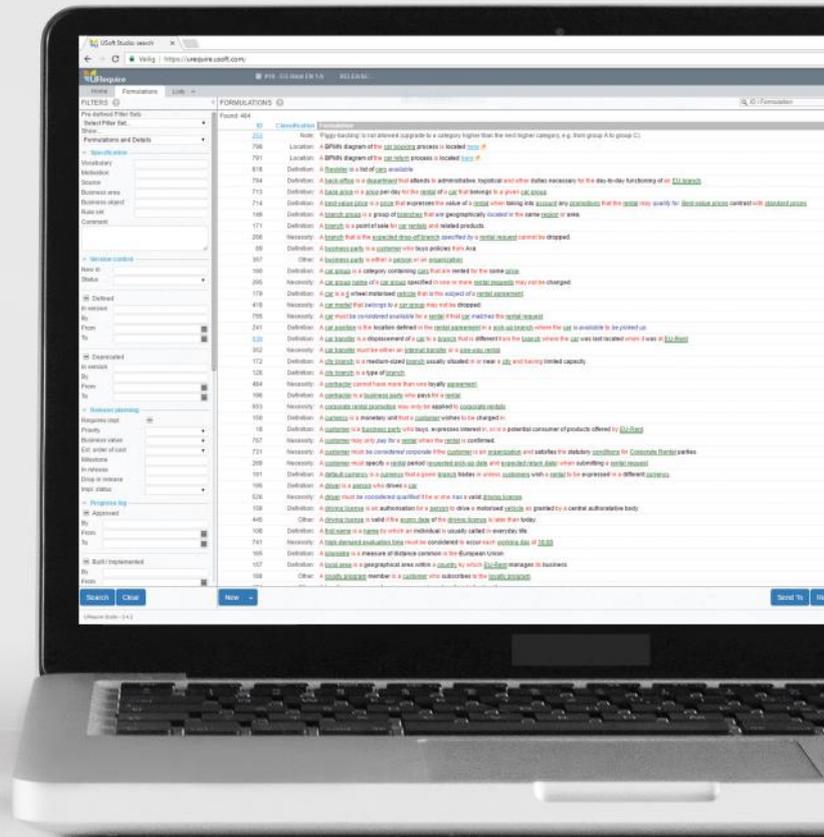


# USoft platform features description

Version 9.0



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## USoft 9 series

The USoft 9 series extends the versatility of the USoft 8 series and introduces a new set of features that broaden the field of enterprise solutions with rules at the core.

The main theme is the accessibility of rule governed enterprise data, whether it be through a service interface, a rich client interface or 'state of the art' web interface, all instantly based on the model and rules expressions which have been declared.

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# 1. Functional enhancements<sup>1</sup>

## 1.1. Rule language

The specification of rules for URule, the USoft rules engine, uses predicate logic. Traditionally, these rules were formulated in industry standard SQL, specifying the action and conditions for URule to automatically enforce. In USoft 9, a new USoft Rule Language enhances the readability of Business Rule implementations: where URequire makes *business specifications* easier to read, the USoft Rule Language makes *software implementations* easier to read. USoft has opted for a more natural language than “if..then..else” constructs, preserving the expressive power of the SQL set oriented industry standard language. The rule syntax is:

- for [concept] do not allow that [condition]
- for [concept] make sure that [action] where/when [condition]
- for [concept] (attribute-list) add where not exists [selection]
- remove all [concept] for which [condition]

Example: For “Rental Agreements” do not allow that Confirmed = ‘Yes’ And Allocated is null.

UDevelop will automatically show the SQL equivalent of rules formulated in this new rule language. Also, the traditional syntax remains supported, ensuring backward compatibility of rule implementations.

## 1.2. Rule-based logical views

In USoft 9, a simple but powerful extension is now available for logical views: the behaviour of insert, update and delete on logical views can be set to be defined by constraints. This allows rule governed handling of data manipulations. Logical views definitions now have three new checkbox options for this: Use Constraints For Inserts; Use Constraints For Updates; Use Constraints For Deletes. If for example the checkbox “Use Constraints For Updates” is set, an Update on the logical view will not result in a physical update but a transition constraint can be defined to define the logic to do that update.

Whenever a logical view is used as the transition table in a Constraint definition, the developer will be informed whether the Constraint transition indicators (Fire on Insert, Fire on Delete, Fire on Update) are used consistently with the corresponding checkbox options in the logical view.

## 1.3. Web Designer runtime

USoft 9 Web runtime addresses the need for easier styling and extending model based web applications. For that purpose, the USoft Web runtime has been completely rewritten to support current web technologies. The web runtime is compatible with, and extends, jQuery with support to embed Bootstrap and Model View Control frameworks like EmberJS. The USoft 9 series now support a new, consistent set of “UQuery” interfaces for Data (Model), Actions (control), and UI (View).

The USoft 9 Web Designer model based pages are now consistently styled and themed and the generated content is concise and clean. Custom controls can be designed and embedded via the new interface API. A small, partial example of two API (Action and Data) can be found in the appendix.

## 1.4. Web benchmark

The need for easy and low cost testing and benchmarking of web applications is addressed in USoft 9: it has an integrated web benchmark system embedded. With Web Benchmark all user interactions can be instantly recorded, stored and played back multiple times, including the keying. A complete drill down of events and actions is available including time spent. In these ways USoft web applications can be guarded by simply recording repeatable test sets based on real user scenarios. There is no need for the complexity of standard test environments although the tests can be converted e.g. Selenium.

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<sup>1</sup> Some enhancements have preliminary implementations in the USoft 8.0 series.

## 1.5. Plugins

A major enhancement in the USoft 8 series was modular application development. In USoft 9, modules can be added dynamically by adding a so called plugin definition in a USoft application distribution. This mechanism serves to dynamically extend (or reduce) application functionality. For example, if your customers have a project management system built in USoft, you could upsell a plugin at a later time that integrates booked hours from e.g. an issue tracking system to a subset of your customers.

## 1.6. Domain expressions

USoft 9 domains are extended with regular expression based restrictions for domain validation. These restrictions are automatically enforced by URule and can be used in USoft Web Designer for instant field validation based on the domain. The advantage is ease of use (i.e. avoid the need for a domain constraint) as well as direct validation in the USoft web pages and results in immediate feedback for application users (e.g. on IBAN domains).

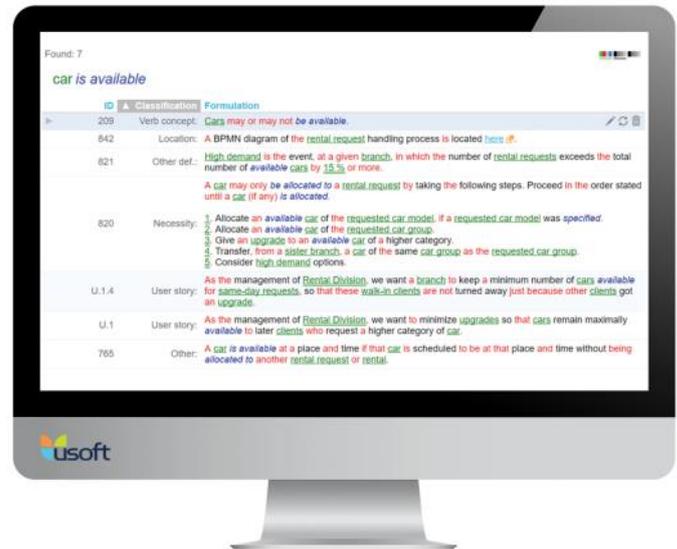
## 1.7. USoft client/server new look

In USoft 9, client/server applications have a choice of multiple skins that produce a more attractive look and feel for both the UDevelop environment as well as customer applications developed with USoft. Users can choose between a traditional, multiple document interface or a modern tabbed-windows 10 look. A number of UDevelop screens are adapted to optimally use screen space in the tabbed look.

## 1.8. REST access to URule

REST interfaces offer access to application data in URL style. USoft's REST interface, UREST, now supports REST access to URule, i.e. to rule governed data. URest addresses the need for development of enterprise applications with 3rd party tools that strongly enhance data integrity and rule embedded processes by using URule. Data access via URest to URule guarantees all business rules are obeyed, including USoft's authorization rules, in any CRUD (Create, retrieve, update, delete) action issued via UREST.

URest supports resources to invoke USoft batch jobs and USoft's xml import. The set of exposed resources can be



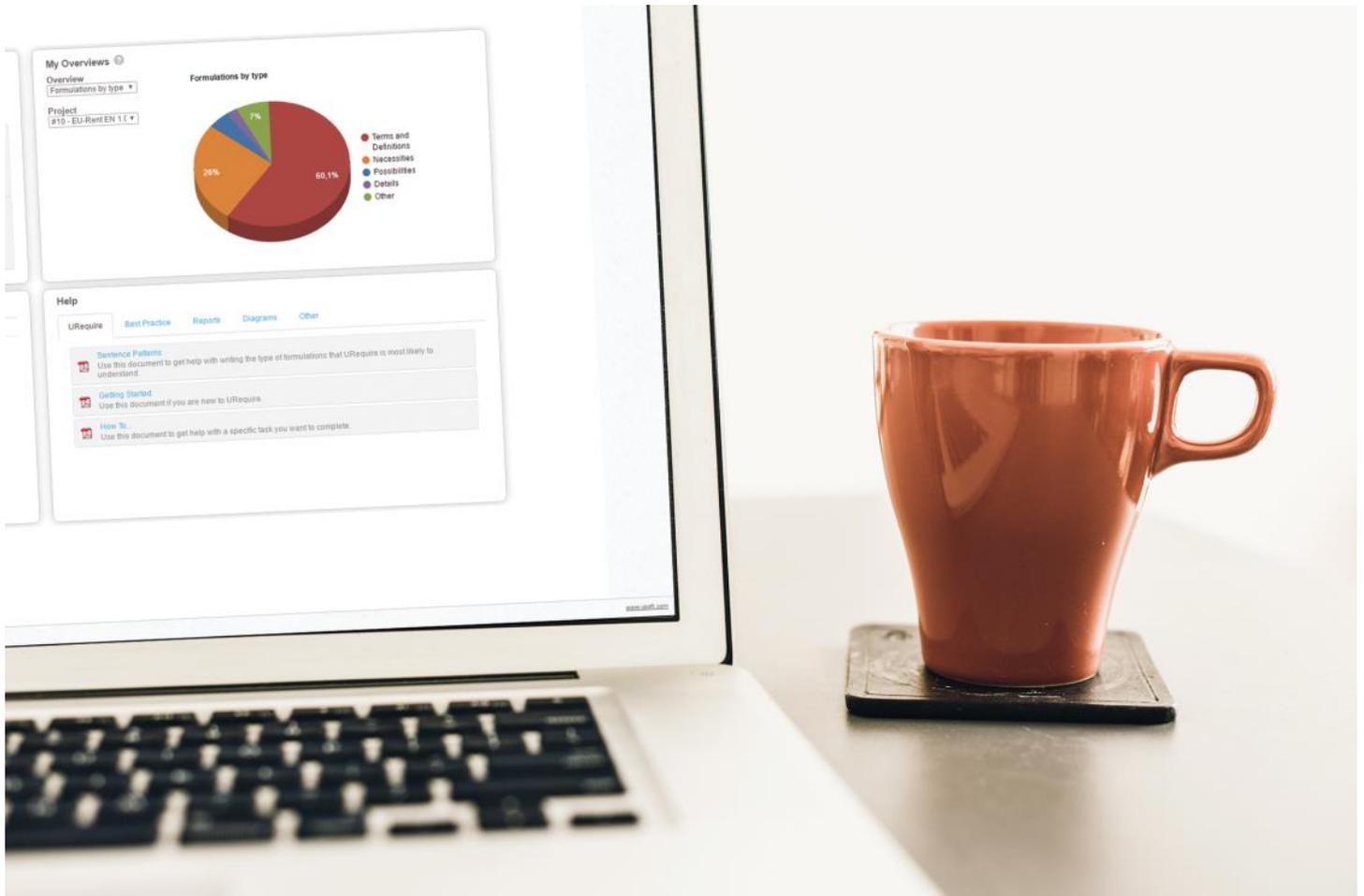
configured. The URest interface is a service that runs on Windows and can be configured in the USoft binder. On porting platforms URest requires Java version 1.7 or higher.

## 1.9. .NET Data Provider

A .NET Data Provider supports access to URule, i.e. to rule governed data. This addresses the need for development of enterprise applications in .NET, enhancing data integrity and rule embedded processes by using URule. URule guarantees all business rules are obeyed, including USoft's authorization rules.

## 1.10. Cross reference

UDevelop's cross reference helps developers to see how data and rules interact: model and component definitions show instantly the set of rules they interact with and vice versa. In the 8 and 9 series, cross referencing has been extended e.g. to cover batch tasks. The cross reference information includes an XML node representation of rule implementations, allowing developers to extend the cross reference mechanism, e.g. for the purpose of reporting.



## 1. 11. USoft message bus

A message handling template for xml based messaging has been developed for USoft 9. This module template includes examples of routing messages to subscribers and web services and deploys strong interaction with components. The template may serve as a reference application that shows the power of component integration in USoft and deploys constraints against time events. The latter shows for example how rules can validate and process data that was not governed by URule in the first instance.

are available in USoft 9. These components are offered in source form “as-is”, as a jumpstart for developers to tailor the components to their needs. Among the examples are: generation of GUID’s, using SHA1 encryption, sending mails with attachments, storing temporary data in .NET Dictionaries, regular expressions, accessing the windows file system, retrieving windows services and device states, serial communication via virtual COM ports to external devices, and more.

Off the shelf components are available on request via the USoft service desk; email: [support@usoft.com](mailto:support@usoft.com)

## 1. 12. Off the shelf components

Components are a mechanism in USoft for extending its versatility. The USoft 8 series introduced .NET components, whereby the component C# source is maintained in the repository and compiled automatically. USoft 9 extends the support to current .NET versions. A new set of C# components

## 2. Technical enhancements

As per USoft 9.01K patch version, USoft is available in a 64-bit version.

### 2.1. License manager

The USoft license manager now supports Flexnet services that are compatible with the latest Windows 32-bit and 64-bit platforms.

### 2.2. Transport layer security

USoft 9 rule services support TLS (Transport layer security, i.e. secure socket connections).

### 2.3. C# Components in USoft .NET 4.5 compliant

The RDMI (rule driven method invocation) component in USoft that allows seamless interaction of USoft data with the OO component world now supports .NET 4.5 (compared to 3.5 in USoft 8)

### 2.4. Java Components in USoft Java 1.7 compliant

The RDMI (rule driven method invocation) components in USoft that allow seamless interaction of USoft data with the OO component world now supports Java 1.7 (compared to 1.6 in USoft 8)

### 2.5. Limited PostgreSQL support

Basic connectivity to PostgreSQL via ODBC is supported in USoft 9.

## 3. Platform support

### 3.1. Supported Oracle databases

- Oracle Database 10g Release 1: 10.1.0.2–10.1.0.5 (patchset as of February 2006)
- Oracle Database 10g Release 2: 10.2.0.1–10.2.0.5 (patchset as of April 2010)
- Oracle Database 11g Release 1: 11.1.0.6–11.1.0.7 (patchset as of September 2008)
- Oracle Database 11g Release 2: 11.2.0.1–11.2.0.4 (patchset as of August 2013)
- Oracle Database 12c Release 1: 12.1 (patchset as of June 2013)

Note that most drivers for older Oracle versions remain available in USoft 9 but proper working is not guaranteed and support requests are only solved for the latest drivers from the above list.

### 3.2. Supported Microsoft SQLServer versions

- SQL Server 2005 SP4
- SQL Server 2008 R2 SP2
- SQL Server 2012 SP1

### 3.3. Limited support on

- PostgreSQL/Odbc connectivity
- IBM/SolidDB 6.5 pack 14

### 3.4. Operating systems

Microsoft Windows

- Windows 7 (version 6.1)
- Windows Server 2012 R2 (version 6.3)
- Windows 8
- Windows 10
- Windows Server 2008 R2 (version 6.1)

### 3.5. Browsers version support

This section applies to USoft web designer applications. Generally, USoft web designer applications work well with recent versions of current browsers. Mid 2014, this set is:

- Internet Explorer current and current minus 1 version
- Google Chrome 33
- Opera 12
- FireFox 27

## Appendix: web runtime API sample

### Action module

Property	Explanation
. pages	A list of page names that represent the Page Stack.
. selections	A list of selected records. These selections span over the entire page stack, which means that selections of previous pages are included.
. queries	A list of query parameters (current page only).
. manipulations	A list of manipulations, spanning the entire page stack. These are generated by the xml() function of the manipulation transaction object in the data container.

Action	Page Engine name	Explanation
checkData	checkData	Checks if all manipulations are valid.
commit	commit	Commits all manipulations.
changeDataSet	getDataSet	Selects a different data set to display.
getDataSet	getDataSet	Retrieves new records for a data source.
selectRow		Changes row selection.
createRecord	getDataSet	Create a new record in a data source.
deleteRecord	checkData	Deletes a record in a data source.
clearDataSet		Purges all (search) data of a data source.
validateValues	validateValues	Validate a combination of field-value pairs.

## Data module

### UQuery

Method	Explanation
udb()	Function to get a data source with a given name.
.acceptLookupValue()	Function that accepts the selected lookup value on the lookup page or dialog.
.cancelWindow()	Function that rejects the lookup value and close the lookup page or dialog.
.checkData()	Function to check the data of the current record.
.checkVersion()	Function to check the USoft version.
.closePage()	Function to close the page and return to the previous page on the stack.
.commit()	Function to commit manipulated data.
.navigateTo()	Function to navigate to another page.
.navigateToLookup()	Function to navigate to a lookup page.
.navigateToRelated()	Function to navigate to a related page.
.trigger()	Function to trigger an event.

### Rows

Method	Explanation
.cols()	Function that returns a collection of columns.
.rowDelete()	Function that returns a collection of rows.
.each()	Function to iterate executing a function for each row.
.index()	Function that return the index of the first record.
.mark()	Function to (un)mark records.
.rowId()	Function that returns the unique row id of the first record.
.keys()	Function that returns the key values of the first record.
.refresh()	Function that refreshes the collection of records.
.status()	Function that returns the row status of the first record.
.select()	Function that changes the current selected record to the first record in the current row set.

## Columns

Method	Explanation
.alias()	Function that returns the alias of a column.
.defValue()	Function that returns the default value of a column.
.displayLength()	Function that returns the default value of a column.
.isMandatory()	Function that returns whether a column is mandatory.
.label()	Function that returns the label of a column.
.name()	Function that returns the name of a column.
.ioFormat()	Function that returns the IO format of the first item.
.isKey()	Function that returns true if the column is a key column, false if not

## Events

Event	Explanation
alert	Called on a message when 'Message Presentation' property is 'Custom'
login	After login
logout	After logout
postcommit	After commit
postrollback	After rollback
dataset	After a dataset is loaded
rowpostcreate	After a record is created
rowpredelete	Before a record is deleted
rowpreselect	After the currently selected record has changed, before selection happens
rowpostupdate	After a record is updated
rowpostselect	After selection of a record (regardless of being successful)
rowselect	When the current selected row changes



#### **About USoft**

USoft is a global software provider with 30 years of experience. We enable organisations to become smarter and more efficient in their business processes. We are experts in areas including privacy, customer experience and real-time decision making.

Our truly low-code development platform allows you to simply model your ideas while working software is automatically created by the platform. Our software uses the concept of business rules which contributes to flexibility, ready to test and optimise and to align with the required business value. It is built on the concept that even complex software should be easy to build and maintain. Furthermore, our Service Framework makes it easy to connect to other applications.

USoft is a privately-owned company headquartered in The Netherlands, with additional offices in the UK and Serbia. We serve a broad range of customers in the sectors of financial services, healthcare, aviation, transportation and government. Find out more at [www.usoft.com](http://www.usoft.com)   

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