From Deep Space to Deep Sea

Altreonic NV.

Linden, 1st September 2015

GoedelWorks Press release

Altreonic is proud to announce the release of the version 3.0 of GoedelWorks™, its unique end-to-end portal solution for trustworthy systems development. This new version improves the performance and stability of the whole platform and it introduces many new features that ease repetitive tasks. It also improves existing functionalities. Some of the new features are the outcome of an RTOS Qualification Package project. GoedelWorks is now even more intuitive and productive in use than before.

A full description of the latest GoedelWorks environment is available in Altreonic's updated booklet "Trustworthy Systems Engineering with GoedelWorks 3". It can be freely downloaded from Altreonic's website (http://www.altreonic.com/content/altreonic-approach-systems-engineering-goedelworks).

The GoedelWorks platform running on the central server has also been updated to make use of the latest stable, production-ready technologies. Revising the entire platform has resulted in a cleaner and easier to maintain environment.

Starting 1st September, GoedelWorks is not only available under an Open Technology Licensing scheme but users can also access their portal under a SaaS model. Contact Altreonic for details.

Below the more technical details about the novelties offered with this latest GoedelWorks.

New! Improved Enhanced metamodel for Work Packages
The GoedelWorks Work Package meta-model, introduced in version 2 has been extended defining Design and Development as separate activities. More dependency links were introduced to make it easier to trace the dependencies between for example Specifications and intermediate steps in a Project's execution.

New! Roles, Resources, Capabilities, and Internal Resources
These new concepts were introduced in GoedelWorks to refine the concept of Project Resources in particular in relationship to the capabilities and roles that team members play in a project. In a typical project, the team manager first defines the roles (e.g. responsible, accountable, ...), the capabilities needed (e.g. tester, product manager, ...) and the available resources (e.g. John Doe, Voltmeter, ...). Each Project Work Package receives a pool of internal resources. It's at this point that the user chooses for each internal resource a role, specifies the capabilities that the

resource must have, and an available resource that fulfills those capabilities. The internal resources can then be assigned to Tasks of the Project Work Package. The user also defines the time period during which the internal resource used as well as the effort as a percentage of the full time availability. Internal resources don't need to be people, they can be material, or generic. All the information is visualized in a Gantt chart whereby the user can see how the internal resources are scheduled and assigned to the Tasks.

New! Integration with version control systems

The user is now able to associate entity files with files stored in version control systems. This integration can be achieved with Process Artefacts and Project Work Products of the subtype "software" and "documents", but it can easily be extended to other GoedelWorks entity types. When such link is created the user is able to update the contents of the entity with data coming from the version control system. The GoedelWorks platform fetches contents of the item and saves it locally in the portal's repository. It also registers the user who did the last modification, when it was performed, and the revision number that was assigned. The user can also commit a new version of the source code or document using the GoedelWorks interface.

For the specific case of software the user is able to edit the source code using a dedicated source code editor. At any moment the user can commit the modifications to the source code back to the original version control system. This provides for example a loose coupling to VirtuosoNext™, Altreonic's distributed real-time environment that is planned to become even more tightly integrated in the near future completing the end-to-end support for trustworthy system development.

Items from version control systems can also be imported onto GoedelWorks. This features takes as an argument a folder that is under version control and generates GoedelWorks entities that replicate the files and folders in the repository. One repository item is represented by one GoedelWorks entity.

Currently only Subversion is supported but more version control systems will be added. Different version control systems can be used simultaneously (for example SVN and Git).

New! Configuration Management

Configuration management is being added as an extension of the already available version management in GoedelWorks. The latter tracks all modifications at the level of the individual entities and allows the user to undo his last modifications. With the new configuration management, the user is allowed to revert the entity to any given version.

We also introduce the concept of baseline configuration. A baseline configuration can be created for Projects and Processes and it can be seen as a kind of snapshot. Baseline

configurations are created on user request and they save the state of a Project/Process and all its entities at a given moment in time. This operation is similar to tagging in version management. Entities contents are saved as well as their attachments and history. Contrary to tagging in a version management system, a baseline configuration applies not only to the entities but also to the complete dependency graph from Requirements to implementation items.

Baseline configurations can then be reused at any moment and as many times as needed. When a baseline configuration is reused it recovers the contents of the entities in the baseline configuration and form a new Project/Process in the navigation tree. A history tree is available for the user to see the evolution (in changes) throughout time. This new capability fosters the reuse of development and qualification data and is important for managing product families and variability management.

New! Snapshot archives

A snapshot archive is a self-contained zip file composed of a PDF/HTML representation of a Project or Process. The archive contains every data associated with the Project or Process, like attachments and files under version control. The goal for this feature is to allow the user to create an offline copy of a Project or Process to shared the data as a read-only file set.

New! Export as table of contents

This is a new utility allowing exporting a list of entities using a table of contents format. The output can be a HTML or CSV. Every line represents an entity and it contains the entity identifier, its structural identifier, as well as the entity name.

New! Status report

Are all your Specifications implemented and tested? This is a usual question that pops up when preparing a Project for Qualification or Certification. While a GoedelWorks portal generates end-to-end dependency trees in seconds, one must still manually inspect all nodes of the graph. For this reason a new feature has been implemented to answer the question with a single click. The user can now go to his Project and ask the system to generate a status report. The result is a table containing the Project Specifications and their state: implemented, not implemented, tested, not tested. This result can also be exported as a CSV file.

New! Automatic Filling of Reports

What Project Specifications should this report mention? What Project Work Products should we refer to? In order to address this need a new feature has been introduced that automatically fills the Validation and Verification Reports based on a user defined template. The basis for each report are the Project Specifications (for Verification Reports) and the Project Work Products (for Validation Reports).

New! **Specification of branches workflow state**

Setting the workflow state can sometimes be very tedious, as one needs to go through all the entities in a given branch and set the workflow state accordingly. In order to ease such a task this new feature allows any user with the right privileges to set the workflow state for all the entities in the branch.

New! **Derive entity**

Requirement evolve by refinement and decomposition into a Project Specification. This feature provides a mechanism to create a new entity derived from a preceding one. The contents of the fields that are compatible (such as name and description) are automatic populated with the data from the main entity, and a dependency link is created reducing the editing effort to formulate the Specifications.

New! **Source code editor**

As mentioned before, a source code editor has been added to the GoedelWorks interface. It allows the user to edit the source code of Project Work Products of the type Software. Features include: Syntax highlighting for several programming languages, several GUI themes, full screen mode, adjustable font size, etc.

New! **Edit entities in table format**

In order to facilitate the editing of entity contents we provide a new functionality that allows the editing of multiple entities in a spreadsheet-like environment. This eases the editing effort when there are entity branches that have multiple levels.

New! **Purge deleted entities**

GoedelWorks adopts a philosophy of not deleting any content for reasons of traceability, but marking the entity as deleted while it remains visible in the system. As deleted operations often happen in the initial stages of a project, it becomes desirable to have a possibility to clean up these deleted entities. A log message is added to the changelog with the last know contents of the entity.

New! **Lock of the Navigation Tree**

Playing with the navigation tree can sometimes be tricky, and mistakes can be made. One can easily move an entity and the second later decide that it was a wrong action. For this reason we introduced a new feature that freezes the navigation tree, not allowing any move operation. The user is obliged to unlock the tree in order to move entities.

Updated! **More options available for dependency/precedence trees**

Dependency trees can be complex and they can grow fast. For this reason we have added more customisation options. The direction of the graph can be set (top to bottom, left to right) and a

new graph type is available: Forest. This is useful when the user wants to see the dependency/precedence tree of more than one entity at a time.

Updated! **Browse entity attachments**

Entities can have multiple attachments and sometimes remembering the right one to use can take some clicks. For this reason we have introduced a new feature that allows the user to navigate through the attachments of any entity. A preview is available when the file type can be rendered by the web browser (e.g. image files), and a link to the attachment can be created in the description with a single click.

Updated! **Export and Import of entities changelog**
The GoedelWorks mechanism to export and import entities has now a new option that allows the user to choose if the change log should be included in the export archives. The goal of this new functionality is to prevent entity histories from being lost when entities are imported in other portals.

Updated! **Improved document generator features**
The user is now allowed to set more options for the pdf/html generation such as: include glossary items, include deleted entities. The output was also improved: cleaner and easier to read documents, filtering of the glossary items so that only the items that are referenced by the entities in the file are included.

Updated! **Improved interface for creating entity links**
The interface for creating links between entities has been improved in order to allow the user to select the entity type of the destination entity. The search box was also improved.

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