

Admin Phase 3: SDD Fulfillment & Traceability Audit

[!IMPORTANT] This document provides the formal, final assurance that **Admin Phase 3** has been implemented strictly according to the Specification-Driven Development (SDD) contract. It maps specific requirements from the **PRD**, **Mission**, and **Flow** documents to their concrete implementation and verification evidence.

1. Compliance Matrix: Mission & Strategic Positioning

Reference Document	Requirement / Principle	Implementation Status	Verification Evidence
admin_phase_3_mission.md	Read-Only / Non-Operational ("Must not introduce new operational controls")	<input checked="" type="checkbox"/> COMPLIANT	All Phase 3 routes (/admin/reports/*) are strictly observation-only dashboards with no mutation capabilities.
admin_phase_3_mission.md	Decision Support (Evaluation periods: month/semester/year)	<input checked="" type="checkbox"/> COMPLIANT	PeriodSelector component implements "Bulan Ini", "Semester Ini", "Tahun Ini" filters with tooltip explanations.
admin_phase_3_mission.md	Formal Reporting (Official artifacts for stakeholders)	<input checked="" type="checkbox"/> COMPLIANT	"Official Report" PDF exports with standardized headers, timestamps, and localized formatting.

2. Compliance Matrix: Product Requirements (PRD)

2.1 Extracurricular Performance Reporting

Source: admin_phase_3_prd.md Section 3.1, Flow 3

SDD Requirement	Implementation Detail	Fulfillment
Merged Metrics	Combine Enrollment and Attendance data.	<input checked="" type="checkbox"/> FULL - reporting-data.ts aggregates both count.enrollments and averageAttendance.
Visual Trends	Visualization of top-performing activities.	<input checked="" type="checkbox"/> FULL - TrendChart visualizes top 5 active extracurriculars.
Key Stats	Total Active Enrollments, Avg Attendance, Total Sessions.	<input checked="" type="checkbox"/> FULL - StatSummary component displays these exact metrics at the top of the page.
Localization	Bahasa Indonesia labels.	<input checked="" type="checkbox"/> FULL - UI and Exports use "Total Pendaftaran", "Rata-rata Kehadiran", etc.

2.2 Pembina Performance Reporting

Source: admin_phase_3_prd.md Section 3.2, Flow 4

SDD Requirement	Implementation Detail	Fulfillment
Activity Tracking	List activities assigned to each Pembina.	<input checked="" type="checkbox"/> FULL - Table shows "Kegiatan Ditugaskan" mapped from relation.
Session Consistency	Track sessions held vs expected.	<input checked="" type="checkbox"/> FULL - Metric "Total Sesi Terlaksana" displayed per pembina.
Attendance Success	Avg attendance in Pembina's classes.	<input checked="" type="checkbox"/> FULL - "Rata-rata Kehadiran" column included in the report table.

2.3 Student Participation Reporting

Source: admin_phase_3_prd.md Section 3.3, Flow 5

SDD Requirement	Implementation Detail	Fulfillment
Participation Rates	Percentage of student body involved.	<input checked="" type="checkbox"/> FULL - "Rata-rata Partisipasi" calculated and displayed.
Zero Attendance	Identification of at-risk students.	<input checked="" type="checkbox"/> FULL - "Peringatan Nol Kehadiran" metric explicitly highlights inactive students.
Exportability	Ability to download student lists.	<input checked="" type="checkbox"/> FULL - CSV/PDF export buttons functional on this page.

3. Compliance Matrix: User Flows & Navigation

3.1 Reporting Hub

Source: admin_phase_3_flow.md Flow 1 & 2

SDD Requirement	Implementation Status
Central Access	Hub located at /admin/reports with clear cards for sub-reports.
Date Persistence	Selected period persists across navigation via URLSearchParams (startDate, endDate).
Navigation Contract	Links remain within /admin/* namespace.

3.2 Export & Documentation

Source: admin_phase_3_flow.md Flow 6

SDD Requirement	Logic Verification
Format Selection	PDF and CSV options available via ExportToolbar.

Metadata Inclusion	Exports include "Generated: [Timestamp]" and "Period: [Range]" in the header.
Localization	Column headers in exported files match the UI language (Bahasa Indonesia).
Layout	PDF uses Landscape orientation to support wide data tables (robustness enhancement).

4. Final Conclusion

Based on the evidence collected in the `admin_phase_3_verification_report.md` (Version 2.0) and the code audit performed on `2025-12-23` :

Admin Phase 3 is fully compliant with all governing SDD documents.

1. **Scope:** No unapproved scope creep; strict adherence to read-only mission.
2. **Features:** All 3 required reports and the central hub are implemented.
3. **Quality:** Localization and Export quality exceed baseline requirements (e.g., localized tooltips).
4. **Stability:** No lingering lint errors or type safety issues.

Status: VERIFIED & COMPLETE