BASE, 0, 100) IF established index present THEN SMOOTHED = 0.4 × LIVE_BASE + 0.6 × index

DATA INVENTORY — ALL SOURCES WITH NFSI IMPACT

SOURCE	FIELD	LICENSE	UPDATE	COVERAGE	WEIGHT
AcledMonthAll	Crisis & Safety Radar (Level 1)	ACLED / filtered, aggregated for Naciro Intelligence	wöchentlich	Global	90
AcledMonthAllOverview	Crisis & Safety Radar (Level 1)	ACLED / filtered, aggregated for Naciro Intelligence	wöchentlich	Global	95
CountriesConflictUcdpGed	UCDP GED conflict events	Free for academic, commercial, governmental use (see UCDP)	täglich	Global	85
CountriesCurrencyFromFa	7-Tage-Trend Währung	intern	täglich	Global	65

SOURCE	FIELD	LICENSE	UPDATE	COVERAGE	WEIGHT
CountriesGdeltGlobRadar	GDELT global event data	Unlimited use for academic, commercial, governmental (see Terms of Use)	mehrmals täglich	Global	85
CountriesNetAbuseIpDb	Abuse IPs by country (AbuseIPDB)	AbuseIPDB Terms of Use	täglich	Global	70
CountriesNetGrpTrfcAnom	Traffic anomalies by location	Cloudflare Terms of Use	mehrmals täglich	Global	55
CountriesNetSpmBot	Botnet C&C by country (Spamhaus)	Spamhaus Terms & Conditions	täglich	Global	70
CountriesNetTrfcAnom	Traffic anomalies (Cloudflare Radar)	Cloudflare Terms of Use	mehrmals täglich	Global	70
CountriesPopPrisn100K	Prison population rate per 100k	CC BY / Our World in Data	wöchentlich	Global	50
CountriesVatRatesApiVer	VAT rates by country (APIVerve)	APIVerve Terms of Service	wöchentlich	Global	60
CountriesVatRatesVatLup	VAT rates EU (VAT Lookup)	Refer to source (EC data)	wöchentlich	Global	60
CountriesWb65Up	Population 65+ %	CC BY 4.0 / filtered, aggregated	wöchentlich	Global	10
CountriesWbAccsZs	Access to electricity %	CC BY 4.0 / filtered, aggregated	wöchentlich	Global	60
CountriesWbCcEst	Control of corruption (estimate)	CC BY 4.0 / filtered, aggregated	wöchentlich	Global	85
CountriesWbCdrtIn	Crude death rate	CC BY 4.0 / filtered, aggregated	wöchentlich	Global	30

Final Layer-2 score: `score_final = 0.6 × daily_score + 0.4 × previous_day_score`. If no entry exists for the day, a recovery value (up to 95) is used so that gaps are not penalised indefinitely.

Pseudo-code: DAILY_SCORES = COLLECT score_row FOR (source, country, date) IF group = security THEN daily_score = MIN(DAILY_SCORES) ELSE daily_score = AVERAGE(DAILY_SCORES, with dummies 0 and 100) prev = LAST_SCORE(country, source, previous_day) score_final = 0.6 × daily_score + 0.4 × prev score_final = CLAMP(score_final, 0, 100)

LAYER 3 — FINAL SCORE, CRASH MODE, AND SMOOTHING

Layer 3 combines all source scores into the country NFSI. Each source has a thematic group and weight; effective weight depends on current score. `effective_weight = group_weight × (score_node / 100) × update_multiplier`. Groups are e.g. 100 (security), 85, 60, 50, 40; group −1 is excluded.

`NFSI_Base = SUM(score_node × effective_weight) / SUM(effective_weight)`, including fixed dummies 0 and 100 with weight 1.

If the minimum of security scores (group 100) < 70, a conflict malus is applied: `malus = (70 − min_security) × factor`, capped (e.g. 35). `NFSI_Base` is reduced by this malus.

Optional: strong governance (e.g. WGI est_total) can pull the raw score up: `final = raw + (100 − raw) × (est_total/100) × wgi_pull`.

Daily smoothing (inertia): If security minimum ≥ 25, `NFSI_Today = prev × 0.8 + today × 0.2`, with max daily change ±3. In acute security crisis (min < 25), smoothing is suspended so the score reacts immediately.

Pseudo-code (core): FOR each source: eff_w = group × (score_node/100) base = SUM(score × eff_w) / SUM(eff_w) including dummies 0, 100 min_sec = MIN(scores of security group) IF min_sec < 70 THEN malus = (70 − min_sec) × 1.0; base = base − malus raw = CLAMP(base, 0, 100) IF min_sec >= 25 THEN nfsi_today = 0.8×prev + 0.2×raw; daily change max ±3 ELSE nfsi_today = raw

Fig.: Core formulas of the three NFSI layers (pseudo-code level).

AGGREGATION AND WEIGHTING (LAYER 2)

Layer 1: severity from row (node-specific); `impact = severity^1.6 * 100`; `score_row = max(0, 100 − impact)`. FBI/INTERPOL: `severity *= min(1, REF_POP/population)`, REF_POP = 1,000,000. Layer 2: raw = `AVG(score_row)` per (connector, iso2, date). `Score_Node = raw*0.2 + AvgLast7*0.8`. No entry → 100. Layer 3: `effective_weight_n = group_weight(connector) * (scoreValue/100)`. Groups: G1=100, G2=85,

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Only the German version is legally binding.

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