

# Proficiency CSense 5.5

# Proficiency CSense 5.5

Optimize processes by extracting knowledge from your data and driving real-time predictive analysis

## Features:

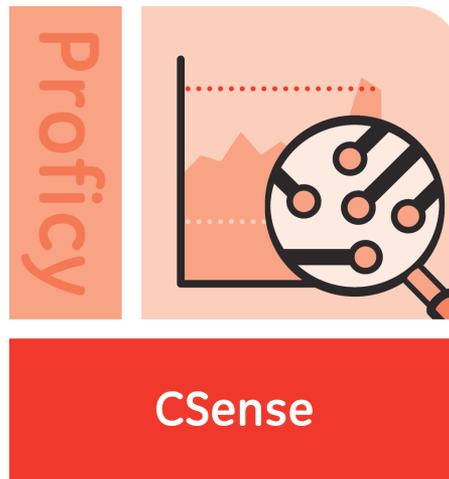
- State-of-the-art statistical modeling techniques to troubleshoot processes.
- Automated solutions for proactive alarming and real-time causal analysis.
- Real-time KPI analysis in a web-based reporting platform.
- Ability to perform “what-if” scenario analysis.
- Seamless integration with Proficiency Historian.
- Handles both batch and continuous processes.

## Benefits

- Gain financial value from data
- Pinpoint causes of process variation
- Optimize processes and control loops
- Reduce operating costs
- Enhance asset performance
- Save time with intelligent alarming

## Common use cases:

- Mining: equipment and process monitoring
- Food & Beverage: spray dryer advanced process control
- Water/Waste Water: continuous dissolved oxygen / BOD measurements
- Manufacturing: process and performance optimization
- Power Generation / Oil & Gas: intelligent fleet management, remote asset monitoring and diagnostics (RM&D)



## Proficiency CSense 5.5

Proficiency CSense 5.5 is used to monitor both assets and industrial processes, to pinpoint causes of process variation, and to optimize performance. It is used by process engineers, HMI users, production staff and solution engineers. Proficiency CSense make use of a suite of components to determine and understand the causes of process deviation in industrial environments. This component combination provides the capability for complete and integrated process performance enhancement for a given asset or collection of key performance indicators (KPIs) within an industrial process.

With the release of Proficiency CSense 5.5, we are bundling these components into three editions of the software, each with a unique focus. Each edition is licensed separately. The following is a brief description of each edition, along with the components included in each edition:

- **Troubleshooter Edition**, for offline, ad hoc, or on demand process modeling and troubleshooting, which includes the Continuous Troubleshooter and Discrete & Batch Troubleshooter, along with all external connectors, Virtual Campus, and Action Object Toolkit.
- **Run-time Edition**, for the online deployment and monitoring environment, which includes Action Object Services, Virtual Campus, Action Object Toolkit, and Proficiency CSense Report Server (1 User CAL).
- **Developer Edition**, for the expert user, trained in analytics and/or with software development experience. This is used for process modelling and troubleshooting, and designing and implementing online monitoring and control solutions. The Developer Edition includes both the Troubleshooter Edition and Run-time Edition components, and adds the Architect.

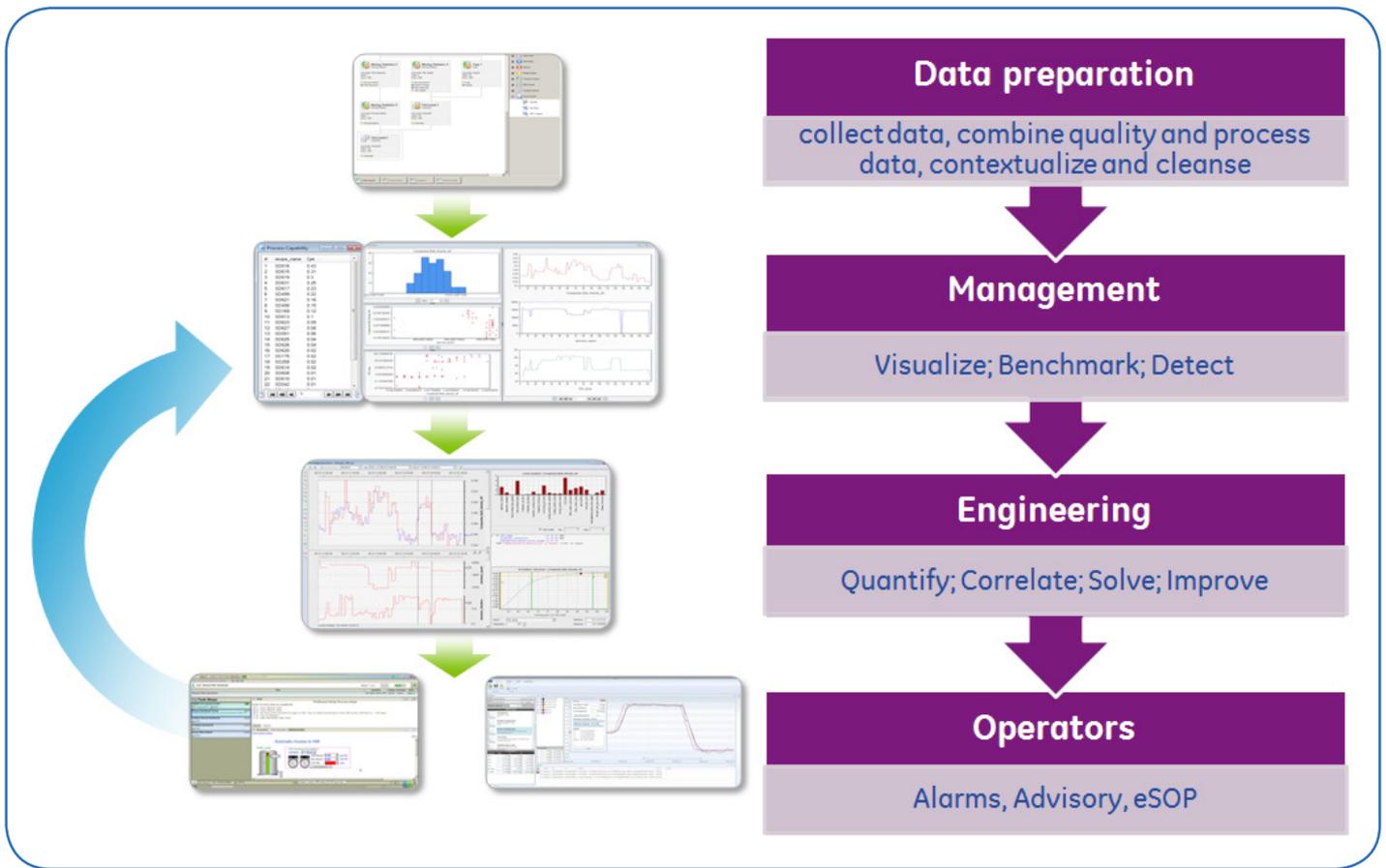


Figure 1: Troubleshooter guides you through a 7-step continuous improvement process

## Analytic Components

### Continuous, and Discrete & Batch Troubleshooters

(included in the Troubleshooter and Developer Editions)

The Continuous Troubleshooter and Discrete & Batch Troubleshooter enable you to rapidly troubleshoot time continuous, discrete or batch processes by examining production data from a variety of historical data sources. Data is prepared and visualized, and rules-based and data driven process models can be constructed. The knowledge extracted from these models allows you to estimate the benefit of the proposed process changes, all with a few button clicks. Using this modeled system, root causes of process deviations are identified, so processes can be corrected to produce a consistent product at optimal yield levels.

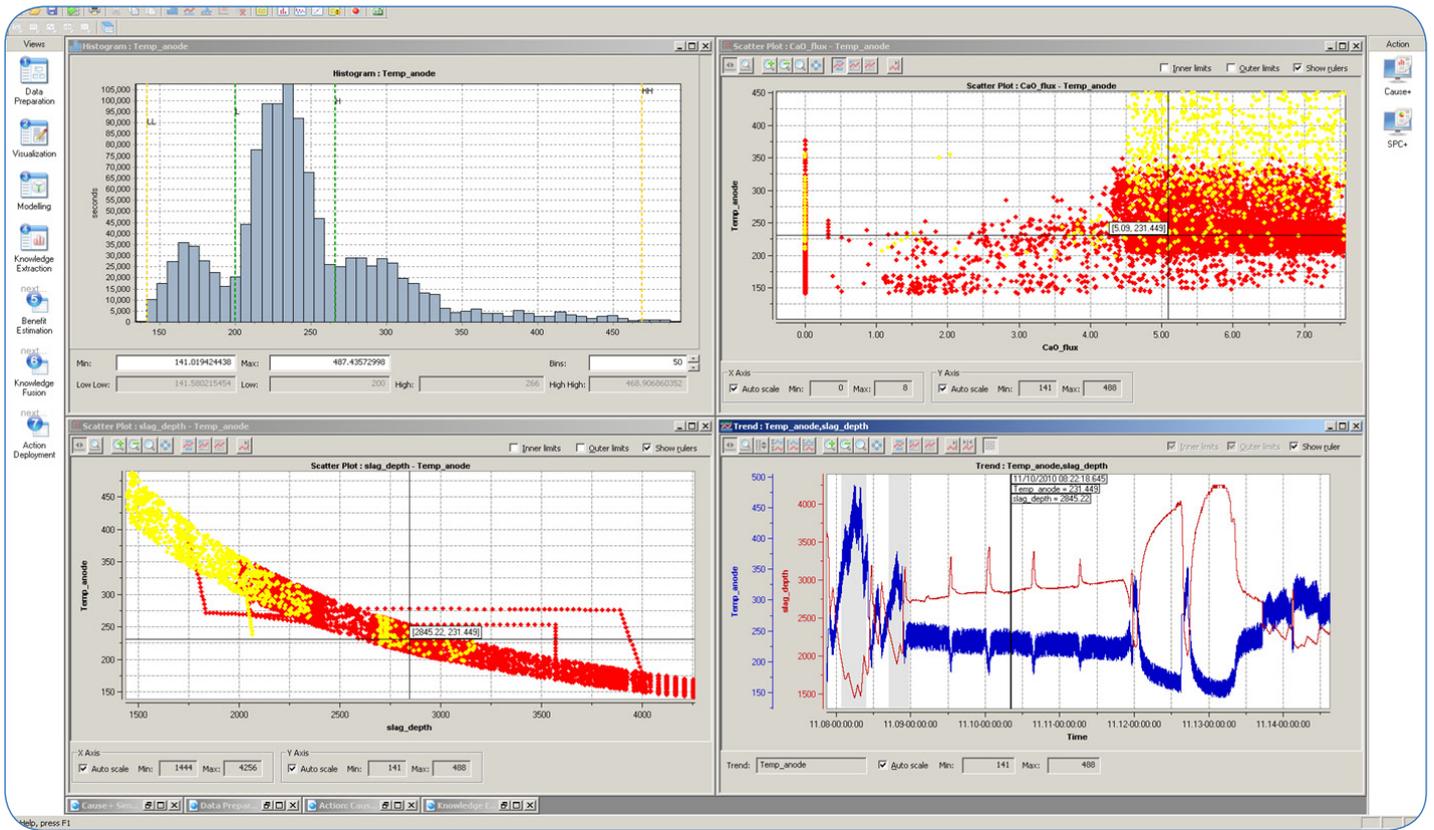


Figure 2: Visualization capabilities (Histogram, Scatterplots and Brushing) within Troubleshooter

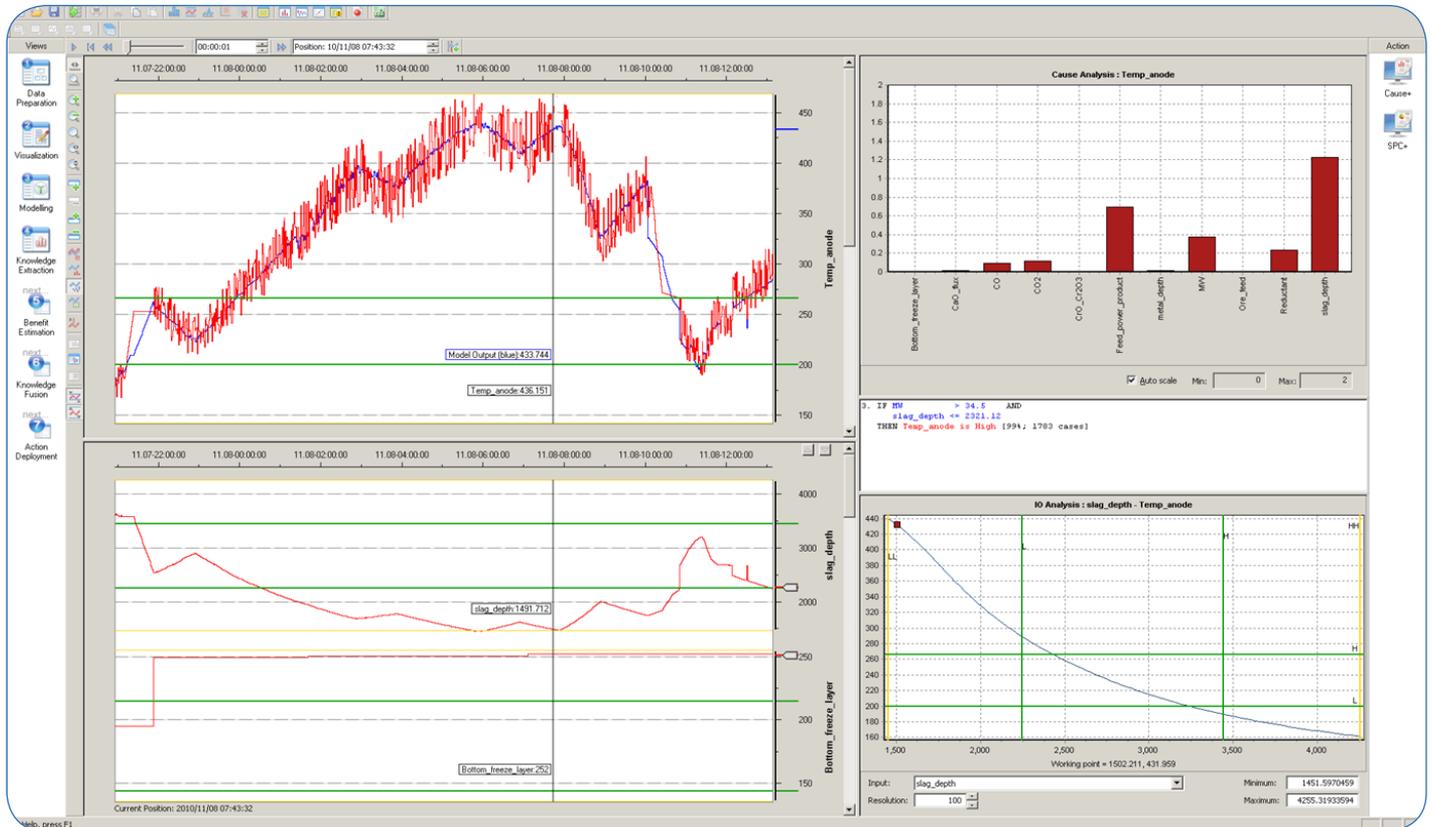


Figure 3: Troubleshooter provides modeling ("what if") and causal analysis

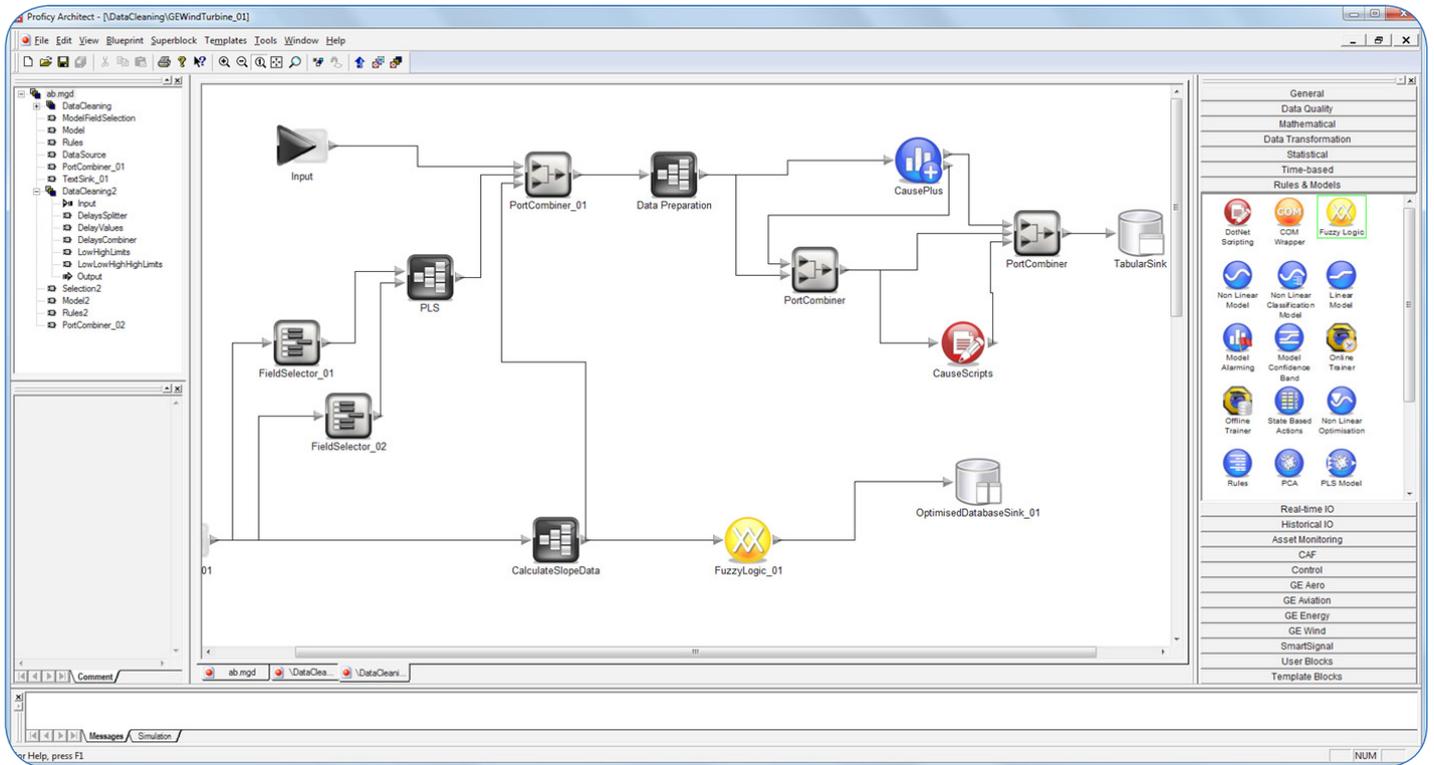


Figure 4: Typical Architect Blueprints in the Development Environment

## Architect

(included in the Developer Edition)

This comprehensive development platform provides drag-and drop building blocks to quickly develop scalable, robust solutions. These solutions can then be deployed online, either in real-time or as scheduled events, through the Action Object Manager. A solution is generally developed from a combination of recipes for data preparation, a blueprint of data actions, and a way of sinking data for reuse, either in the Action Object Manager, or a number of third party applications.

## Action Object Services

(included in the Developer and Run-time Editions)

Action Object Services comprises both the web services used to deploy and execute Action Objects, as well as the actual application used for deployment - the Action Object Manager.

The Action Object Manager provides a simple and easy way to deploy and monitor Action Objects. An Action Object (AO) is the name given to an executing configuration, which could have been created and deployed from a number of sources, including Architect and Process+ to name a few. An executing Action Object is an OPC Server, and can be connected to from OPC clients.

There are different types of Action Objects that can be deployed:

- Advanced Analytics Action Objects
- Event-based Action Objects
- Process+ Action Objects
- Real-time Action Objects
- Scheduled Action Objects

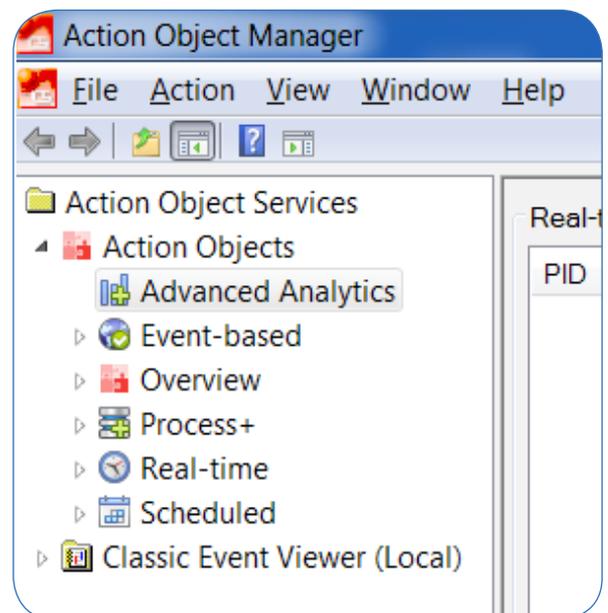


Figure 5: Action Objects that can be deployed

## Virtual Campus

(included in all editions)

The Virtual Campus (VC) is an easy-to-use software application that offers interactive training for the Proficy CSense product suite. As standalone, self-paced training, the VC includes the following training aids:

- easy-to-follow demonstrations
- guided simulations, and
- practical exercises using the installed Proficy CSense software

The VC is typically installed with all editions of Proficy CSense, enabling you to simply toggle between the training activities and the software products.

## Action Object Toolkit

(included in all editions)

The Action Object Toolkit is provided with all editions and is geared for advanced users to programmatically create blueprints and Action Objects. This set of software tools also enables the development of deployable Action Objects, created in any number of third party applications, that can be integrated into the Proficy CSense software.

The Action Object Toolkit includes the following sub-components:

- Web Services (on the Report Server allowing third parties to obtain reporting data)
- Blueprint SDK
- COM Wrapper blueprint block
- .NET Wrapper blueprint blocks
- .NET Wrapper Data Recipe operations
- ISV Object

## Proficy CSense Report Server

The Report Server is a reporting platform to view analytical information and data in a web based environment. This information from Proficy CSense reporting services, such as Process+ or Cause+, is used for monitoring and managing the performance of assets and processes on industrial plants. A System Administrator will initially configure the Report Server, and in doing so, assign reports and users to different levels of a developed hierarchy. This hierarchy represents the dependency structure of the processes and assets of the plant. Licensed users are able to access the Report Server to view reports to which they have been assigned. The analytical information in these reports is generated from statistical calculations of data in Action Objects created in independent applications. These deployed Action Objects provide the calculated information that is displayed in the Report Server. One User CAL is included with both the Run-time and Developer Editions. Additional CALs can be purchased and licensed as needed.

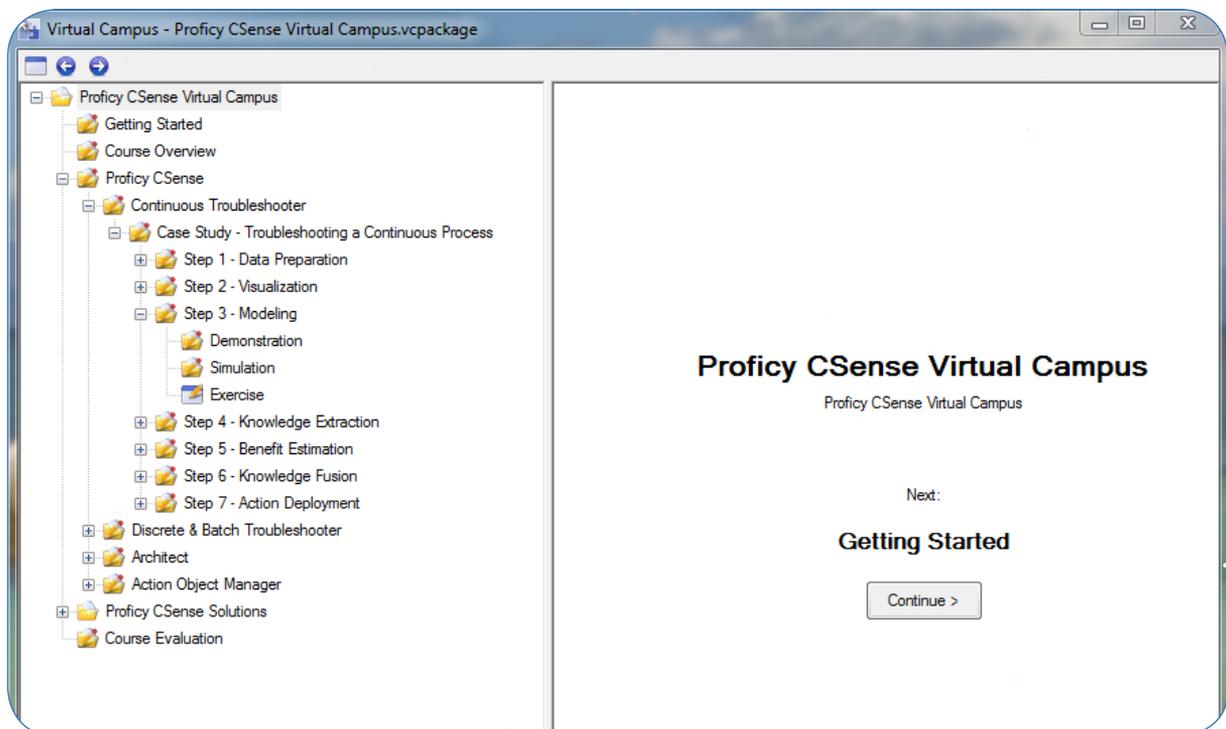


Figure 6: Virtual Campus – an interactive, self-paced training module

## System requirements

### Minimum hardware requirements

- 20 GB available hard drive space
- 1024x768 display resolution

### Software requirements

- Microsoft .NET 3.5 Service Pack 1
- SQL Server 2008, SQL Server 2008 Express, SQL Server 2008 R2 or SQL Server 2008 R2 Express
- This version of Proficy CSense does not support SQL Server configured to run in the NETWORK SERVICES account. Refer to the section on configuring SQL Server for installing

### Proficy CSense 5.5.

Proficy CSense requires SQL Server FILE STREAMING to be enabled. This is enabled automatically, if possible. If the software is unable to automatically enable FILESTREAM, you will be notified. Then, refer to the section on configuring SQL Server for installing Proficy CSense 5.5.

- All Windows users of Proficy CSense must be configured as SQL Server System Administrators for the SQL Server instance in use.
- Adobe Flash Player 10.1
- Adobe Acrobat Reader X
- Supported operating systems:
  - Microsoft Windows Server 2003 Service Pack 2 (x86 Platform)
  - Microsoft Windows XP Service Pack 3 (x86 Platform)
  - Microsoft Windows Vista (x86 and x64 Platforms)
  - Microsoft Windows 7 (x86 and x64 Platforms)
  - Microsoft Windows Server 2008 (x86 and x64 Platforms)
  - Microsoft Windows Server 2008 R2 (x64 Platforms)

### Optional requirements

- Proficy Historian 3.5 OLE DB Provider (required for the Proficy Historian data source)
- OSIsoft PI OLE DB Provider (required for the OSIsoft PI Historian data source)

## Proficy CSense Report Server

Proficy CSense Report Server requires Administrative rights on the target system in order to be installed.

### Minimum hardware requirements

- Proficy M4 Hardware License key, provided with your software
- 20 GB available hard drive space
- Multi core CPU - at least two cores
- 4GB RAM
- 1024x768 display resolution
- At least one properly installed and configured network adapter, connected to the same network as the Web Clients and the Action Object Servers

### Recommended hardware requirements for a dedicated Report Server

- Proficy M4 Hardware License key, provided with your software
- 20 GB available hard drive space
- Multi core CPU - at least 4 cores
- 8GB RAM
- 1024x768 display resolution
- At least one properly installed and configured network adapter, connected to the same network as the Web Clients and the Action Object Servers.

### Software requirements

- Microsoft SQL Server 2008 R2 with SQL Server Reporting Services
- Note: This SQL Server should be dedicated to hosting the Proficy CSense Report Server only.
- Microsoft .NET Framework 3.5 SP1
- Supported operating systems:
  - Microsoft Windows Server 2008 R2 (x64 Platforms) with the IIS role installed
- Internet Information Services



## GE Intelligent Platforms Contact Information

Americas: **1 800 433-2682** or **1 434 978 5100**

Global regional phone numbers are listed by location on our web site at [www.ge-ip.com/contact](http://www.ge-ip.com/contact)

[www.ge-ip.com](http://www.ge-ip.com)

©2012 GE Intelligent Platforms, Inc. All rights reserved.  
All other brands or names are property of their respective holders.

