

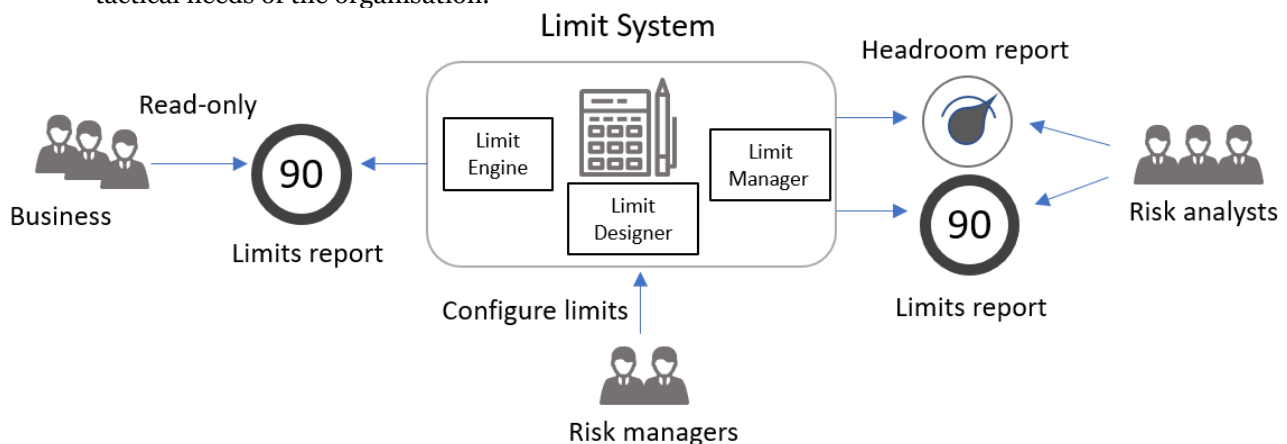
Note

RC-Limit System

Risk Control's RC-Limit System is a powerful business system for designing and administering credit limits within financial organisations such as banks or insurers. Limits are almost universally employed by financial firms to control risk taking by business units. Limits should be applied ex ante before a new exposure is taken on. Business colleagues should be able to query limits applicable to the transaction they are considering and to ascertain 'headroom'. Risk analysts should be able to monitor limits and report to management. Accurate and timely forecasting of headroom permits a business to unlock potential and optimise limits.

RC-Limit System permits risk or credit functions within an organisation to implement and administer ex ante credit limits. The system supports the following functionalities:

- Lending or underwriting officers can query the system from within their business systems or using an interface at different stages in their decision-making about a transaction.
- Risk analysts can monitor the state of limits and lending/exposure headroom.
- Risk managers can design and implement limits in a highly flexible way, responding to the strategic or tactical needs of the organisation.



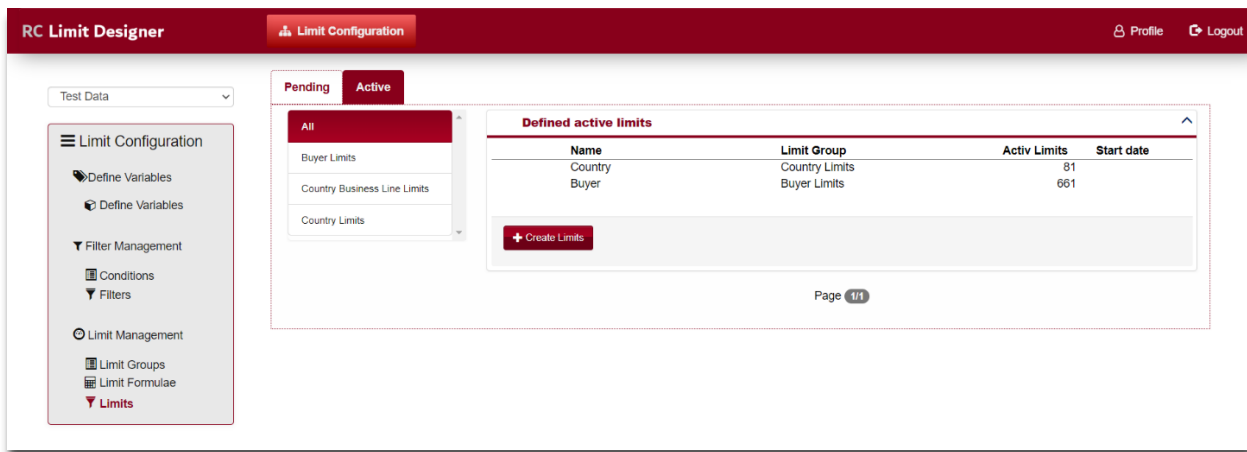
RC-Limit System Features

- Apply limits to any field or combination
- Upload limit information via an interface
- Check new exposures against limits
- Apply temporary overrides to limits
- Manage simultaneously multiple portfolios of exposures with different limits in different user groups
- Define simple and complex limits and overrides based on existing data
- Update limit utilisation automatically in response to portfolio changes
- Limits down/upload limits to Excel
- Allows scheduled activation and deactivation of limits
- Real-time or near-real-time calculation of limits and headroom
- Time series of limit utilisation
- Customisable definition of limit utilisation
- Web services and graphical user interface for limit and override requests
- Graphical user interface for limit and override design
- Seamless integration into the customer's infrastructure and connectivity with up and downstream applications by the use of web services (REST)
- Cloud-based high-availability version
- Supports capital consumption-based limits

The functional architecture of the system is shown above. Underwriters query the system to ascertain if prospective transactions are consistent with limits. Limits are set by Risk Managers using RC-Limit Designer. Risk Analysts monitor limits and exposure headroom using RC-Limit Manager.

Limits depend on characteristics of exposures, for example country, rating, counterparty or business line. In many cases, limits will be simple. For example, the user may just want to create a limit of 50,000,000 total exposure for every approved country effective immediately. However, sometimes more complex limits are required, and a number of intermediate steps must be accomplished to build them the RC-Limit Designer. when more complex functionality is required. These objects are filter conditions, filters and formulae.

A screen shot of the RC-Limit Designer interface is shown below.



Technical Information

The RC-Limit System comprises four primary components:

- 1. RC-Limit Engine**
 RC-Limit Engine is a backend REST server that offers web services to other systems including business systems (underwriting or banking systems) from which business users direct queries about prospective transactions.
- 2. RC-Limit Designer**
 RC-Limit Designer is a Java application and GUI that allows risk managers to set limits in a highly flexible way based on different exposure characteristics.
- 3. RC-Limit Manager**
 RC-Limit Manager is an Angular interface through which risk analysts may monitor limits and check available headroom for different categories of exposure.
- 4. RC-User Management Application**
 User management is provided by a fourth component, the RC-User Management Application (UMA) which authenticates and authorises users and interacts with LDAP services such as Active Directory and Azure AD.

All four components of RC-Limit System are JEE web-applications, configured to work together to deliver a highly scalable and secure set of functionalities. The software is uses J2SE 1.9. It is compatible with different operating systems, application servers (or servlet containers), and database software. It can be installed under Linux, Unix or Windows operating systems, can use Tomcat, BEA Weblogic, IBM Websphere and others, and can store data in any one of Postgres, Oracle, SQL Server or other databases.

RC-Limit System can be integrated (via REST services) with an Economic Capital (EC) model for cases in which limits are based on EC consumption rather than Exposure at Default or face value.

RC-Limit System is available in a High Availability dockerised version, working with Docker Swarm, Traefik and Consul.

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