FROM SAS TO R®

Your Path to Open Source in Life Science

Modernize your analytics environment and accelerate your SAS-to-R transformation with HMS.
Powered by automation, proven methodologies and more than 35 years of Life Sciences experience.

HMS

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Life Sciences organizations face growing pressure to modernize their validated analytics environments and reduce reliance on proprietary systems. Rising license costs, limited flexibility, and the industry's shift toward open-source technologies makes this change not only necessary, but also strategically important.

The HMS Migration Tool automates and standardizes the transformation of SAS code into R, guaranteeing precision, audit readiness and congruence with your architecture.
It provides high quality R code more rapidly and with improved consistency than manual or generic AI methods by combining semantic analysis, context-aware AI translation strategies and template-based generation.

What's in It for You

Get an overview of the tools and insights that help you modernize your analytics environment.

The HMS Migration Tool: A Smarter Way to Move from SAS to R

Our HMS Migration Tool streamlines and standardizes the conversion of SAS programs into R code. It is not a standalone software product. The transformation is guided by our experts to ensure precision, audit readiness, and seamless integration with your existing infrastructure. Unlike generic code converters, it leverages semantic analysis and carefully designed AI processes to translate not just syntax but also the underlying business logic, producing readable and architecture-consistent R code.

Your Key Advantages

Accelerated Migration
Up to 75% automation shortens timelines and reduces project costs, freeing your teams from manual conversion tasks.

Audit-Ready Code
Automatically generates R code that meets your company guidelines

Seamless Integration
Integrates seamlessly with your existing infrastructure and workflows (e.g. Azure, AWS, Snowflake) without vendor lock-in or disruption.

Proven Partnership
Backed by 35+ years of analytics experience and a proven track record in complex migration and transformation projects.

Why You Can Rely on Us

We back our expertise with proven results and measurable impact:

6.000+ project days in migrations

500.000+ lines of code translated with fully automated batch processes

20+ AI experts dedicated to automation and compliance

100% recommendation rate

Our customers value our work. This is demonstrated by Europe's largest independent user survey in the field of data & analytics by BARC.

From Legacy Code to R

Our HMS Migration Tool automates the transformation of SAS programs into R code without compromising control or compliance.

This four-step process ensures precision, scalability and full transparency, making it ideal for regulated analytics environments in Life Sciences.

Below, you'll see how each stage contributes to a faster and more reliable modernization journey.

Codebase Analysis
Our parser scans your SAS programs, identifies structures, macros, and logic, and generates a semantic syntax tree for precise conversion.

Code Generation with Agentic AI
Your business logic is automatically translated into stable, compliant R code. It is fully aligned with your target architecture.

Automated Batch Processing
Large codebases are processed efficiently and consistently, allowing our approach to handle high volumes of SAS programs with accuracy and speed.

Documentation & Transparency
Optional metadata and translation documentation ensure full auditability and traceability.
Each migration step can be verified through traceable logs and migration reports.

The HMS Migration Tool is optimized for both R and Python and can be configured to support hybrid migration scenarios that combine the two languages.

Check our SAS Migration Tool Page:

Best Practice Guide

Your Path to a Successful SAS Migration

Our Best Practice Guide combines insights from successful SAS modernization projects in Life Sciences and other regulated industries. It offers actionable recommendations from planning to long-term support and outlines the key factors for success, even before your project starts.

The guide provides structure and confidence, while HMS experts are ready to ensure a smooth, migration tailored to your environment.

1 Project Planning and Budget Control

- ☐ **Return on Investment**
  Calculation of the Total Cost of Ownership (TCO) for migration and operations, compared to current costs.
- ☐ **Project Objectives**
  Defining the objectives of the migration (such as cost savings, improved performance, modernization, etc.).
- ☐ **Creating a Custom Roadmap**
  Clear definition of all project phases and milestones.
- ☐ **Establishing Budget Transparency**
  Setting up a transparent system for budget control.
- ☐ **Ensuring Cost Tracking**
  Continuous tracking of expenses and obtaining change requests for scope modifications.
- ☐ **Implementing Change Management**
  Documenting changes and outlining their budget impact.

2 Team Composition and Role Allocation

- ☐ **Involving Experienced Team Members**
  Selection of a core team with specific experience in SAS migration projects.
- ☐ **Clearly defining roles and responsibilities**
  Assigning roles between the client and HMS consultants based on the RACI principle (Responsible, Accountable, Consulted, Informed).
- ☐ **Well-structured team setup for workstreams**
  Division into workstreams such as infrastructure, development, code migration, and data migration.
- ☐ **Dynamic team structure for different project phases**
  Deployment of specialized teams in specific project phases to enhance efficiency.

3 Stakeholder Management

- ☐ **Early involvement of all relevant stakeholders**
  Align key project decisions with stakeholders.
- ☐ **Regular stakeholder meetings**
  Ensuring that all stakeholders are consistently informed about the project status and critical decisions.
- ☐ **Documentation of all assumptions and decisions**
  Written documentation of key assumptions to ensure continuous transparency throughout the project.

4 Technical Preparation and Risk Management

- [ ] **Comprehensive technical analysis and planning**
  Preliminary analysis of the target architecture and coordination with IT teams to clearly define technical requirements.
- [ ] **Establishing processes for risk mitigation**
  Identification of common risks (e.g. technical challenges, interface requirements).
- [ ] **Early setup of the infrastructure**
  Ensuring that the infrastructure is available early to facilitate smooth workflows, such as code migration.

5 Test and Quality Management

- [ ] **Defining and implementing test management**
  Planning and execution of tests in collaboration with the client, especially in validated environments.
- [ ] **Thorough documentation of test results**
  Structured documentation of tests and approvals to demonstrate project success.
- [ ] **Clearly define requirements and test roles**
  If necessary, establish specific roles for test management to ensure quality in validated projects.

6 Communication Structure and Meeting Culture

- [ ] **Foster an open communication culture**
  Ensure that the team receives all relevant information to minimize transaction costs.
- [ ] **Maintain clear meeting minutes**
  Recording agreements and decisions for documentation and tracking purposes.
- [ ] **Define communication channels and meeting frequency**
  Establish structured communication pathways (both within and across workstreams) and schedule regular meetings.

7 Project Completion and Long-Term Support

- [ ] **Documentation and handover**
  Complete handover of all documentation and training for the long-term support of the project.
- [ ] **Support for long-term operations**
  Provision of support plans and training to ensure the long-term stability of the migration solution.

Assessment Guide

The Foundation for Your Successful SAS Modernization

Do you still have uncertainties regarding technology selection, need a feasibility assessment or require a cost estimate for your SAS migration project?
We recommend starting your modernization journey with an assessment. This guide is based on our extensive experience with modernization projects in the SAS environment and helps you plan and execute your assessment in a well-founded and successful manner.

Gain a clear view of your SAS landscape, define priorities and create a reliable foundation for your modernization decisions.

Objectives of the Assessment

- **Clarify requirements:** Precisely define the technical and organizational framework – from platform requirements to IT guidelines.
- **Define tasks:** Provide a clear overview of the necessary actions.
- **Plan resources:** Create realistic effort estimates and timelines as a foundation for a structured implementation.

What to Expect in the Guide

The guide is divided into three sections that will lead you step by step through the assessment. Each section includes a practical checklist with clear tasks and questions to help you structure your assessment effectively.

- **Section 1 – Requirements and Framework Conditions**
  Assess the initial situation and clarify technical and organizational fundamentals.
- **Section 2 – Assessment Planning**
  Define the objectives, milestones, and deliverables the assessment should provide.
- **Section 3 – Results and Deliverables**
  Document target architectures, effort estimates, and project milestones.

Section 1 – Requirements and Framework Conditions

Establish a solid foundation

In this phase, you clarify all relevant requirements and framework conditions to provide HMS experts and consultants with the necessary information for a well-founded planning process.

Key Questions and Tasks

Requirements and Framework Conditions

- [ ] **Define requirements for new platforms and tools**
  Which technologies (e.g., CI/CD, GitOps, Terraform) are necessary?
- [ ] **Identify architecture drivers**
  Which key factors influence the selection of the target architecture?
- [ ] **Define interfaces**
  Which databases, file shares, and authentication systems are involved?
- [ ] **Scheduling and batch processing**
  Which recurring tasks or processes need to be automated?
- [ ] **Outline the migration scope**
  Which components (code, data) need to be migrated?
- [ ] **Clarify IT requirements**
  Which security and governance policies apply?

Project Requirements

- [ ] **Define timeline and deadlines**
  Are there fixed deadlines or milestones?
- [ ] **Define budget requirements**
  What is the financial framework?
- [ ] **Clarify responsibilities**
  Which tasks are defined between your team and HMS?
- [ ] **Include maintenance and operations**
  How will the target environment be operated, and by whom?
- [ ] **Define success criteria**
  How will project success be measured?

Inventory Assessment

- [ ] **Analyze the number and complexity of SAS objects**
  Which programs, macros, and projects exist?
- [ ] **Review data inventory and processing**
  How large is the data warehouse, and what data volumes are being processed?
- [ ] **Determine resource requirements**
  What resources (CPU, RAM, storage) are currently needed and anticipated for the future?
- [ ] **Outline processes and workflows**
  What batch processing, ad-hoc reports, or interactive analyses are in place?
- [ ] **Identify affected users**
  Which users work with the current system, and how do they use it?

Tip Use this step to gather all relevant information and proactively involve interfaces you have not yet engaged with.

Section 2 – Planning and Execution of the Assessment

Define targeted actions

In this section, you define the activities to be carried out during the assessment.

Key Questions and Tasks

Strategy and Planning

- [ ] **Define scope of migration:**
  Which functions will remain, be replaced, or modernized?
- [ ] **Develop target architecture:**
  What options (cloud, on-premise, hybrid) are available, and what benefits do they offer?

Workshops and Testing

- [ ] **Conduct workshops:**
  Analyze requirements and processes, identify potentials, and document findings.
- [ ] **Plan testing strategy:**
  Define acceptance criteria and create test plans.

Security and Access Control

- [ ] **Define technical requirements for the target environment:**
  What networks, firewalls, and user access controls are required?
- [ ] **Review security requirements:**
  Which security policies protect data and systems?

Optional Tasks

- [ ] **Evaluate the SAS-to-Python migration tool:**
  Is an automated translation feasible?
- [ ] **Conduct SAS Content Assessment:**
  Analyze content and structures, identify migration potential.
- [ ] **Implement Proof of Concept:**
  Validate technologies or processes in a secure test environment.
- [ ] **Develop training concepts:**
  What training do users need?

Tip Use workshops to gather requirements and establish a shared understanding. This promotes acceptance and helps prevent later adjustments.

Section 3 – Results and Deliverables

Define desired outcomes and key focus areas

In this section, you define the objectives of the assessment and determine the format in which the results should be presented. This information serves as the foundation for evaluating and strategically planning the migration project.

Key Questions and Tasks

Document results

- [ ] **Define target architecture:**
  What does the target platform look like, and which data flows need to be considered?
- [ ] **Create target architecture diagram:**
  Visualize the planned platform and interfaces.
- [ ] **Document risks:**
  What challenges exist, and how can they be mitigated?

Estimate costs and efforts

- [ ] **Create effort estimates for the migration:**
  - Data migration: What is the effort required to transfer existing data?
  - Code migration: What adjustments and revisions are necessary?
- [ ] **Estimate effort for building the target platform:**
  What resources and timelines are required?
- [ ] **Calculate total costs:**
  What are the costs for operation, licenses & maintenance of the target platform?

Project Planning

- [ ] **Develop project plan:**
  What milestones and timelines are required?
- [ ] **Visualize project plan:**
  Create an overview with responsibilities and timelines.
- [ ] **Define responsibilities:**
  Who is responsible for which tasks?
- [ ] **Document decisions:**
  Which components will be migrated, which will not, and what framework conditions need to be considered?

Optional Tasks

- [ ] **Develop training concept:**
  What training do users need?
- [ ] **Conduct a detailed risk analysis:**
  How might various risks arise, and how can they be mitigated?

Tip

Document the target architecture and effort estimates precisely. A clear foundation facilitates the handover to implementation teams and ensures a smooth project start.

Your HMS SAS-to-R Migration Journey at a Glance

Behind every successful SAS modernization stands an experienced team. At HMS, our experts combine decades of Life Sciences experience with state-of-the-art AI and cloud technologies to guide you from small PoCs to full-scale modernization.

Our team supports migration projects of any size.

Let's talk about your migration journey!

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