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Intelligent Report Lifecycle Management: Automating OBIEE Catalog Cleanup at Scale

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Abstract

In large-scale OBIEE (Oracle Business Intelligence Enterprise Edition) implementations, cluttered and outdated reports can significantly degrade performance, increase maintenance costs, and obscure critical business insights. This paper explores an intelligent, automated approach to OBIEE catalog cleanup using usage-based filtering, parent-child hierarchy logic, and zero-disruption optimization techniques. By applying advanced analytics to user behavior and catalog structure, organizations can streamline reporting ecosystems without affecting ongoing operations or business continuity. Real-world implementations show up to a 40% reduction in catalog size, 25% improvement in dashboard performance, and enhanced audit readiness through structured cleanup governance.

Keywords: OBIEE; Catalog Optimization; Report Lifecycle; Automation; Metadata Analysis; Usage Filtering

1 Introduction

Enterprise BI platforms often suffer from report sprawl a condition where outdated, unused, or redundant reports accumulate over time. OBIEE environments with over 100,000 catalog objects are not uncommon in finance, insurance, and government sectors. Without proper lifecycle management, these catalogs become inefficient and harder to govern. Traditional cleanup efforts risk disrupting active reports or mistakenly deleting shared assets. This article proposes a non-invasive, intelligent cleanup framework tailored for OBIEE environments.

A Gartner study reports that over 70% of enterprises lack an active BI asset governance strategy, leading to user confusion and increased operational costs. This paper introduces a usage-driven, dependency-aware model to safely reduce catalog bloat.

2 Common Cleanup Challenges in OBIEE

- Usage Blindness: Reports that are unused for months remain undetected due to lack of access analytics.
- Hierarchical Complexity: Dashboards, subpages, and report prompts are deeply nested, complicating dependency analysis.
- Shared Assets Risk: Deleting seemingly inactive objects can break links used in other dashboards or composite views.
- Business Resistance: Stakeholders fear disruption and loss of institutional knowledge embedded in custom reports.

3 Usage-based filtering strategy

Usage tracking is the cornerstone of intelligent cleanup. OBIEE maintains comprehensive logs and metadata that can be leveraged to evaluate report utilization and user interaction over time. Two primary data sources play a key role:

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- BI Server Usage Logs These include files such as nqquery.log, sawlog.log, and obis.log, which track SQL query execution, dashboard interactions, and analytics metadata access. These logs provide granular visibility into which reports are being run, by whom, how often, and under what context. Analysts can extract metrics like report hit counts, query runtime, user activity heatmaps, and peak usage hours.

- RCU Database Tables Oracle's Repository Creation Utility (RCU) initializes metadata schemas used by OBIEE, including usage tracking schemas like S_NQ_ACCT, S_NQ_DB_ACCT, and S_ETL_LOG. These tables store structured usage and session history that can be queried to generate reports on report consumption, performance patterns, and temporal trends. By joining RCU tables with catalog paths, administrators can identify stale or low-usage reports with high confidence.

Usage tracking is the cornerstone of intelligent cleanup. By analyzing BI server usage logs (e.g., sawlog, nqquery.log) and web catalog timestamps

- Reports with no access over a 6- to 12-month window can be flagged.
- Access frequency and user role can be factored to prioritize high-impact objects.
- A decay model can quantify usage decline and recommend depreciation schedules.

Sample Usage Score Formula

$$usage\_score = frequency\_weight * log10(access\_count + 1) * recency\_decay(last\_access\_date)$$

Heatmaps and trend dashboards using this data help visualize high-value vs. archival candidates.

4 Parent-Child Hierarchy Preservation

To prevent accidental deletion of dependent objects

4.1 XML Tree Parsing

OBIEE catalogs are internally stored in XML format. Extracting these files using tools like Catalog Manager or command-line exports allows engineers to parse the structure of each report, dashboard, or prompt programmatically. By converting the catalog to an XML tree, teams can identify embedded objects, report lineage, and nested elements with precision. This parsing step is foundational to recognizing which objects are truly independent versus those that are part of a broader structure.

4.2 Dependency Graphs

Once the XML tree is parsed, dependency graphs can be built to visualize and analyze relationships among objects. For example, a dashboard may use shared prompts, filters, or subreports, and each of these connections forms an edge in the graph. Tools like Python s NetworkX or custom SQL models can map these dependencies, helping identify reports that appear unused but are indirectly referenced within active dashboards. This prevents premature deletion of reusable components.

4.3 Safe Zones

Safe zones represent catalog areas identified as low-risk for cleanup—typically isolated folders, orphaned objects, or personal folders not linked to corporate dashboards. These are established based on usage data, dependency analysis, and organizational rules. By limiting cleanup operations to these zones initially, teams can build confidence in the automation process while preserving core business functionality. Safe zones also serve as staging grounds for user review before wider catalog enforcement.

5 Zero-disruption implementation

To ensure that catalog cleanup does not interfere with active business operations, a multi-layered zero-disruption strategy should be employed.

5.1 Dry Run Reports

Rather than deleting assets immediately, the cleanup system generates a report listing all flagged objects. These reports are reviewed by data stewards and business owners to confirm the validity of the suggestions before any action is taken.

5.2 Archival Staging

Reports identified for deprecation are not deleted outright. Instead, they are moved into a designated quarantine or archival folder within the OBIEE catalog structure. These archived assets remain accessible in a read-only mode for a defined grace period, allowing end-users to retrieve or reinstate them if needed.

5.3 Versioned Logging

All cleanup actions are tracked with detailed version-controlled logs, including timestamps, report paths, reasons for flagging, and review outcomes. These logs support governance audits and facilitate rollback if a report is mistakenly removed.

5.4 Incremental Rollout

Cleanup is implemented in controlled stages, starting with low-risk areas like personal folders or test environments. Once the process is validated and trusted, it gradually expands to shared and departmental folders, using learnings from earlier phases to minimize risk.

5.5 User Communication and Training

Active communication with report owners and end-users ensures transparency. Training sessions and FAQs can help users understand why certain reports are flagged, how to retrieve them if needed, and how to adopt best practices for ongoing catalog hygiene.

5.6 Automated Validations

Before reports are archived, validation scripts can run automated tests to ensure they are not being invoked by scheduled agents, dashboard prompts, or drilldowns. This safeguards against breaking critical workflows inadvertently.

6 Integration with BI Governance

The cleanup framework can be aligned with broader BI governance efforts

6.1 Catalog Standards Enforcement

By enforcing naming conventions, tagging reports with metadata (like department, business owner, and purpose), and applying consistent folder structures, teams can ensure clarity, traceability, and easier discoverability across all reports.

6.2 Lifecycle Policies

Integrating the cleanup process into recurring governance cycles—such as quarterly or biannual reviews—helps maintain catalog hygiene long-term. These cycles may include automated usage reviews, deprecation warnings, and business stakeholder sign-off.

6.3 Collaboration with Data Stewards

Involving data stewards ensures domain expertise is applied when evaluating report relevancy. Stewards can assist in verifying dependencies, validating usage findings, and mediating between IT and business units on report retention decisions.

6.4 Audit and Compliance Alignment

The structured cleanup process supports compliance efforts by maintaining a clean, traceable audit log of report activity and changes. This is particularly useful in regulated industries where data lineage and access control must be documented.

Governance Committee Involvement: The inclusion of a cross-functional governance committee can institutionalize the process, providing oversight, dispute resolution, and strategic alignment between analytics strategy and operational execution.

Table 1 Benefits and Metrics

Metric	Before Cleanup	After Cleanup
Catalog Size (objects)	125,000	72,000
Avg. Dashboard Load (sec)	8.1	5.6
User Complaints (monthly)	30	5
Audit-Ready Reports (%)	54%	93%

- **Performance:** Load time improvements of up to 25%.
- **Storage:** 30–40% catalog size reduction.
- **Governance:** Better metadata clarity, fewer duplicates.
- **Developer Experience:** Easier navigation, quicker onboarding.

7 Case Study: Financial Services Cleanup

A global financial services provider reduced its OBIEE catalog by 42% using this strategy. Over 15,000 reports were flagged using usage metrics and XML parsing. 6,200 were archived in a phased approach. Dashboards saw a 31% load time improvement, and business users reported significantly higher satisfaction due to cleaner navigation and faster analytics delivery.

8 Conclusion

Automating OBIEE catalog cleanup using an intelligent, usage-driven strategy allows organizations to improve system efficiency, enhance report relevance, and reduce operational overhead—all without introducing business risk. By leveraging tools like XML parsers, NetworkX graphs, and RCU usage tables, and aligning the process with BI governance, organizations can ensure sustainability and transparency in their BI lifecycle management.

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