Transmute Legacy Bots & ETL Flows into the Architecture Your Business Needs Today

Organizations get trapped in expensive RPA licenses or siloed ETL jobs because critical business logic is locked inside proprietary packages. OpusMagnum opens that black box by counting every step in and out (Delta

1. License Decoupling (De-Licensing)

From Costly Bots to Open-Source Containers

Identify bots that are actually ETL pipelines, web scrapers, API integrations, or report dispatchers, and turn them into containerized stacks with Pentaho Data Integration (Kettle) or Apache Hop + Playwright + PostgreSQL.

2. Multi-RPA & ETL Mobility (22 x 22)

Pentaho Kettle, Apache Hop, Power Automate Cloud & Desktop, A360 & UiPath

Migrate complete workflows across A360, UiPath, Power Automate Cloud, Power Automate Desktop, Pentaho Data Integration (.ktr/.kjb), and Apache Hop (.hpl/.hwf) preserving variables, subflows, error handling, and selectors.

3. Knowledge Harvesting

Living Documentation (PDD/SDD) Extracted from Code

Automatically generate Process Design Documents (PDD), data dictionaries, SQL inventories, and interface contracts from legacy bots or transformations that no one on the current team understands.

4. Governance & Security

Sanitization & Auditing Before Migration

Detect and neutralize hardcoded credentials, PII, fragile network paths, infinite loops, and brittle selectors before moving the process to its target architecture.

What OpusMagnum Does: 6 Core Product Capabilities

Far more than a syntax converter, OpusMagnum is an end-to-end suite to discover, classify, document, secure, and re-architect your entire desktop bot, cloud flow, and ETL portfolio.

Automated Audit

1. Portfolio Discovery & X-Ray (RPA & ETL)

Point the `opus` CLI at any export folder or archive. OpusMagnum automatically recognizes each package's technology and maps your entire installed base.

* Automatic detection of A360 packages, Power Automate Cloud flows, PAD
* Dependency mapping across SQL/JDBC databases, web portals, Excel
* Technical debt diagnostics with the `RPX-*` rules listed by `opus rules`:

Right-Sizing

2. Architectural Affinity Advisor

Not every process should remain a desktop RPA bot. The engine analyzes the true nature of each flow's operations and recommends the highest-ROI target

* Detects desktop bots that only orchestrate APIs/SQL and recommends
* Identifies web portal + data load bots and recommends the Playwright +
* Distinguishes pure ETL jobs (Pentaho Data Integration / Apache Hop) and

Kettle .ktr & .kjb

3. Native Pentaho Data Integration (Kettle) Support

Brings first-class support for battle-tested Pentaho Data Integration (Kettle) both as a source platform and as a native or containerized target.

* Ingests `.ktr` transformations and `.kjb` jobs preserving JDBC
* Generates complete Kettle projects (`jobs/main_job.kjb`,
* Direct bidirectional bridge between Pentaho Data Integration (Kettle) and

What OpusMagnum Does: 6 Core Product Capabilities

Far more than a syntax converter, OpusMagnum is an end-to-end suite to discover, classify, document, secure, and re-architect your entire desktop bot, cloud flow, and ETL portfolio.

Cross-RPA & Cloud

4. High-Fidelity Multi-RPA Translator (Cloud & Desktop)

When corporate strategy calls for consolidating onto Microsoft Power Platform or switching RPA vendors, OpusMagnum translates flows to both Power

* Bidirectional conversion across A360, UiPath, Power Automate Cloud
* Hybrid Cloud + Desktop bridge: generates Cloud flows that invoke PAD
* Preservation of arguments, expressions (@variables, Foreach, Switch,

Living Documentation

5. Knowledge Harvesting & Automated PDD

Turns any desktop bot, cloud flow, or Kettle transformation into a vendor-neutral Knowledge Package.

* Generates the Process Design Document (PDD) in business- and audit-ready
* Extracts the contract catalog: inputs received, outputs produced, and
* The knowledge package (--to knowledge) can be read back and converted to

Built-in SecOps

6. Security & Secrets Shield

During ingestion and migration, the engine inspects every expression, comment, and connector parameter to prevent credentials or sensitive data from leaking into new

* Secret scanner (rules SEC001-SEC019): passwords, API keys, Bearer tokens,
* Personal data (emails, tax IDs) and private paths are reported and
* Where the target allows it, secrets are emitted as parameters or

Product Potential in Action: 6 Enterprise Transformation Scenarios

Explore how OpusMagnum solves the most pressing challenges for Automation Centers of Excellence (CoE), Data Engineering, and Enterprise Architecture teams.

1. Data/SQL Bots -> Pentaho Kettle

Excel, CSV & SQL Bots or ETL Flows -> Pentaho Data Integration (Kettle

OpusMagnum automatically translates the workflow into a native Pentaho Data Integration (Kettle) project with jobs (.kjb), transformations (.ktr), JDBC

* Native Kettle Jobs (.kjb) & Transformations (.ktr)
* JDBC connections in .kettle/shared.xml & kettle.properties
* Optional Docker stack: Playwright + Kettle + PostgreSQL
* Bidirectional conversion PDI (Kettle) <-> Apache Hop

2. Web Portals + Data -> Docker Stack

Web Portals + Data Loading -> Containerized Stack (Playwright +

OpusMagnum extracts the web selectors from the original bot and generates a headless Python Playwright container that writes data to a shared volume with a SHA-256

* Fast Headless browsing without a Windows desktop
* Bot web selectors automatically translated to Playwright
* Shared volume with SHA-256 transactional manifest
* Bulk ETL load via Pentaho Kettle or Apache Hop into PostgreSQL

3. Kettle / RPA -> Apache Hop ETL

Modernizing Data Bots or Kettle Projects -> Native Apache Hop

OpusMagnum converts the flow directly into native Apache Hop workflows (.hwf) and pipelines (.hpl) with all SQL queries, TableInput/TableOutput steps, and

* High-throughput streaming data processing
* Automatic extraction of all embedded SQL queries
* Preconfigured and parameterized JDBC connections
* Visually editable in the Apache Hop GUI

Product Potential in Action: 6 Enterprise Transformation Scenarios

Explore how OpusMagnum solves the most pressing challenges for Automation Centers of Excellence (CoE), Data Engineering, and Enterprise Architecture teams.

4. APIs & ERP -> Ballerina Microservice

API Integration & Reconciliation Bots -> Ballerina Swan Lake

OpusMagnum translates the flow into a strongly-typed Ballerina Swan Lake integration service with externalized configuration and structured error

* Lightweight microservice compilable to a container
* Secure configuration externalized in Config.toml
* Preservation of HTTP calls, SQL queries, and SMTP mail
* Native transactional error handling (do / on fail)

5. Email Reports -> Helical Insight BI

'Report Dispatcher' Bots -> Helical Insight BI Portal

OpusMagnum extracts the SQL queries, report layout, and email recipients, generating a complete Business Intelligence package for Helical Insight.

* JDBC data sources and SQL DataMaps generated automatically
* Visual HTML/table template ready for the BI portal
* Automated email scheduling in Excel/PDF/CSV formats
* Self-service web analytics without bot intervention

6. RPA Consolidation (Cloud & Desktop)

Strategic Consolidation Across RPA Platforms (A360 <-> UiPath <-> Power

OpusMagnum converts complete packages into Power Automate Cloud (Logic Apps workflow definitions with SQL, HTTP, Office 365, SharePoint connectors & Desktop bridges)

* Full support for Power Automate Cloud (--to pa-cloud)
* Full support for Power Automate Desktop (--to pad)
* Bidirectional translation with A360 and UiPath Studio
* Hybrid Cloud -> RunDesktopFlow (PAD) orchestration

RPA Decoupling: Playwright + Pentaho Data Integration (Kettle) / Apache Hop + PostgreSQL

Replaces web-extraction and data-loading bots with a multi-container architecture without per-bot licenses.

1. SCRAPER CONTAINER

Playwright Python Headless

Runs in headless mode the web selectors translated from the original bot and drops the data in the shared volume.

* Translates the bot's XPath/CSS selectors
* Generates a unique task_id per batch
* Signs extracted_data.json with SHA-256
* Writes a transactional manifest.json

2. ETL ENGINE CONTAINER

Pentaho Kettle / Apache Hop

Runs Kettle jobs (kitchen.sh / .kjb + .ktr) or Apache Hop workflows (hop-run.sh / .hwf + .hpl) in streaming.

* Pentaho Kettle: main_job.kjb + .ktr
* Apache Hop: main_workflow.hwf + .hpl
* JDBC connections in shared.xml / Hop
* Handling of staging/processed and failed

3. PERSISTENCE AND BI

PostgreSQL + Analytics

Stores the processed batches through JDBC in PostgreSQL, ready to be consumed by ERP systems, APIs or Helical Insight BI.

* JDBC connection parameterized per environment
* Zero Windows virtual machines
* Scalable on Docker / Kubernetes
* Secrets in environment variables (.env)

Natively Supported Sources & Target Architectures (22 x 22 Matrix)

22 platforms read and written (462 directed pairs) and 7 special targets, on 162 canonical operations;
the Delta balance counts steps.

22 PLATFORMS (6 GROUPS)

Input Platforms

Reads and writes the native exports of:

* 1. RPA: Automation Anywhere A360, UiPath, Power Automate Desktop, Blue Prism, Robocorp and Rocketbot
* 2. Cloud & low-code: Power Automate Cloud, Power Apps (.msapp and .fx.yaml) and n8n
* 3. ETL & data: Pentaho PDI / Kettle (.ktr, .kjb), Apache Hop, Talend, SSIS and dbt + Airflow
* 4. Integration & ESB: Ballerina Swan Lake and WSO2 (API Manager and ESB/EI/MI)
* 5. API gateways: APISIX, Kong, Tyk, Azure APIM, AWS API Gateway and Apigee
* 6. Own: knowledge, OpusMagnum AlchemyBridge compounds and plugins (--plugin)

TARGETS: 22 + 7 SPECIAL

Output Technologies

* 1. Pentaho Data Integration / Kettle (--to pdi · .kjb jobs + .ktr)
* 2. Playwright + PDI + PostgreSQL stack (--to pdi-stack)
* 3. Playwright + Apache Hop + PostgreSQL stack (--to hop-stack)
* 4. Apache Hop (--to hop · .hwf workflows + .hpl pipelines)
* 5. Power Automate Cloud (--to pa-cloud · Dataverse solution)
* 6. Power Automate Desktop (--to pad · solution + Robin scripts)
* 7. Automation Anywhere A360 and UiPath (--to a360 · --to uipath)
* 8. Ballerina Swan Lake (--to ballerina · HTTP/SQL/SMTP service)
* 9. Talend and its stack (--to talend · --to talend-stack)
* 10. Helical Insight BI (--to helical) and Python + opus_runtime (--to python)
* 11. WSO2 MI 4.3.0, 6 API gateways, Power Apps and the other platforms (--to <platform>)
* 12. AlchemyBridge (--to alchemybridge · signed .nap) and knowledge package (--to knowledge)

Smart Decoupling: Every Bot Component Finds Its Ideal Architecture

A typical enterprise bot mixes UI screens, Excel joins, SQL queries, and email alerts inside a single desktop license. OpusMagnum decomposes each responsibility into the runtime where it scales best.

Desktop / lightweight VM (visual steps only)

1. SAP GUI screens & legacy desktop apps without APIs

Power Automate Desktop (PAD) or UiPath scoped strictly to visual UI interactions

Linux Container / Docker / Kubernetes (no Windows GUI ses

2. Navigation & scraping across external or internal web portals

Python + Headless Playwright container with auto-translated selectors & SHA-256 manifest

ETL Server / Linux Container (`kitchen.sh`, `pan.sh` or `hop-run.sh`)

3. Heavy Excel/CSV parsing, table joins & bulk SQL/JDBC loads

Pentaho Data Integration (Kettle .ktr / .kjb) or Apache Hop (.hpl / .hwf)

M365 / Azure Cloud or High-Availability Cloud-Native Contai

4. REST/SOAP API orchestration, queues, webhooks & approvals

Power Automate Cloud (Logic Apps) or Ballerina Swan Lake / Python microservice

Self-Service Web BI Portal (zero RPA licenses consumed)

5. Scheduled Excel/PDF report generation sent via email

Helical Insight BI Portal with SQL DataMaps & native SMTP scheduling

Centralized & audited Zero-Trust Vault

6. Control Room credentials, API tokens & plaintext JDBC strings

Target parameters (`.kettle/kettle.properties`, `.env`, `Config.toml`) or the customer's vault

Step-by-Step Review & Growing Rule Catalog

Human control over every migration, mapping tables extended by hand, and strict multi-project isolation.

Step-by-Step Mapping

1. Transparent Inspection: Source <-> Canonical Graph <-> Target

The PDD numbers and narrates every source step; the conversion labels each one with its canonical operation (162 in the vocabulary) and its fidelity, so engineers can review the what and why of every step.

Deterministic Status

2. Clear Classification: Canonical Rule, Assisted Proposal or Gap (Delta = 0)

Every step is labelled exact, equivalent, lossy, shim or manual from the 2,407 active entries of the mapping tables; what has no target is declared as a gap with its diagnostic.

Growing Catalog

3. Continuous Loop: Translate -> Review -> Resolve -> Add

Whenever an architect resolves a new connector or pattern, the equivalence is added by hand to its platform's YAML table (or passed with `--mapping`) and applies to the following flows.

Multi-Project Isolation

4. Strict Governance with Zero Data Leakage Across Projects

Generic technical rules enrich OpusMagnum's core engine, while organization-specific mappings, SQL schemas, paths, and secrets remain strictly isolated within their own project boundary.

How We Start: Measurable 4-Step Pilot Methodology

A fast, auditable, zero-risk onboarding path to prove tangible ROI on your own workflows before scaling estate-wide.

STEP 01 · DIAGNOSTIC

Automated Portfolio X-Ray & Inventory

Point `opus` at a representative batch of exported packages (.zip, .xaml, .ktr/.kjb) to get the complexity map, the technical debt (RPX rules from `opus rules`), and the rule-based target recommendation (`opus recommend`).

* Deliverable: Inventory Matrix + Automated PDD + Affinity Ranking.

STEP 02 · ARCHITECTURE

Target Selection & Rule Calibration

Define which flows move to Power Automate Cloud/Desktop, which decouple into Pentaho Data Integration (Kettle) or Apache Hop + Playwright, and parameterize connections and secrets.

* Deliverable: Decoupling Blueprint + Calibrated Rule Catalog.

STEP 03 · TRANSMUTATION

Automated Conversion & Step-by-Step Review

Run the transmutation on the pilot workflows, review gaps and domain-specific connectors step by step, and check each flow's conservation balance (Delta).

* Deliverable: Migrated flows (.kjb/.ktr, Cloud/PAD, Hop or Docker Stack) ready for UAT.

STEP 04 · MEASUREMENT

Pilot Measurement & Rollout Plan

Measure engineering hours saved, RPA licenses freed, and Windows VMs retired, leaving the migration factory ready to scale across the entire automation estate.

* Deliverable: Conservation (Delta) report per flow + business case with what the pilot measured.

The Evolutionary Leap: Traditional RPA vs. OpusMagnum Architecture

How enterprise technology operations transform when rationalizing the bot and data flow portfolio with OpusMagnum.

TRADITIONAL (LOCK-IN)

Before: Captive & Fragmented Legacy Estate

An operation held captive by annual per-bot licenses and fragile graphical sessions:

* Annual per-bot license fees even for data extraction, ETL, or email dispatching tasks.
* Dedicated 24/7 Windows VMs with open graphical sessions that fail when screens lock.
* Undocumented black boxes: nobody knows what SQL or business rules hide inside legacy bots.
* Vendor Lock-in: switching RPA providers or moving to Pentaho Kettle / Hop forces a rewrite from scratch.
* Hardcoded credentials and file paths inside flows without centralized governance.

MODERNIZED WITH OPUSMAGNUM

After: Portfolio Evolved with OpusMagnum

An optimized portfolio where each flow runs on its ideal architecture:

* Every process runs on its ideal technology: Pentaho Kettle / Hop for ETL, PA Cloud / Ballerina for APIs, or PAD for
* Headless & Container Execution: Playwright scrapers, Kettle (`kitchen.sh`), and Apache Hop (`hop-run.sh`) on
* Always-current PDD documentation: functional specs, variable dictionaries, and SQL queries generated automatically.
* Mobility across platforms (22 x 22): conversion between A360, UiPath, PA Cloud, PAD, Pentaho Kettle, Apache Hop and
* Traceability & Security by Design: parameterized secrets and SHA-256 cryptographic integrity manifests.

NetAlchemy Ecosystem: Migration, AI, Data, and Agents

OpusMagnum integrates with Oraculum, Augur, SCP, and ORQ on AlchemyBridge, with shared security and governance.

1 · Oraculum

Controlled AI for Documentation, Annotation, and Remediation

The `docs`, `annotate`, and `remediate` modes separate documentation from code changes. Remediate uses the official target catalog to translate unmapped nodes and improve degraded steps, with budgets, traces, and data-residency rules.

2 · Augur + SCP

Commercial Intelligence and Onboarding with 29 New Providers

Augur prepares company dossiers and calls SCP through `/scp/execute`. SCP provides 88 deployable functional providers: 82 external integrations or channels, 6 internal capabilities, and 794 operations. The 29 providers required by Augur cover

3 · ORQ

Auditable Coordination for Agents and Tasks

ORQ manages tasks, messages, dependencies, effort, scopes, authentication, replication, and supervision through Orq Studio. The Plan A MCP server remains an operational reference; the native 21-tool MCP catalog on `/mcp` is the compound's next

4 · NetAlchemy Suite

Components with Shared Contracts and Governance

OpusMagnum migrates and documents; AlchemyBridge runs compounds; Oraculum governs AI; Augur investigates; SCP connects providers; ORQ coordinates agents; ArcanumVault protects keys and signatures; Adyton supplies the product layer. The suite shares