

# Everything You Need to Know: Xelence's Rules Engine



## What is the Rules Engine?

Many organizations have rules-based, business logic hard-wired into their system's rigid application code, leading to opaque processes that lack agility and results in high maintenance costs. If these rules were set in stone, managing systems would not be so difficult. However, business rules are in constant flux, placing strains on these systems.

The rule engine in Xelence, Sagitec's low-code/no-code platform permits organizations to decouple business logic from processes and applications.

The rules engine enables policies, validations, and other operational decisions to be defined, tested, and executed. It helps business and IT visually capture, store the business logic centrally, and independently test and implement processes.

The business rules engine can be fully integrated with the Xelence solution and provides configurations that integrate with other systems as well.

## Business Benefits of Rules Engine



### Flexibility

Make frequent changes in business rules, validations, and functionality – quickly and efficiently. The rules engine provides a rich interface for subject matter experts and business analysts to graphically build and model business rules, decisions, and policies without programming knowledge. At the same time, the engine provides a sophisticated Rules Editor interface for professional developers to build complex programming logic. As the same rule can be viewed and edited graphically or in the editor, amateur and professional developers both benefit.



### Simplicity

Model, analyze, document, test, and store business rules as an executable rule service. This means analysts and developers can write business rules using a simple flowchart approach and test them before deploying them to production.



### Testability

Simplify business rules testing by visually identifying which step failed through traceability and debugging.



## Traceability

Record all activities when executing business rules in a detailed and auditable way. Audit trails ensure traceability and execution statistics provide clarity about which rule model was used and which path was taken through the rule model.



## Versioning

Allow an easy to access, version-controlled rules repository that preserves business logic so that it is reusable in the future. This improves policy management and testing by providing simple methods to add and modify business policies.



## Performance

Built on top of the Microsoft C# programming language and uses .NET dynamic libraries same as C# class library, so the performance is comparable to C# code.

# Xelence Rules Engine Features and Benefits

Feature	Benefit
<b>Logical Rules</b>	You can write logical rules with this engine and not be limited by writing them as expressions.
<b>Decision Tables</b>	A decision table is a tabular representation of a business rule which provides a precise, yet compact way to model complex rule sets and their corresponding actions.
<b>Excel Matrix</b>	Excel matrix rules are two dimensional tables. They mimic the data layout a spreadsheet sheet and used to represent a large set of reference data.
<b>Form Rules</b>	The rules language is supported for forms. Developers can define the rules graphically or in rules language on the form using the control values and set the values in control, set the visibility of controls or enable/disable control.  There is single language to code backend and front-end logic making it easier for the developers.
<b>Life Cycle Rules</b>	Xelence provides a predefined set of rules to override component behaviors. This enables developers to customize the logic flow based on their business requirement, providing flexibility to extend the functionality.
<b>Rule Versioning</b>	If you want to use old and new rules with different logic, rule versioning makes it simple. There is an option to delay the execution of the rule - when you create a new rule version, you can provide a date on which the rule can become effective.
<b>Drag and Drop Code Blocks</b>	For amateur developers, the GUI provides a way to visually add and modify rules. It also provides Xelence specific logical code block for creating elements like BPM, correspondence, sending email, and other common functionality.
<b>Rules Editor</b>	This rule editor displays the Intellisense as you type and displays the errors the design time code completion.
<b>Design Time Compilation</b>	The Xelence rules editor identifies any errors that occur when developers violate the rules of writing syntax. This compiler error indicates something that must be fixed before the code can be compiled.

Feature	Benefit
<b>Rich Support of Data Types and Variables</b>	The rules engine provides support for many data types, variables, and related constructs such as collections, constants, expressions, operators, and assignment statements.
<b>Control Flow Statements</b>	The rules engine provides conditional statements like if-else, switch statements, and loops to control the execution flow of the code. Statements are generally executed line by line, in the order they appear. With control flow statements, you can make code execute based on a certain condition or have a block of code execute repeatedly.
<b>Exception Handling</b>	Xelence provides a sophisticated exception handling mechanism that enables you to handle run time errors so that normal flow of the rule execution can be maintained.
<b>Support for Data Manipulation</b>	The rule language enables you to programmatically insert, update, delete or retrieve data in the database, allowing developers to code complex data manipulations.
<b>Rules as Service</b>	The integrated rules engine can be deployed in a stand-alone mode and invoked from a web interface or using a Web API call.
<b>Consume API</b>	The rules language enables you to invoke any third-party assembly built using .NET core framework to extend the functionality.
<b>Consume Web API</b>	The rules language enables you to programmatically invoke Web API hosted in another application or endpoint.
<b>Debug and Trace</b>	<p>Xelence provides a language like C# that helps make debugging rules simple. Debugging allows the developer to step through one statement at a time and view the variable values at each step.</p> <p>Tracing helps you to view the path the rule takes while executing a scenario and view the input/output of each executed step.</p>
<b>Independent Testing</b>	The rules engine provides support to write test scenarios and independently test a specific rule without needing to run the application.
<b>Zero Downtime</b>	The deployment of changes to the business rules does not require a downtime.

## About Sagitec

Sagitec Solutions, LLC is a low-code/no-code platform provider. Sagitec's Xelence platform puts speed, simplicity, and evolution at the core of enterprises. Xelence allows citizen developers and IT professionals to quickly design, test, and deploy simple to complex enterprise-grade software applications. Over 30 complex mission-critical software applications run 24x7x365 with demonstrated ability to evolve and scale to incredibly high demands with the Xelence platform.

Accelerate excellence and learn more about Xelence at <https://www.sagitec.com/xelence>

