



COMMON KNOWLEDGE DOCUMENTATION

Getting Started With Common Knowledge

Making your business rules **your** business™



Getting Started

Congratulations on your decision to purchase or evaluate Common Knowledge! Common Knowledge is a business rules engine and rules maintenance system that supports the capture, representation, documentation, maintenance, testing and deployment of an organisation's business rules. It allows business rules to be represented in formats that are familiar and intuitive to both business and technical people. This document should serve as a starting point for you to become familiar with the Common Knowledge product. It will give you a basic overview of the components that make up Common Knowledge and will point you toward some common "first step" tasks that will be helpful when learning to use the product.

To get started, we'll take a high-level look at the components which make up the Common Knowledge product. The figure below illustrates how these components fit together.

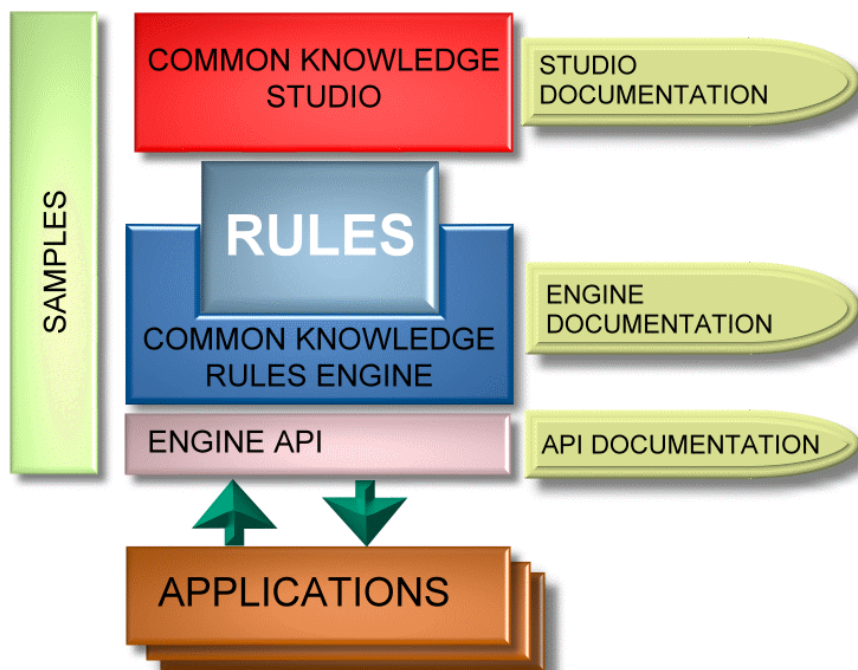


Figure 1 – Components of Common Knowledge.

In this diagram we can see the following key list of components:

- **Common Knowledge Studio** - a high-productivity environment for capturing, representing, maintaining, testing and automating business rules and application logic. It provides a visual and highly-interactive environment for representing business rules in variety of rule formats.
- **Common Knowledge Rules** – the rules created by Common Knowledge are stored as an XML formatted file that can be easily deployed onto the target environment.
- **Common Knowledge Rules Engine** - provides the link between your information systems and your business rules. This is the runtime execution environment for business rules. It is also used in conjunction with Common Knowledge Studio during system development.
- **Common Knowledge Rules Engine API** - this is the interface that programmers use to integrate their applications with the Common Knowledge



Rules Engine. Common Knowledge provides API support for Java, .NET, Delphi and ActiveX languages.

- **Common Knowledge Studio Documentation** - is a comprehensive and accessible set of documents that provide overviews, user guides and reference guides covering all aspects of Common Knowledge Studio.
- **Common Knowledge Rules Engine Documentation** - provides both conceptual and task-oriented information for programmers to develop applications that use the Common Knowledge Rules Engine.
- **Common Knowledge API Documentation** - are a set documents detailing the Common Knowledge Rules Engine APIs for Java, .NET, Delphi and ActiveX. These are the low-level descriptions of the operations of the API.
- **Common Knowledge Samples** - Common Knowledge provides a large number of sample rule applications. The samples are partitioned into two distinct sets. The first set demonstrates various ways rules can be represented and defined using Common Knowledge Studio. The second set demonstrates a range of programming techniques using the Common Knowledge Rules Engine API.

The following sections of this document provide additional details for each major component of the Common Knowledge. Where applicable, additional references are provided that will allow you to become more quickly familiar with Common Knowledge. Sections providing guidance with the installation and licensing processes are also included.



Common Knowledge Studio

Common Knowledge Studio is a visual development environment that provides support for the capture, representation, maintenance, validation, evaluation and documentation of business rules. This allows developers, analysts and managers to work together in the development and integration of business rules, policies, strategies, preferences, constraints and formulae into applications and business systems. Common Knowledge Studio is a Microsoft Windows application that provides a rich user interface for the development of business rules. Once the rules have been created they can be deployed onto all major platforms (Java, .NET, Delphi, ActiveX) along with the Common Knowledge Rules Engine. The following screenshot demonstrates some of the rules editing capabilities available in Common Knowledge Studio.

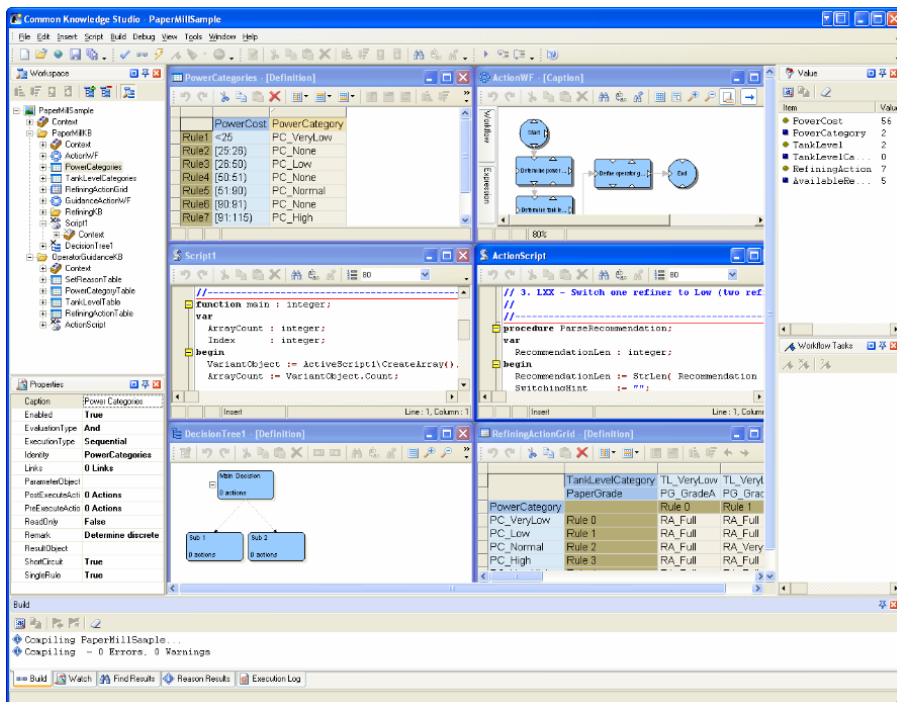


Figure 2 – Screenshot of Common Knowledge Editing Business Rules

An ideal place to begin learning about Common Knowledge Studio is in the [Common Knowledge Studio Documentation](#). The *Introduction* section provides a good overview of Common Knowledge Studio and explains the various aspects of its user interface. It also provides some *Quick Start* instructions if you want to jump straight into the process of building and executing business rules. Once Common Knowledge is installed on your computer, then Common Knowledge Studio may be launched via the Windows Start menu (e.g. **Start | Programs | Object Connections | Common Knowledge 3.0 | Common Knowledge Studio**).

Common Knowledge Studio – Rule Extenders

Unlike conventional business rule technologies, Common Knowledge lets YOU decide how to best represent and manage business rules. When it comes to representing business rules, there is no "silver bullet", no single format that can best represent all problems. To address this, Common Knowledge provides a variety of "Rule Extenders" which allow business rules to be represented in many ways including:

- Decision Tables



- Decision Trees
- Decision Grids
- Workflows
- Rete Rules
- Scripts
- Active Scripts

Each of these Rule Extenders has a dedicated visual editor in Common Knowledge Studio. Overviews of each type of Rule Extender can be found in the [Common Knowledge Studio Documentation](#) by locating: [Common Knowledge Studio | User Guide | Overviews | Rules Format Overview | Extender Overview | Rule Extender Overview](#). Whilst each Rule Extender can be very versatile in its own right, more powerful results can often be achieved by combining it with other Rule Extenders. Many examples of such hybrid rules representations are illustrated in the [Common Knowledge Samples](#).

Common Knowledge Studio – Rule Execution

Common Knowledge provides a powerful development environment whereby business rules may be executed standalone, *wholly within Common Knowledge Studio*. A host application does not need developed for rules to be executed. Once rules have been represented using the available Rules Extenders, the rules may be executed immediately within Common Knowledge Studio. This facility is enabled by the integration of Common Knowledge Studio with the Common Knowledge Rules Engine and provides a very powerful facility for the development, testing and debugging of business rules solutions. The screenshot below shows an example of the visual feedback provided when executing a Workflow Rules Extender within Common Knowledge Studio. (In the displayed Workflow, red nodes represent the execution path taken and the currently-active node is shown as green).

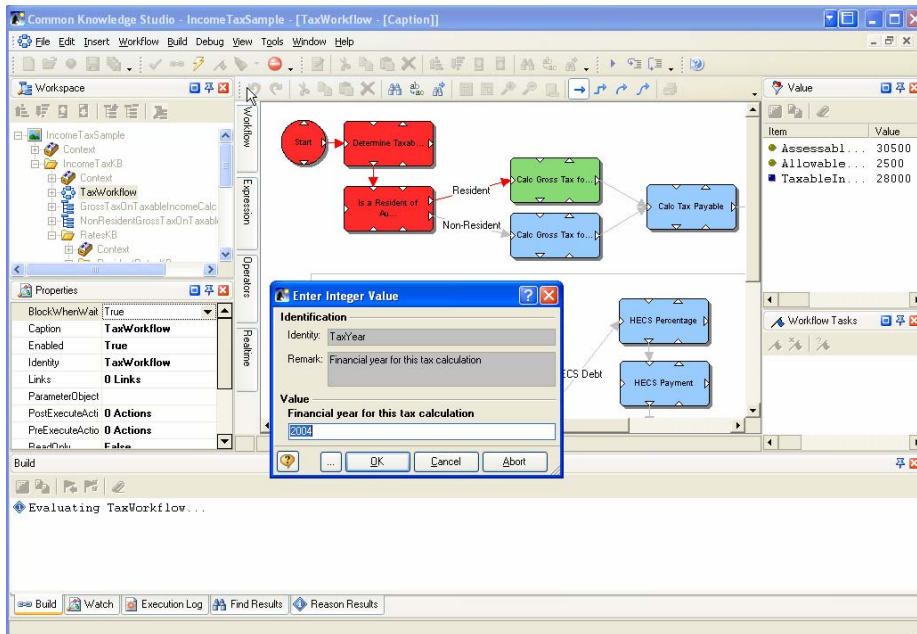


Figure 3 – Screenshot of Common Knowledge Studio mid-way through executing a Workflow

All provided Rules Extenders may be individually executed within Common Knowledge Studio. Similarly, rule sets consisting of combinations of Rule Extenders





can also be interactively executed within Common Knowledge Studio. For instructions on how to execute rules look in the [Common Knowledge Studio Documentation](#) at [Common Knowledge Studio|User Guide|Common Tasks|Building and Executing](#). Common Knowledge Studio also provides a *debug* mode of execution whereby breakpoints may be placed throughout the Rule Extenders and/or execution may be single stepped. See [Common Knowledge Studio|User Guide|Common Tasks|Debugging](#), in the [Common Knowledge Studio Documentation](#) for further details on the interactive debugging facilities.

Object Connection OEM partners have access to white-labelling capabilities and customisation of the Common Knowledge Studio user interface, allowing Studio to be closely integrated with partner solutions.

Common Knowledge Rules

Common Knowledge allows for the creation of business rules using a variety of formats. These rules are created using either Common Knowledge Studio or by using the "Authoring" capabilities of the [Common Knowledge Rules Engine](#). These rules are persisted using an industry-standard format, XML (Extensible Markup Language). Within Common Knowledge, the container for this set of rules is known as an Application Environment. When you save an Application Environment in Common Knowledge, using the **File|save** menu option, the result will be saved as an XML file having an ".aex" file extension. The saved rules files may then be deployed along with the [Common Knowledge Rules Engine](#) to the target runtime environment.

An overview of Application Environments can be found in the [Common Knowledge Studio Documentation](#) in the section [Common Knowledge Studio|User Guide|Overviews|Rules Format Overview|Application Environment Overview](#). Also see the section [Common Knowledge Studio|User Guide|Overviews|Rules Format Overview|Context Overview|Context Include Overview](#) for information on how Application Environments may be nested within each other as a means of partitioning your business rules in order to promote modularisation and reuse.

Common Knowledge Rules Engine

The Common Knowledge Rules Engine provides the link between your own developed applications and the business rules that you capture using Common Knowledge Studio. The Common Knowledge Rules Engine is used by Common Knowledge Studio during development of business rules, but it may also be executed standalone by applications developed by your organisation's own developers. The Common Knowledge Rules Engine is typically integrated as an embedded *rules component* within your own developed applications, enabling on-demand evaluation of the business rules. Note that in addition to evaluation of business rules, the Rules Engine may also be used to *create* and *manipulate* rules directly, thus providing full control over the rule sets by the host application.

An ideal place to begin learning the Common Knowledge Rules Engine is by referring to the [Common Knowledge Rules Engine Documentation](#), which provides conceptual information as well as sample code for various types of tasks. More advanced examples of the Common Knowledge Rules Engine are illustrated in the [Common Knowledge Samples](#).





Common Knowledge Rules Engine – Usage Levels

The Common Knowledge Rules Engine supports three levels of API usage:

- Level 1: *Integration & Execution* - This mode allows a pre-existing set of Common Knowledge rules to be programmatically loaded and executed. Individual Rule Extenders may be executed with this mode or entire combined rule sets may be executed. The inputs and outputs of the rule sets may be individually written to and read from before, during and after execution. The host application may also register for notification of a range of execution events. For information on using this mode see the [Common Knowledge Rules Engine Documentation](#) and follow the trail to [Common Knowledge Rules Engine|Common Tasks](#).
- Level 2: *Authoring* - This mode allows for the programmatic creation and modification of rule representations. This means that your own applications can be coded to create business rules in any of the provided formats - Decision Tables, Decision Trees, Rete Rules, etc. This dynamic mode of rule construction can provide greater flexibility and power within your own developed applications. Tutorials on *rule authoring* are provided in the [Common Knowledge Rules Engine Documentation](#) in the section [Common Knowledge Rules Engine|Tutorials](#). For greater detail, you can also refer to the [Common Knowledge API Documentation](#).
- Level 3: *Advanced* - Common Knowledge provides a number of advanced features relating, mainly, to tighter integration of your applications with the Common Knowledge Rules Engine. For example, Common Knowledge rules may be defined to access objects that are not even defined within Common Knowledge! These may be defined externally within your own application, and may be linked into the rules when a Common Knowledge compilation is performed. These advanced features provide additional capabilities that may enhance execution performance, or may increase the flexibility permitted in representing your application's business object model. Information on these advanced features may be identified through the [Common Knowledge API Documentation](#), however it is recommended that you discuss your particular needs with an Object Connections representative for further guidance in this area.


These usage levels are also discussed in the [Common Knowledge Rules Engine Documentation](#) in the section [Common Knowledge Rules Engine|Getting Started|Introduction](#).

Common Knowledge Rules Engine – Deployment

The Common Knowledge Rules Engine is designed to be deployed as an embedded component within your own developed applications. To find out how the Common Knowledge Rule components are deployed within your application, refer to the following sections the [Common Knowledge Rules Engine Documentation](#):

- **Java** - [Common Knowledge Rules Engine|Common Tasks|Common Tasks - Java|Deploying Java Applications](#)
- **.NET** - [Common Knowledge Rules Engine|Common Tasks|Common Tasks - .NET|Deploying .NET Applications](#)
- **Delphi** - [Common Knowledge Rules Engine|Common Tasks|Common Tasks - Delphi|Deploying applications](#)
- **ActiveX** - [Common Knowledge Rules Engine|Common Tasks|Common Tasks - ActiveX|Deploying applications](#)





A number of options exist when deploying business rules with your applications. The rules may be bundled together with the application or may be read from an external source. The Common Knowledge Rules Engine allows the rules to be read from a file, from a stream, from an XML document or from a URL (depending on the target language used). For further information on loading rules see the [Common Knowledge Rules Engine Documentation](#) section [Common Knowledge Rules Engine|Common Tasks](#), or look at the [Common Knowledge API Documentation](#) directly.

Common Knowledge Rules Engine API

The Common Knowledge Rules Engine API provides the interface that programmers use to integrate their applications with the Common Knowledge Rules Engine. Common Knowledge provides API support for Java, .NET, Delphi and ActiveX, dependant on the terms of your license agreement.

The best place to start gaining an understanding of the Common Knowledge Rules Engine API is in the [Common Knowledge Rules Engine Documentation](#). This documentation provides conceptual and task-oriented information as well as a host of code samples. Additionally, the [Common Knowledge API Documentation](#) provides detailed information about each of the classes, interfaces and methods that are available via the API.

Common Knowledge Studio Documentation

Common Knowledge Studio Documentation is a comprehensive and accessible set of documents that provide overviews, usage guides and reference information about all aspects of Common Knowledge Studio. This documentation is distributed as Microsoft HTML Help by default, but may be provided in PDF format or straight HTML, if requested. The Common Knowledge Studio Documentation may be accessed from the [Help|Studio Contents](#) menu option with Common Knowledge Studio, or may be access directly via the Windows Start menu (e.g. [Start|Programs|Object Connections|Common Knowledge 3.0|Help|Common Knowledge Studio](#)).

The Common Knowledge Studio Documentation has the following general structure and includes a Help Map ([Common Knowledge Studio|Help Map](#)) which provides a useful way of quickly accessing commonly-required help topics:

- *Introduction* - This section includes an accessible overview of the Common Knowledge product as well as an introduction to the main features of Common Knowledge Studio. Quick Start instructions are provided if you feel like jumping directly into the process of building and executing business rules.
- *User Guide* - This section is particularly useful for becoming familiar with the rule-building tools within Studio. It contains detailed information of each of the types of Rule Extenders, and Expressions. It also includes descriptions of a number of tasks that are commonly performed and tutorials covering the creation of basic rule representations.
- *Reference Guide* - This section provides detailed information about the properties each of the elements visible in the Studio user interface. It also includes advanced Studio information detailed descriptions of the properties associated with each Rule Extenders.
- *FAQ and Glossary* - The FAQ is a useful "first stop" when you are unsure of the way to do something in Studio. The Glossary provides explanations of terms used in the Common Knowledge Studio user interface, documentation and any other supporting documents.





Common Knowledge Rules Engine Documentation

The Common Knowledge Rules Engine Documentation provides both conceptual and task-oriented information for a programmer who will develop applications that use the Common Knowledge Rules Engine. This documentation is distributed as Microsoft HTML Help by default, but may be provided in PDF format or straight HTML, if requested. The Common Knowledge Rules Engine Documentation may be accessed from the **Help|API Contents** menu option with Common Knowledge Studio, or may be accessed directly via the Windows Start menu (e.g. **Start|Programs|Object Connections|Common Knowledge 3.0|Help|Common Knowledge Engine User Guide**).

The Common Knowledge Rules Engine Documentation has the following general structure. In addition, it also includes a Help Map ([Common Knowledge Rules Engine|Getting Started|Help Map](#)) which provides a useful means of quickly accessing commonly-required help topics:

- *Concepts* - This section provides an overview of the basic rule elements that are utilised by the Rules Engine including Application Environments, Contexts, Context Elements and Rule Extenders. It also includes some conceptual-level information on integration and error handling.
- *Common Tasks* - This section contains examples of most of the common programming tasks you perform when utilising the Rules Engine. This includes tasks such as Deploying Applications, Loading Rules, Setting Inputs and Executing Rules. Each task is illustrated with a code sample in each of the supported programming languages.
- *Tutorials* - This section provides more-advanced examples of programming tasks that you may need to perform when making use of the Rules Engine. Most of the examples here are based around programmatic "rule authoring", but examples are also included on error handling and execution logging.

Note: Each of the examples in the Common Tasks and Tutorials sections are also included as standalone applications in the [Common Knowledge Samples](#).

Common Knowledge API Documentation

The Common Knowledge API Documentation details the Java, .NET, Delphi and ActiveX APIs. These are low-level descriptions of the operations of each API including classes, methods, types and returns. All Common Knowledge documentation is distributed as Microsoft HTML Help by default (with the exception of the Java API documentation), but may be provided in PDF format or pure HTML if requested. The Common Knowledge API Documentation may be accessed from the **Help|API Contents** menu option with Common Knowledge Studio, or may be accessed directly via the Windows Start menu (e.g. **Start|Programs|Object Connections|Common Knowledge 3.0|Help>Java API**).

Common Knowledge Samples

Common Knowledge is supplied with a large number of sample rules. Standalone samples for each extender are provided as well as composite samples demonstrating the combination of multiple rule extenders into hybrid business rule solutions.

Common Knowledge Studio Samples

These samples can be found under the root folder `<INSTALLDIR>\samples\studio`. Each sample can be executed within Common Knowledge Studio. The samples are organised primarily to illustrate usage of each of





the types of Rule Extenders. There some additional samples that illustrate the use of hybrid rule representations (see the "Solutions" folder), and other samples that represent task-specific features such as the use of regular expressions and XML.

The Common Knowledge Studio Samples also include the *Tutorials* which are included in the [Common Knowledge Studio Documentation](#).

Common Knowledge Rules Engine Samples

These samples can be found under the folder <INSTALLDIR>\Samples\Engine, under the programming language-specific folder. They can be particularly useful as a starting point when you are developing your own application that needs to make use of particular features in the Common Knowledge Rules Engine. Each sample is packaged as a standalone application that can be loaded and executed in your own development environment.

The samples are organised in folders by general theme. There are samples illustrating things such as handling of Workflow Execution events, and persistence of Rules Engine execution state. Additionally, each of the examples in *Common Tasks* and *Tutorials* from the [Common Knowledge Rules Engine Documentation](#) is included as a standalone application.

Installation

Installation of Common Knowledge is a straightforward process that involves running the executable installer file on the target machine then following the steps in the Common Knowledge Installation Wizard. Each step is self-explanatory, however you will need to firstly purchase a Common Knowledge license or obtain an evaluation key in order to complete the installation process.

Licensing

The Common Knowledge Rules Engine and Common Knowledge Studio are licensed under a "developer-seat" and "production runtime" deployment basis. When deploying Common Knowledge please refer to your licence agreement for your deployment entitlements. Evaluation licences are available on request via the Object Connections website at www.objectconnections.com

Additional information regarding licence keys is provided in the [Common Knowledge Studio Documentation](#) in the section [Common Knowledge Studio|User Guide|Overviews|Licensing Overview|Licence Keys Overview](#).





Additional Resources

For additional information about using Common Knowledge, or about business rules management generally, refer to the Object Connections website, www.objectconnections.com. The website contains useful background information including whitepapers about various business rules topics. Please also feel free to contact an Object Connection representative, by phone or email, for any further information or technical assistance. Contact details are available on the Object Connections website at www.objectconnections.com

Summary

- This document has attempted to provide an introductory overview of the elements that comprise the Common Knowledge Business Rules system. It has described the context in which each of these elements operates, and, where applicable, has provided direct references to documentation containing additional information.
- The Common Knowledge help files provide a range of descriptions, tutorials and samples for basic, intermediate and advanced users of Common Knowledge. The Object Connections Web site should be monitored frequently for up-to-date information of product updates and new releases.

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