CSIM 19
Development Toolkit for Simulation and Modeling

CSIM 19 is a simulation toolkit that programmers use to create models of real-world systems, in order to better understand their operations, predict behavior, and determine the best possible configurations.

Simulations with CSIM 19
CSIM 19 enables developers to create process-oriented, discrete-event simulation models of complex systems. In a discrete-event model, events occur at specific instants of time, and the model describes the system’s behavior and performance at these times. Discrete-event simulation models employ a “next-event” methodology, rather than continuous analysis, to mimic the behavior of a real system.

Many discrete-event applications involve entities or processes passing through a system of queues. In a simple example, CSIM 19 models the operation of a call center, reporting the performance based on varying call rates and different configurations of operators, incoming phone lines, and ports to handle holding calls. In this model, the manager can see the amount of time callers must wait and the percentage of abandoned calls, then determine which combination of operators, phone lines, and ports produces the most efficient performance at the least expense. In this case, the “events” are calls coming into a call center, being put on hold, being answered, and so on.

Simulation models are particularly good at helping you determine the timing of activities that would occur in a real world system, without having to build out the system. Simulations written with CSIM 19 can help determine rules for building and maintaining many different types of systems:

- Most cost-effective inventory levels to maintain
- Number of customer service representatives (or bank tellers, or store clerks) required to provide good service to customers
- Number of airport gates and equipment required to service a variable number of flights
- Optimal configuration of servers for a network, including number of CPUs, number of disk drives, amount of memory, and required LAN transfer rate
- Number of assemblers and test technicians required to reduce bottlenecks in an assembly line of television sets
- Most favorable configuration of manufacturing processes to reduce bottlenecks

CSIM models are written in either the C or C++ programming languages. The CSIM 19 development toolkit consists of a library of classes, functions, procedures and header files that easily integrate into existing programs.
CSIM 19 Features
CSIM 19 offers many features that enable the system modeler to construct robust models of complex and large systems.

- **Fast execution, compact and efficient models** — Compiled C and C++ programs are efficient by design. In addition, CSIM's dynamic memory allocation and specialized algorithms ensure that you enjoy good performance and see limited memory use.
- **Complete simulation package** — CSIM 19's engine can support all of the important discrete-event simulation paradigms, including the process-oriented paradigm.
- **Extensive functionality and flexibility** — CSIM 19 model has the necessary capability to accurately represent a “real” system, including such important features as complex component interrelationships, unusual scheduling rules, and varying workload profiles.
- **No CSIM 19 restrictions on your application** — CSIM 19 applications are virtually limitless in terms of complexity, size and paradigm.
- **Flexible C or C++ environment** — CSIM’s native C/C++ environment provides you with the freedom to devise a wide variety of situations for analysis, ranging from simple to highly complex.
- **No proprietary environment or special language** — CSIM 19 does not force you to use a proprietary environment or learn a new pseudo-language. The engine’s interface makes it easy to embed CSIM 19 models into another application.
- **Multi-platform portability** — CSIM 19 is available on Windows, Linux, Solaris, AIX, and Macintosh platforms.
- **Many other time-saving features and functions**, including
  - Automatic run-length control: methods for determining when accurate results are achieved
  - Many statistical distribution functions available to simulate "real-life" randomness, such as customer arrival rate and failure rate of certain components
  - Data collection and reporting routines for collecting data and generating useful reports

With CSIM 19, users can select and deploy the best possible configuration for a system, hitting the “sweet spot” in the space of design feature tradeoffs — without the costly process of building the system first!

About CSIM 19
CSIM 19 is the newest version in a series of CSIM simulation software toolkits, originally developed in 1985 at MCC. The CSIM software has been further developed and sold by Mesquite Software since 1994, under the terms of a license agreement with MCC.

- Network Protocols and Systems
- Telecom Communication Systems
- Aerospace and Defense Systems
- Software and Hardware Applications
- Manufacturing Processes
- Transportation Processes
- Economic Forecasting
- And much more!

“For more information about CSIM 19 or to request free evaluation software, please contact us directly or visit our website!”

“CSIM is the best thing we can use - the models we build are at just the right level of abstraction: low enough to be flexible but high enough to create building blocks which are easily used to build useful models.”

— Michael Franklin, Department of Computer Science, The University of California at Berkeley