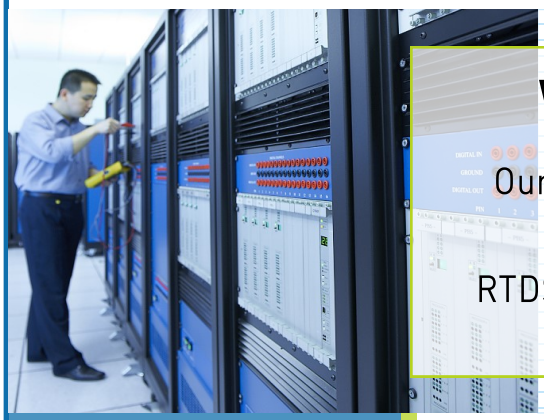
RTDS Technologies

RTDS NEWS



WHAT'S NEW: DECEMBER 2014

Our new Fiber Enhanced Backplane feature increases your maximum network solution size

RTDS Simulator used for cutting edge smart grid research at the Information Trust Institute, University of Illinois

Upcoming Training Courses

We are currently accepting registrations for the following course. Please contact **christine@rtds.com** for more details.

INTRODUCTORY RTDS SIMULATOR TRAINING

February 2-6, 2015
Winnipeg, Canada

Deadline to register: January 16, 2015

Upcoming Events

Visit our booth at these events:

ACDC 2015
Birmingham, UK
February 11-15, 2015

SIPSEP (Symposium on Power System Protection)
Monterrey, Mexico
February 22-27, 2015

Clemson University Power Systems Conference
Clemson, USA
March 10-15, 2015

SEAPAC (South East Asia Protection and Automation Conference)
Sydney, Australia
March 17-18, 2015

Introducing the Fiber Enhanced Backplane

This new feature increases maximum network solution size — free of charge

RTDS Technologies is proud to announce that the fiber enhanced backplane is here! This exciting new feature was developed in order to reduce the communication time required by the RTDS Simulator. It provides offloading of some backplane data transfers by using fiber cables to transfer data directly between component models and the network solution. This reduces the simulation timestep and/or provides additional time for more calculations. The ability to perform more calculations has allowed us to increase the size of the network solution. **Our customers will now be able to simulate 90 single-phase nodes (30 three-phase buses) per network solution instead of the previous limit of 72 single-phase nodes (24 three-phase buses).**

This feature paves the way for emerging power system components that require more data transfers and impose more load on the backplane. Using the fiber enhanced backplane, limits on the number of data transfers can be increased, which is a huge benefit to our customers who have reached these limits in their more complicated simulation cases. The fiber enhanced backplane can reduce transfer time by up to 38%. Transfer time is reduced most significantly for heavier simulation cases utilizing more processor cards.

The fiber enhanced backplane is implemented by connecting each PB5 card in the rack to the PB5 card running the network solution via optical fiber, as is demonstrated in the image above. All existing RTDS Technologies customers who participate in our extended maintenance program and own at least one rack containing PB5 cards will receive a Fiber Enhanced Backplane package, free of charge.

Both PB5 and GPC cards can be installed in the RTDS rack to use this feature, but the GPC processor usage must be limited to controls or small time-step components only. The network solution and any power system components must be allocated to PB5 processors (and not GPC processors) in order to take advantage of the increased network solution size.

Socket protocol released for first-gen GTNET card

RTDS Technologies is happy to announce that the new Socket (SKT) firmware, which was recently released with the GTNETx2 card, will now be made available for the first-generation GTNET card as well. SKT is used to interface with external software and physical equipment using TCP or UDP sockets.

All existing RTDS Technologies customers who participate in our extended maintenance program and own at least one first-generation GTNET card will have GTNET-SKT available to them at no charge. The protocol will be included in the January release of the RSCAD software.

RTDS Technologies

Visit us online!

A look back at 2014

The past year has been a particularly eventful one for RTDS Technologies. Among the many milestones of this year, arguably the most notable was the celebration of our 20th anniversary as a company.

Part of this celebration was a look back at where we started and how far we have come. The RTDS Simulator was the result of a research project at the Manitoba HVDC Research Center. In 1994, RTDS Technologies Inc. was founded with the mission of continuing the commercialization and development of the product. Two decades later, RTDS Technologies Inc. remains the world standard of real time digital power system simulation.

This year was significant for us in many other ways, too: we reached and surpassed the achievement of having 300 customers; we hired several new employees, bringing our total to 56; we released a powerful new network interface card (the GTNETx2); we further increased our maximum network solution size .

The only thing more exciting than the developments of 2014 is the year to come.

Seasons Greetings, and best wishes for a Happy New Year!

The RTDS Team

GUEST ARTICLE

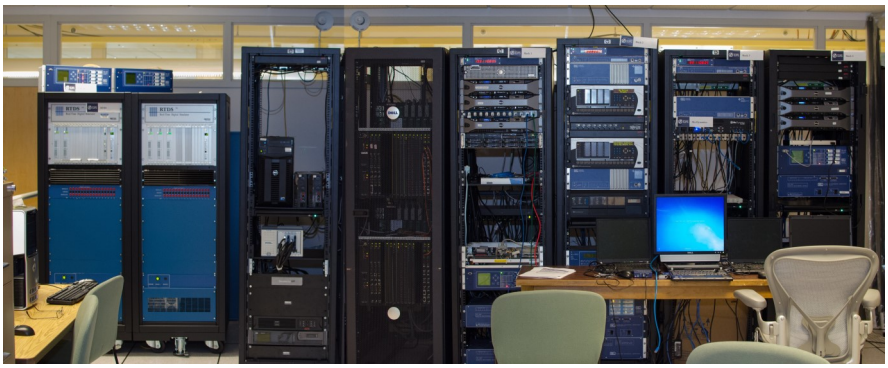
A cutting-edge power grid cyber security testbed at the Information Trust Institute, University of Illinois

Tim Yardley, Associate Director of Technology, Information Trust Institute

The Information Trust Institute (ITI) at the University of Illinois at Urbana-Champaign combines research and education with industrial outreach to provide leadership in the field of trustworthy information systems. ITI creates computer systems, software, and networks that society can depend on to be trustworthy –secure, dependable (reliable and available), correct, safe, private, and survivable – with a concentration on critical infrastructure. ITI aims to champion a new paradigm for designing trustworthy systems from the ground up, and for the validation of systems intended to be trustworthy. Through various efforts, including the $18.8 million Trustworthy Cyber Infrastructure for the Power Grid (TCIPG) Center supported by the U.S. Department of Energy and the U.S. Department of Homeland Security, ITI has emerged as a national leader in the field of power grid cyber security.

Under these efforts, ITI operates a large-scale cyber-physical testbed that is utilized for advanced research, education, workforce development, and transition to practice. The testbed serves as a realistic, flexible, and configurable environment that allows research in transmission, distribution and metering, distributed generation, and home automation and control. It serves as a national resource for experimental work in the analysis of trustworthy power grid systems.

The testbed is instrumented with state-of-the-art commercial and research tools, allowing researchers to tackle in-depth security analysis and testing, accomplish visualization and data mining, leverage federated resources, and develop novel techniques for system integration. Among these tools is the RTDS Simulator, which is utilized by ITI to support high-fidelity power system modeling. The RTDS Simulator has been utilized to model various power topologies, and to observe the behavior of those systems when faced with both intentional and unintentional cyber events. Notable research efforts having involved the RTDS Simulator include cyber and physical fault injection analysis, coordinated attack assessment, PMU communication and grid integration, state estimation robustness, quantum cryptography applications, grid modernization protection mechanisms, and the federation of testbed systems.



ITI is also home to the Illinois Center for a Smarter Electric Grid (ICSEG), the Secure Information Exchange Gateway (SIEGate), Applied Resilience for More Trustworthy Grid Operation (ARMORE), Secure Policy Based Configuration Framework (PBCONF), Collaborative Defense of Protection and Control Devices Against Attack (CODEF), and more. Each of these projects derives benefits from and leverages these extensive testbed capabilities.

Click here to learn more about ITI's power-related research

You can learn more about ITI's power-related research by visiting **http://www.iti.illinois.edu/research/power-grid** or **http://tcipg.org**, or by reaching out to Tim Yardley, Associate Director of Technology (**yardley@illinois.edu**).