CGDS - Substation Workbench Release 1.0 Administrator Role User Guide

Revised: June 19, 2013
OL-29886-01

CGDS - Substation Workbench Release 1.0

Substation Workbench Administrator Role

The Administrator role in CGDS - Substation Workbench has the capabilities to perform most functions of the software. Users in this role can not only access theCGDS - Substation Workbench to observe outputs and configurations, but can also influence or change them.

This section of the user guide is designed to overview the capabilities of a user with Administrator role capabilities.

Generally speaking, a CGDS Administrator can perform the role of a CGDS Designer, as well as work relating to the assignment of privileges. Administrators can control the creation and rights of other users.

What the Administrator Role Can Perform

The Administrator role is for super users of the CGDS - Substation Workbench. Users who log in under this role will have access to the CGDS design features including User Creation and Model Access.

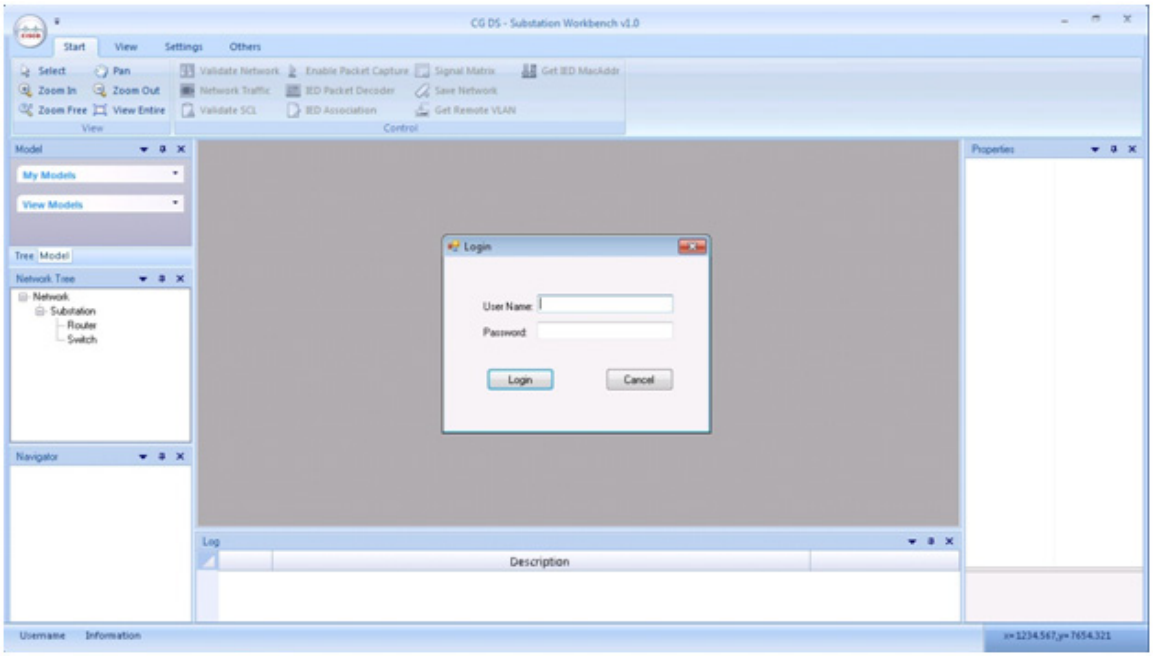
Cisco Systems, Inc.
www.cisco.com

Logging Into the CGDS Administrator Role

Use the CGDS login screen to sign into the CGDS - Substation Workbench. Enter your assigned User Name in the User name text field. Enter your assigned password in the password text field.

Note If you have forgotten your user name or password, contact your CGDS administrator.

Figure 1 The CGDS - Substation Workbench Login Screen

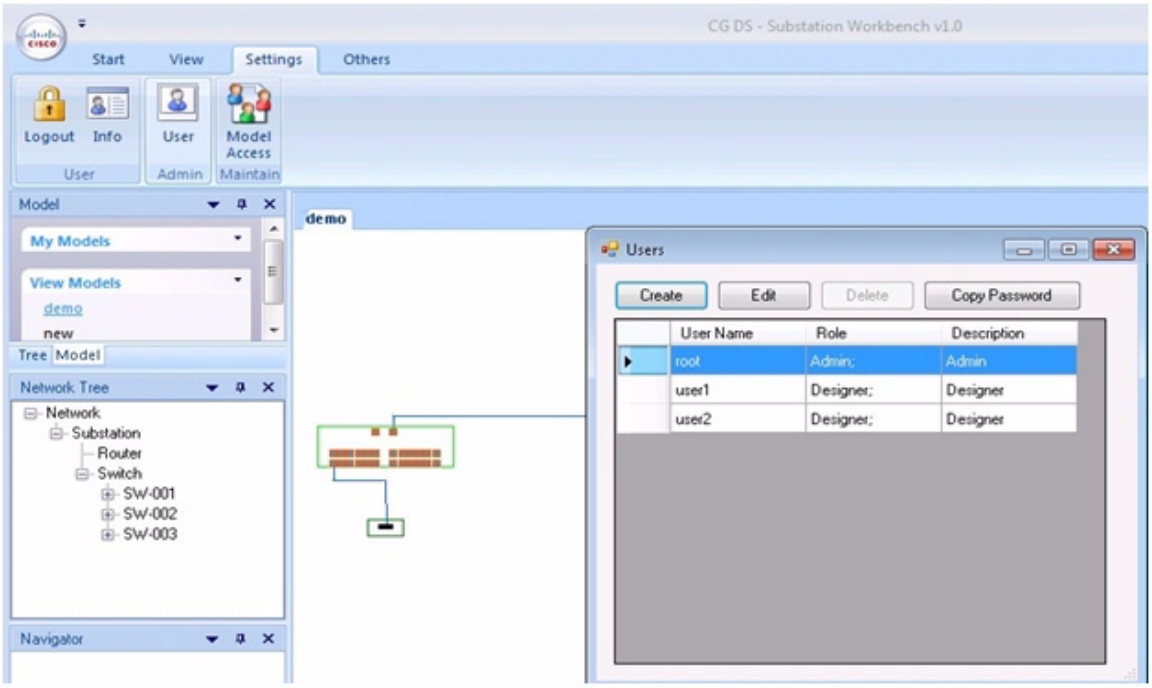


User Creation

To create a new user, first click the User (Admin) button on the CGDS tool bar. This appears under the Settings tab on the CGDS toolbar.

The Users window will appear.

Figure 2 The Users Window Allows Administration of Users



Clicking on the **Create** button will expose the New User creation window.

Creating A New User

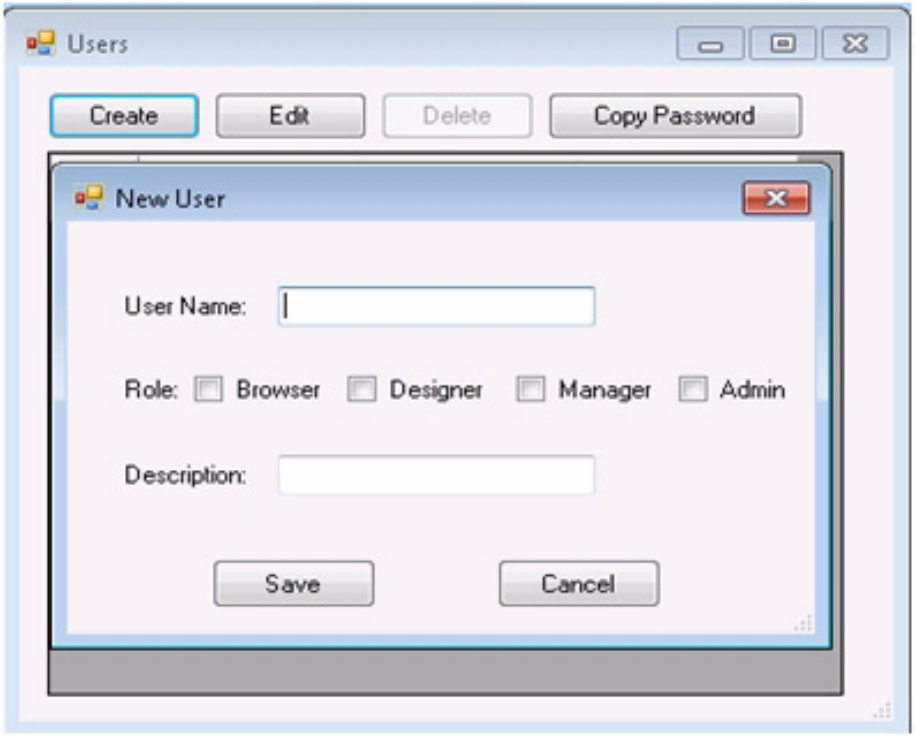
Type a user name in the **User Name** text field.

Select the appropriate **Role** using the check boxes.

Enter an optional description for the user in the **Description** text field.

Abandon this entry using the **Cancel** button, or enter it into the CGDS - Substation Workbench database by using the **Save** button.

Figure 3 Creating A New User With The New User Screen

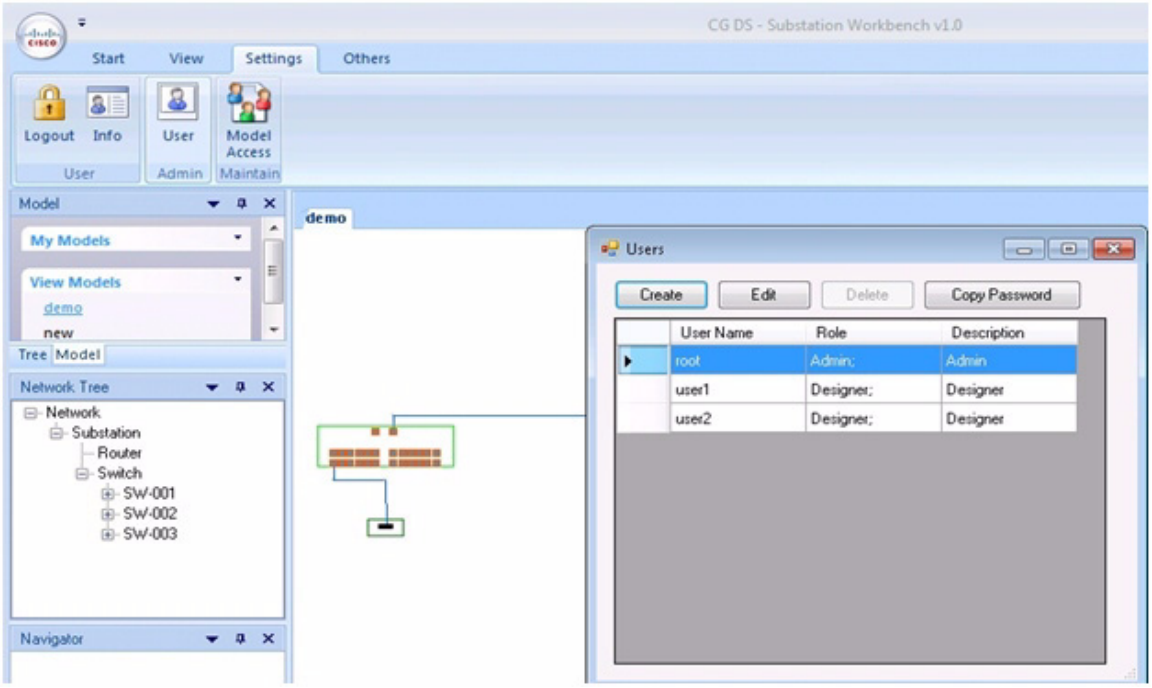


Editing An Existing User

To edit the profile of an existing user, first click the User (Admin) button on the CGDS tool bar. This appears under the Settings tab on the CGDS toolbar.

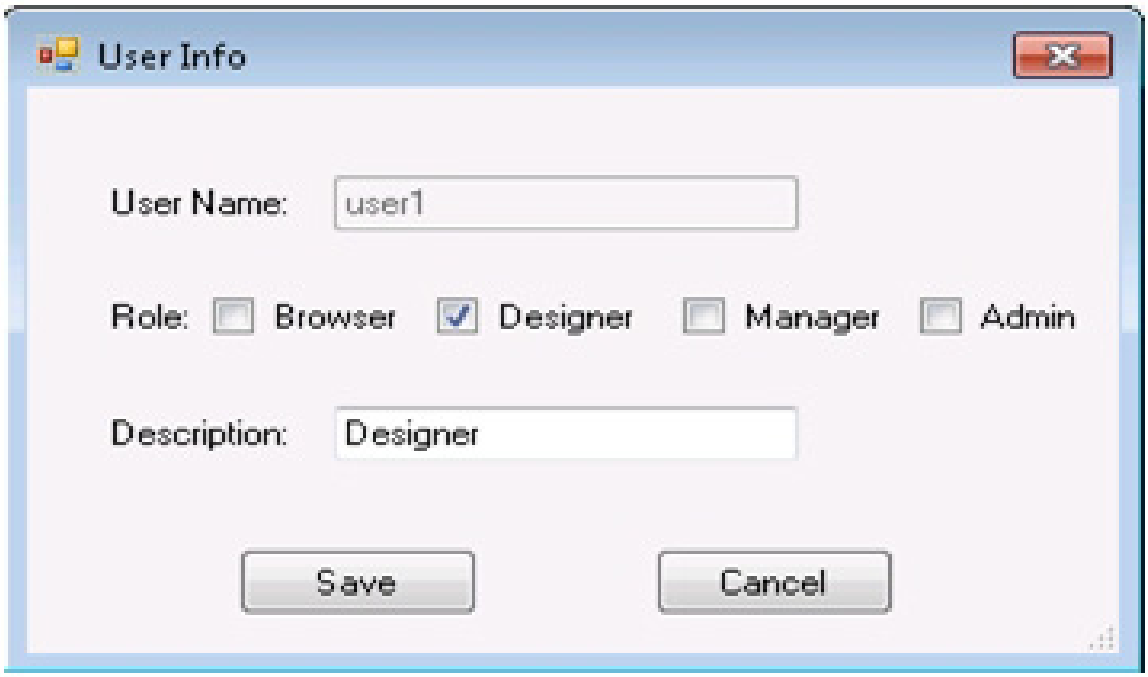
The Users window will appear.

Figure 4 The Users Window Allows Administration of Users



Click on the **Edit** button to expose the User Info window.

Figure 5 The User Info Window Allows Editing of User Profiles

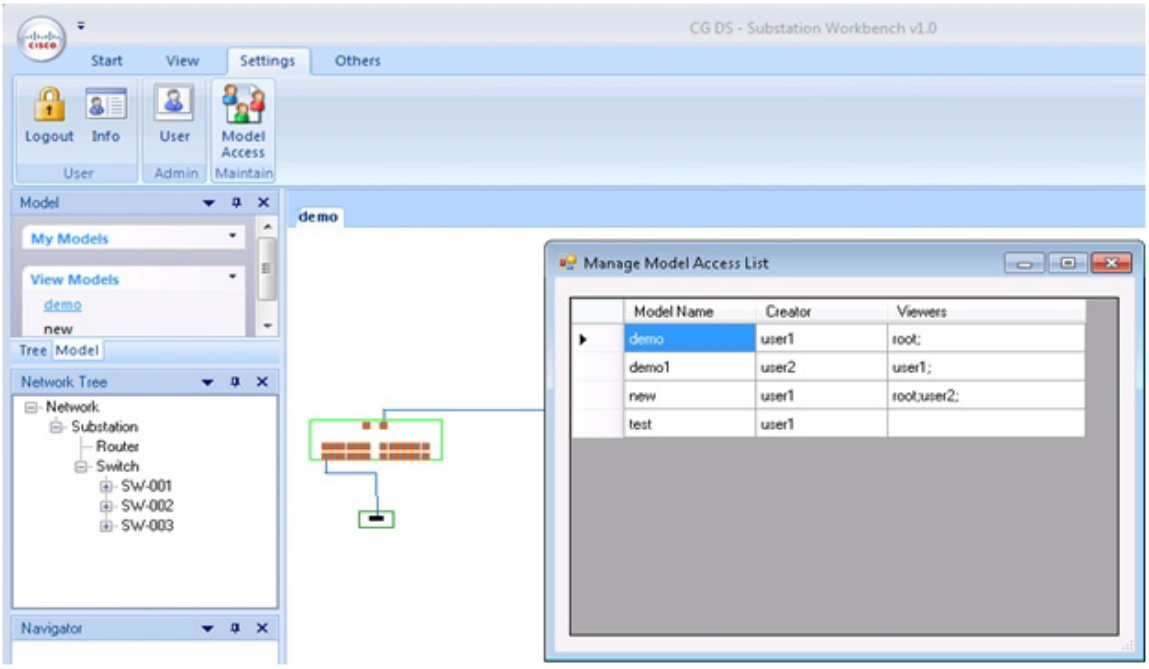


Abandon this entry using the **Cancel** button, or enter it into CGDS - Substation Workbench database by using the **Save** button.

Accessing an Existing Model

Access an existing model by clicking the **Model Access (Maintenance)** button on the CGDS - Substation Workbench toolbar. This is found under the **Settings** tab.

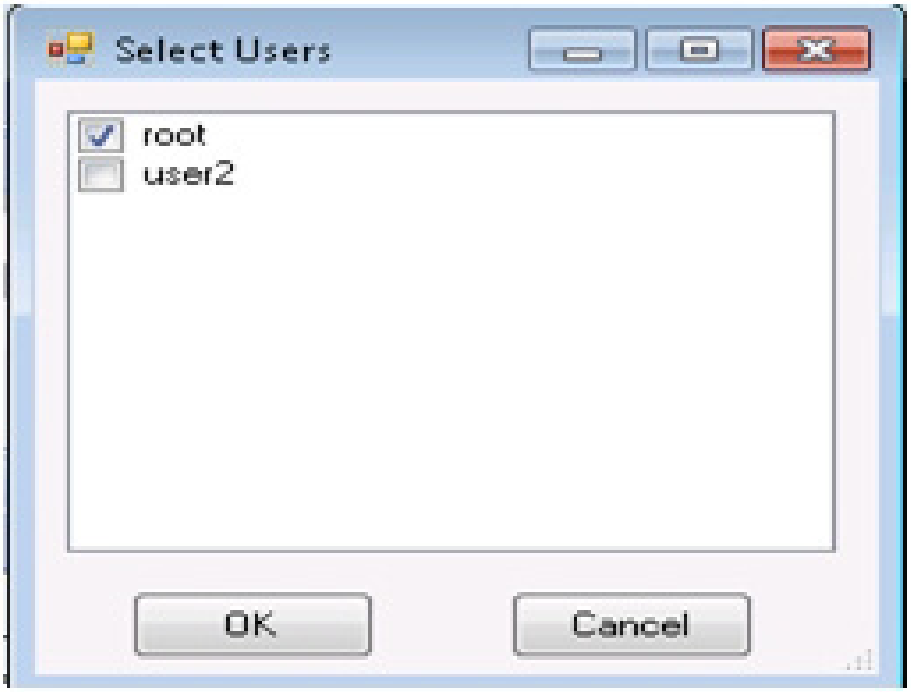
Figure 6 Using the Manage Model Access List



This will expose the Manage Model Access list. Select a model of interest by clicking the model name in the **ModelName** column.

From the Manage Model Access list, CGDS Administrators can influence which users may access the selected model by using the Select Users window. After selecting the boxes for the desired user or users, confirm by clicking the **OK** button. Abandon changes by clicking **Cancel**.

Figure 7 The Select Users Window

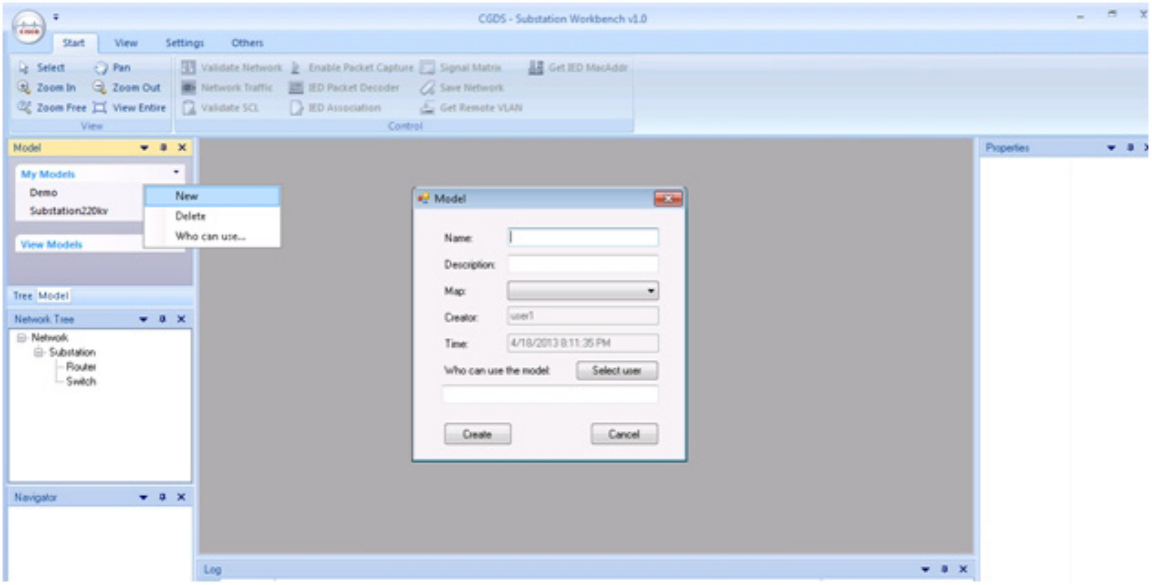


Creating a New Model

Use the Model Creation window to develop a model in the Administrator mode.

Click **My Models**, and when the popup appears, click **New.**

Figure 8 The Model Creation Page



This will expose the Network Design Wizard.

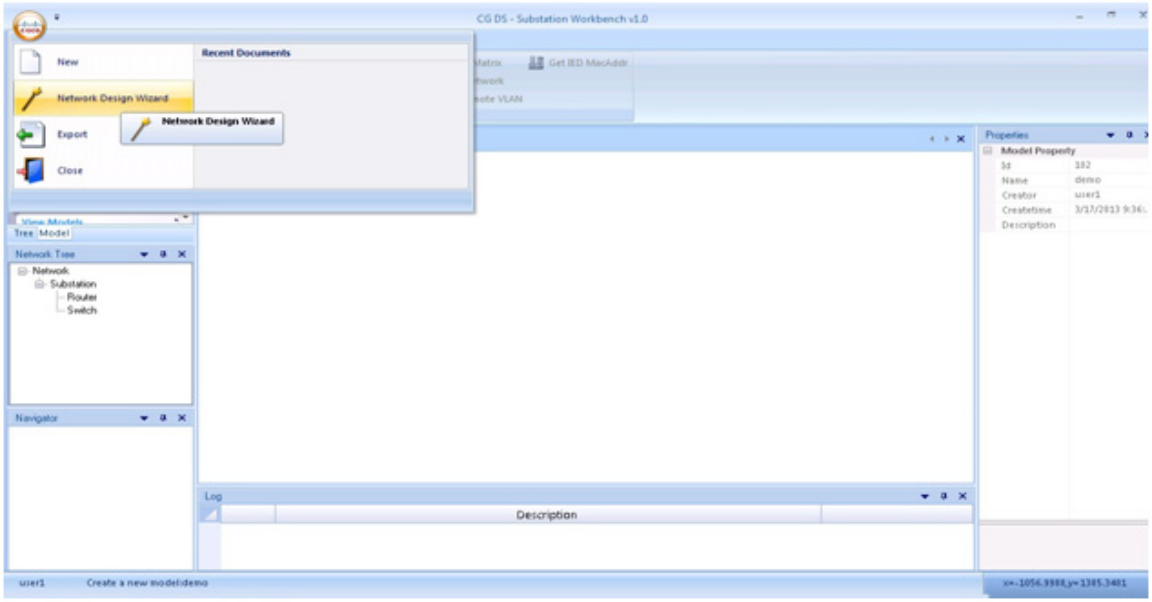
Launching the Network Design Wizard

You can use the Model Creation window to develop a model in the Administrator mode.

Click **My Models**, and when the pop up appears, click **New**

Click on the Network Design Wizard.

Figure 9 Accessing the Network Design Wizard

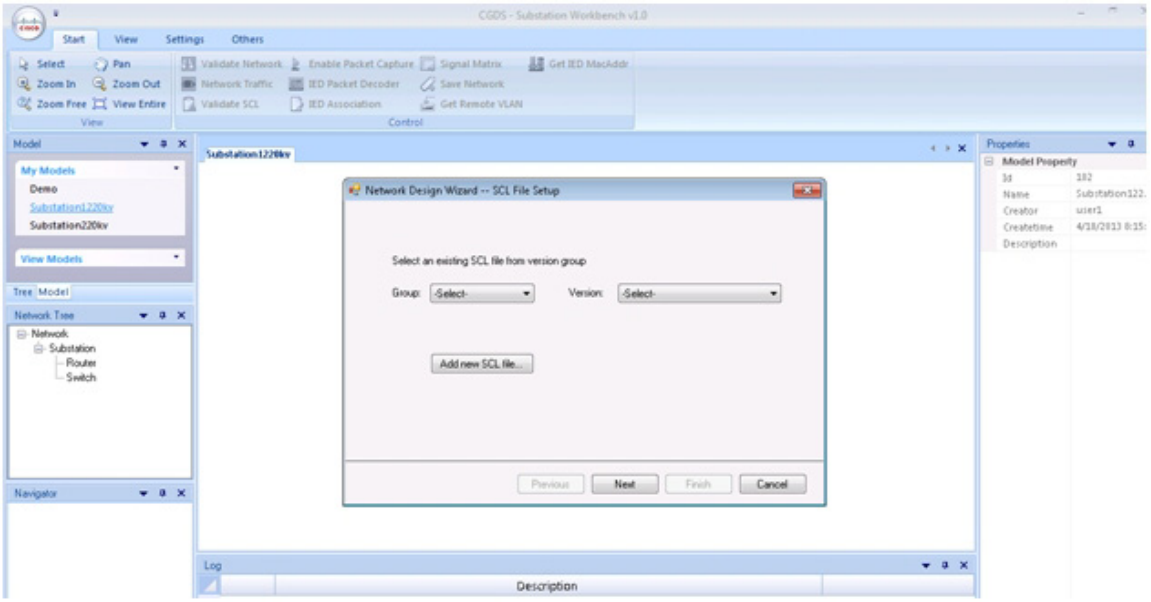


Clicking on the Network Design Wizard will open the SCL file group and its version selection window.

Opening the SCL File Group and Version Selection Window

Using the Network Design Wizard allows the user to select a specific version or a model from a desired working group.

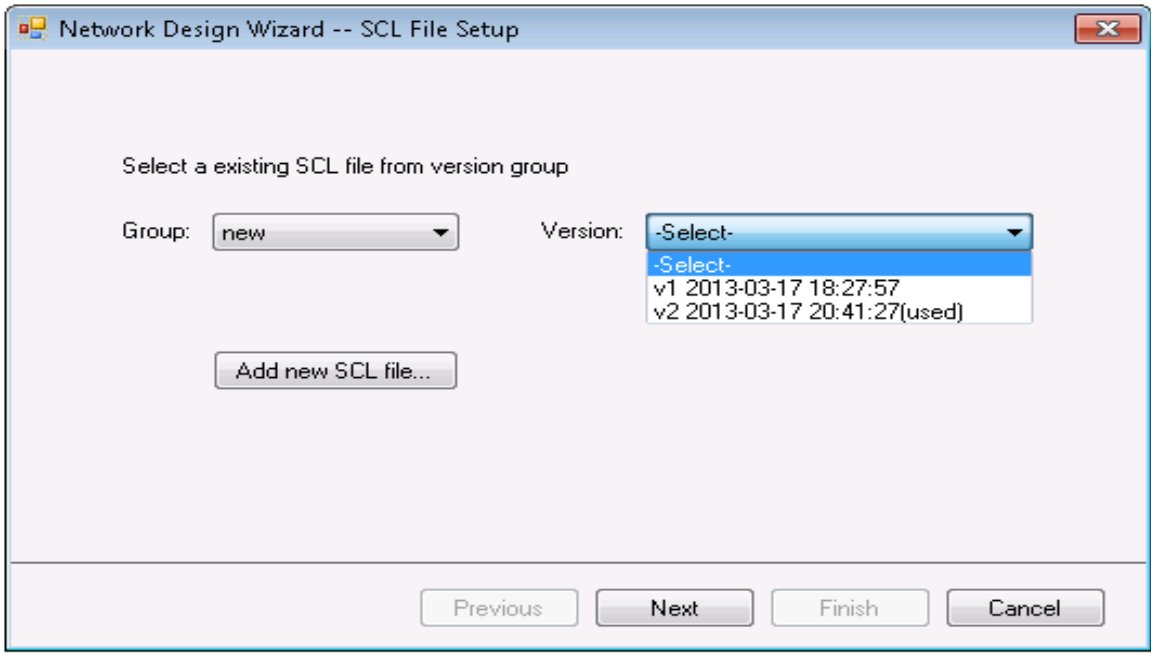
Figure 10 The Network Design Wizard



Selecting the SCL File Version

Model groups and versions are available from the pulldown menus.

Figure 11 The SCL File Setup Screen Allows Version Selection

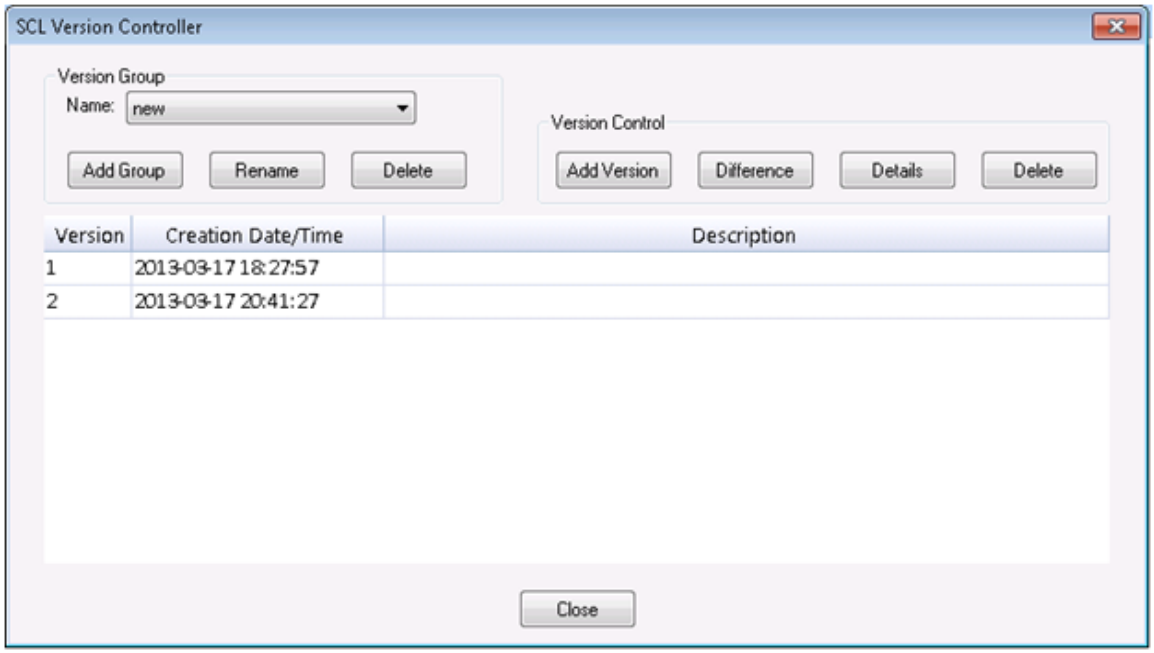


Click the **Add new SCL file** button if the desired version is not available, or a new version is desired This will expose the SCL Version Controller window.

Adding an SCL File and its Versions

The user can select an SCL file and see the available versions.

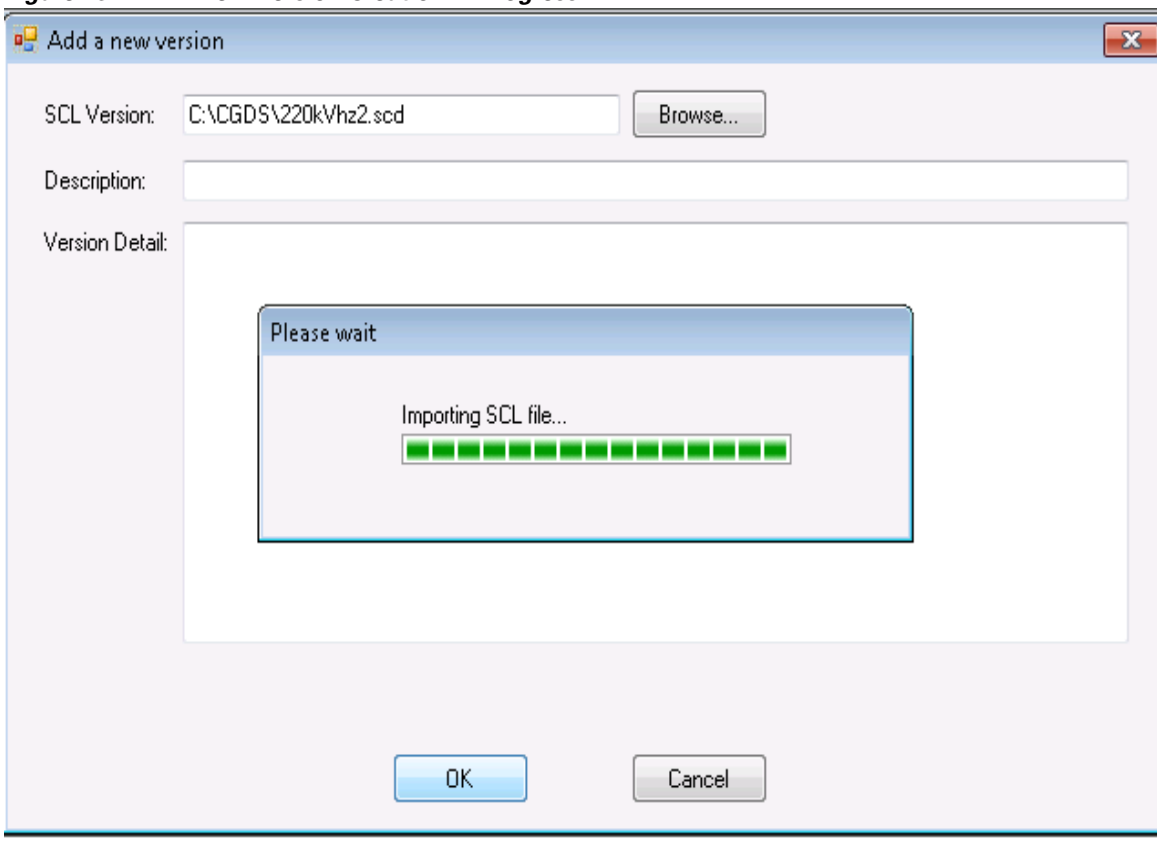
Figure 12 The SCL Version Controller



By clicking the **Add Version** button in the Version Control section, the **Add a new version** window will open.

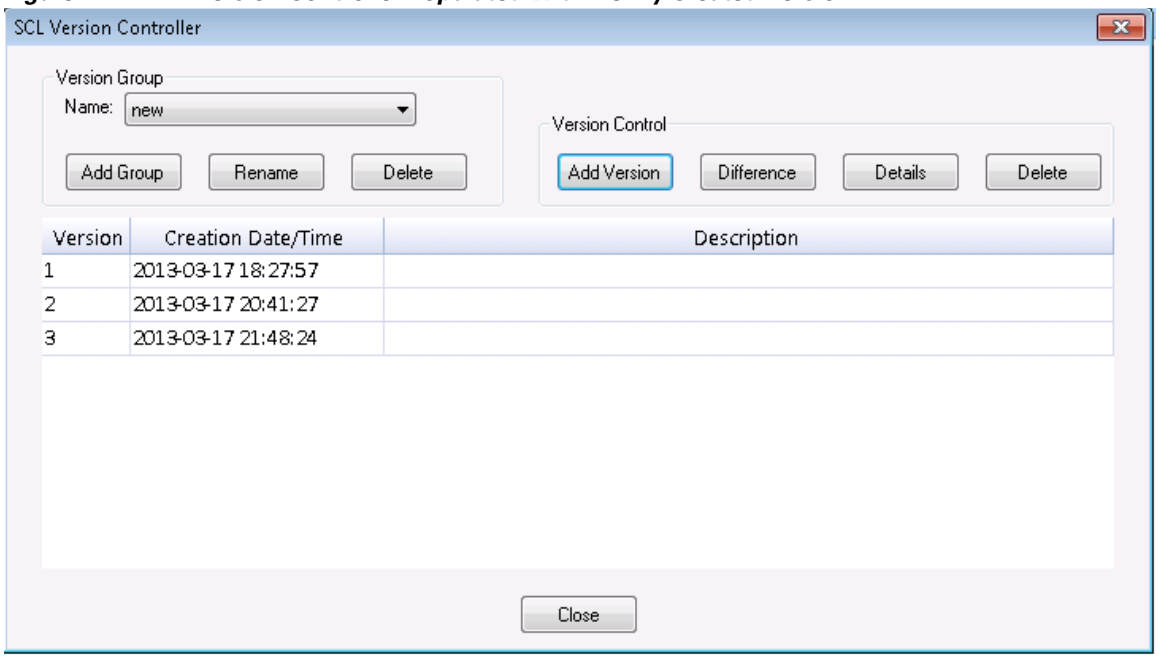
A progress bar will indicate the progress of the version creation.

Figure 13 New Version Creation In Progress



When the process completes, the new version appears in the Version list.

Figure 14 Version Controller Populated With Newly Created Version



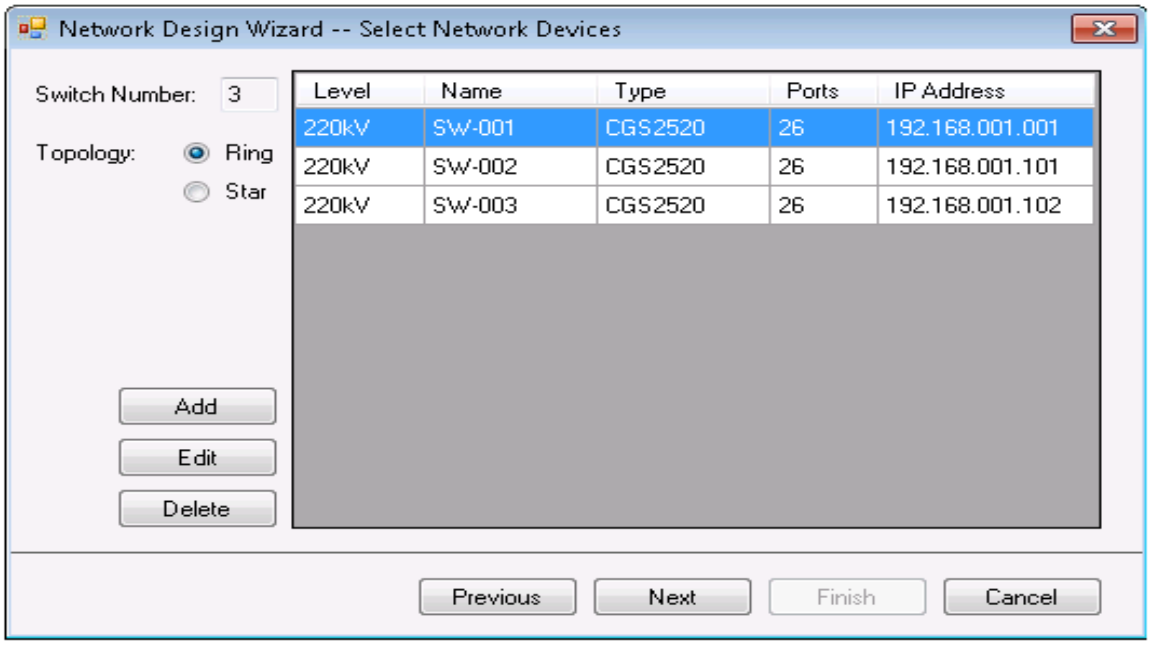
The user can now select one of the versions and proceed to the Template Selection window.

Selecting a Template

When the user selects a template, the network devices in the template will display in the Select Network Device window.

The topology can also be declared as either a ring or a star.

Figure 15 The Select Network Devices Window



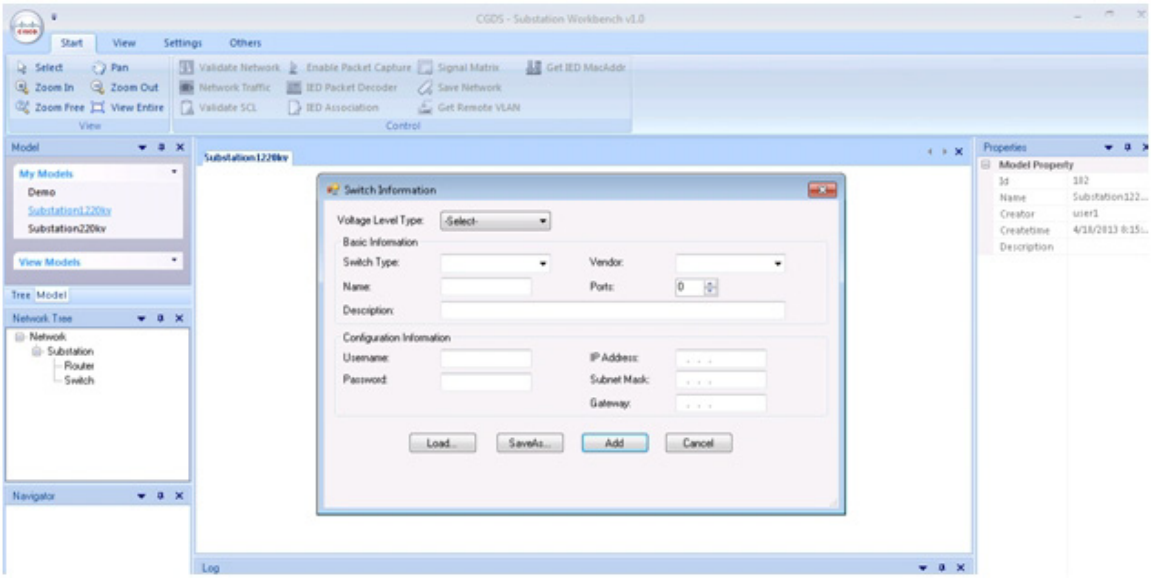
The **Add** button will also allow users to specify network devices.

Adding a Network Device

The user can add network devices after selecting a Template, by using the **Add** button.

The Select button allows a user to select a voltage level for the device.

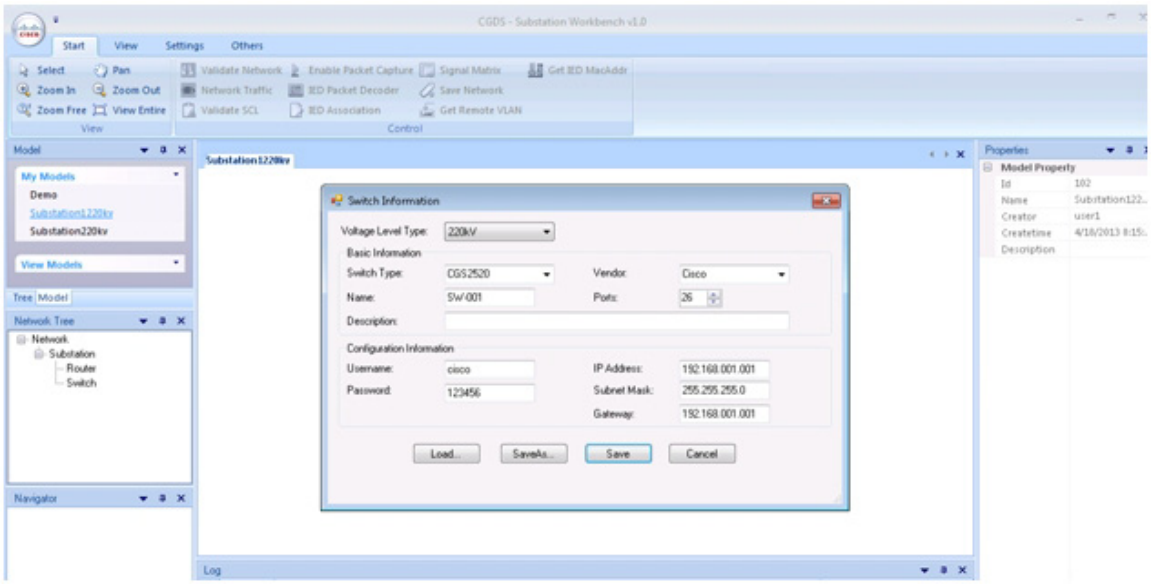
Figure 16 Adding Network Devices



Editing Switch Details

There are many possible switches in a substation network. The Switch Information window allows the user to specify which switch to use in a desired position.

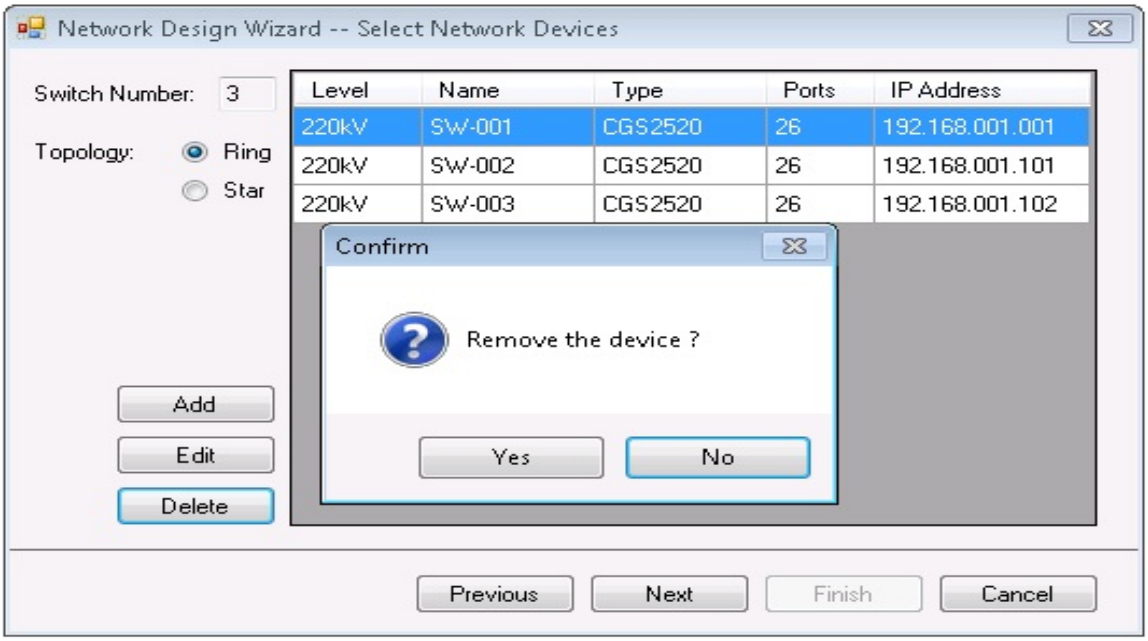
Figure 17 The Switch Selection Window



Deleting a Switch

The Network Devices window also allows the user to remove switches from the network.

Figure 18 Selecting A Switch To Remove It From The Network



After the correct switches are in place, the user can associate them to the various IEDs in the network.

At this point, the user is asked to confirm the switch deletion by clicking the **Yes** button.

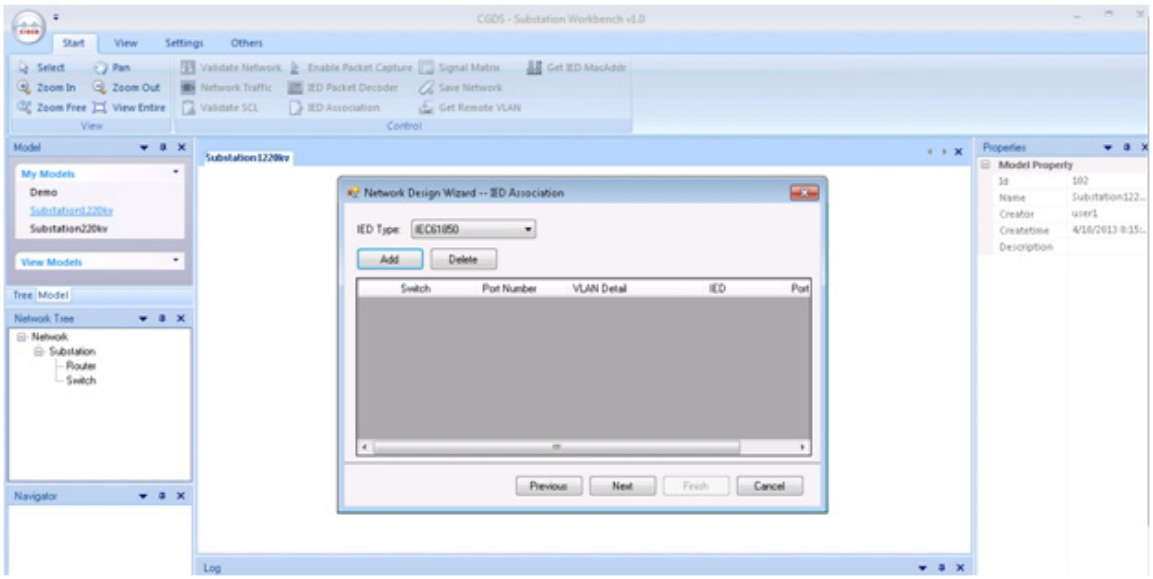
Clicking the **Next** button will advance to the screen for IED association.

IED Association

The user can select an IED to add to the network by using the IED Type control.

After adding network device(s), click on Next to go to the IED Association window.

Figure 19 The IED Association Window



Entering the IED type and clicking on the **Add** button will open IED Association Control.

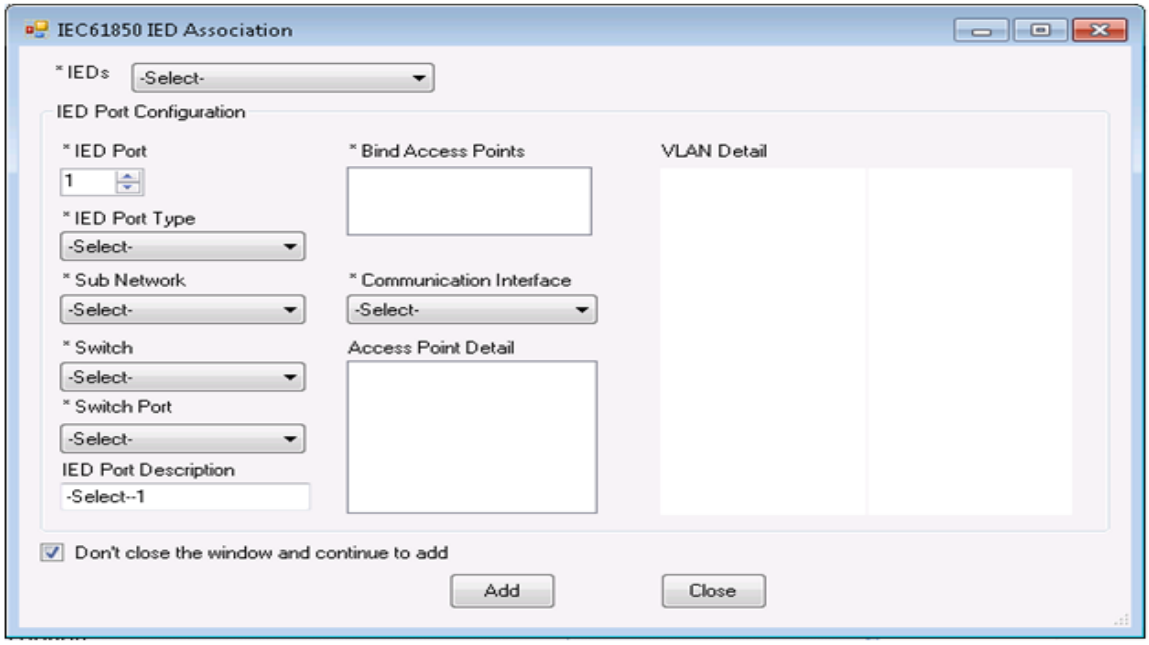
Configuring IED Ports

In the IEC61850 IED Association control page, the user can enter details about each IED in the network.

When the details are complete for a given device, enter the selections into the database by clicking the **Add** button.

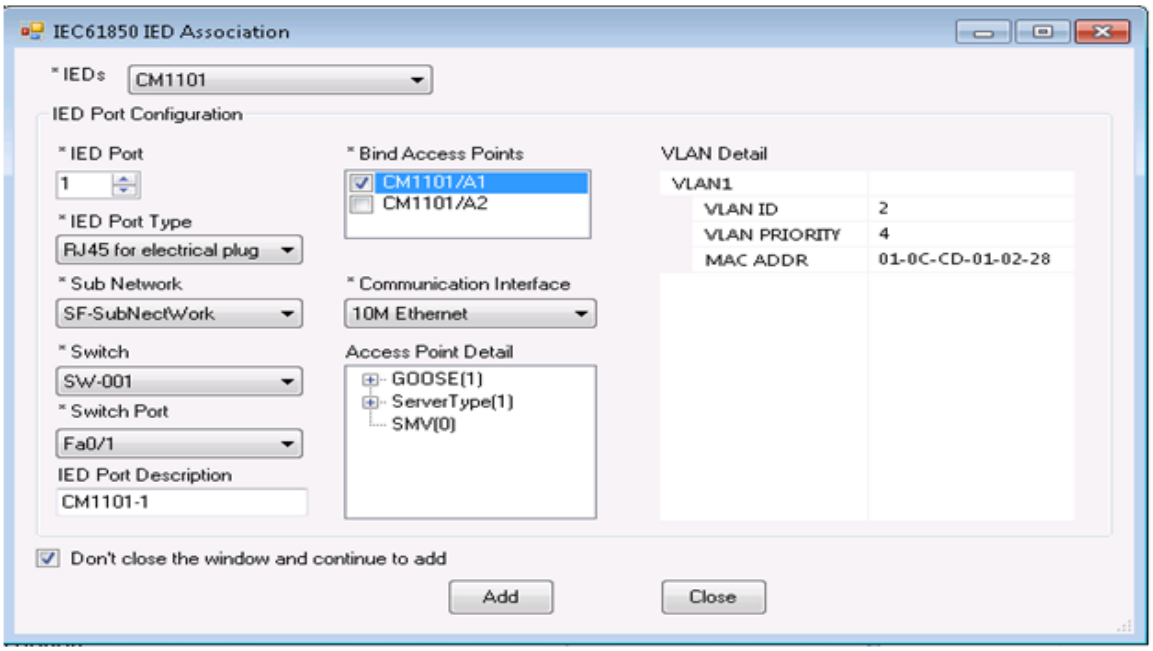
When all the IEDs have been configured, clear the check box on the **Don't close the window and continue to add** control. Then click the **Add** button.

Figure 20 Configuring The IED Association



As each IED is configured by selecting the options and clicking the **Add** button, the IED will be associated with the selected switch.

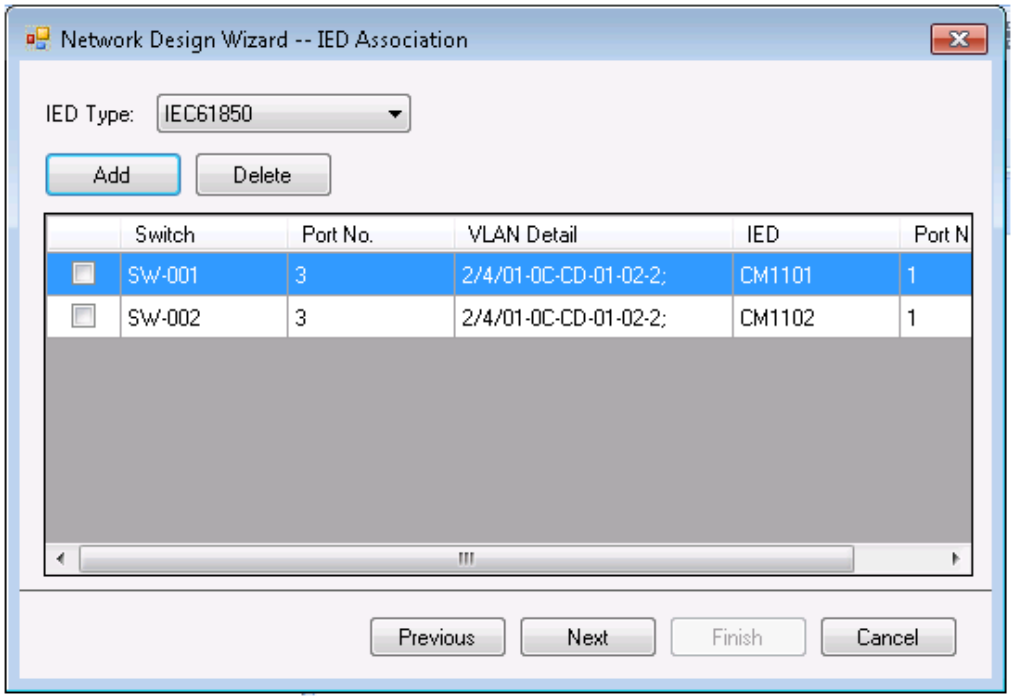
Figure 21 Entering IED Information And Associating With A Switch



Exposing the IED Association List

As each IED is associated, it will be added to the Association List.

Figure 22 IED Association List

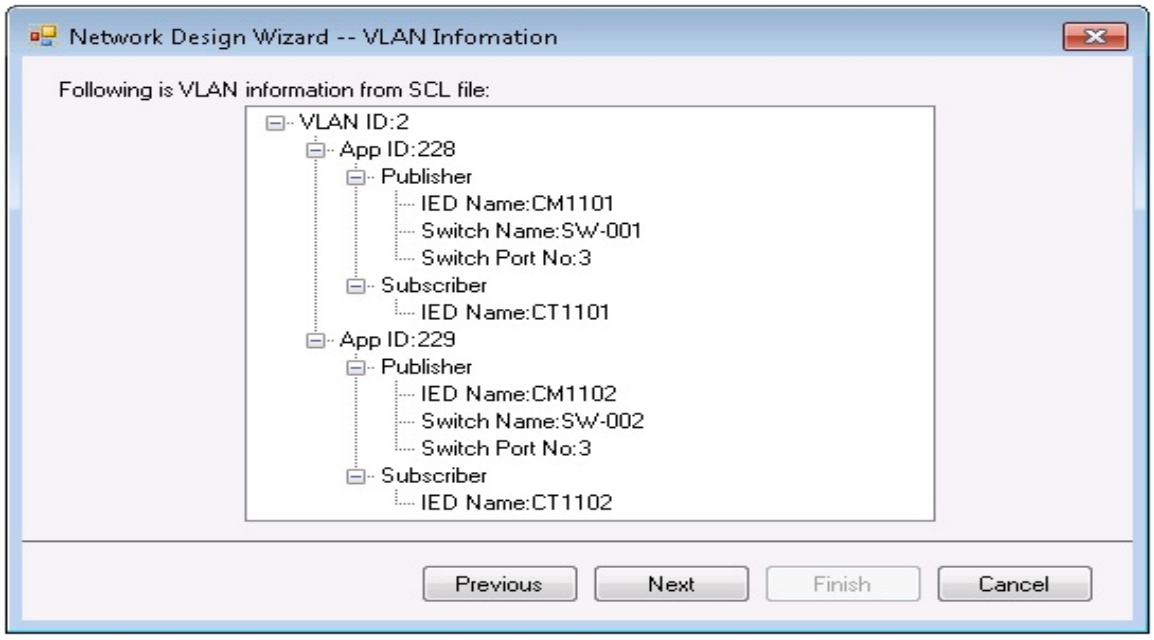


Clicking on **Next** will advance the program to the VLAN information window.

VLAN Information Window

As VLANs are populated, details appear in the VLAN Information window.

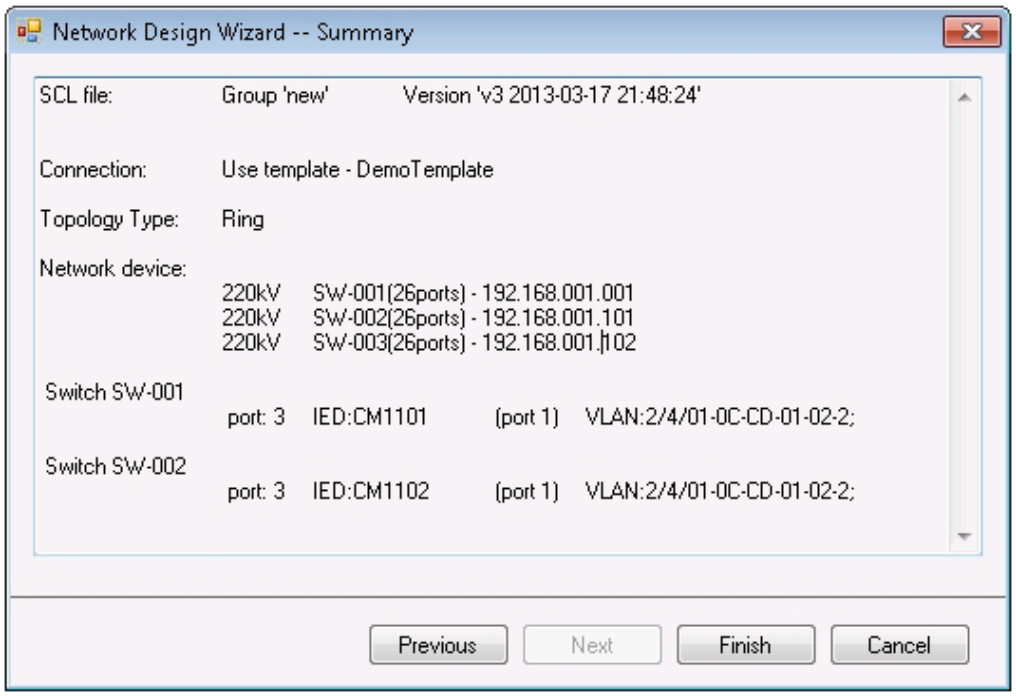
Figure 23 The VLAN Information Window



Network Design Wizard Summary

The Network Design Summary Wizard presents a compact display of settings made during a session.

Figure 24 The Network Design Wizard Summary Window

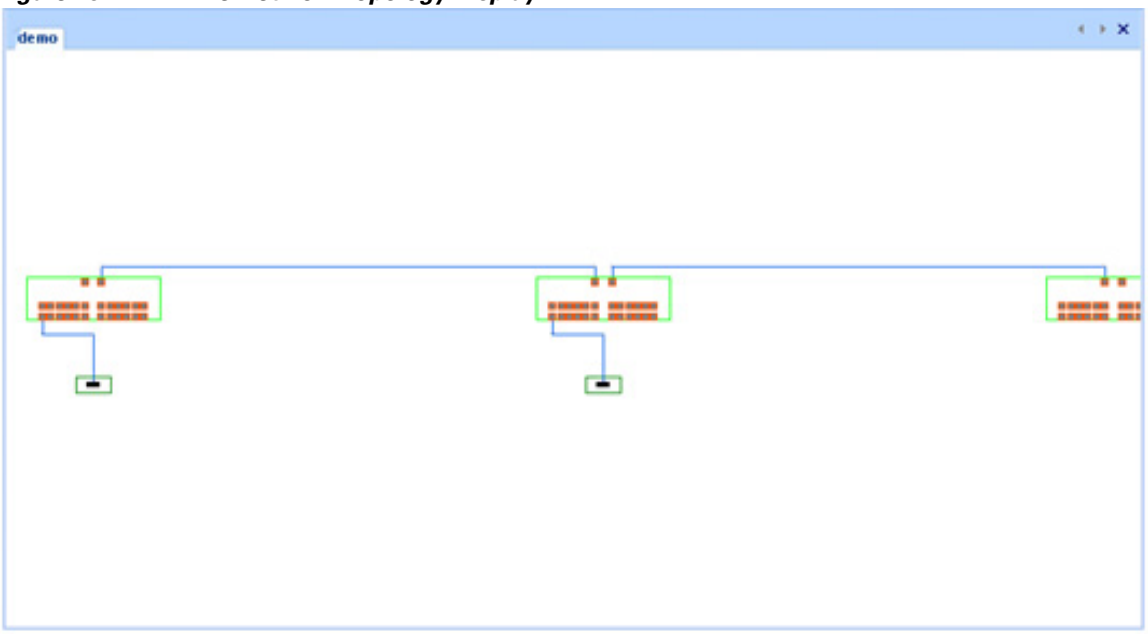


The summary window will display the network topology using the selected network equipment. If the data is in line, click the **Finish** button. This will generate an interactive network topology.

Creating and Displaying the Network Topology

The Network Topology window displays a diagram of the network. Each item is interactive and will reveal data when it is clicked with the mouse.

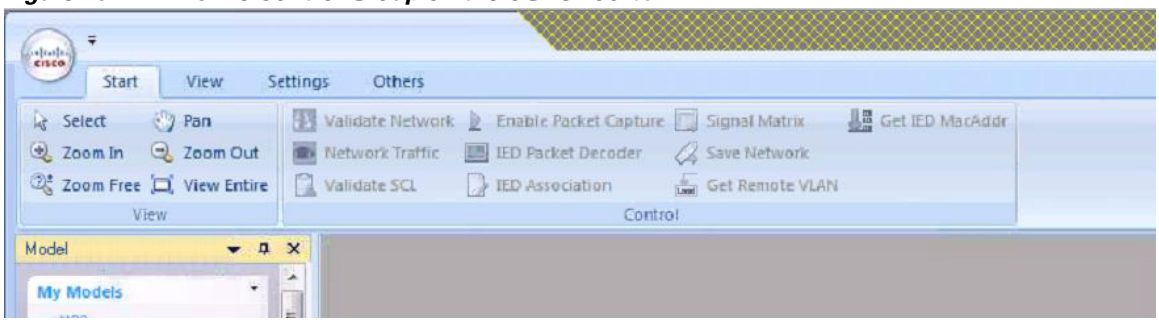
Figure 25 The Network Topology Display



Using The Toolbar Command Group

The next few steps require the user to focus on the Control group in the CGDS Toolbar at the top of the screen.

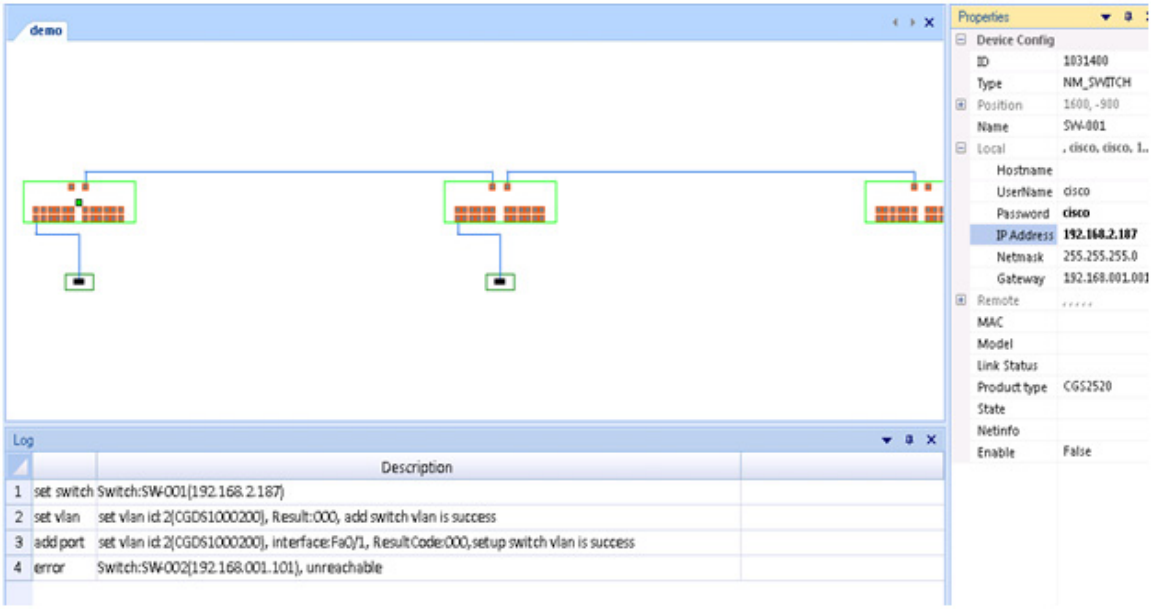
Figure 26 sThe Control Group on the CGDS Toolbar



Save the Network Command

The **Save Network** control records an image of the network and associated information.

Figure 27 The Saved Network and Network Information System

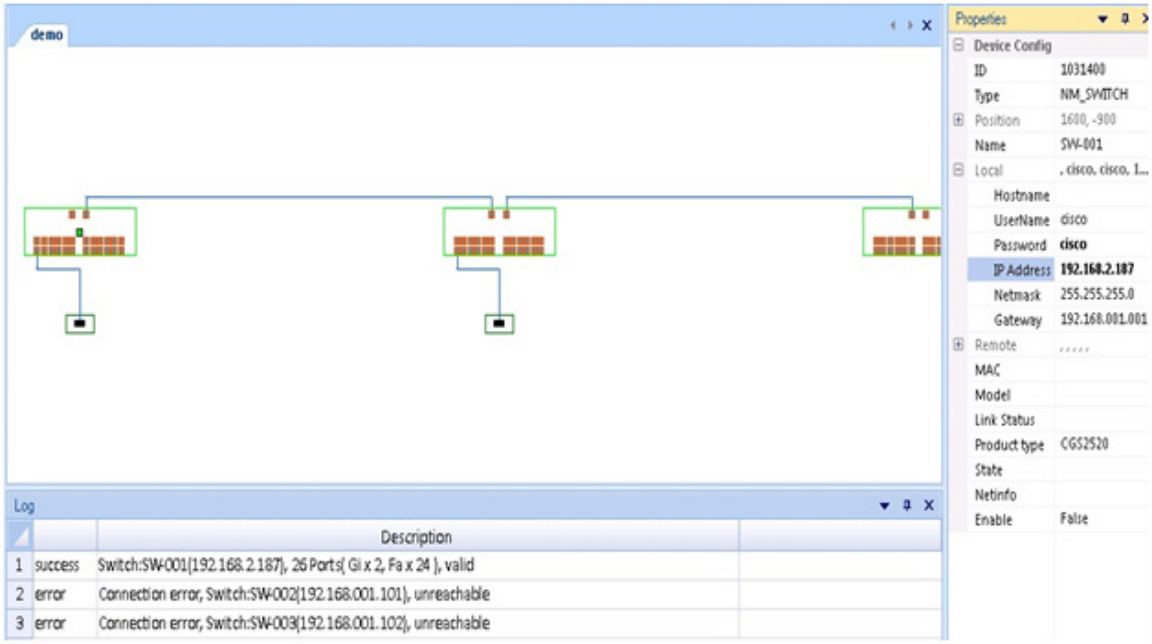


Validate Network Command

The **Validate Network** command examines network connectivity and reports which devices are valid and which are unreachable.

The report is presented at the bottom of the screen in the Description field.

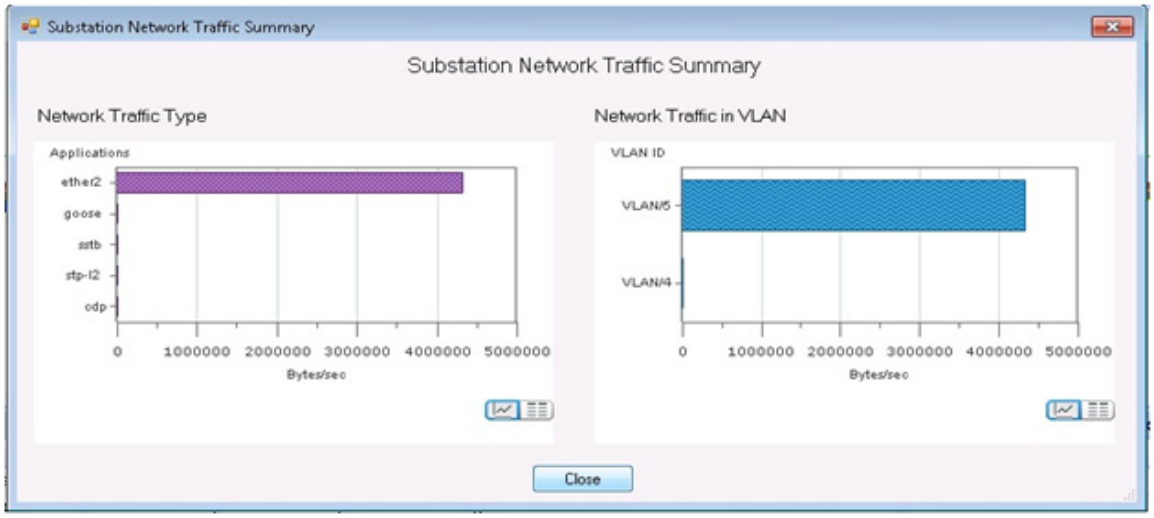
Figure 28 The Validate Network Command



Network Traffic Reporting (Graphical Representation)

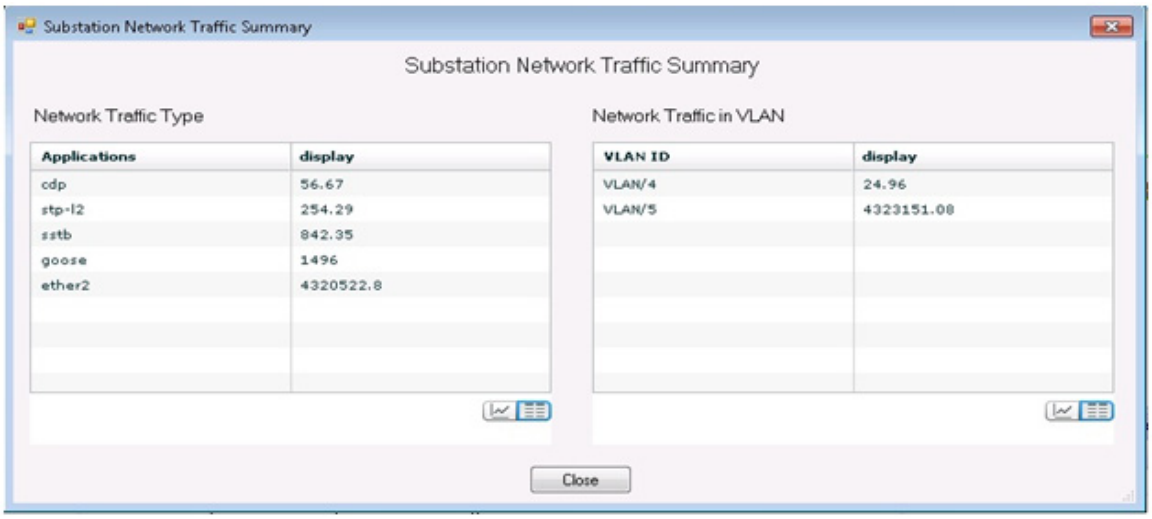
The Network Traffic tool evaluates the traffic in the substation network and reports the findings by type and volume. The report is available in graphical and tabular form. The icon in the lower right corner of each pane switches the display from one presentation to another.

Figure 29 Network Traffic Summary (Graphical Display)



Network Traffic Reporting (Table Form)

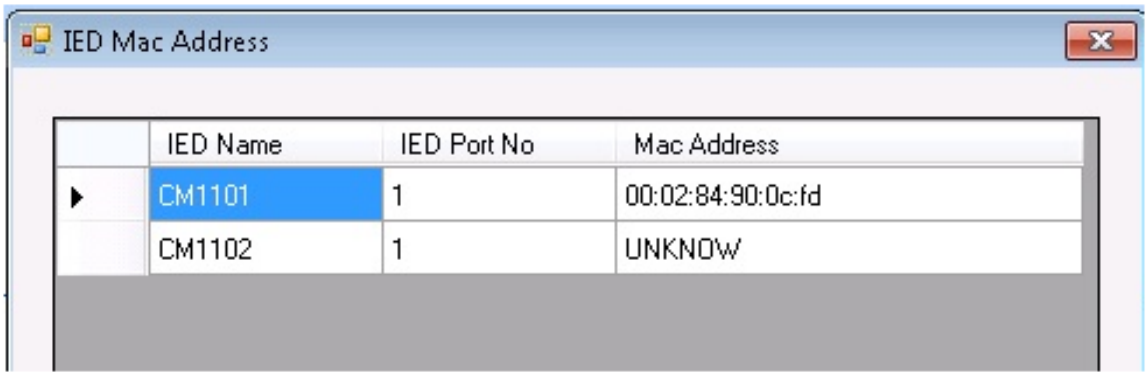
Figure 30 Network Traffic Summary (Tabular Display)



Obtaining an IED's MAC Address

The **Get IED MAC** command is used to discover the Media Access Control address assigned to IEDs.

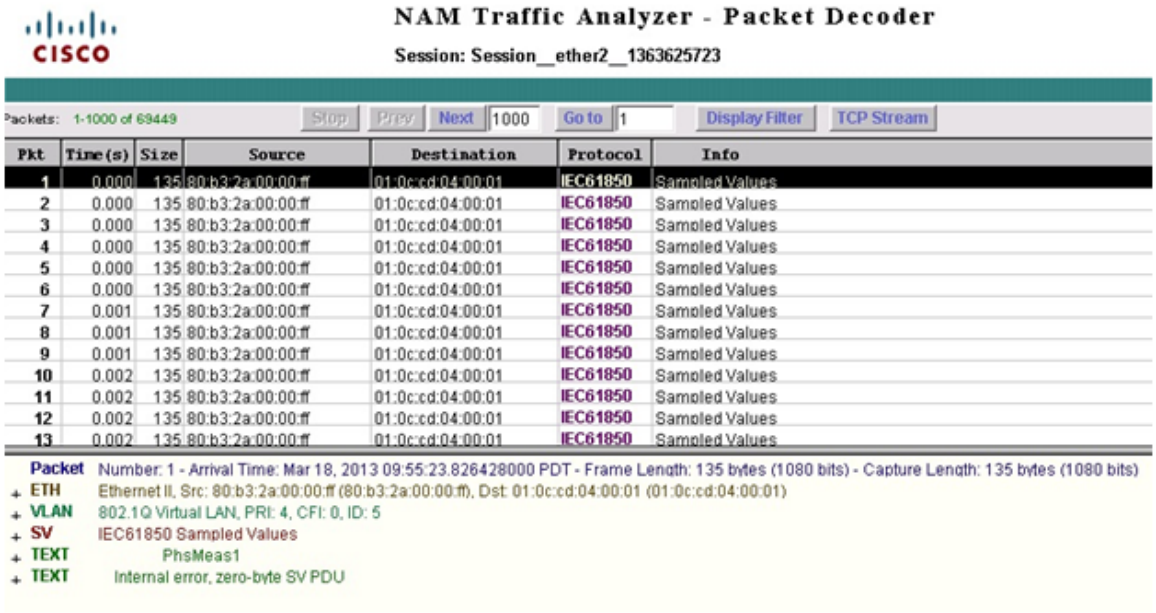
Figure 31 The Get MAC Address Tool



Enabling the IED Packet Decoder

Enable the IED Packet Decoder to open the GOOSE messages in the network.

Figure 32 Packet Decoder Tool



Obtaining Remote VLAN Information

The Get Remote VLAN command scans the network for VLAN addresses and port information.

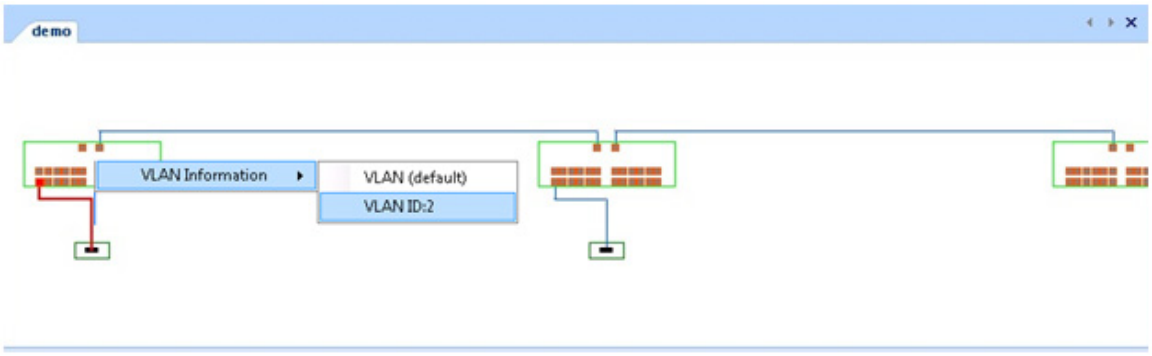
Figure 33

		Description
1	switch	set Switch:SW-001(192.168.2.187)
2	vlaninfo	vlanId:1(default) port:Fa0/9, Fa0/10, Fa0/12, Fa0/13
3	vlaninfo	port:Fa0/14, Fa0/15, Fa0/16, Fa0/18
4	vlaninfo	port:Fa0/19, Fa0/20, Fa0/22, Fa0/24
5	vlaninfo	port:Gi0/1, Gi0/2
6	vlaninfo	vlanId:2(CGDS1000200) port:Fa0/2, Fa0/3, Fa0/4, Fa0/5
7	vlaninfo	port:Fa0/6, Fa0/11, Fa0/21, Fa0/23
8	vlaninfo	vlanId:4(test) port:Fa0/7, Fa0/8
9	vlaninfo	vlanId:1002(fddi-default) port:
10	vlaninfo	vlanId:1003(token-ring-default) port:
11	vlaninfo	vlanId:1004(fddinet-default) port:
12	vlaninfo	vlanId:1005(trnet-default) port:

Obtaining VLAN Information

The network topology display is interactive and can present the user with much useful information. Select a switch with the mouse and then right-click it to open the VLAN information.

Figure 34 Obtaining VLAN Information By Clicking The Mouse

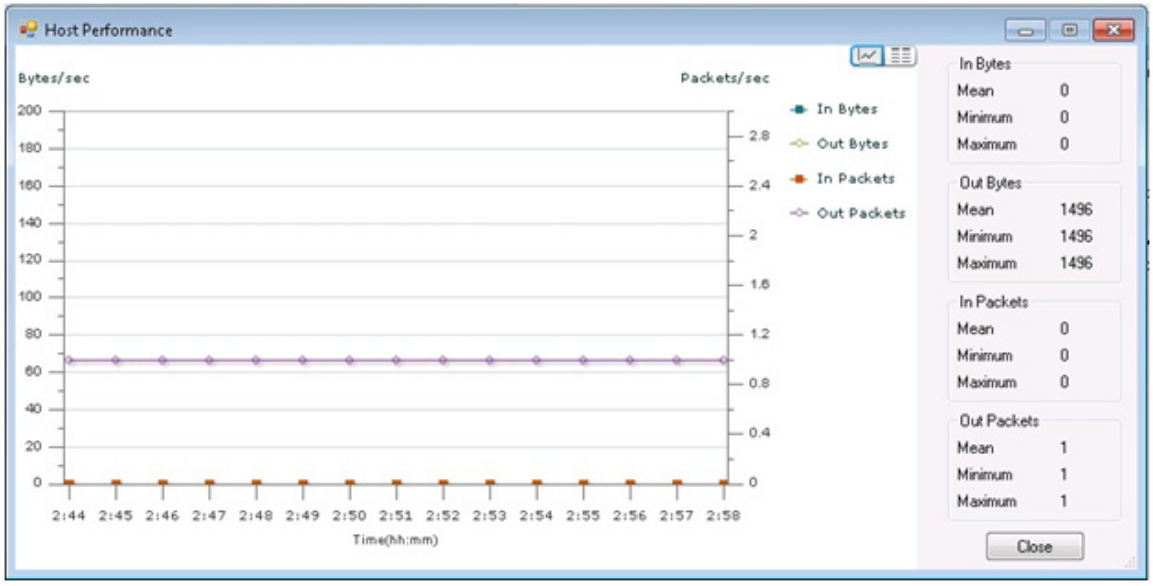


Obtaining Information on Host Performance

The user can select an IED and right-click on to open these options:

1. Host performance
2. Protocol decode
3. Value analysis
4. Information path

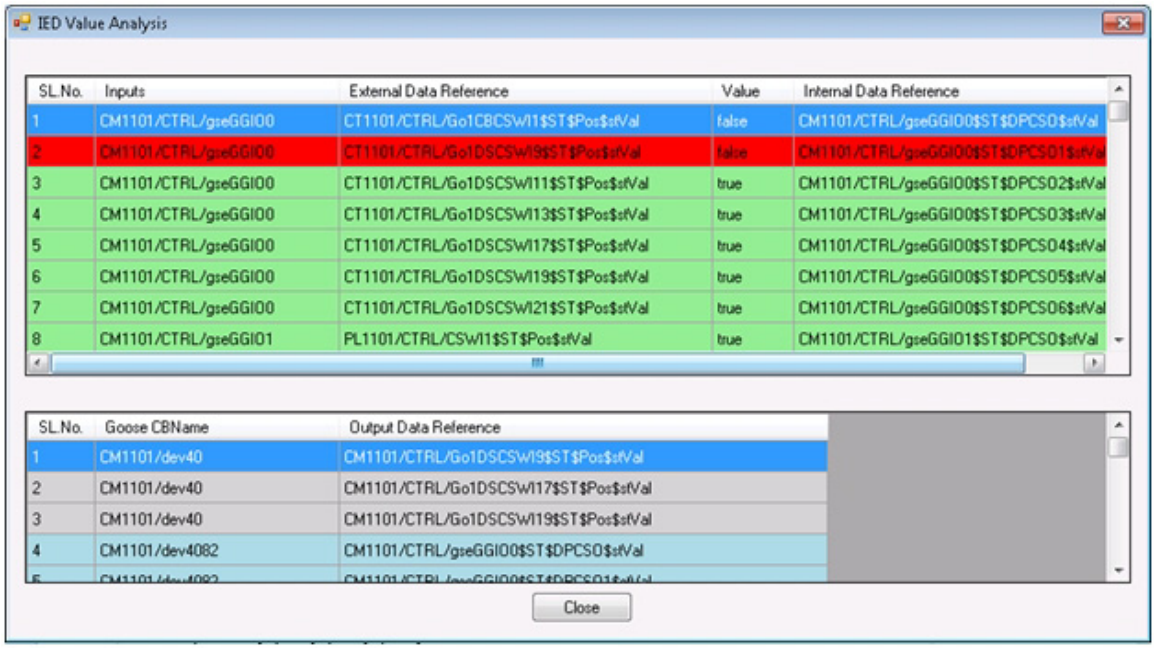
Figure 35 The Host Performance Display



Value Analysis

Analysis of network data using the Value Analysis tool.

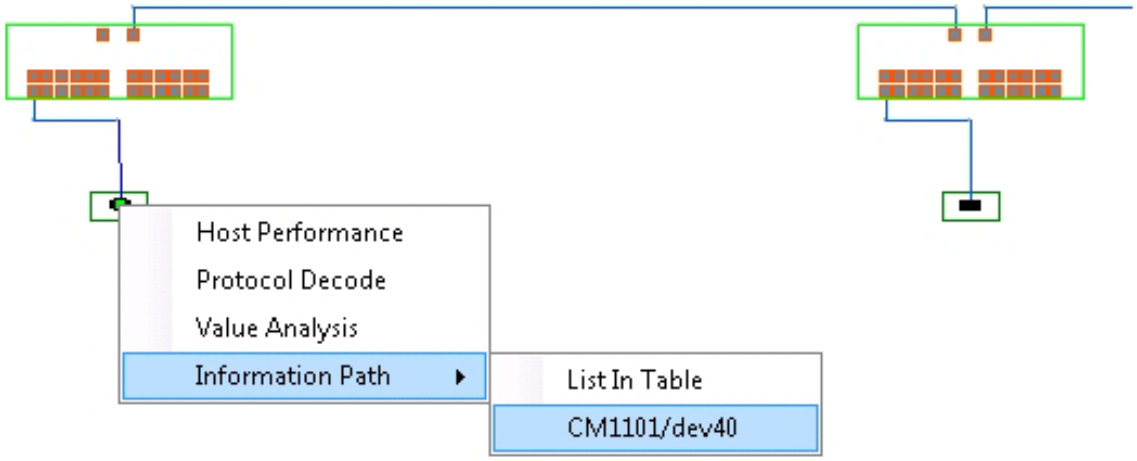
Figure 36 The Value Analysis Window



Discovering the Information Path

Information about the connections between network elements can be discovered by right-clicking various elements in the network. Use the context menus that arise as guides.

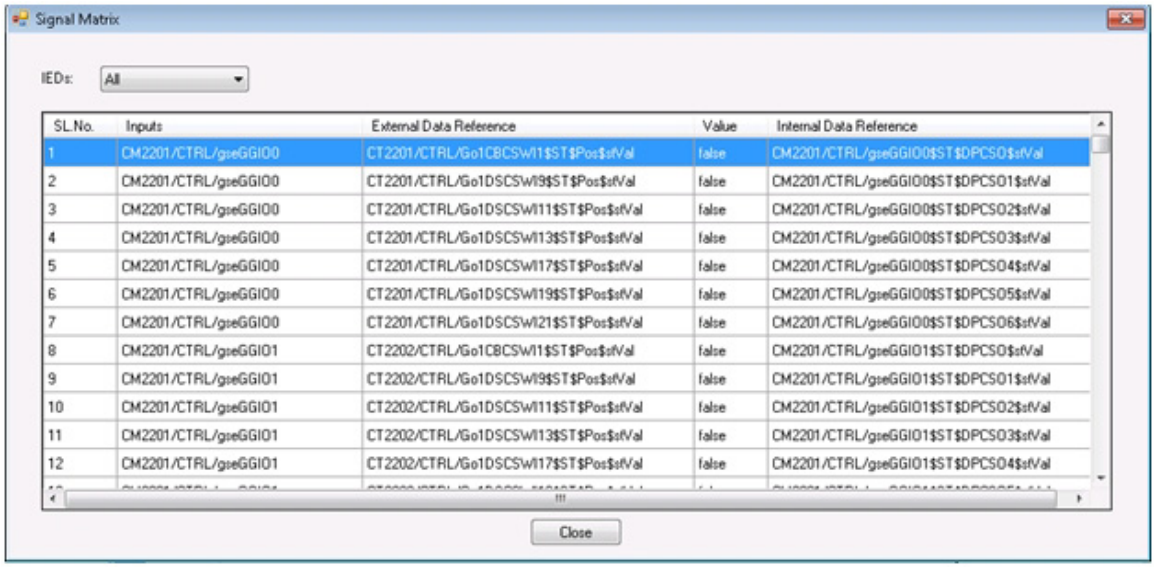
Figure 37 Information Discovery Along the Information Path



The Signal Matrix

The Signal Matrix Display presents a table view of which user is connected to which resource.

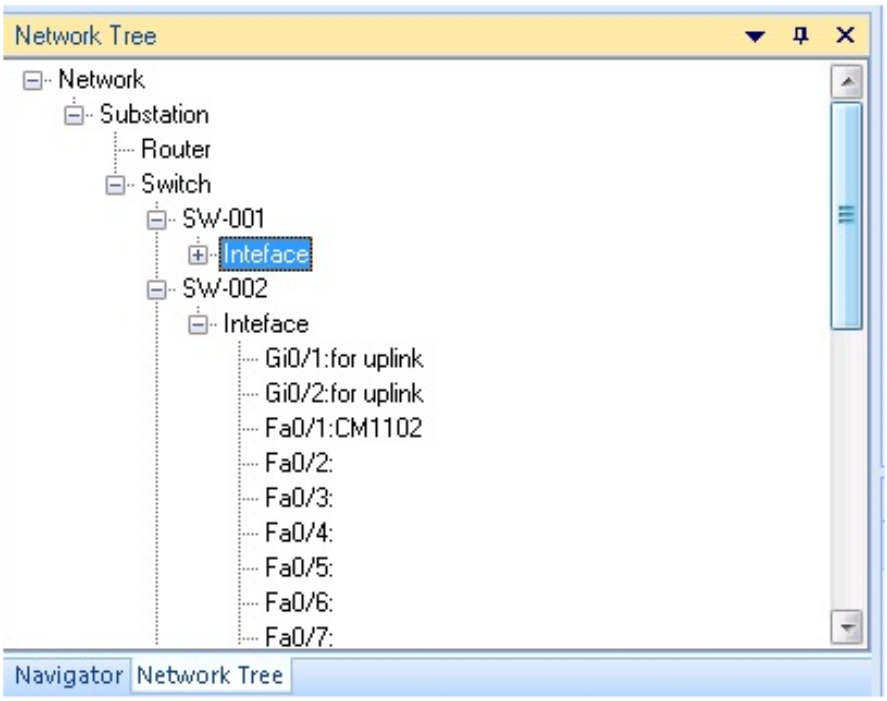
Figure 38 The Signal Matrix Connection Mapping System



Displaying the Network Tree

Network Tree information is displayed in a pod on the left side of the user's screen (default point).

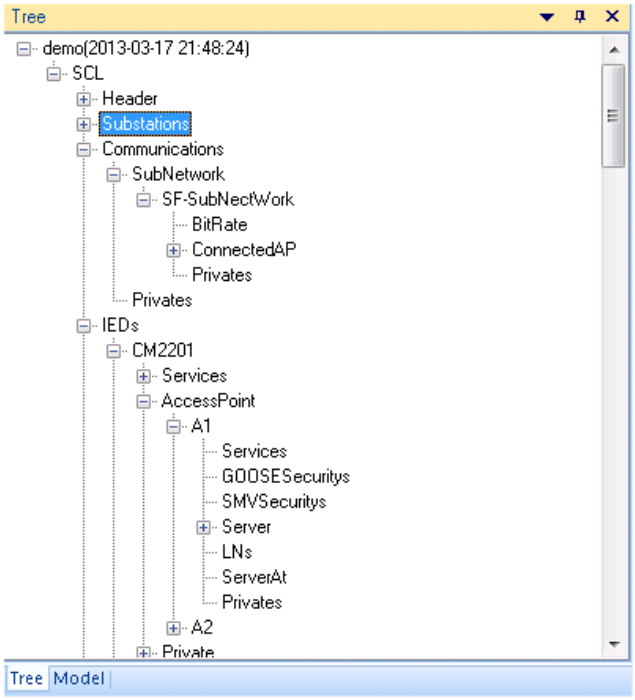
Figure 39 The Network Tree Display



Displaying the SCL Tree

The SCL Tree display presents a graphical view of all network devices.

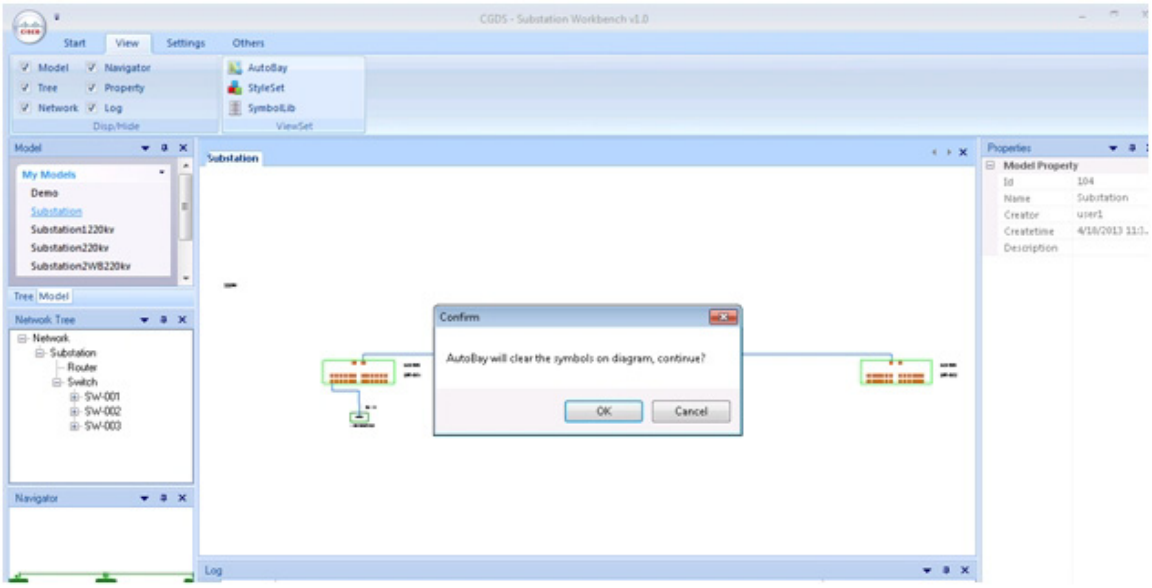
Figure 40 The SCL Tree Display



Performing an Auto Bay Generation

A “Bay” is an important concept in substation design. Compiling the information into “Bays” allows the user to notice efficiency and plant design issues that might not be immediately obvious. It also efficiently categorizes the network information for many devices. The AutoBay feature is addressed by first clicking the View menu and then clicking the AutoBay command.

Figure 41 The AutoBay Feature



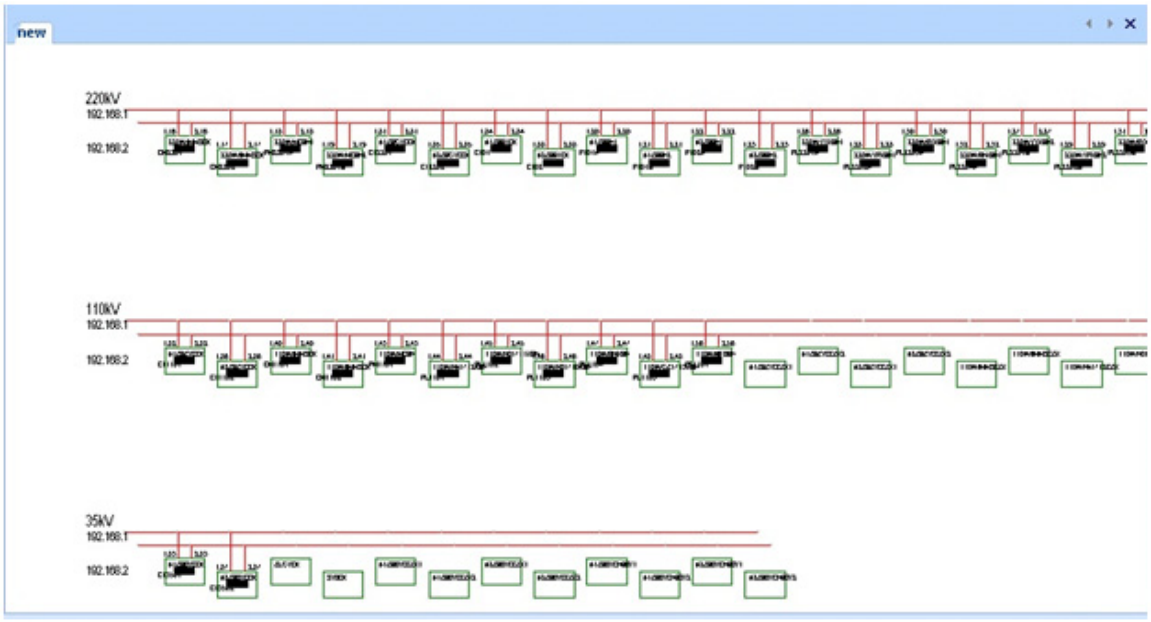
The confirmation popup will create the Bay View. Click the **OK** button.

Creating a Bay View

A Bay View shows large amounts of network information.

Zooming in will allow the detailed information on the map to be displayed clearly.

Figure 42 Bay View Shows Information About Individual Network Items



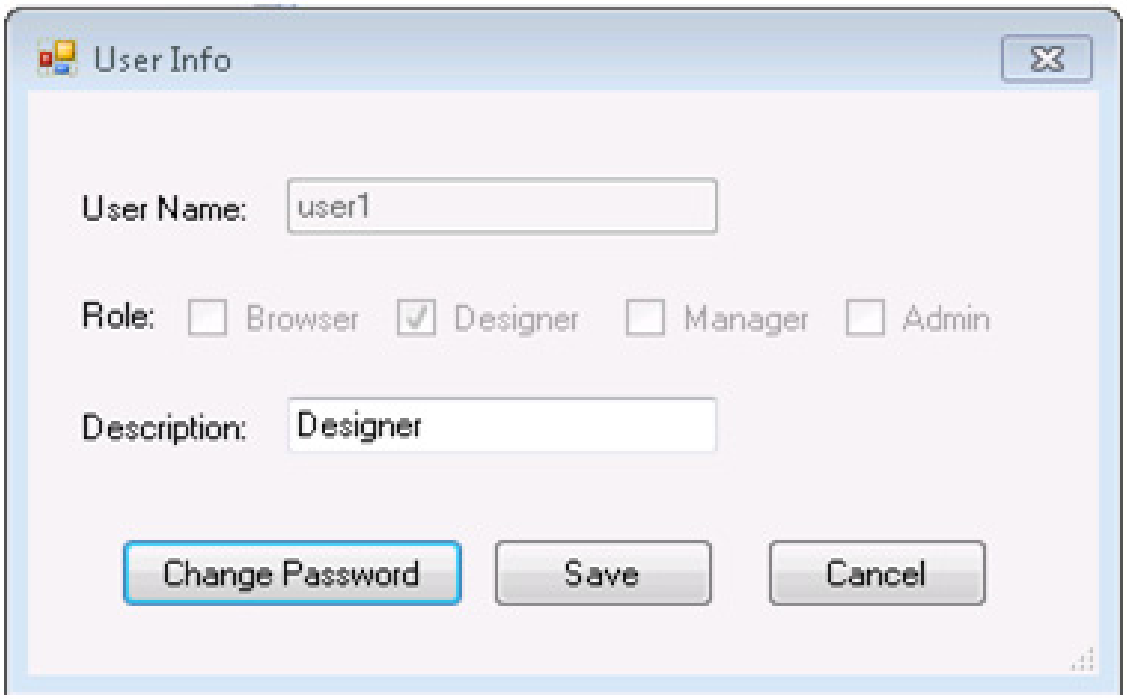
Changing User Information

The Designer role has the ability to modify user information.

Access this capability under the Settings tab on the CGDS - Substation Workbench user interface. Then scroll down to User. The User Info window will pop up.

Use this tool to define the user name and password. This tool will also define the role of each user.

Figure 43 The User Info Tool Allows The Creation of User Names, Passwords, and Roles



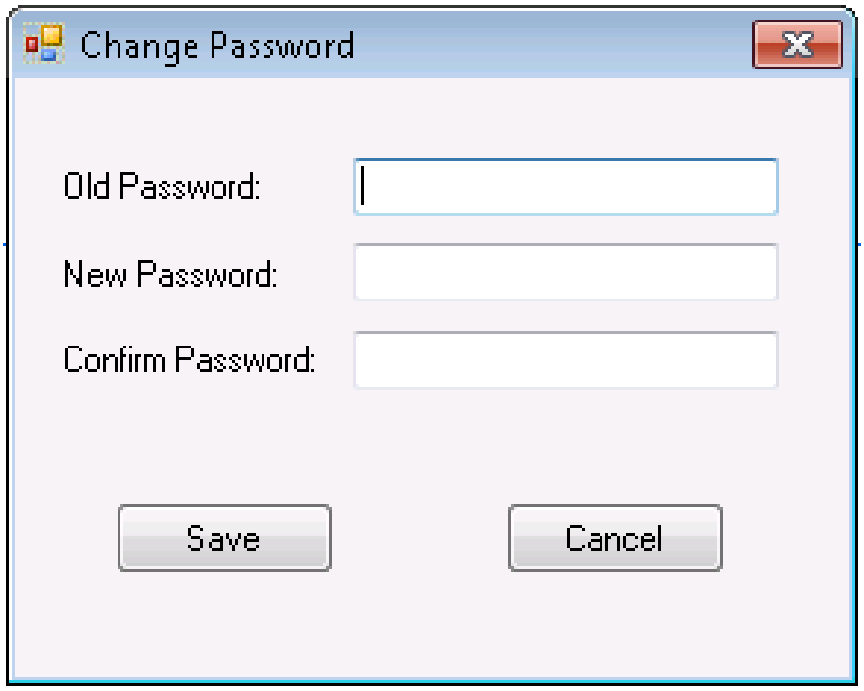
Changing the User Password

To change a user's password, first click the **Change Password** button in theUser Info window.

Next, type in the user's old password in the Old Password text field.

Type a new password in the New Password text field. Confirm the new password by typing it again in the Confirm Password field.

Figure 44 The Change Password Dialog Box



Binding an SCL Version to a Model

At some point, the SCL data must be merged into a model. This process is called “binding.”

Access the Binding tool by looking under the **Others** tab on the CGDS - Substation Workbench User Interface. Scroll down until you encounter the **Bind** command.

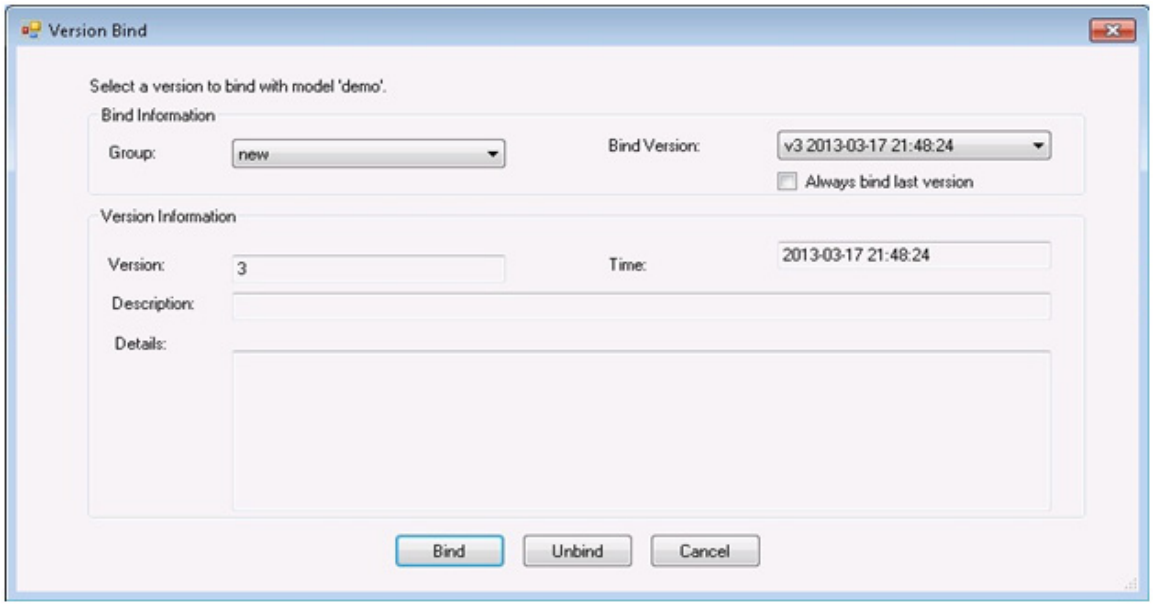
This will open the Version Bind dialog box. Use this box to perform bindings.

Access the correct version by adjusting the Group Selector tool and the Bind Version Selector tool.

You can also enter descriptions and details.

Use the **Bind** and **Unbind** tools to complete or abandon the binding process.

Figure 45 The Version Bind Dialog Box Allows Creation and Abandoning of Binds

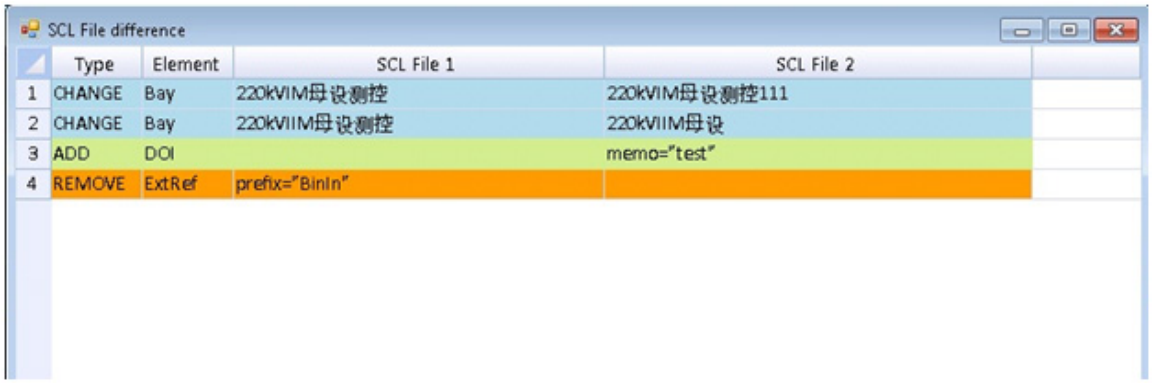


Finding Differences Between SCL Files

There are occasions when it is necessary to determine differences between SCL Files. Use the SCL File Difference Command for this function.

Highlight two SCL files, and run the tool. Differences between the two will be summarized in a table.

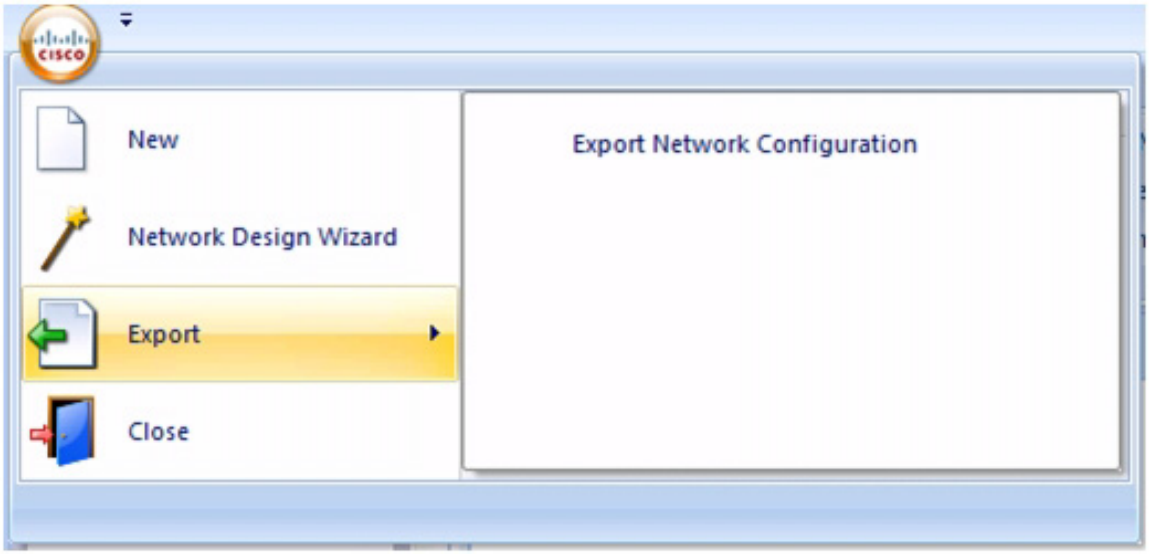
Figure 46 Comparing Two SCL files To Detect Differences Between Them



Exporting a Network Configuration Using XML Format

The SCLs used in CGDS - Substation Workbench and companion products can be shared with other users, even if those users are not in the same facility. This is done by using the **Export** command to create an XML version of network configuration, which can be shared with others.

Figure 47 The Export Configuration Command



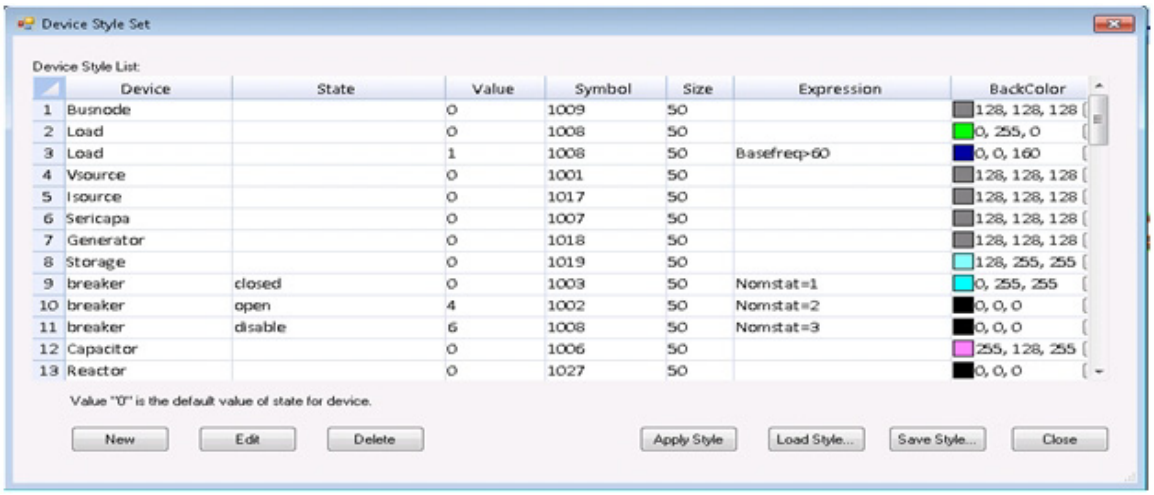
Setting the Style for IEDs In The Network

Use the user interface **View** command, followed by the **Style Set** command, to access the tools needed to customize the appearance of an IED in your network.

User can change the device size, color, and symbol, and apply this to the model.

In CGDS - Substation Workbench Release 1.0, the style settings apply only to IEDs.

Figure 48 The Style Setting Tool for Network Objects



This completes the configuration of the Administrator role of CGDS - Substation Workbench.