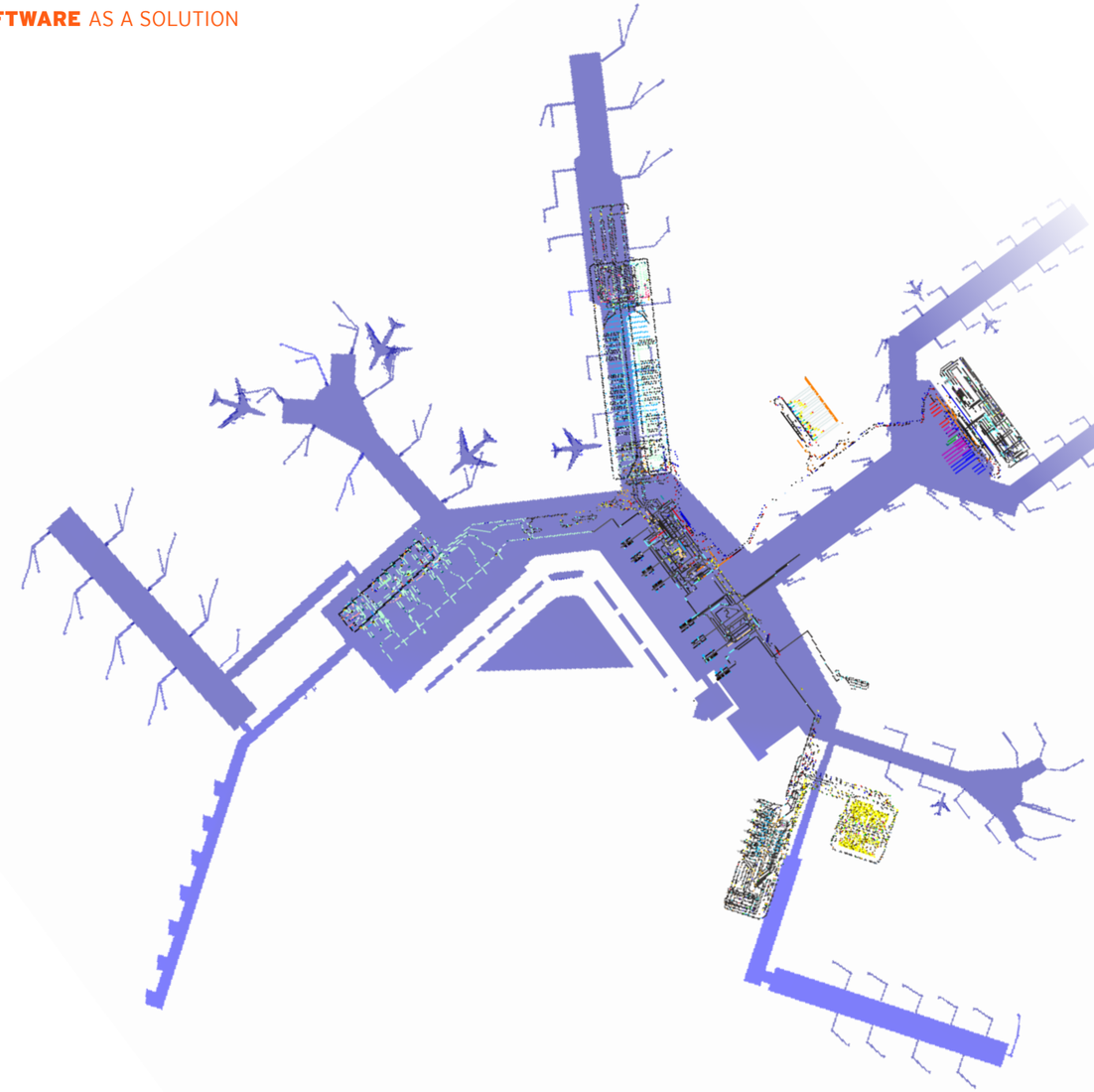
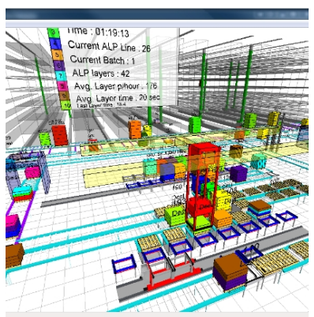
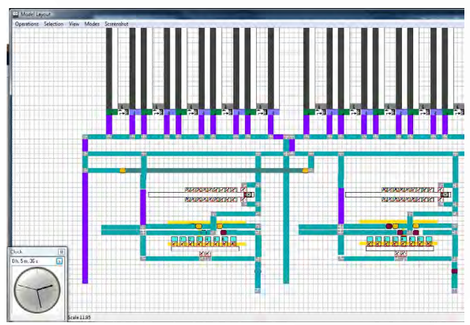
Don't speculate ...
Simulate!

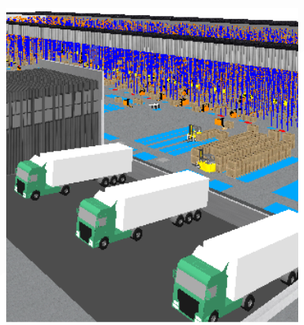
INCONTROL
Simulation Solutions

Enterprise Dynamics® 10









TIMES ARE CHANGING. RAPIDLY.

In an almost completely connected world – an infinite pool of data, knowledge and potential – companies are under the pressure of global competition, the dynamics and complexity of modern technologies, logistics systems and equipment as well as shortened product development and lifecycles.

- How can a facility or system be optimized and business success increased if neither additional equipment nor the time or budget is available for testing modifications?
- How to guarantee the performance before investing in new equipment?
- How should one decide for or against a system or procedure, without having the options and impacts reliably checked in advance and holistically, especially with regard to value and chances of success?

Planners and decision–makers face nearly unsolvable tasks and sooner or later the need arises for a comprehensive supporting tool that allows the best possible estimate and also the detection of (optimization) potential of existing as well as planned systems and equipment.

SIMULATION SOFTWARE AS A SOLUTION

The benefits of using a simulation software are numerous and extensive.
Besides a virtual yet realistic modeling environment that enables you to design, model, analyze, test and adjust planned and existing systems and facilities in a simple manner, simulation provides a crucial, often neglected advantage; it serves as a powerful means of communication between decision–making levels. The clearness of the 2D– and 3D/VR–visualization of systems, processes and equipment creates a solely valid basis, which keeps the discussion between parties on the factual level.

WITHOUT RISKS. WITHOUT LOSS.

Whenever real tests are too expensive and too difficult, too dangerous or simply impossible, simulation is the method of choice. Be it conducting feasibility studies, simulation–based optimization of production and manufacturing systems or processes, testing of alternatives or the verification of proposals from SixSigma studies, quality management or the Lean Manufacturing; Simulation can help you answer virtually any question in the fields of industry, logistics & transportation.

Analyze and optimize existing and planned systems, processes or networks with Enterprise Dynamics® 10.

Don't speculate ...Simulate!

FEATURES (Excerpt):

- A powerful simulation platform for large-scale systems
- 32-bit and 64-bit
- State-of-the-art 2D & 3D visualization
- Easy to use graphical user interface
- "Drag & Drop" model building
- Experiment wizard
- No model limitations
- Comprehensive object libraries and additional packages for different application areas

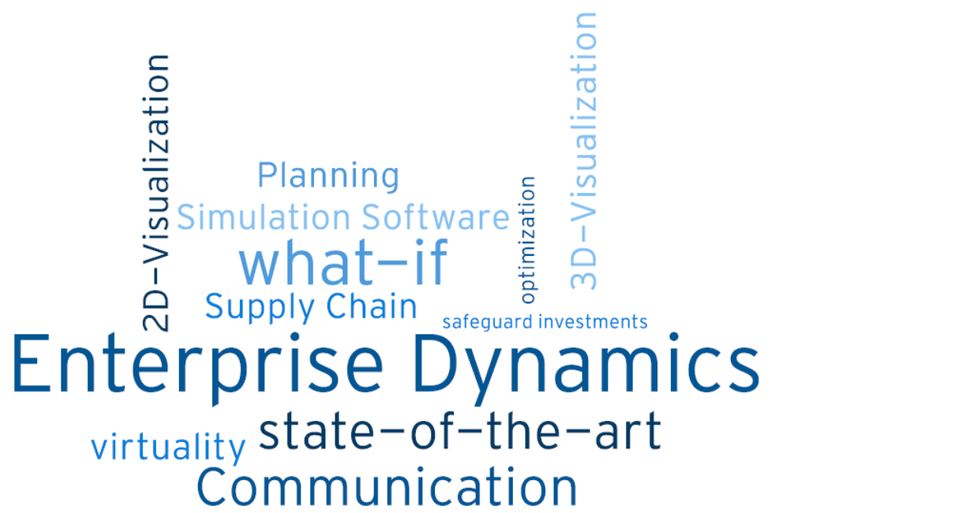
Enterprise Dynamics®
Logistic Simulation Software

- Extended set of pre-defined and user-defined control rules
- Create your own object library and modify existing objects
- Extended result reporting module and standard output
- interfaces based on industry standards
- Import your own 3D models
- Open architecture; input and output connection based on all industry standards

ENTERPRISE DYNAMICS®

Enterprise Dynamics® is the leading simulation software platform to design and implement simulation solutions.

Enterprise Dynamics® enables the virtual modeling of any question and answering specific questions by carrying out experiments.



BENEFITS OF ENTERPRISE DYNAMICS®

- The ability to test a future system in an early design stage.
- Testing and improving proposed modifications resulting from e.g. Lean Manufacturing or Six Sigma studies, without impacting the operational environment.
- Modeling and analysis of several scenarios, such as Rough-Cut Capacity Planning, to be prepared for the future.
- Optimization and safeguarding of investment planning for production and transport equipment.
- Estimating the influence of uncertainties and variations, like failures and variable process times on system performances.
- Virtual modeling and testing without the risks or costs in physical experimentation.
- Analysis and visualization of operational systems in 2D and 3D animation.

The Enterprise Dynamics® Licensing Model

Enterprise Dynamics® 10 is available in 32–bit and 64–bit and is offered as a subscription license or as a perpetual license.

The **subscription license** includes:

- The Enterprise Dynamics® platform
- All product updates
- Online access to additional free packages
- Modeling support: experienced Simulation Engineers at INCONTROL will help you in dealing with your modeling challenges
- Access to our JIRA database: in this database you can propose improvements for the upcoming releases and find answers to user requests
- Full technical support

The subscription licensing model offers the time–limited right to run Enterprise Dynamics® and therefore offers a high degree of flexibility and maximum cost control for the user.

After activation of the software by the licensee, the installation of Enterprise Dynamics® is tied to the hardware, secured by a software key (WIBU Codemeter Application). Individual hardware components can be changed during the contract period; an installation on another PC system is not possible without prior approval by INCONTROL.

The subscription contracts for Enterprise Dynamics® Licenses will be automatically renewed for an additional year on expiration of the minimum or the agreed time period, unless they are cancelled in writing 3 months prior the expiration. In case of cancellation, with the end of the contract period the user's authority expires and the software can no longer be used, but a reactivation of deactivated licenses is possible at any time.

In order to gain access to these services, the **Perpetual License** can be upgraded with an optional maintenance & support contract.

OPERATING SYSTEM

To run Enterprise Dynamics® 10, a Microsoft Windows operating system is needed. Enterprise Dynamics® 10 is proven compatible with:

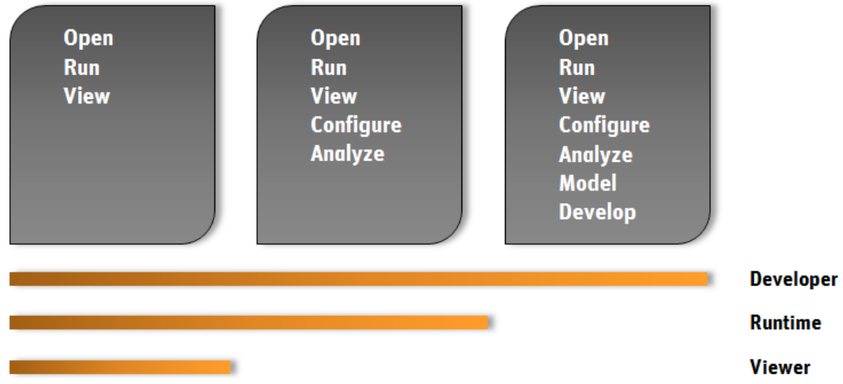
- Microsoft Windows 10
- Microsoft Windows 8
- Microsoft Windows 7
- Microsoft Windows Vista

Enterprise Dynamics® 10 is offered as a 32–bit as well as a 64–bit version.

SYSTEM REQUIREMENTS

	Minimum	Recommended
Processor	Intel 1.5 GHz Dual Core	Intel 3.0+ GHz quad+ core
Internal Memory	500MB	8Gb+
Hard Disk Space	400MB freier Speicher	2GB+
Operating System	Windows Vista	Windows 10
Video Card	OpenGL® 4.0	OpenGL® 4.5

Enterprise Dynamics® simulation software is offered in the following license types:



- **Enterprise Dynamics® Developer:** Develop objects, applications and interfaces.
- **Enterprise Dynamics® Runtime:** Configure and run existing simulation models and applications.
- **Enterprise Dynamics® Viewer:** Open, run and view available simulation models and applications.

Enterprise Dynamics® Developer License

Enterprise Dynamics® Developer allows you to develop simulation models based on the numerous available simulation objects within your Enterprise Dynamics® library and enables the ability to develop your own simulation objects or to modify any of the existing simulation objects. With Enterprise Dynamics® Developer you are capable of developing your own simulation libraries and applications.

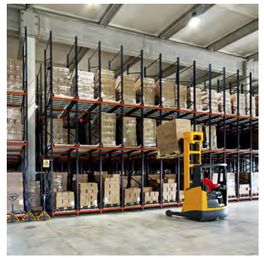
Enterprise Dynamics® Runtime License

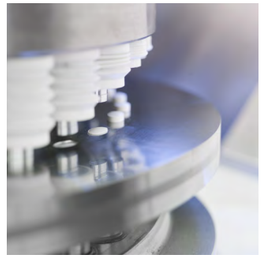
The Enterprise Dynamics® Runtime version allows the user to open and run simulation models and applications. The user is also capable of changing the model parameters to setup a specific simulation run. The Enterprise Dynamics® Runtime does not allow you to develop a simulation model.

Enterprise Dynamics® Viewer License

Our free Enterprise Dynamics® Viewer allows you to open, run and view any simulation model or application. This license is ideal for simulation modelers who like to offer their customer(s) a working simulation model that they can run, but not modify. In comparison to a movie (which displays a predefined sequence of frames) the user can decide which part of the model is highlighted or visualized (either 2D or 3D).

We will be at your disposal at any time for a non–binding consultation concerning the application and implementation of Enterprise Dynamics® at your company. Please contact us and ask for our trial–version.





INDUSTRY, LOGISTICS & TRANSPORTATION

The decisions for or against investments, for example in new manufacturing machinery, transportation or storage facilities must be taken with particular caution.

Improvement processes may not interfere with daily operations and the impact of a new logistics concept on the production capacity is always difficult to predict. Customers request consistent evidence on feasibility and performance and the new tour schedule is directly coupled to the optimal utilization as well as production efficiency or even delay.

Simulation software scores with a tremendous value in these questions.

For this purpose, INCONTROL developed the simulation software Enterprise Dynamics.

The benefits that Enterprise Dynamics simulation software entails for Industry, Logistics and Transportation are numerous, and the application possibilities are practically unlimited. Enterprise Dynamics® can be used for process analysis, testing and optimization purposes in any application area as well as for visualization of business processes in a 2D or 3D environment.

Enterprise Dynamics® is ideal to visualize large scale models and highly complex systems in a simple way and also to analyze and optimize these systems by experimentation.

The scope ranges from production lines in the automotive industry to bulk material packaging, and from supply chain analysis to picking strategies in distribution centers.

Use Enterprise Dynamics in Industry, Logistics & Transportation for example to...

- minimize risks
- avoid failures
- remedy deficiencies
- analyze and optimize complex and dynamic systems
- control coincidences and variations
- save time and costs
- safeguard investments
- ...

Don't speculate ... Simulate!

Be prepared for the future – with Enterprise Dynamics® simulation software.

BENEFITS

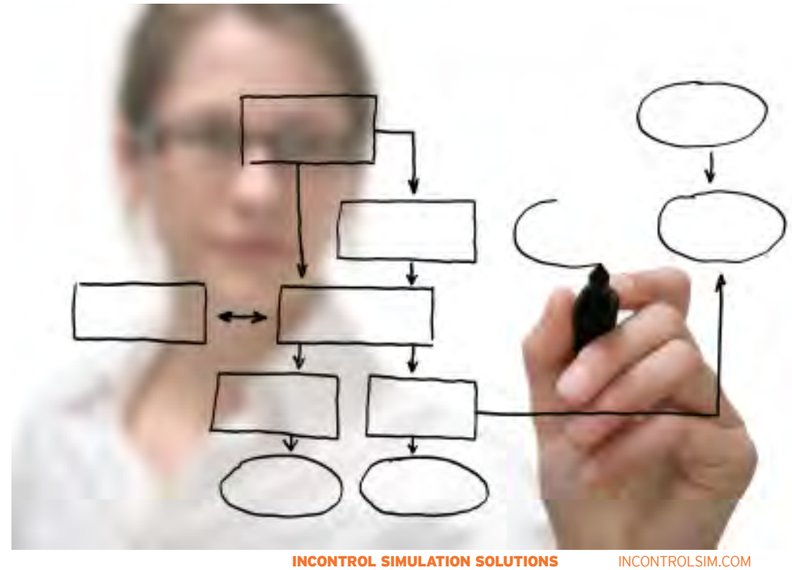
The main benefits of simulation with Enterprise Dynamics® in industry, logistics & transportation are:

- The ability to test a future system in an early design stage.
- Testing and improving proposed modifications resulting from e.g. Lean Manufacturing or Six Sigma studies, without impacting the operational environment.
- Modeling and analysis of several scenarios, such as Rough–Cut Capacity Planning, to be prepared for the future.
- Optimization and safeguarding of investment planning for production and transport equipment.
- Estimating the influence of uncertainties and variations, like failures and variable process times on system performances.
- Virtual modeling and testing without the risks or costs in physical experimentation.
- Analysis and visualization of operational systems in 2D and 3D animation.

Unmistakably, each market segment and every application area has its own characteristic issues, differences and advantages.

The project experience in the most diverse application areas in combination with the interbranch know–how of our developers and engineers guarantees a continuous development of our software products.

Hand in hand with INCONTROL's expertise and strong network Enterprise Dynamics® offers the flexibility to successfully execute simulation projects in any industry.



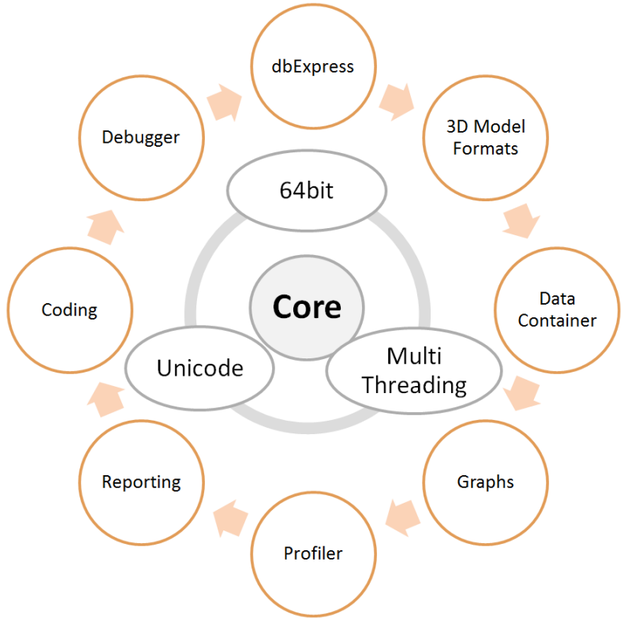
DEVELOPMENTS

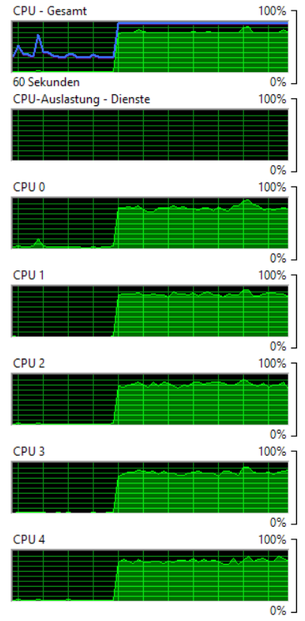
Using our in-house expertise from numerous simulation projects we ensure the ongoing development and supply of high quality software products.

Our latest innovations, enhancements and developments have flowed into the release of Enterprise Dynamics® 10. In addition to a significant increase in performance, we have focused on visualization & usability topics.

NEW FEATURES

- 64-bit version
- Multi-threading
- New debugger
- Unicode support
- dbExpress support
- Data containers
- Re-organized event handling system
- Extended 3D model support
- Extended CAD support
- Adjusted naming and calling of attributes
- Commenting code has become more comfortable
- Improved code completion
- Improved error messaging
- Skyboxes
- and many more...





DEVELOPMENTS IN ENTERPRISE DYNAMICS® 10

PERFORMANCE

64-bit

The addressing data room has been enlarged, so that even larger models can be handled now.

Event-Handling

The performance is significantly improved through re-organized event handling.

The internal eventlist scheduling/ administration has been re-written for higher performance. The event lists are now stored in a different data structure, improving the performance of inserting and deleting events. Instead of one main list, each atom now contains its own event list and only the first event is in the main list. This highly improves the performance of functions like DestroyEventsOfAtom and DelayEvent.

Memory Pool

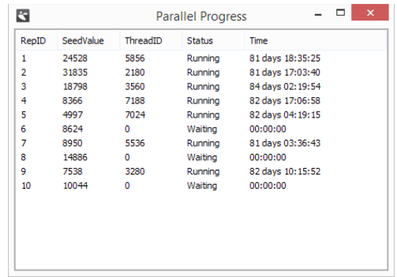
An internal memory pool has been added to re-use objects atoms. This results in better performance, as memory can be re-used.

Multithreading

The simultaneous use of multiple cores on a multi-processor system allows a huge performance increase because the computational load can be distributed to multiple processors.

Loading speed application

Libraries and atoms are now loaded faster due to a re-implemented pre-register function algorithm and the use of different internal data structures.



RepID	SeedValue	ThreadID	Status	Time
1	24528	5856	Running	81 days 18:35:25
2	31835	2180	Running	81 days 17:03:40
3	18798	3560	Running	84 days 02:19:54
4	8366	7188	Running	82 days 17:06:58
5	4997	7024	Running	82 days 04:19:15
6	8624	0	Waiting	00:00:00
7	8950	5536	Running	81 days 03:36:43
8	14886	0	Waiting	00:00:00
9	7538	3280	Running	82 days 10:15:52
10	10044	0	Waiting	00:00:00

USER INTERFACE AND EXPERIENCE

Improved tables

Sorting and mouse range select has been added to all table forms (atom editor, editable and GUI table).

Non modal function editors

Multiple instances of the function editor can be opened at the same time (no longer a modal window).

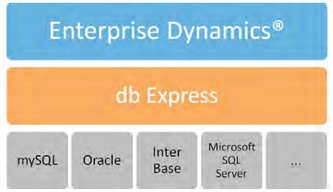
Zoom-to-mouse-position

Scrolling the mouse wheel in a 2D-visualization window now zooms to the position of the mouse cursor. This makes it much easier to navigate through the model and to connect channels.

INTERFACES

dbExpress

Embarcadero's dbExpress is a Unicode-capable database interface for a variety of systems. Its unidirectional access allows data exchange with very high performance.



MISCELLANEOUS

StringMatchesMask Function

This new function checks whether a string contains a search string using a mask filter.

New table functions

TableInsertStringSorted, TableInsertValueSorted, TableSortColumn, TableSwapRows

VISUALIZATION

Extended 3D model support

Enterprise Dynamics® 10 comes with a widely extended 3D model support to make it even easier for the user to handle various objects, scenes, textures, building structures etc.

Newly added 3D formats include:

- Collada (.dae)
- Blender 3D (.blend)
- IFC/Step (.ifc)
- LightWave (.lwo)
- 3DS Max (.3ds)
- Wavefront object (.obj)
- and many more...

Additionally, several texture options are supported within the 3D models
(Diffuse, 2nd Diffuse for blending, Opacity, Ambient, Emissive, Specular, Shininess, Normals, Height map, LightMap, and Displacement map).

Skyboxes

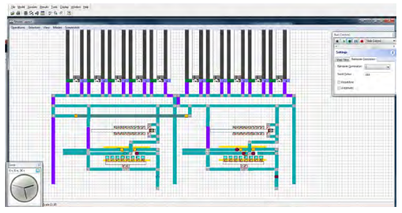
To enhance the simulation and user experience, as well as to enable the user to easier convey dimensions to unfamiliar team-members or clients, we made a common technique available in Enterprise Dynamics® 10: Skyboxes.

Extended CAD support

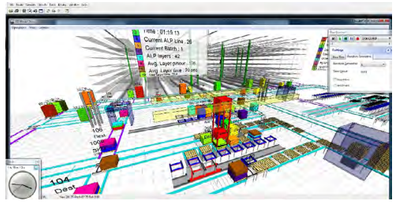
Enterprise Dynamics® 10 now supports the import of AutoCAD 2015 drawings. A set of new 4DScript functions has been added to loop through a CAD drawing obtaining information about its entities.

Static visualization

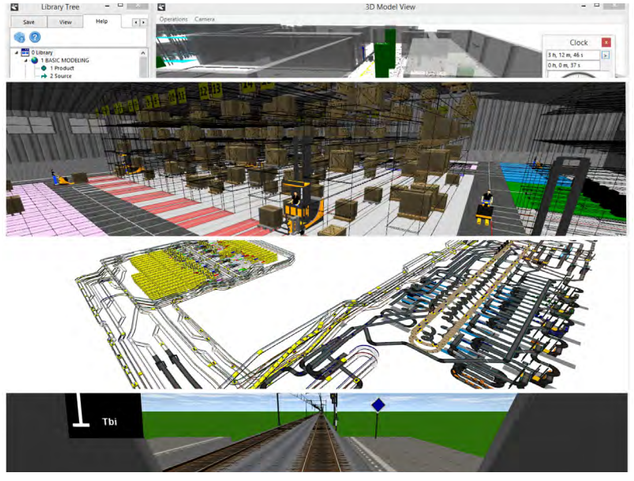
Support for static visualization primitives has been added to allow development of high performance 2D and 3D visualizations.



2D-Visualization (above) and 3D-Visualization (below) of a warehousing system in Enterprise Dynamics®



Enterprise Dynamics® comes with a state-of-the-art 3D-Visualization and an easy to understand user interface.



4DSCRIPT EDITOR

New debugger

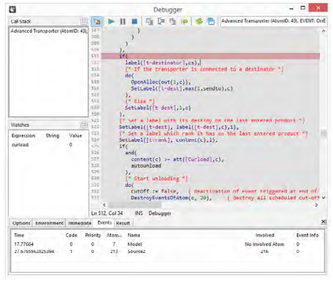
With Enterprise Dynamics® 10 we also present a re-implemented debugger for even better user assistance.

The new debugger makes use of the integrated stack trace (also switch to a different stack level) and shows a watch list as well as a local variable list. Also, the step-over-functionality has been improved to now automatically step into flow control functions (if, do, repeat, etc.) and we added the functions step-outside and run-until-cursor.

Improved error messaging

With Enterprise Dynamics® 10 we improved the error messaging by making the 4DScript interpreter stricter; errors that previously were detected during runtime are now already detected during compilation. This means, the user is now informed earlier about when and where in the code it could possibly come to an error.

In addition, more information about the error-location (function, event, line number, and column number) is shown and an optional stack trace of the error is provided.



Line numbers

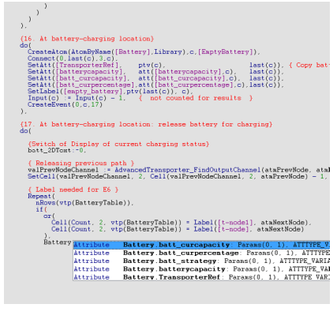
For progressing enhanced usability, line numbers have been added to the 4DScript application windows.

Improved code completion

The code completion now also lists local variables (incl. their type and current value), data containers and their corresponding functions as well as attributes and their corresponding functions. Type and number of parameters are displayed for all functions. By pressing the TAB key, only the 4DScript commands that have the first few characters in common with the entered code/text are shown now in order to make the code completion even more convenient and faster for the user.

Code Highlighting

It is now more comfortable to get an overview of the occurrence of code-pieces. By selecting a piece of code, all similar text-pieces are now highlighted in the current 4DScript code window.



4DSCRIPT-LANGUAGE

Attribute calling

By adding a new method to 4DScript to get and set attributes of an atom (AtomName.AttName) we increased the performance at the same time. This new method maps attributes during compilation instead of runtime.

Another advantage is that errors are automatically shown when the name of the attribute is changed and that the attribute names are shown in the code completion which prevents typing errors.

Data containers

Next to tables, any number of data containers can now be saved in simulation objects. This offers access with high performance. Three types of data containers are currently available (Vector, MultiVector and Hashmap), each having a number of 4DScript functions to manipulate or access the contents. One atom can contain multiple data containers.

Nested commenting

Nested commenting is now supported.

Unicode support

Unicode is an international standard. The Unicode support simplifies the immediate display of different coding.

COMPANY PROFILE INCONTROL SIMULATION SOLUTIONS

It is our mission to make clients and partners successful by offering the most innovative simulation solutions.

FACTS AND FIGURES

- Offices in The Netherlands (HQ), Germany, United States of America, Japan and China.
- Offers a worldwide partner network in more than 20 countries.
- Over 25 years of experience in developing simulation software.
- Successfully implemented more than 5.000 solutions worldwide.

INCONTROL SIMULATION SOLUTIONS

IINCONTROL Simulation Solutions is the leading manufacturer of simulation software with over 20 years of experience. Our product portfolio contains Enterprise Dynamics®, Pedestrian Dynamics® and TOPVenue®. Each product is developed for a specific market and tailored to the users.

Key markets include:

- Logistics
- Manufacturing
- Airports
- Harbors
- Rail & Public Transport
- Crowd Safety & Infrastructure

MISSION

Our mission is to make our clients and partners successful in their field of application by offering the most innovative simulation solutions.

Clients use our simulation software to simulate large scale logistic systems and infrastructures such as baggage handling systems, container terminals, train stations, assembly lines and football stadiums. Our simulation software enables the user to cope with time, costs, resources, reliability, safety and sustainability.

Solutions are implemented at leading companies worldwide. Our intensive educational efforts have led to a successful use of our simulation software at universities, schools and institutes all over the world.

Our offices are located in The Netherlands, Germany, the United States of America and China. Via these offices and a worldwide partner network we provide software, implementation, product training and a 24hr support to our products.

SOFTWARE

INCONTROL is the owner of various simulation software packages. This software is implemented and distributed by our own offices and our worldwide partner network. Each package has a strong simulation platform with an open architecture. The platform is used in combination with a library of user–friendly objects.

The software can be offered to the clients as:

- Platform; the client uses the platform to develop their own simulation applications and to develop their own library of objects.
- Platform and library of objects; the client uses the existing library of objects to develop a simulation model of their business operations.
- End user application; the client receives a simulation application, which is developed for the business operations of the client. In consultation with the client it is determined which possibility complies to the client's needs for a successful implementation of our simulation software.

The requirements and possibilities for a successful implementation of the simulation software are coordinated jointly with the client.

SERVICES

Implementation

If the client chooses an end–user application, INCONTROL works together with the client to implement the software. During this project an application is developed based on the client's wishes. INCONTROL has a department consisting of experienced simulation engineers. They will lead the project to a successful implementation.

Training

INCONTROL offers training for all users of our simulation software; starters as well as advanced users. This training can be followed at one of our training centres, located at our offices, or onsite at the customer. In addition to the standard training INCONTROL also offers customized training courses.

Maintenance & Support

As after sales service INCONTROL offers maintenance & support on the software. This includes full technical support, user support and product updates.

INCONTROL
Simulation Solutions

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