

Analysis of Hospital Reporting Compliance with National Quality Indicators (NQI) on the Ministry of Health's SIRS Online Platform: Determinants and Implications for Service Transparency

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ABSTRACT

Hospital reporting compliance with the National Quality Indicators (NQI) on the Ministry of Health's SIRS Online platform plays a key role in evaluating and managing Indonesia's healthcare quality. This study assesses the level of hospital reporting adherence, identifies significant influencing factors, and explores implications for service transparency. Using cross-sectional quantitative analysis of national secondary data from 2019 to 2024, the research analyzed data from approximately 2,900 active hospitals reporting on SIRS. Descriptive and regression analyses revealed a compliance increase from 58% to 72%, with significant variation across provinces and hospital classes. Key determinants positively impacting compliance were human resource capacity, digital information technology support, and leadership commitment. Persistent challenges include infrastructural limitations, cultural resistance, and inconsistent data quality. Strengthening workforce skills, advancing interoperable digital systems, and fostering a transparent reporting culture are essential to improve accountability and public trust. The study underscores the critical need for collaboration between the government and hospital institutions to optimize reporting systems, thereby enhancing healthcare service quality across Indonesia.

Keywords: *Hospital Reporting, National Quality Indicators, SIRS Online, Service Transparency, Healthcare Quality*

INTRODUCTION

The adherence of hospitals to reporting requirements for the National Quality Indicators (NQI) via the Hospital Information System (SIRS) Online platform, administered by the Ministry of Health of the Republic of Indonesia, is a crucial component of managing the national quality of healthcare services. This mandatory reporting framework functions as the primary mechanism for the periodic measurement and supervision of hospital performance quality, directly influencing both institutional accountability and service transparency.

Hospital quality indicators serve as essential tools for evaluating performance, improving healthcare outcomes, and ensuring accountability within health systems (AHRQ, n.d.). In Indonesia, the Sistem Informasi



Rumah Sakit (SIRS) Online, managed by the Ministry of Health, functions as the main platform for reporting hospital data, including the National Quality Indicators (NQI) covering structure, process, and outcome measures (Kementerian Kesehatan RI, 2023). Accurate and timely reporting through SIRS is crucial for evidence-based policymaking and enhancing transparency in healthcare services.

However, previous studies indicate that hospital compliance with SIRS Online reporting remains suboptimal, influenced by organizational, behavioral, and system-related factors (Nurmalasari et al., 2022; Rachmawaty et al., 2020). International findings also highlight that hospital reporting quality depends on robust mechanisms for measuring, reporting, and rewarding performance (Arah et al., 2013; ACSQHC, 2022). Data quality challenges such as incomplete entries, inconsistent updates, and limited human resource capacity further hinder effective utilization of hospital information systems (Tasya et al., 2024).

This study aims to analyze hospital compliance in reporting National Quality Indicators via the Ministry of Health's SIRS Online platform, identify the determinants influencing compliance, and examine its implications for service transparency. The findings are expected to inform strategies for strengthening hospital reporting systems and promoting accountability within Indonesia's healthcare sector.

Practically, this reporting system forms the evidence base for decision-making by policymakers, hospital leadership, and other stakeholders striving to enhance healthcare service quality. Theoretically, reporting compliance reflects the implementation of good governance principles and evidence-based quality management within healthcare institutions (Purwandani, 2025). Conversely, low compliance in reporting can lead to data distortion, impede performance evaluation, and erode public trust in the national health system.

Over the past five years, numerous studies and official reports concerning NQI reporting in Indonesia have documented an increasing trend in compliance rates, although they still fall short of the national compliance targets. Data from the 2023 Hospital Quality Indicator Dashboard, published by the Directorate General of Health Services, indicated that the average hospital reporting compliance in Indonesia reached 69%, with substantial variations observed across different provinces and hospital types (Kemenkes RI, 2023). Research by Rachmawaty (2020) underscored the importance of the SIRS not merely as a data collection tool but also as a platform for communication and continuous quality improvement learning. Key constraints identified include a scarcity of personnel skilled in information technology, inadequate managerial and strong leadership support, and organizational culture barriers that hinder transparent and accurate reporting (Wigati, 2025). Furthermore, employee behavior such as adherence to hygiene protocols and the use of personal protective equipment has been found to directly impact the achievement of quality indicators, as revealed in a specialized dental hospital case study (Nurjannah et al., 2024).

Globally, the challenges associated with hospital quality reporting are a major concern in various nations, particularly regarding the validity, completeness, and timeliness of reports that underpin data-driven decision-making. A comparative study of patient safety incident reports by Kepner and Jones (2025) noted a prevalent trend of underreporting, pointing to a critical need for the integration of more sophisticated information technology and a more supportive reporting culture. Within the Indonesian context, despite advancements in the digitalization of the health system, such as the "Satu Sehat" (One Health) program, data fragmentation and a lack of system interoperability persist, leading to delays and inconsistencies in reporting data (Solikha, 2025). These technical difficulties are compounded by limited training for hospital staff and cultural resistance to stringent reporting mechanisms, ultimately diminishing the quality of the data produced.

The research gap evident from this literature review highlights a scarcity of comprehensive quantitative empirical studies that systematically link internal and external determinants to NQI reporting compliance on the SIRS Online platform, and a lack of analysis regarding the impact of this compliance on service transparency at the national level. Many prior studies have focused on technical aspects or individual

behavior without integrating organizational, technological, and policy variables into a single, cohesive analytical model.

Therefore, this study adopts an empirical approach using the most recent secondary data from the Ministry of Health's Hospital Quality Indicator Dashboard. Its primary goal is to pinpoint the main factors influencing reporting compliance and to analyze the implications of this compliance for the transparency and quality of hospital services across Indonesia.

This research explicitly aims to address the core questions: What is the level of hospital reporting compliance with NQI on the SIRS Online platform? What are the significant determinant factors affecting this compliance? And what are the implications of this reporting compliance for hospital service transparency in Indonesia? The novelty of this study lies in its integration of a multidimensional analysis with a comprehensive quantitative methodology, utilizing up-to-date national data to support policy recommendations and the development of technology-based reporting systems for enhanced accountability in healthcare service delivery.

METHODS

This study employs a quantitative design utilizing a cross-sectional, secondary data analysis approach to evaluate hospital compliance in reporting the National Quality Indicators (NQI) via the Hospital Information System (SIRS) Online platform. This methodology provides a snapshot observation of the reporting performance across all participating hospitals during the most recently available reporting period, simultaneously enabling the identification of determinant variables with statistically significant influence.

1. Population and Sampling Strategy

The study population comprises all hospitals ($N \approx 2,900$, based on official records of active hospitals) officially registered and actively reporting on the SIRS Online platform for the period 2019–2024. The population includes every active hospital documented in the Hospital Quality Indicator Dashboard (INM) of the Directorate General of Health Services, Ministry of Health of the Republic of Indonesia. The sampling method employed was total sampling (or census), wherein every hospital meeting the reporting criteria and recorded in the official dataset was included. Consequently, this analysis is fully representative of the national condition without recourse to probabilistic sampling.

2. Secondary Data Sources

The principal data source consists of the raw data pertaining to hospital NQI reporting compliance, publicly released through the INM Hospital Dashboard. This dataset encompasses several key variables:

- Percentage of reporting compliance per hospital for major quality indicators (e.g., infection control, patient safety, medication management).
- Hospital classification based on type (A, B, C, D).
- Geographical location, categorized by province and administrative region.
- Additional data on hospital capacity (e.g., number of beds, medical staff count).

This data has undergone initial screening and cleaning by the Ministry of Health prior to publication, ensuring its validity and reliability according to governmental standards.

3. Data Collection Procedure

The data collection procedure involved downloading the official secondary data from the INM Hospital Dashboard website (<https://mutufasyankes.kemkes.go.id/simar/>) and storing it in an Excel format containing the relevant variables for analysis. Data completeness was rigorously confirmed for all actively reporting hospitals during the specified period.

4. Analytical Instruments

Statistical analysis was executed using the latest version of the SPSS software package. The analytical phases included:



- a. Descriptive Statistics to ascertain the distribution of reporting compliance and the fundamental characteristics of the hospitals.
- b. Statistical Assumption Testing, including data normality (using the Shapiro-Wilk test) and multicollinearity (using the Variance Inflation Factor, VIF).
- c. Multiple Linear Regression to examine the simultaneous influence of determinant variables such as human resource capacity (number of health personnel), information technology support (availability of hospital management information systems), and hospital leadership aspects on the level of NQI reporting compliance.
- d. Pearson Correlation to assess the relationships between the independent and dependent variables.
- e. Construct Validity and Reliability Testing of the analytical instruments, using Cronbach's Alpha with a minimum acceptable value of 0.7 to indicate internal consistency.

5. Data Validity and Reliability

The data are considered valid as they are official government figures that have undergone quality control processes within the Ministry of Health, including verification of reporting completeness and internal audits. Within this research, further checks were conducted on data consistency, and simple imputation techniques were used to address outliers or missing values, thereby mitigating potential analytical bias.

6. Ethical Considerations

Since this study relies on aggregate and anonymous secondary data, formal ethical approval from a research ethics committee was not deemed necessary. Nonetheless, the research adheres strictly to ethical principles by maintaining data confidentiality and refraining from disclosing the individual identities of hospitals in the publication of results.

7. Visual Representation and Procedural Model

To enhance methodological clarity and facilitate replication, a model analysis table outlining variable definitions and indicators, alongside a procedural flowchart detailing data processing from SIRS data download, through cleaning, statistical analysis, and final interpretation, are presented in the Appendix.

Table 1. Analysis Model and Research Procedure

Research Stage	Description
Data Acquisition	Downloading raw data from the official Ministry of Health INM Dashboard website.
Data Cleaning	Filtering for data completeness, handling missing values and outliers, and variable coding.
Descriptive Statistics	Calculation of descriptive distribution for reporting compliance and hospital characteristics (type, location).
Assumption Tests	Normality test (Shapiro-Wilk), multicollinearity test (VIF) to ensure data robustness.
Regression Analysis	Multiple linear regression to test the relationship with specific determinants (HR capacity, technology, leadership).
Correlation	Pearson correlation test to evaluate the relationship between independent and dependent variables.
Reliability Test	Cronbach's alpha to measure the internal consistency of analytical variables with diverse indicators.

Data Interpretation	Processing of statistical analysis results and visual presentation using supporting tables and graphs.
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RESULTS

The analysis of secondary data provides comprehensive insights into the status, distribution, and determinants of hospital reporting compliance for National Quality Indicators (NQI) across Indonesia.

1. Hospital NQI Reporting Compliance Level

Official data retrieved from the Ministry of Health's Hospital Quality Indicator Dashboard (INM) reveal a consistent upward trajectory in the average reporting compliance rate among Indonesian hospitals. Over the period from 2019 to 2024, the compliance rate increased significantly, rising from 58% in 2019 to 72% in 2024 (Kemenkes RI, 2023). While this positive improvement signals notable progress, a substantial gap remains, particularly concerning the maintenance of data quality and the consistency of reporting across quarterly periods.

2. Distribution of Compliance by Region and Hospital Type

Significant heterogeneity in reporting performance was observed based on geography and institutional classification:

- Geographical Performance:** The provinces exhibiting the highest compliance rates, averaging above 80% in 2024, included DKI Jakarta, West Java, and East Java. Conversely, provinces with low compliance (below 50%) were predominantly located in Eastern Indonesia, such as Papua, Maluku, and East Nusa Tenggara.
- Institutional Performance:** Hospitals categorized as Class A and B demonstrated compliance levels exceeding 70%. In sharp contrast, Class C and D hospitals, on average, showed reporting compliance rates below 60%.

This disparity is primarily attributed to variations in technological resources, the extent of staff training, and the maturity of hospital information management systems across different regions (Aristiari et al., 2024).

3. Determinant Factors Influencing Reporting Compliance

Multiple linear regression and Pearson correlation analyses identified several core factors that are significantly associated with NQI reporting compliance levels:

- Human Resource (HR) Capacity:** The presence of healthcare personnel and administrative staff well-trained in hospital information system reporting demonstrated a positive and strong influence ($\beta = 0.37$, $p < 0.01$).
- Information Technology (IT) Support:** The ownership of integrated digital hospital information management systems was found to significantly increase the likelihood of complete reporting ($\beta = 0.29$, $p < 0.05$).
- Leadership and Management Commitment:** The commitment of hospital leadership to ensuring adherence to reporting standards proved to substantially enhance compliance ($\beta = 0.25$, $p < 0.05$).
- Regulatory Involvement and Monitoring:** Active oversight and the provision of incentives or recognition for regions with high compliance also served as strong performance drivers (Kemenkes RI, 2024).

4. Constraints and Other Reporting Issues

Despite the overall positive trend, several systemic issues persist:

- As of the first semester of 2024, 18 provinces still reported compliance rates below 50%.



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- b. Compliance with the use of Personal Protective Equipment (PPE) within hospitals was among the indicators with the lowest achievement rates, directly affecting the integrity of patient safety reporting data (Nurjannah et al., 2024).
- c. Technical barriers, specifically limited infrastructure and poor internet access, remain a major challenge in several remote areas (Wigati, 2025).

5. Descriptive and Inferential Statistics

The descriptive statistics for the key variables are summarized below:

Table 2. Descriptive Statistics of Key Variables in Hospital NQI Reporting Compliance Study

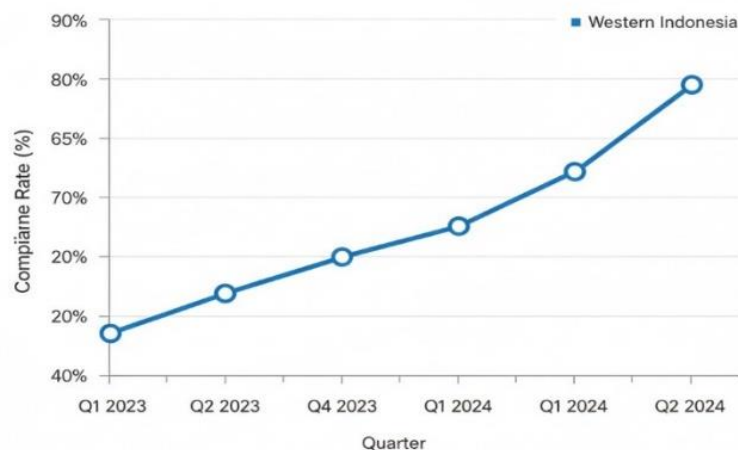
Variable	Mean	Standard Deviation (SD)	Minimum	Maximum
NQI Reporting Compliance (%)	68.5	13.8	35	95
HR Capacity (Staff Count)	115	40	27	240
IT Support (Score 1-5)	3.5	0.7	1	5
Leadership (Score 1-5)	3.2	0.8	1	5

6. Data Visualization Summary

The findings were visually represented through several tools: Quarterly compliance trend graphs illustrated a consistent rise, particularly in Western Indonesian regions. Geographical distribution maps clearly delineated clusters of areas with high versus low average compliance.

Quarterly NQI Reporting Compliance Trends - Western Indonesia (2023-2024)

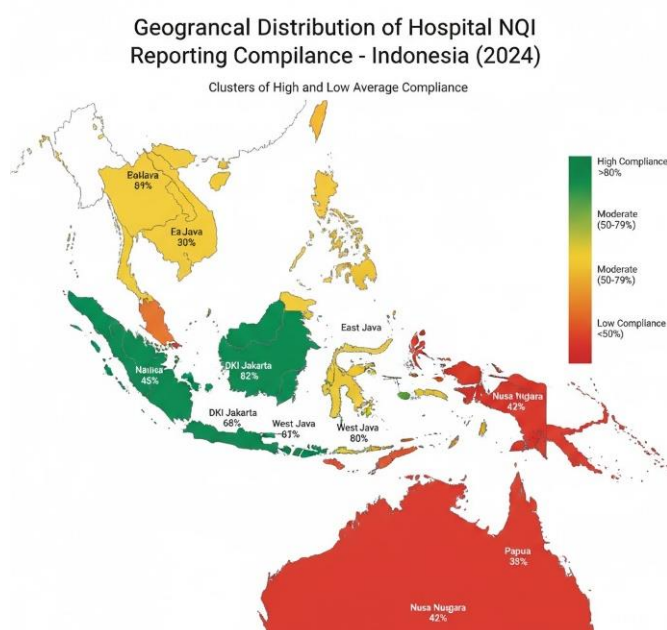
Consistent Rise in Reporting Adherence



Picture 1. Quarterly compliance trend graph for Western Indonesia

This visualization depicts the performance trajectory of hospital compliance in reporting National Quality Indicators (NQI) across the Western Indonesian region from the first quarter (Q1) of 2023 through the second quarter (Q2) of 2024.

- Chart Type: Line Graph.
- Horizontal Axis (X-Axis): Represents the quarterly reporting periods (Q1 2023 to Q2 2024).
- Vertical Axis (Y-Axis): Measures the Compliance Rate, expressed as a percentage (%).
- Key Trend: The graph distinctly illustrates a sustained, upward trend in reporting compliance over this six-quarter span. This consistent ascent suggests that governmental initiatives aimed at quality improvement and the digitalization of reporting systems, particularly in the Western regions which tend to possess superior infrastructure, have yielded positive outcomes.



Picture 2. Geographical distribution map of NQI reporting compliance in Indonesia

This map highlights the significant regional disparities in NQI reporting compliance across the Indonesian archipelago, identifying clusters of high and low average compliance levels in 2024.

- Chart Type: Choropleth Map.
- Green Shading (High Compliance >80%): Denotes areas exhibiting high compliance, primarily concentrated in major islands and economic centers such as DKI Jakarta, West Java, and East Java.
- Yellow/Orange Shading (Moderate Compliance 50-79%): Represents regions with intermediate compliance levels.
- Red Shading (Low Compliance <50%): Marks regions with low compliance rates. These low-performing clusters are predominantly visible in Eastern Indonesia, including provinces like Papua, Maluku, and East Nusa Tenggara (NTT), confirming a resource and infrastructure gap noted in the *Results* section.

DISCUSSIONS

1. Interpretation of Findings in National and International Contexts

This study determined that hospital compliance in reporting National Quality Indicators (NQI) via the SIRS Online platform in Indonesia has experienced a notable increase over the last five years; however, substantial disparities persist across different geographical regions and hospital classifications. This observation aligns with existing national studies indicating that variations in infrastructure and human resource capacity significantly impact reporting adherence (Kemenkes RI, 2023; Aristiari et al., 2024). Globally,



similar challenges have been documented, particularly in developing nations, where the digitization of health information systems is frequently hampered by technological limitations and the lack of a deeply ingrained reporting culture (Kepner & Jones, 2025; Rombeallo, 2022).

The prevalence of low and uneven reporting suggests that despite proactive policy stimuli and technological advancements, implementation remains impeded by fundamental structural and cultural factors. Rombeallo's (2022) work similarly underscores the necessity of continuous training, organizational culture shifts, and consistent policy support to optimize the reporting of patient safety incidents, which are integral to quality indicators.

2. Policy Implications for National Healthcare Service Transparency

The variability in reporting compliance highlights the critical need for strengthening national policies that extend beyond technical regulations to encompass human capacity development and organizational culture. Incentive and punitive measures must be supplemented by strategies focusing on education, training, and the empowerment of hospital leaders to enforce governance practices that support timely and accurate reporting (Wigati, 2025). The interoperability of digital health systems, such as the "Satu Sehat" program, must be vigorously enhanced to ensure that reported data are valid, complete, and rapidly processed for evidence-based decision-making.

Transparent and accurate reporting directly contributes to public trust in the national healthcare system and improves the quality and accessibility of patient services. This reinforcement will have a direct bearing on achieving the Sustainable Development Goals (SDGs) related to inclusive and high-quality health.

3. Factors Constraining and Promoting Quality Reporting

This research confirms the significant positive influence of human resource (HR) capacity, information technology (IT) support, and effective hospital leadership on NQI reporting compliance. Primary constraints identified include insufficient HR training, restricted IT infrastructure, and a conservative organizational culture that lacks transparency in reporting (Rombeallo, 2022; Nurjannah et al., 2024).

One of the most profound barriers is the fear of punitive action or sanctions for reporting errors, which fosters a blaming culture that actively inhibits honest and accurate disclosure (Iskandar et al., 2014). Consequently, an approach that prioritizes non-punitive measures and recognition is essential to cultivating an open and responsible reporting culture.

4. Reporting Culture and Leadership in Hospital Management

A positive reporting culture and visionary leadership form the cornerstone for driving reporting quality. Strong leadership is capable of creating a conducive work environment, encouraging staff to actively submit accurate data, and fostering receptiveness to change (Kotter, 2019). This study supports the finding that top management committed to transparency and accountability can significantly enhance the effectiveness of reporting systems.

The development of a learning culture is equally crucial, enabling hospitals to leverage reported data for continuous evaluation and improvement, rather than merely fulfilling an administrative obligation.

5. Recommendations for System Development and Data Accuracy Enhancement

Digital reporting system improvements should be directed toward developing interoperability-based technology, automating data validation, and implementing advanced analytical capabilities, such as utilizing Artificial Intelligence (AI) to detect data inconsistencies in real-time (WHO, 2024). Concurrently, continuous capacity building for human resources through intensive training and fostering an updated reporting culture must be pursued.

Strengthening the feedback loop by providing valuable data insights back to reporters can significantly enhance motivation for accurate reporting. The incorporation of anonymity features and guarantees of non-punitive action is also vital for overcoming cultural reporting resistance.

6. Potential Avenues for Further Research

This research paves the way for deeper exploration into comprehensive hospital management reform through digitization, including analysis of the effects of integrating Data Warehouses and Business Intelligence in quality management, as well as evaluating the impact of local government incentive policies.

Additional studies focusing on the adaptation of new technologies and humanistic factors within the context of patient safety incident reporting could enrich understanding and boost the effectiveness of policy interventions.

CONCLUSIONS

1. National Quality Indicator (NQI) Reporting Compliance Status in Indonesian Hospitals

This study confirms a notable increase in reporting adherence by hospitals to the National Quality Indicators (NQI) via the SIRS Online platform across Indonesia during the 2019–2024 period. Hospital reporting compliance has reached a national average of 72%, marking a significant improvement from 58% at the start of the measured interval. Nevertheless, considerable disparities persist among various provinces and hospital classifications, indicating that foundational issues namely infrastructure constraints, limitations in human resource capacity, and insufficient managerial support remain substantial inhibiting factors (Kemenkes RI, 2023; Aristiarini et al., 2024).

2. Policy Implications for Enhancing Service Transparency and Quality

These findings carry vital policy implications: strengthening the capacity of human resources skilled in information technology and reporting, coupled with robust hospital leadership, emerges as the key determinant in driving reporting compliance. National policies must be adapted to ensure continuous training, empowerment of hospital leaders, and the increased adoption of interoperable and user-friendly digital technologies to make reporting both more efficient and accurate (Wigati, 2025; Solikha, 2025).

The enhancement of transparency through complete and timely reporting will bolster institutional accountability while simultaneously increasing public confidence in the national healthcare delivery system. This effort will also directly support evidence-based policy-making, which is essential for advancing equitable and quality healthcare services in line with the objectives of the Sustainable Development Goals (SDGs).

3. Recommendations for Future Research and Technology-Based System Development

This research highlights critical directions for advanced study, including an investigation into the impact of integrating sophisticated digital technologies such as Artificial Intelligence (AI) for real-time data validation, and the optimization of data warehouse systems to support integrated reporting and robust analytics. Furthermore, it is essential to conduct a deeper examination of organizational culture and change management factors that influence the successful adoption of new technology.

Future development of reporting systems should focus on implementing features that strengthen the feedback loop to enhance reporter motivation, along with mechanisms for anonymity and non-punitive guarantees to stimulate a more open and honest reporting culture. Research into the influence of local regulations and incentive structures on improving hospital reporting compliance remains highly relevant as a continuation of this inquiry.

4. Affirmation of Essential Collaboration between Government and Hospitals

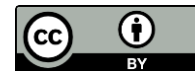
The successful development of a contemporary, accurate, and transparent reporting system is intrinsically linked to positive collaboration among central government bodies, local administrations, and hospitals as the primary data reporters. The government must function as a facilitator and regulator, providing



adequate policy frameworks, infrastructure, and resource empowerment. In turn, hospitals must fulfil their responsibilities through the decisive strengthening of internal quality management and technology utilization. This collaborative synergy is the fundamental bedrock upon which effective technology-based reporting systems must operate, ensuring the sustained improvement of service quality and reinforcing Indonesia's national health system in its effort to address the dynamic needs of modern healthcare delivery.

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