BETA

SIMULATION SOLUTIONS

SPDRM

The unique solution for CAE workflow management

SPDRM
WORKFLOW MANAGER

"Our CAE process is now transparent, systematic, traceable and repeatable"

Addressing the problem of contemporary CAE community to integrate data, processes and resources, BETA CAE Systems brings forth a new solution for driving high quality and efficient virtual product development procedures.

This new software tool for Simulation, Process, Data & Resources Management (SPDRM) provides a simple and intuitive way to capture, deploy, manage and improve CAE process workflows by integrating the resources, the tools and the data associated with these. Reflecting a deep understanding of the demands of simulation and its role in the enterprise, it delivers CAE tasks and associated data to analysts, engineers, designers, suppliers, and managers.

Benefits

- Overall process consistency, at all levels,
- Standardization of the procedures,
- Harmonization of operations throughout the organization but also with its suppliers,
- Traceability of data and meta-data, their modifications and variations,
- Reduction of data redundancy,
- Process progress monitoring and the effective processes quality management,
- Productivity increase due to automatic assignment of tasks as soon as input becomes available
- Repeatability of processes, even when using updated or different datasets and software tools,
- Quality improvement and standardization of the deliverables,
- Increase of confidence in CAE, plus time and cost reduction of the overall simulation process,
- Maximization of transparency in decision making,
- Maximization of collaboration between engineers,
- Maximization of reuse, for both data and best practices,
- Maximization of capability in delivering fast, results of high quality.

Master your data, capture the knowledge, streamline your processes, and co-ordinate your cross-functional resources.

Put your data to work

SPDRM offers a complete solution for the management of all simulation data, from model and library data, to key results, and reports , and their seamless connectivity with multidisciplinary simulation processes.

Simulation data management

SPDRM is far more than a data repository for CAE data. With its powerful features for data organization and traceability, SPDRM keeps track of the full simulation data landscape. Its out-of-the-box support for engineering data elements like the part, the sub-system, the simulation model, the simulation run and the reports, makes it easily deployable in engineering environments since it comes with inherent knowledge of CAE terms and procedures. Furthermore, through its custom data models, it can adapt to any additional data organization requirements and it can handle all required user-defined metadata. SPDRM integrates a flexible version control system that enables the lifecycle management of simulation data during the model build and the model improvement phases. The system keeps track of data dependencies automatically, facilitating the effortless identification of data chains which is of great importance during the root cause analysis of simulation issues.
With SPDRM, the enterprise data are secure. The software enables the definition of certain permissions on each data object that control whether a user can view it, modify it, or delete it. Permissions are defined on a user-role basis, allowing fine-grained access control that comes on top of that of the file-system.

Interfaces

SPDRM, standing out from other SDM systems, comes with a built-in interface to ANSA and META, allowing the direct usage of its data repository from the ANSA DM. This way, privilege-based access to the SPDRM data is granted after the secure authentication of the users through ANSA and META. Once a user has been verified, it is possible to browse the SPDRM data straight through the ANSA-META DM browser and perform all data I/0 operations through the standard functionality and the scripting APIs of the pre- and post-processor. Furthermore, SPDRM offers a SOAP API for the direct communication of data to external applications. Through this API, external applications directly read and write data in the SPDRM data server.

"Search and find"

The data search tools of SPDRM enable the identification of data based on their meta-data or on their relations with other data. Through the search workspace, analysts can identify data that were nearly impossible to track down with traditional, file-based SDM systems. For instance, a query could identify "the side-crash includes of the body-in-white that were generated in the beginning of March by John", or "the latest key-results of the fmvss208-32kph unbelted simulations of project x255", or even "all the runs affected by a part,

that was later found to have wrong material properties".

Lifecycle Graph

The SPDRM lifecycle management capabilities enable the tracking of the complete evolution of an object, from its first entry in the system until its "consumption" by higher-level entities down the road. All this information, captured in the form of data relationships, is displayed in the Lifecycle Graph where all the ancestors, descendants and consumers of an object are graphically represented, in a tree diagram, offering a better understanding of the dependencies between different data objects.

Issue Tracking

How can model and simulation-related problems be communicated within your organization? With SPDRM's Issue Tracking tool, quality issues related to data items can be tracked and managed directly in the system, bringing transparency and traceability to the overall issues resolution processes. The moment an issue is created for some data, its owner receives an e-mail notification that describes the problem and calls for action and the data are marked with an alert to notify all potential "consumers" of a possible problem. From that point, the issue follows an issue resolution workflow which is tailored to the needs of the Enterprise.

Design, Monitor, and improve your simulation processes

Map your CAE routine tasks into effective workflows and improve the efficiency of teams by keeping track of planned and running tasks.

Process management

Using the "Process Designer" workspace of SPDRM, the user can define simple actions, organize them into sub-processes, define their order, and associate these with the right data, human resources and tools . Each action of a process can be carried out either automatically, through a Python script, or through an external application. Therefore, SPDRM processes can be as simple as "edit a document, archive it, and email it" or more complex as "download some data from the PDM system, let the modeling team prepare the CAE model, and then simulate a loading scenario". The designed workflows are saved as templates in the process library, which inherently provides version and access control.

Additionally, a dedicated workspace is offered for the execution of the workflows. During process execution, SPDRM automatically informs the designated workflow actors about their assignments, communicates the correct data among actions, and monitors their progress, giving a clear visualization of the workflow status with color coding of the tasks.

Workflow improvement
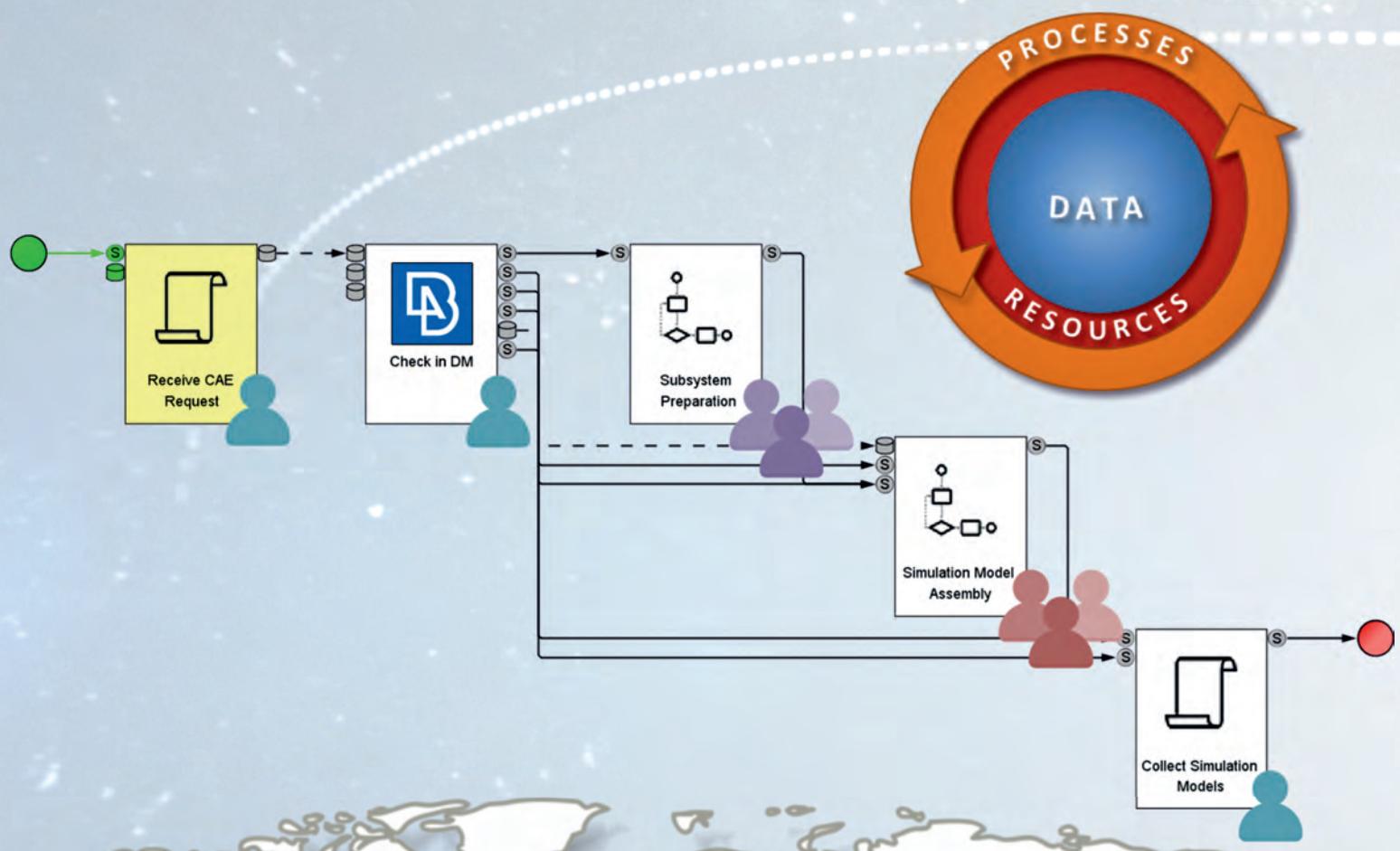
Once the complete workflow is built, SPDRM run time process visualization and monitoring tools provide valuable information about the current state of the workflow, display which actions are completed, which are currently running (and with which data, by which resource, to what extent etc.), and which actions are still pending. Through these tools, it is possible for an authorized user to intervene and alter the process at execution time, in order to bypass an unforeseen stoppage or give a workaround to an action that is taking too much time to complete.

SPDRM also integrates process "profiling" tools that use the duration statistics of process tasks in order to provide estimates for the over-all turnaround time of similar processes. This information is visualized through a project schedule graph tool, where the project manager can see the estimated versus the actual time for each of the tasks, check if the project is on track and make informed decision about the management of future operations. In this way, the effectiveness of the existing processes is constantly evaluated.

Scalability in workflow build-up

Starting from individual engineers and moving up to workgroups, departments and suppliers, all workflow actors can independently use SPDRM to describe just their own piece of work using their preferred software tools and data formats and then publish it for integration into a higher level process. In this way the complete workflow consists of smaller sub-processes, each built by experts, capturing the engineering knowledge and expertise in each particular field.

Manage your resources
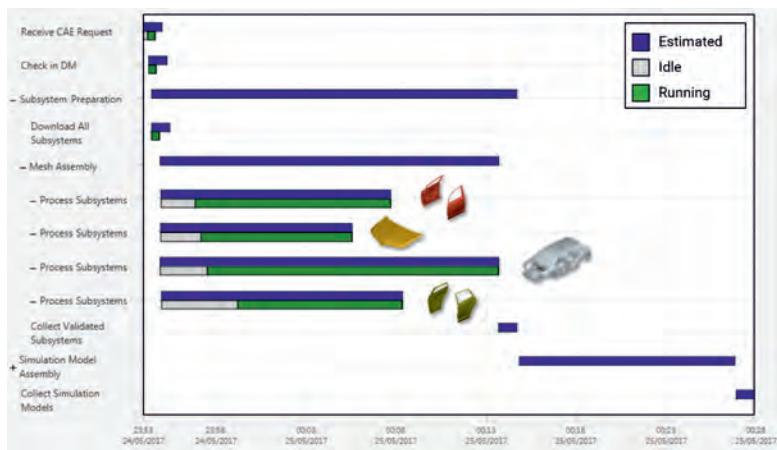
Handle human and non-human resources flawlessly, with a set of handy, administrative tools.

Users and teams

Exploit the information that already exists in the Enterprise User Management systems (LDAP, AD) to define automatically the human resources of SPDRM. Once a resource has been registered, it can be assigned tasks and it can be granted access to particular data. The role-based user management scheme enables further grouping of users in different roles, making it possible for the same user to have different privileges when logging into the system with different roles.

Applications

Through the "Registered Applications Console" the administrator of the system registers the application software to be used by SPDRM processes. In this way, the exact version and the default settings of applications are centrally controlled, providing considerable assistance to the IS/IT teams.

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physics on screen