



Apros® Team Server (ATS)

ADD-ON PRODUCT FOR SYSTEMATIC TEAM WORK AND MODEL VERSION MANAGEMENT

In modelling and simulation projects, keeping track of the simulation model versions and change logging may easily become a laborious and error-prone task when done manually, especially when involving multiple users in the model development. Apros® Team Server (ATS) is an add-on product for Apros® that automatically keeps track of the model version history and change logging and supports efficient team-working.

EFFICIENT TEAM-WORKING AND MODELLING PROJECT MANAGEMENT WITH ATS

ATS is a tool for coordinated project management in Apros® modelling projects. It streamlines the team-work and improves the productivity of the modelling team. This enables the modelling team to achieve results faster and with higher quality, since version management and change logging are done automatically without a chance for human errors and syncing issues between the model and manual change log. ATS also enables simultaneous editing of the simulation model by multiple users with two-level locking system: model-level and diagram-level. This way two modellers cannot edit the same model resource at the same time. It also includes a ticket system to report issues and assign tasks between the project team.

ATS is based on a client-server architecture and Apros® models are thereby saved to a secure and centralised, server-based version management system. User management contains different access levels which can be defined separately for each project.

IMPROVED QUALITY AND RELIABILITY IN THE MODEL DEVELOPMENT

ATS supports systematic management of model changes. Information of all the changes to the model configuration are stored in ATS with the related meta data (for example, was the model resource added or deleted, or was its input data modified somehow). This allows the comparison of the model configuration between different model revisions. The comparison is valuable as it can help to understand the differences between the two model revisions and find potential issues in the model. Thus, using ATS can improve the quality in the model development and support issue solving.

The comparison between the model revisions can be performed with customizable criteria and the results can be viewed in a tabular format or visually in a PDF-report. The model revisions can also be developed in multiple branches, e.g. to optimise a model for certain type of analysis from its main branch. Apros® model revisions have different acceptance stages (e.g. draft, reviewed, tested, published) to communicate the status of the model to the whole team.

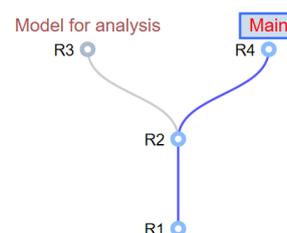
CORE BENEFITS:

- Systematic modelling work with automatic change tracking
- Comparison between model revisions support issue solving
- Enables several modellers to modify the model simultaneously
- Centralised storage and user management for efficient project management

Id	Change	Type	Name	Property	Path	Old...	Ne...	User	Time
R4-3	Modified	IC	Initial Condition	versionIdent...	/	4	5	Niklas...	2021-03-10 14:59:4...
R4-2	Modified	IC	Initial Condition	Date	/	10. m...	10. m...	Niklas...	2021-03-10 14:59:4...
R4-1	Modified	CONTR...	FEED_COV01	VA12_POSITI...	/Confi...	1.0	0.5	Niklas...	2021-03-10 14:58:5...
R2-7	Modified	IC	Initial Condition	versionIdent...	/	3	4	Niklas...	2021-03-10 14:56:5...
R2-6	Modified	IC	Initial Condition	Author	/	tuopal	page...	Niklas...	2021-03-10 14:56:5...
R2-5	Modified	IC	Initial Condition	Date	/	28. to...	10. m...	Niklas...	2021-03-10 14:56:5...
R2-4	Created	PIPE	FEED_PIP04		/Confi...			Niklas...	2021-03-10 14:55:3...
R2-3	Created	POINT	FEED_PO02		/Confi...			Niklas...	2021-03-10 14:55:1...
R2-2	Created	POINT	FEED_PO01		/Confi...			Niklas...	2021-03-10 14:55:0...
R2-1	Created	CONTR...	FEED_COV01		/Confi...			Niklas...	2021-03-10 14:54:4...

▲ Model change log contains details of modifications.

► Model development history can be visualized in an illustrative tree view.



Apros® Team Server Plus Simulation Suite (ATS+)

EXTENSION TO APROS® TEAM SERVER

In modelling and simulation projects, teams benefit from efficient and simultaneous execution of simulation runs and also convenient way of sharing the simulation run definitions and results. These needs are fulfilled by the ATS extension Apros® Team Server Plus Simulation Suite (ATS+).

SYSTEMATIC AND EFFICIENT EXECUTION OF SIMULATIONS

ATS+ adds features for running massive simulations in an efficient way. With this tool Apros® experts participating in the modelling and simulation projects can design, run and report simulation runs in a common version management system. ATS+ is connected to a cloud computing system (public or on-premise infrastructure) to run simulations remotely.

For designing simulation runs ATS+ provides a visual editor for defining the simulation sequences with an easy to use and illustrative step by step method where the user selects among predefined or self-defined simulation actions called keywords. For the new users of Apros®, the graphical user interface is an easy way of defining simulation sequences.

ATS+ is by nature tightly integrated with ATS. Simulation sequences, report templates and keyword libraries are included in the ATS version control. Predefined simulation runs can be started as a batch directly from ATS. This feature allows e.g. running a set of simulation runs for to verify that a model behaves correctly, or to carry out a comprehensive validation of the model after migrating to a new Apros® version. For the simulation validation purposes, ATS+ also includes a special feature, Violation Monitors. They are predefined conditions that are monitored during the run, e.g. limit values for the tank level measurement. If the condition is violated, this violation and its time instance is reported. Violation Monitors can also be used in single simulation runs (e.g. acceptance criteria) so they are not only limited to batch jobs.

The screenshot shows the 'Test Sequence' configuration window. It includes tabs for 'Test Sequence', 'Variations', 'Violation Monitors', 'Local Results', and 'Remote Results'. Below the tabs are control buttons: 'Run >', 'Run in Cloud >', a pause button, a play button, and a stop button. The 'Initial condition' is set to 'Initial Condition'. There are buttons for 'Enable All Steps' and 'Disable All Steps'. The 'Test Sequence' list contains four steps: 1. Simulate 60 sec (green play icon), 2. Cause malfunction 1 to COV01 (purple cross icon), 3. Cause malfunction 2 to PU01 (red cross icon), and 4. Simulate 120 sec (green play icon). At the bottom, there are fields for 'Add to sequence:' (showing 'Apros Default' and 'Basic pump malfunction'), 'Configure parameters:' (with 'TIME' set to '60'), and 'Test step comment:'.

EXTEND THE SIMULATION USE WITH ATS+

ATS+ includes a simulation queuing system. When the users send the simulation runs to the remote computing system, the simulation runs will be added as simulation jobs to a queue. The simulation management system will pick simulation jobs from the queue and run them in parallel in the remote computing system taking into account the available computing resources.

ATS+ allows easy variation of the simulation sequence parameters. This feature provides ways to produce batch simulations for the applications where a large number of variations of the simulation cases are needed (e.g. sensitivity studies and uncertainty analysis). The parameters can be defined and the simulations started by only a few clicks in the UI.

A reporting tool for the simulation results is also included in ATS+. Users can create customised PDF-reports of a custom set of simulation attributes selected for the reporting. The source data of the attributes can be selected from different simulation runs, thus allowing comparison reports of simulation runs.

CORE BENEFITS:

- Enhanced team-work in simulation with server-based simulation platform
- More systematic and automatized simulation workflow
- Efficient use of computing resources



- ▲ User can visually inspect and create reports of simulation results.
- ◀ ATS+ visual editor is easy to use.