

## OpenDSS Library

The Open Distribution System Simulator (OpenDSS) is an EPRI comprehensive electrical system simulation tool for electric utility distribution systems. It is implemented as a COM (Common Object Module) DLL designed to be driven from a variety of existing software platforms. This library was implemented in the Action.NET SCADA allowing its use as an extension of the software.

The program basically supports all rms steady-state (i.e., frequency domain) analyses commonly performed for utility distribution systems. In addition, it supports many new types of analyses that are designed to meet future needs, many of which are being dictated by the deregulation of US utilities and the formation of distribution companies worldwide. Many of the features found in the program were originally intended to support distributed generation analysis needs. Other features support energy efficiency analysis of power delivery and harmonics analysis. The OpenDSS is designed to be indefinitely expandable so that it can be easily modified to meet future needs.

Through COM interface, the user is able to add other solution modes and features externally and perform the functions of the simulator, including definition of the model data. Thus the DSS could be implemented independently of any database or fixed text file circuit definition.

### **OpenDSS integrated to SCADA**

The integration is possible through OpenDSSengine.dll composed of classes and methods capable of controlling OpenDSS. For integration with Action.NET, the Interop.OpenDSSengine.dll was developed. It contains all classes and methods of the native OpenDSS DLL, and we can implement the same example available in the OpenDSS manual directly in Action.NET.

To use the DLL, include it in the properly SCADA window (following image).

