SIMULIA EXECUTION ENGINE 5.9

The Execution Engine manages the execution of simulation jobs and simulation process flows and supports collaborative sharing of components, simulation process flows and results. Jobs can be specified to execute in parallel automatically to fully leverage available computer resources.

Interfaces

The Execution Engine supplies multiple interfaces, each tailored toward the role the user has in the design process. Below is an overview of the current interfaces that are available.

Scenario Definition – Simulation Lifecycle Management Authoring and Execution

Immersive, interactive lifecycle data and process management environment for the individual or composite use of SIMULIA simulation applications, as well as for xCAE simulations integrated into the V6 SLM environment. Enables the full lifecycle management and execution of simulations, simulation templates, and simulation process flows.

Isight Design Gateway – Automated Simulation Process Flow Authoring

Create flexible simulation process flows, consisting of a variety of models and applications, in order to define, capture, and automate ad-hoc and standardized simulation methods. Propagates reliable, repeatable simulation methods throughout the organization within a managed environment designed for continuous improvement and innovation.
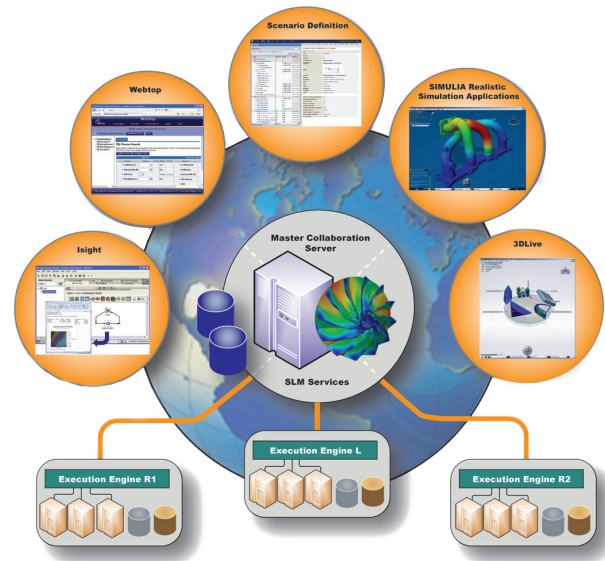
Isight Runtime Gateway – Postprocessing and Execution

Navigate parametric results for decision support purposes for simulation process flows involving both activity and process components. Create approximated models from DOE simulation process flows to enable real-time user interaction with simulation results. Understand how parameters drive design performance. Test simulation process flows created by Scenario Definition before publication to the library.

WebTop – Execution

Allows simulation process flow models authored in the Design Gateway to be deployed to engineering groups. This application enables engineering practitioners and partners who only need basic runtime capabilities to access and execute models from common web browser interfaces.

Command Line Client – Scripted Execution

The Command Line client is an interface for automated execution, scripting, and easy integration with custom GUIs and other tools.

Dashboard – Monitoring

The Dashboard, available in a thick client and web interface, allows system administrators to monitor and control processes and users who are executing jobs through the Execution Engine in a distributed computing environment. This application allows administrators to shut down and restart individual stations remotely as well as monitor and control database size.

Core Infrastructure

The core infrastructure is a collection of services that handles access to the Library, simulation process flow management, job dispatching and execution, and interaction with third-party middleware.

Execution Engine Application Server

Execution Engine Application Server manages the internal operations of the system, including interaction with middleware application servers, databases, and distributed resource management systems. It also supports job dispatching, job queues, time-controlled execution and load management of jobs. Parallel processing jobs can be specified to execute in parallel automatically to leverage computer resources. Secure credential management support for the applications in the simulation process flow. Planned and unplanned shutdown with recovery of running jobs is supported.

Stations

Stations are computers that have been registered as hosts that are eligible to run jobs sent by the Execution Engine Application Server in a heterogeneous, distributed environment.

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Library

The Library allows component developers to store approved component versions for reuse by end users. In addition, engineers who create simulation process flows with combinations of components can store these simulation process flows in one Library so they can be reused by other engineers. Administrators can move/copy/rename/delete library folders. Users can also interactively configure their library in an access controlled home folder.

B2B Protocol

The B2B protocol allows for secure sharing of models in a federated environment. It allows organizations to only expose as much data to partners as required to execute a part of the design process. The Execution Engine B2B is based on WSEE 1.1 with a standardized packing, deployment, security, and programming model.

Security

Access Control Lists (ACLs) are implemented and enforced on published models, components, and jobs. Additionally, security credentials (passwords and user IDs) are stored and transmitted in encrypted format.

Localization

The GUI, messaging, documentation, and online help have been localized for Japanese language support.

Extensions

The extensions are modules that can be plugged into the core infrastructure. These extensions enhance capabilities and allow the Execution Engine to interface with third-party enterprise software products.

Application Server Support

The Execution Engine supports the TomEE application server and the Derby database, it also supports communication with IBM's WebSphere® or BEA's WebLogic™ application servers.

Distributed Processing/ Distributed Resource Management

Job dispatching capabilities have been extended through an interface with LSF (Load Sharing Facility) from Platform Computing and other popular DRM packages.

Database

Components and data from intermediate analysis can be stored in a commercial back-end database. The Execution Engine supports connections with Oracle and DB2.

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