An Introduction to InRule®

Overview

If your organization is confronted with the uncertainty of not knowing (1) who is maintaining decision logic, (2) where it is located or how to access it, (3) how it is defined, (4) what the lifecycle is for changing it, (5) how quickly you can turn around changes to production or (6) whether it can be reused in other applications, then the InRule® Decision Platform might be the right solution for you.

At InRule®, we make automation accessible. We do it faster, with more accuracy and transparency than anyone else.

InRule's author-first approach empowers both business and technical users to change enterprise decisions in applications—with less effort, cost, and risk than programming—to help organizations keep pace with changing marketplace conditions and customer needs.

Determining if a software product is the right solution for your organization can be a time-consuming and sometimes confusing endeavor.

To help you with your evaluation and provide guidance on what you need to look for during that process, this Introduction to InRule will walk you through key aspects of our decision platform so that you can make the best choice for your organization.

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Why use the InRule Decision Platform?

The challenges you currently face with your organization's decision logic may vary depending on the state of your business applications, development lifecycles or available resources.

Since 2002, the InRule Decision Platform has helped over 400 clients around the world achieve measurable results and benefits that have positively impacted their organization.

Empower Subject Matter Experts to control decision logic

Centralize decision logic for easy access and reusability

Greater transparency

Gather and analyze insights into your decision logic

Faster change cycles

Standardize across the organization

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DECISION PLATFORM COMPONENTS

What is a Decision Platform?

A Decision Platform is an end-to-end solution for everything related to the decision management lifecycle, including authoring, testing, storing, deploying and executing decision logic.

Because every organization's decisions are different, we provide a solution that can work with *any* business application: from insurance, healthcare, financial services, and commercial applications to public sector agencies.

While our Decision Platform is built with the Microsoft .NET stack, you don't have to be a .NET organization to use InRule. With today's service-based architectures, InRule integrates with almost any application (desktop, web, mobile) or platform (Microsoft Dynamics®, Microsoft Azure, Salesforce®).

A decision platform can be your "single source of truth." Instead of replicating logic and deploying it across each of your business applications, InRule allows you to define the logic once and let all of your applications consume the same decisions.

The Decision Management Lifecycle

AUTHOR   **TEST**   **STORE & MANAGE**   **EXECUTE**
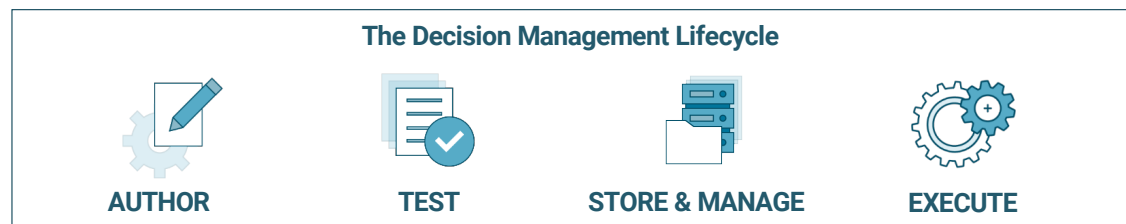
Author

irAuthor® is the desktop tool you will use to write and maintain your decisions using one or more of the included rule editors.

The Business Language Editor provides a point-and-click interface for constructing rules in natural language representations using a library of templates.

The Decision Table Editor can be used to represent a set of related business rules in a multi-dimensional matrix by combining multiple conditions and actions.

The Syntax Expression Editor allows authors to build complex expressions or formulas using any of the 225+ built-in functions.

You can also leverage Vocabulary to extend the template library and incorporate your business domain language.

Use these editors to create the business rules that represent a use case or decision. Together, this collection of rules is referred to as a rule application.

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Authoring Skills

For nearly 20 years, we have worked with hundreds of customers on their projects. During that time, we have found that there are certain competencies that translate into being an effective decision author. These are foundational skills that a Decision Architect or Decision Author should have to fully leverage the capabilities in irAuthor to create and maintain rule applications.

Every irAuthor user will go through a training session conducted by one of our consultants. This session will cover all of the features available in irAuthor and ensure that your Decision Authors understand the best practices that should be followed to build stable and maintainable rule applications.

The following list represents key skills for rule authoring:

- Understand data structures with parent-child relationships

- Translate a use case into a list of ordered steps

- Combine functions to create formulas or logical expressions

- Implement cause and effect logic using If/Then/Else statements

- Implement table lookups based on matching criteria

- Ability to identify logic gaps

Test

An essential step in the decision management lifecycle is testing. irVerify® is the testing tool which can be launched directly from irAuthor. When an author creates new rules or modifies existing rules, they will need to validate the decision logic to ensure they are getting the correct results.

irVerify can be used for either unit testing or regression testing. The author can create and save test data for consistent and reusable test scenarios.

irVerify includes multiple logging options that can be used to capture details related to a test scenario. These logs include:

- Summary Statistics

- State Changes

- Rule Engine Feedback

- Tracing Information

- Performance Statistics

Store & Manage
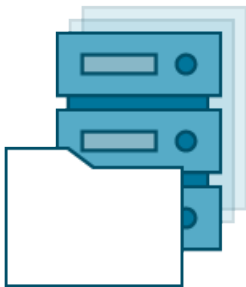
Rule applications created in irAuthor are saved to irCatalog ®.

irCatalog consists of a database, a web service and an admin utility, known as the Catalog Manager. The database is the repository and the web service will be the mechanism used at design-time or runtime to communicate with the database.

At design time, authors will retrieve a rule application from the database, check out to make modifications and then check back in.

This check-out/check-in process creates an audit record in the database. The audit records provide a means for ensuring organizational compliance.

Through the Catalog Manager, you can set up roles and permissions to grant or deny access to your organization's rule applications. The Catalog Manager is also used to deploy changes from one catalog to another as part of a decision management migration process.

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Execute

irServer® is our proprietary algorithm that is used to execute the decision logic defined in a rule application. Execution of decision logic is stateless. For a given decision execution request, you send the input data to irServer and specify which rule application to execute. When the process is completed, irServer will return the output state, which includes the results of the rule execution as well as optional logging information.

The InRule Decision Platform includes an implementation of irServer via a REST API. This REST API has been constructed to accommodate any type of transaction for any of the rule applications that you author. This REST API can be scaled out to handle larger volumes of transactions when needed.

InRule also provides alternate means for integrating irServer depending on your application or your organization's preferred technologies...

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Execution Alternatives

In addition to the out-of-the-box REST API, our Decision Platform also includes an SDK component for those organizations that prefer to create a custom integration using either the .NET Framework or .NET Core.

You can also convert your rule applications into executable JavaScript files via our packaging service known as irDistribution™. These files can then be deployed for scenarios where decision logic needs to execute in the client application or in disconnected mode.

Both the SDK and JavaScript options open up the possibilities for how you can execute your decision logic. Azure Functions, Azure App Services, AWS Lambda Functions, node.js, and Containers, are just a some of the ways our clients have customized their integration architecture.

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Roles and Responsibilities

The InRule Decision Platform consists of multiple components geared for different users. The success of the implementation depends on the right people doing the right job.

✓ **Decision Architect (Business or IT)**

Drives the overall decision design based on the organization's use cases; manages the more technical aspects of a rule application in irAuthor, including schema definitions, connections to external systems or creation of custom templates

✓ **Decision Author (Business or IT)**

Implements the decision logic by using the Business Language, Decision Table and Syntax editors in irAuthor; tests and validates decision logic with irVerify

✓ **Decision Integrator (IT)**

Configures business applications to call the REST API based on user actions, triggers or events that require execution of decision logic or leverages the SDK or JavaScript components when implementing a custom integration

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PERFORMANCE

Executing Decision Logic

We are often asked how fast decision execution will be. Unfortunately, it is almost impossible for us to provide a specific number since every decision is different.

In our world, a long-running rule execution would be anything over 150ms per transaction. Most of our customers are executing rule applications in much less time than that; some are executing decisions in single-digit milliseconds.

There are two primary factors that will contribute to your execution:

Factor #1: Number of rules

The more rules in your rule application, the longer the execution can take. It is important to keep in mind that not every rule will execute every time due to conditional statements which can impact the decision execution sequence from transaction to transaction.

Factor #2: Size of record data

When the data is passed to irServer, it must map it into a data structure. Some rule applications may call for passing in minimal record data and others may require a complex hierarchy of data that consists of parent-child relationships and collections.

The logging information in irVerify will capture execution times to help the author understand the contributing factors for a given rule application.

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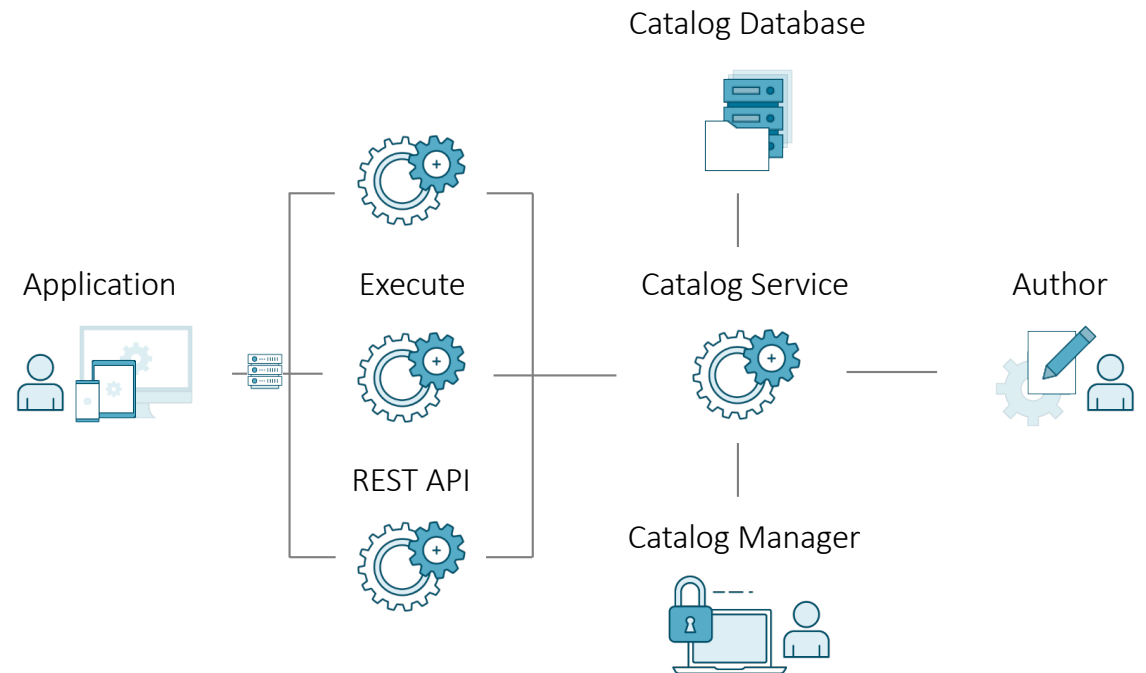
DECISION PLATFORM ARCHITECTURE

Architecture Overview

Because our Decision Platform is so flexible, it can be leveraged in almost any application through a service-based architecture so that the same decision logic can be defined once, saved to the catalog and executed wherever and whenever it is needed. The catalog database acts as your organization's "single source of truth".

Catalog Database

Application   Execute   Catalog Service   Author
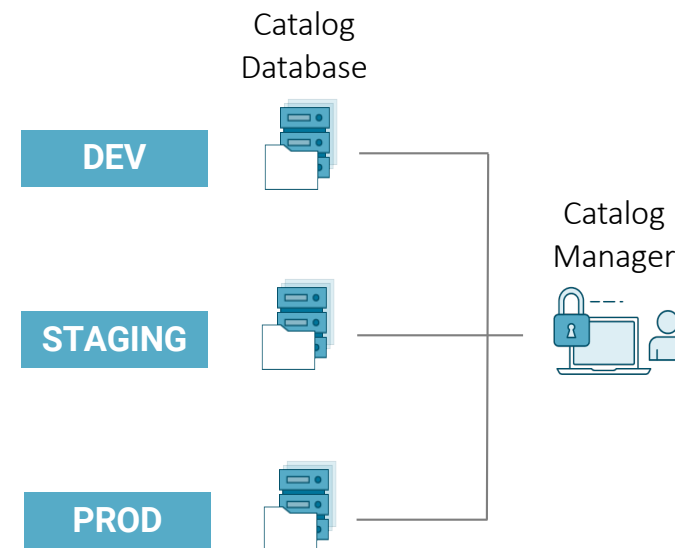
REST API

Catalog Manager
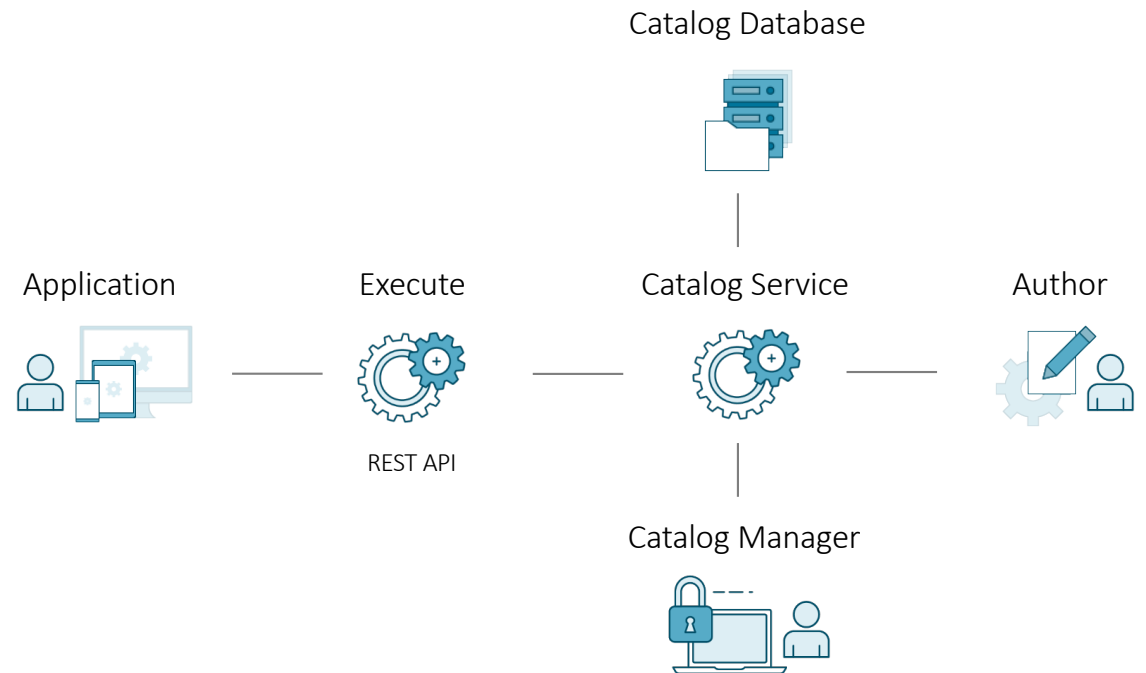
Architecture Overview

If you have a large volume of transactions that exceeds the capacity of a single implementation of the REST API, it can be scaled out to accommodate the additional throughput. Our Decision Platform does not include a load balancer, but most organizations have an existing load balancing protocol which can typically be reused for your decision execution architecture. In this scenario, all execution points share the same catalog thereby executing the same decision logic.

Catalog Database

Application   Execute   Catalog Service   Author

REST API

Catalog Manager

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Deployment Architecture

Since most organizations maintain multiple environments, our platform requires a unique catalog and REST API for each one. This allows you to isolate your decision logic so that your authors can safely make changes without impacting production. The Catalog Manager contains all of the functionality required to migrate changes from one catalog to another as part of a rollout process without requiring any changes or restarts of the REST API.

Catalog
Database

DEV

Catalog
Manager

STAGING

PROD

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DEPLOYMENT OPTIONS

Deployment Options

InRule provides multiple options for deploying our Decision Platform.

InRule SaaS supports execution of decision logic using the REST API.

With the Self-Hosted Cloud and Self-Hosted On-Prem options, you can choose either the REST API or a custom execution model.

InRule SaaS

Self-Hosted Cloud

Self-Hosted On Prem

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LICENSING

Decision Platform Licensing Model

The InRule Decision Platform is licensed as a subscription, with overall pricing based on configurable components.

Your subscription will include access to the InRule Support Site for forums, videos, phone and email support, and unlimited use of our computer-based training for irAuthor.

If you opt for a self-hosted deployment, you will also have access to all platform updates, including minor and major releases.

Component	Configuration	Licensed By
irAuthor	Required	# of named users
irSDK	Optional	# of named users
irServer/irCatalog	Required	# of cores or equivalent required for production

Licensing of irServer/irCatalog will be based on your production requirements. Our license model includes the equivalent configuration for a Development *and* Disaster Recovery environment. Additional environments beyond Prod, Dev and DR will incur an additional cost.

Support for OEM Licensing

InRule can be embedded within your product or solution which gives you the option of letting your customers tailor their own business logic in your packaged solution and devices.

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Determining Sizing for irServer

Estimating the appropriate number of cores for irServer is an important decision point both for the success of your application and for your project budget. However, the performance factors, number of rules and data payload vary from rule application to rule application which is why we strongly recommend the following to help you arrive at a number that will meet your needs:

When evaluating our decision platform, identify one or more use cases as candidates for a proof of concept. An InRule Sales Engineer can work with you to implement those use cases as rule applications. This process helps to uncover the intricacies and challenges of your decision logic, provides decision modeling solutions using the different rule editors, and acts as a starting point to understand the execution times.

When we can estimate the execution time for a given decision transaction, and we also know the anticipated number of transactions your application(s) will process in a given time period, we can then estimate the number of cores you will need for production.
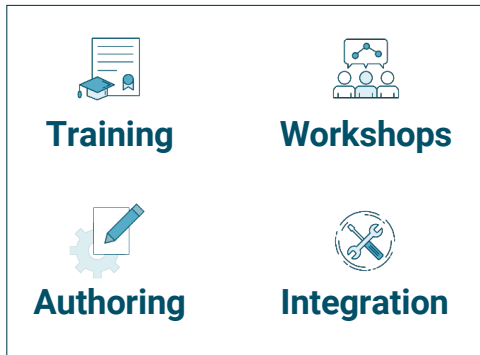
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PROFESSIONAL SERVICES

Rule-Oriented Application Development

Our Professional Services team, known as ROAD (**R**ule-**O**riented **A**pplication **D**evelopment), is involved in every customer project. ROAD consists of Decision Authoring Consultants and Decision Integration Consultants.

Training

Workshops

Authoring

**Integration**

Decision Authoring Consultants

Decision Authoring Consultants train your team on irAuthor to ensure they follow the best practices and guidance for proper authoring techniques. They can also perform rule application reviews or provide guidance and samples through the design phase of your project. If your timelines are short or if you simply don't have the resources, our consultants can also be used for project work to author your rule applications.

Decision Integration Consultants

Decision Integration Consultants will train your IT team on proper techniques for using the REST API, the InRule SDK or JavaScript. They handle the more technical aspects of the architecture and integration and can provide guidance on deployment practices, performance optimization, capacity planning and state management.

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Workshops

For each project, it's important for stakeholders to agree on why they are doing it, the problem they aim to solve and how success will be defined. At "go-live" everyone will know why something is better and how it impacts the goals of the business. Our workshops are designed to create a foundation for project success. Visit our website for more details on our available workshop sessions.
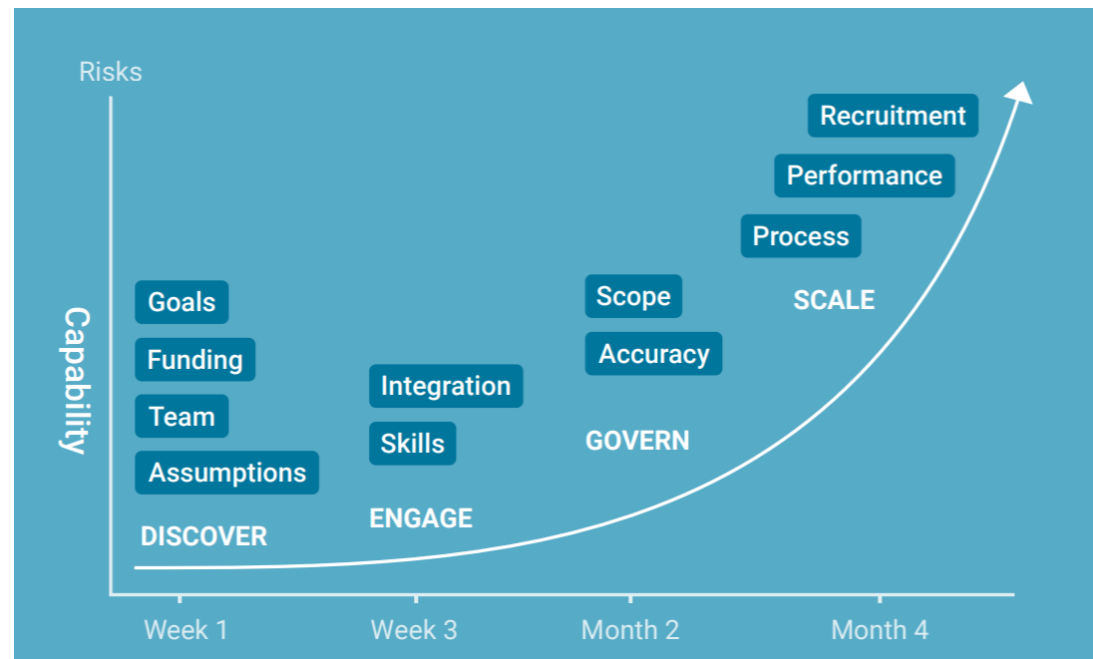
We map practice to things you need for the journey.

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EVALUATION STEPS

Recommended Evaluation Steps

Step 1: Introductory Demonstration

An InRule Sales Engineer will take you through an overview of the decision platform components, provide a demonstration of irAuthor to show how to write and test decision logic, and answer any questions you may have as it relates to the product or your project.

Step 2: Proof-of-Concept

Once you have a basic understanding of how our Decision Platform works from the intro demo, a proof of concept will provide better context for how *your* decision logic would look implemented using irAuthor. An InRule Sales Engineer can take one or more of your use cases and create sample rule applications that demonstrate different decision modeling techniques and highlight key considerations for how to properly author your decision logic.

Step 3: Trial

We provide two trial options. Our SaaS Trial is the easiest and most recommended approach. We stand up a hosted environment so you have access to all of the decision platform components. The second option is to download and install the software. Both options are available from our website.