Honeywell

Experion PKS
Switch Configuration Tool Users Guide

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Disclaimer

Contents

1 About this guide

This guide describes the user interface of the Switch Configuration Tool and provides an overview for configuring switches using the tool. It describes the tasks to create new switch configuration, open an existing switch configuration, generate text files from the switch configuration, and load the new switch configurations to the switches. It also briefly describes about creating and saving projects using the tool.

Revision history

Revision	Date	Description
A	February 2015	Initial release of the document

2 About Switch Configuration Tool

The Switch Configuration Tool can be used for performing the following:

- Configuring Honeywell-qualified Cisco switches
- Creating and generating switch configuration files
- Loading the switch configuration files into Honeywell-qualified Cisco switches

You can also use the tool to select the node and switch types to define custom switch configurations with the same security and QOS settings as the templates found in the FTE driver directory of an Experion release.

Related topics

“Honeywell-qualified Cisco switches ” on page 8
“Supported Experion nodes” on page 10

2.1 Honeywell-qualified Cisco switches

This tool supports the configuration of the following Honeywell-qualified Cisco switches.

No	Description	Honeywell part no	Cisco part no	No. of ports	Uplink only	Level 1	Level 2	Mixed	Split
1	Cisco Catalyst 2950-48 G	NE-SW248G	WS-C2950G-48	50		X	X	X	
2	Cisco Catalyst 2950-24 G	NE-SW224G	WS-C2950G-24	26		X	X	X	
3	Cisco Catalyst 3550-12G	NE-SW312G	WS-3550G-12	12	X				
4	Cisco Catalyst 3550-24FX	NE-SW324F	WS-3550FX-24	26	X				
5	Cisco Catalyst 3750-12G (Stackable up to 9 switches)	NE-SW312S	WS-C3750G-12S-S	12 Up to 108	X		X		
6	Cisco Catalyst 2955-12C	NE-SW512C	WS-C2955C-12	14		X	X	X	
7	Cisco Catalyst 2960-48G	NE-SW224S	WS-2960-48-TS-S	50		X	X	X	X
8	Cisco Catalyst 2960-24G	NE-SW248S	WS-2960-24-TS-S	26		X	X	X	X
9	Cisco Catalyst 2960-48T	NE-SW248T	WS-2960-24TT-L	26		X	X	X	X
10	Cisco Catalyst 2960-24T	NE-SW224T	WS-2960-48TT-L	50		X	X	X	X
11	Cisco Catalyst 3560-24TS	NE-SW324S	WS-3560-24-TS-S	26		X	X	X	X
12	Cisco IE3000-8TC	NE-SW508S	IE3000-8TC	Up to 26		X	X		X
13	Cisco IE 3000-4TC	NE-SW504S	IE3000-4TC	Up to 22		X	X		X
14	Cisco SFE2000	_	SFE2000	28		X	X		
15	Cisco Catalyst 3560V2	NE-SW3242S	3560V2-24TS-S	26		X	X	X	X

No	Description	Honeywell part no	Cisco part no	No. of ports	Uplink only	Level 1	Level 2	Mixed	Split
16	Cisco Catalyst 3750X-12S	NE-SW312X	3750X-12S-S	12 Up to 108	X		X		
17	Cisco Catalyst 2960+-24	NE-SW224P	WS-C2960+24 TC-L	26		X	X	X	X
18	Cisco Catalyst 2960+-48	NE-SW248P	WS-C2960+48 TC-L	50		X	X	X	X
19	Cisco Catalyst 2960X-24	NE-SW24G1	WS-2960X –24–TS-L	28	X		X		

The available configuration selections are based on the Honeywell-recommended usage and best practices for the specific switch model. Refer to the latest *Experion Network Best Practices* document for more information.

Attention

The tool cannot be used for downloading the configuration for the Cisco SFE 2000 switch.

2.2 Supported Experion nodes

Switch Configuration Tool can be installed on the following nodes.

- Experion Flex station (ES-F)
- Experion Console station (ES-C)
- Experion Console station-TPS (ES-T)
- Experion Console Extension station (ES-CE)
- Application Server (EAS)
- Experion Server (ESV)
- eServer
- Experion Server TPN Connected (ESVT)

Nodes such as Experion Application node (E-APP), Application Control Environment (ACE), and Application Control Environment-TPS (ACE-T) are not supported.

3 Installing Switch Configuration Tool

Related topics

“Software requirements” on page 12
“Install Switch Configuration Tool” on page 13

3.1 Software requirements

The Switch Configuration Tool can be installed on a computer running the following operating system.

- Microsoft Windows XP
- Microsoft Windows 7 Professional
- Microsoft Windows Server 2008 Standard
- Microsoft Windows Server 2008 R2

The tool is qualified for use with Experion R430 or higher releases. However, it can be used for configuring switches for Experion R3xx, R400.x, and R410.x releases.

3.2 Install Switch Configuration Tool

With Experion R430, the Switch Configuration Tool is installed as part of the Experion installation process. However, for Experion R3xx, R400.x, and R410.x releases you must manually install the tool.

For TPN R685 or higher releases, the tool can be installed using the *Utilities and Load Module* (ULM) media.

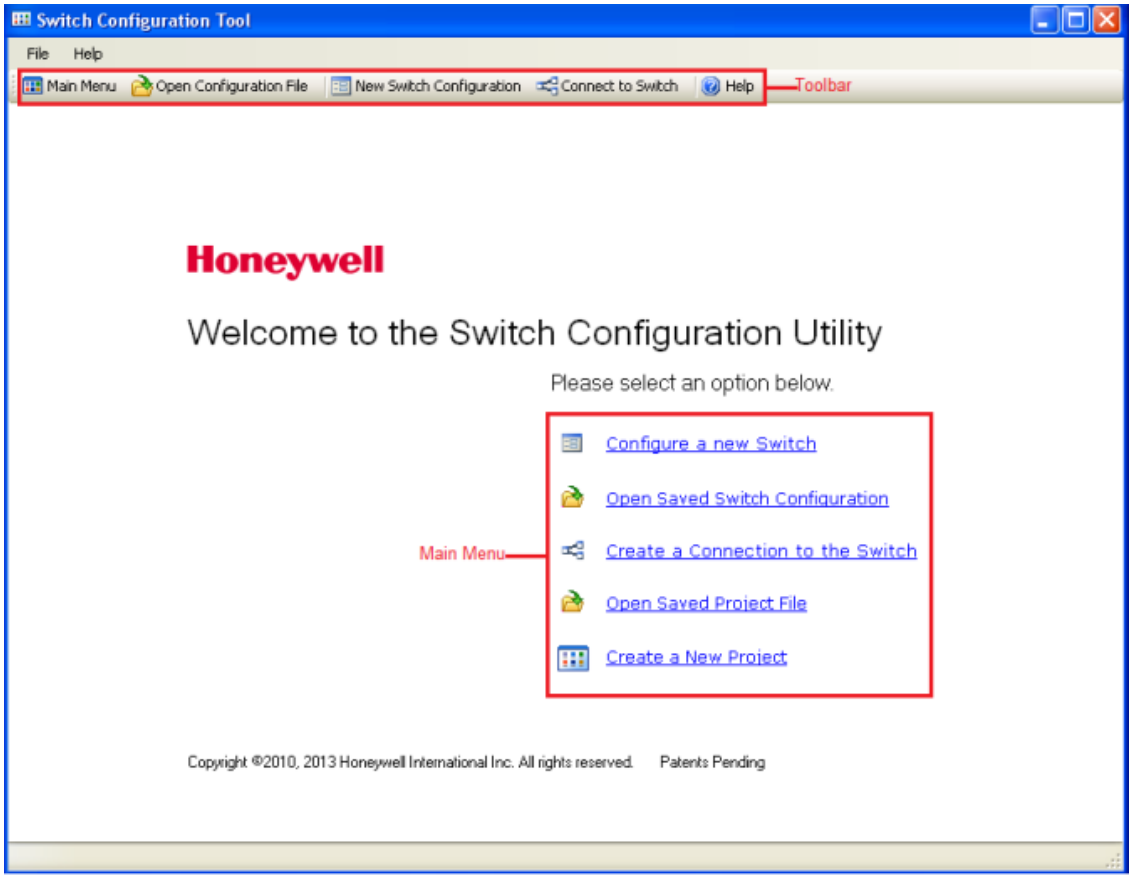
4 Overview of Switch Configuration Tool

Related topics

“Layout of Switch Configuration Tool” on page 16
“Switch type ” on page 19
“Template selection” on page 22
“Select port configuration” on page 26
“Switch configuration form” on page 27

4.1 Layout of Switch Configuration Tool

When you open the Switch Configuration Tool, the **Welcome to the Switch Configuration Utility** window appears.



Following options are available on the **Welcome to the Switch Configuration Utility** window.

- Toolbar
- Main Menu

4.1.1 Toolbar

The toolbar provides quick access to commonly used commands. Following table lists the options available on the toolbar.

Options	Description
Main Menu 	Displays the **Welcome to the Switch Configuration Utility** window, where you can select the Main Menu options.

Options	Description
Open Config Files 	Opens previously saved switch configuration files.
New Switch Configuration 	Creates new switch configurations.
Connect to Switch 	Creates a serial or telnet connection to a switch. Use this option to connect to a switch and copy the switch text file to the running configuration of the switch.
Show Help File 	Displays the help file of the tool.

4.1.2 Main Menu options

The Main Menu lists the tasks that can be performed by using the tool. Following are the Main Menu options:

- **Configure a new Switch**: This option is used for creating a new switch configuration.
- **Open Saved Switch Configuration**: This option is used for opening any previously saved switch configuration file.
- **Create a Connection to the Switch**: This option is used for creating a serial or a telnet connection to a switch and loading the switch with new configurations.
- **Open Saved Project File**: This option is used for opening any previously saved project.
- **Create a New Project**: This option is used for creating a new project.

4.1.3 Terms and definitions

The following terms and definitions are used throughout this document.

Terms	Definitions
Switch	The physical hardware device where a switch text file is downloaded.

Terms	Definitions
Switch configuration form	The user interface representation of the core switch parameters. The switch configuration form presents the user with a set of property pages that can be used for configuring the switch. The contents of the property pages can be saved as a Switch configuration file. For more information about the Switch configuration form, refer to the section “Switch configuration form” on page 27.
Switch configuration file	The physical file that saves the users inputs in the Switch configuration form.
Switch Text File	Text generated via the Switch configuration form that can be downloaded to the Switch.

4.2 Switch type

This section describes the different ports available for each of the switch types. You can view the available switch configurations after selecting a specific switch type.

4.2.1 Level 1 switch type

Level 1 switch is used for controller-level connections. The uplink to a router and top switch options are not available, as a Level 1 switches cannot be the top switch. Honeywell recommends the following Fast Ethernet port configurations.

- L1 Uplink and Fast Ethernet ports are used for connecting another switch for an uplink connection only.
- The Honeywell FTE Bridge (FTEB) is used for connecting C200 and FIM controllers.
- Safety Manager supports Level 1 connection for Honeywell Safety Manager or FSC.
- Other 10 Mbps (megabit per second) connections.
- Modbus Firewall supports the settings for Honeywell Modbus TCP Firewall connection through Level 1 connection. It includes Modbus ReadOnly Firewall device connection, 51154724-100, and 51154724-200.
- Other auto connections use other devices such as Modbus bridges and Modbus TCP devices that require an auto-negotiate Ethernet configuration to connect.

Level1 low cost switches

In addition to the standard Level1 devices, Level1 low cost switches such as Cisco SFE 2000 supports C300, FIM4, and FIM8.

Support for EUCN

IE3000 switches on EUCN supports EHPM and ENIM node types.

4.2.2 Level 2 switch type

Level 2 switch is for nodes defined as Level 2 nodes as in the best practice document, such as server and clients computers. Honeywell recommends the following while connecting Fast Ethernet port configurations.

- L2 Uplink and Fast Ethernet ports are designated for connecting another switch for an uplink connection only.
- One Wireless Firewall supports the special settings for One Wireless multimode connections.
- Modbus Firewall supports the settings for Honeywell Modbus TCP Firewall connection through a Level 2 connection. It includes Modbus ReadOnly Firewall device connection, 51154724-100, and 51154724-200.
- ACE: Fast Ethernet port can be configured for ACE nodes such as ACE-T and EHG.
- Honeywell Control Firewall (CF9).
- Console: Fast Ethernet port can be configured for Console stations such as Experion station and TPS station.
- Flex: Fast Ethernet port can be configured for Flex station which includes client node types such as Experion Flex station.
- Server: Fast Ethernet port can be configured for Experion servers, TPS server, and other server types such as EHG.
- Safety Manager L2 or Safety supports a Level 2 connection for Honeywell Safety Manager.
- Other 100 Mbps Fast Ethernet port configurations can include other client node types such as OPC servers.
- Other Auto includes any node type that require an auto-negotiate.
- VM – Gigabit Ethernet Level 2 connection configured to support ESXi Server connections of the Virtual Machines specifically for the 2960X switch type.
- DVM – Gigabit Ethernet Level 2 connection configured to support Digital Video Monitor level 2 connections specifically for the 2960X switch type.

If you are unsure of the node connection type for Level 2, select other 100 Mbps and ensure the node is configured for 100 Mbps and full duplex before connecting to the switch.

Special Considerations for 2960X-24

All L2 Uplinks are specified as 100 MB/S, use Auto selection for 1 Gb/S operation which is suggested between switches.

4.2.3 Uplink-only switch type

The Uplink-only switch is used at the top of the FTE network tree where other switches and router are usually connected. There are different selections for uplinks based on the switch model. Honeywell recommends the following Fast Ethernet port configurations.

- Auto is the connection type selection available for 3550-12 Uplink-only switch.
- L2 Uplink is used when another Level 2 or Level 1 switch is connected.
- One Wireless Firewall supports the special settings for One Wireless connections.
- Modbus Firewall supports the settings for Honeywell Modbus TCP Firewall connection and includes Modbus ReadOnly Firewall device connection, 51154724-100, and 51154724-200.
- 100FX L2 Uplink option is visible only on 100FX connections such as the 3550-24-FX switch. This is 100 Mbps multimode fiber connections.
- CF9 is used for a 100FX connection to a CF9 with the 100FX fiber module installed.
- Router Auto option is available only if the switch is connected to a router and the configuration **Uplink to Router** is selected.

Attention
2960 switches do not allow the speed/duplex to be set to anything other than AUTO on the SFP/RJ45 interfaces.

Special considerations for 3550-12

The 3550 -12 is typically used top level configuration. Either 1 GB fiber GBICs or 1 GB Copper GBICs are used in ports 1-10. The speed and duplex for these connections is 1 GB and is not changeable. Ports 11 and 12 are standard RJ45 connections that can be modified to support 100 Mbps L2 Uplink or 1 GB connections.

Special Considerations for 3550-24-FX

This switch has only 24 100 FX MJRT fiber connections and 2 GBIC connections. This switch is typically used as a top level switch. It can be used as a connection point for CF9s with the 100FX MJRT Fiber module installed.

Special Considerations for 3750-12 and 3750x-12

In order to set the speed/duplex of a 3750/3750X SFP interface, the SFP such as GLC-T and so on must be inserted. The 3750/3750X switch is used as a “backbone” switch in most systems. It has a special configuration as an all uplink switch. The 3750 has the ability to be stacked up to nine. The level in the stack must be chosen. The 3750-12/3750x-12 only has SFP interfaces so there is no Fast Ethernet tab.

The ports for the stacked configuration can be labeled 1-108, but in the generated switch file the interface number appears as “interface GigabitEthernetN/0/1-12” where N is the stack position of the individual switches.

The following port selections are unique for the 3750-12/3750x-12 switch Uplink-only.

- Auto Copper provides connection using a SFP connection such as GLC-T and so on with auto-negotiate active
- Auto Fiber provides connection using a SFP connection such as GLC-SX-MM with auto-negotiate active
- 100 mb Copper provides connection using a SFP connection such as GLC-T with speed set to 100 Mbps and Duplex Full

- 100 mb Fiber provides connection using a SFP connection such as GLC-GE-100FX
- Gb Uplink provides connection using a SFP connection such as GLC-T and so on with speed set to 1 Gbps and Duplex Full
- Uplink provides connection using a SFP connection such as GLC-T and so on with speed set to 100 Mbps and Duplex Full
- Router 1 Gb provides connection using a SFP connection such as GLC-SX-MM or GLC-T and so on with speed set to 1 Gbps
- Router 100 Mb, Router uplink provides connection using a SFP connection such as GLC-T and so on with speed set to 100 Mbps and Duplex Full

4.2.4 Mixed switch type

Mixed is a legacy configuration for combining Level 1 and Level 2 nodes on the same switch. It must only be used for replacing existing mixed switches. You need not generate new configurations using the mixed selection. If a backward compatible solution is desired, the mixed configuration is available. The procedure is similar to the Level 2 configuration except the number of Level 1 nodes is selected, when the number of uplinks is selected. The Level 1 nodes have different node selections from the Level 2 nodes in the Fast Ethernet tab. The uplink to router is grayed out for this switch.

The available Honeywell configurations are all of Level 1 and all Level 2 node types. A mixed configuration does not support connection directly to a router. Mixed switches must not be connected to a router.

4.2.5 Split switch type

New applications of Level 1/Level 2 combinations must choose split configuration. The split switch is the preferred way to have both Level 1 and Level 2 nodes on the same switch. The split requires a crossover cable to connect the sides together. The position of the crossover cable depends on how many Level 1 nodes are selected at the time the number of uplinks is selected. The place for the crossover cable is indicated in the description field of the text file that is generated using the button at the top of the frame. Node types are again color coded for uplink, Level 1, and Level 2 switch types.

You can select the switch type as split only for the following switch models.

- 2960
- 2960Plus
- 3560
- IE3000

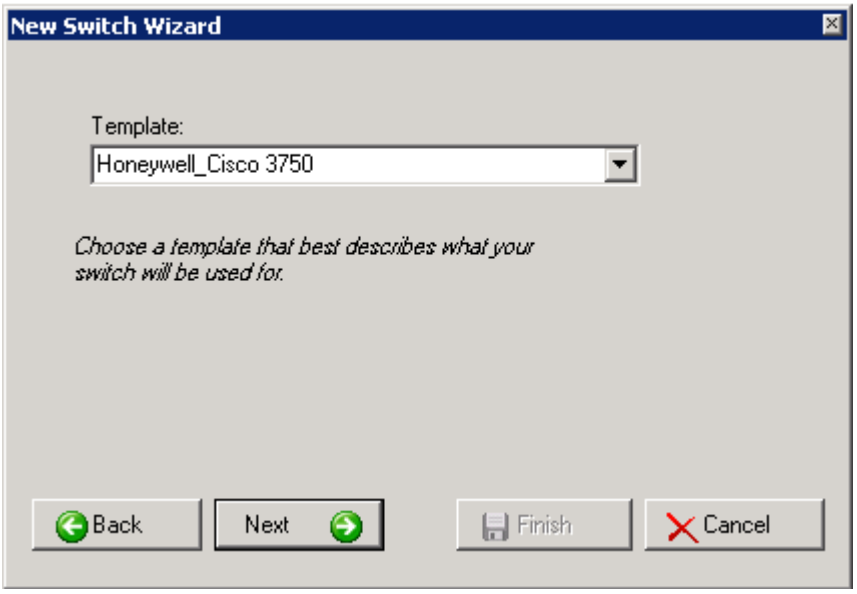
The Honeywell configuration supports connecting all Level 1 and Level 2 node types. A split configuration does not support connection directly to a router. This configuration must be configured manually.

The split switch type is recommended for configurations, where both level 1 and 2 are to be connected to the same switch, this is the preferred configuration over selecting a mixed switch configuration.

4.3 Template selection

Using the Switch Configuration Tool you can perform switch configuration by providing some general information and completing a few straightforward forms. Honeywell provides a set of default templates with the recommended settings for all qualified switches and connected node types. These templates are used in combination with user input to complete an uploadable switch configuration file.

You must select the Honeywell template for all switch models and levels. For example, in the following image, if you select 3750 as the switch model, the *Honeywell_Cisco 3750* is the Honeywell template available in the Template list.



Usually, there is only one template selection for each switch module. If you have created a customized switch template, you can open the template and include it to the template list.

4.3.1 Managing templates

The Switch Configuration Tool chooses a template based on the switch model and level in which you want to place the switch. A switch template file (.stml) is basically a text file with keywords that are used for generating the resulting switch configuration file. The template can have a section of lines that are directly translated into the configuration text file. In addition, it can have parsed sections that are compiled into a switch configuration text file. Following is an example template.

```
!
$INCLUDE "Validation.stml"
no service pad
service tcp-keepalives-in
!
mls qos
!
class-map match-all cda_urgent
match access-group 102
!
```

```
policy-map multicst
class cda_urgent
set dscp ef
police 2000000 32768 exceed-action drop
set dscp cs3
!
ip igmp snooping
!
spanning-tree mode mst
!
no errdisable detect cause loopback
vtp mode transparent
!
spanning-tree mst configuration
name L1L2355024
revision 1
$IF VLAN1
instance 1 vlan 1
instance 2 vlan 2
$ENDIF
```

Although the above example does not reflect a real template is , but it does show how compiled sections (*$INCLUDE*; *$IF VLAN1*; and *$ENDIF*) can be embedded into the file for processing.

These sections are parsed by the template compiler to produce the desired output. The parser looks for special tags in the template that are defined with the "$" start tag and the end tag. An item in between these tags are "injected" into the template if any conditionals are meet in the start tag element.

Note the templates use a simple syntactical set of tokens. It does not provide general scripting capability such as variable definitions, user functions, and so on. There is only one type for constants which is the string type. For logical expressions, the string type automatically converts to an internal Boolean representation for case insensitive strings of "TRUE" and "ON" as true. All other values would be false.

Statements

The following statements can be used within switch templates.

Statement	Description
$IF [Expression]	The IF tag can be used for inserting text based on the result of the conditional expression of the IF statement. *$IF VLAN1* *// Do Something* *$ENDIF* String values that return a "true","on","off","false" are tested as a Boolean condition. Other string variables are tested to see if they are filled in or not.

Statement	Description
$FOREACH [Iteration]	Looping mechanism for the template. Each collection item in the iteration is evaluated. See iteration elements below. *$FOREACH NODEINTERFACE* *// Do Something* *$ENDFOR*
$REM	Used for indicating a remark statement to the end of line that is not included in the final output.

Expressions

The following are valid expressions for the template files:

Expression	Description
==	Compare two variables or identifiers.
+	Concatenates two strings.
Variable	Evaluates a variable identifier.
System Function	The result of a system function call.

Iteration Objects

The following iteration elements can be used in a $FOR statement.

Iteration Element	Description
NODEINTERFACE	The node interfaces (L1,L2,Uplinks).
GBICINTERFACE	The GBIT interfaces.

4.3.2 Functions

You can use the following system functions.

Function	Parameters	Description
$INCLUDE [String]	String path for include template	Includes a template file into the current template. The new template file is parsed. Include files must be at the same folder level as the root template directory, the individual switch directory or the binaries.
$PASTE [String]	String expression	Inserts the results of the expression into the file.
NOT [Expression]	Expression that evaluates to true or false.	Use the NOT statement to test for exclusion.
GETNODEDESC([String])	String expression that can be evaluated to an integer.	Returns an interface description. If iterating the interfaces pass in the ITERATIONELEMENT as a parameter.
GETNODETYPE([STRING])	String expression that can be evaluated to an integer.	Returns the node type. If iterating the interfaces pass in the ITERATIONELEMENT as a parameter.
GETGBICDESC([STRING])	String expression that can be evaluated to an integer.	Returns the GB description. If iterating the interfaces pass in the ITERATIONELEMENT as a parameter.
GETGBICSPEED([STRING])	String expression that can be evaluated to an integer.	Returns the GB port. If iterating the interfaces pass in the ITERATIONELEMENT as a parameter.

Function	Parameters	Description
SHOWMSG([STRING])	String expression	Displays a message box to the user.

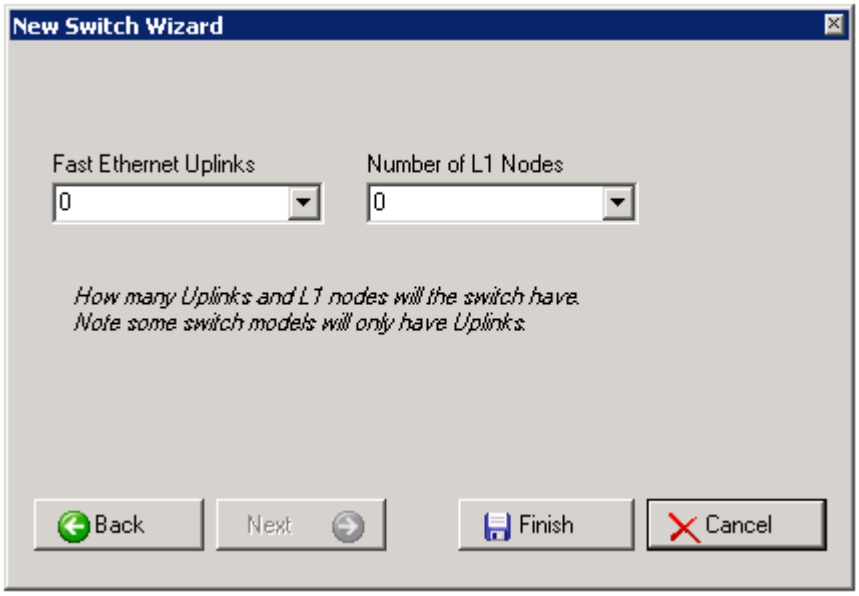
Variables

The following variables are pre-defined.

Variable	Description
$ITERATIONELMENT	The current iteration element. Numerical value.
$IPADDRESS	The IP Address
$SWITCHMODEL	The model name of the switch
$SWITCHLEVEL	The level of the switch. Possible types are: • Level 1 • Level 2 • Mixed • Split
$VLAN1	“TRUE” if VLAN 1 is selected, otherwise “FALSE”. Can be used with IF statement.
$OVLAN	Other VLAN value.
$SUBNET	Subnet Mask Value
$BANNER	Banner Text
$GATEWAY	Default Gateway
$NUMINTERFACES	The total number of interfaces available for the switch.
$NUMINTERFACESCONFIGURED	The total number of interfaces configured for the switch. That is interfaces that are not shutdown.
$NUMGIGABIT	The total number of GBIC interfaces configured for the switch.
$YELLOW	Yellow FTE Configuration
$GREEN	Green FTE Configuration
$TOPLEVEL	Top Level Configuration
$HOSTNAME	Host Name
$ROUTERIPADDRESS	Router IP Address
$ROUTERSUBNET	“TRUE” if To Router is selected, otherwise “FALSE”. Can be used with IF statement.
$TOROUTER	“TRUE” if To Router is selected, otherwise “FALSE”. Can be used with IF statement.
$ROUTERSPEED	Router Speed. Only valid when GBIC port used.
$SNMPPRIMARYHOST	SNMP Primary Host
$SNMPSECONDARYHOST	SNMP Secondary Host
$SNMPLOCATION	SNMP Location
$SNMPCONTACT	SNMP Contact
$SNMPPRIMARYCOMMUNITY	SNMP Primary Community
$SNMPSECONDARYCOMMUNITY	SNMP Secondary Community

4.4 Select port configuration

You can select the number of Fast Ethernet Uplinks and Number of L1 Nodes required for configuring the switch. Level 2 ports are determined by the number of Uplink and Level 1 ports selected.



4.4.1 Fast Ethernet Uplinks

Fast Ethernet Uplinks lists the number of ports associated with the switch module selected. Select the number of fast Ethernet uplinks required for your configuration. That is, a 2u_2960_24 configuration (supplied Honeywell configuration with FTE Driver) would select 2 Fast Ethernet uplinks and the level 1 selection grays out.

For level 2 switches, such as, 2960 and 3560 that are required to be uplink only, select all of the available ports in the fast Ethernet uplink list to make these an uplink only switch.

The ports allocated to be Fast Ethernet Uplinks would have only the connection types as listed in Uplink Only section above.

4.4.2 Number of L1 Nodes

This lists the number of ports associated with the switch module selected. Select the number of Level 1 nodes required for your configuration. That is a 2u_810_2960_24 configuration (supplied Honeywell switch configuration files with FTE Driver) would select 2 Fast Ethernet uplinks and the level 1 selection will be selected as 8, the remaining 14 ports being assigned to Level 2.

The ports allocated to be Level 1 will have only the connection types as listed in Level 1 section above.

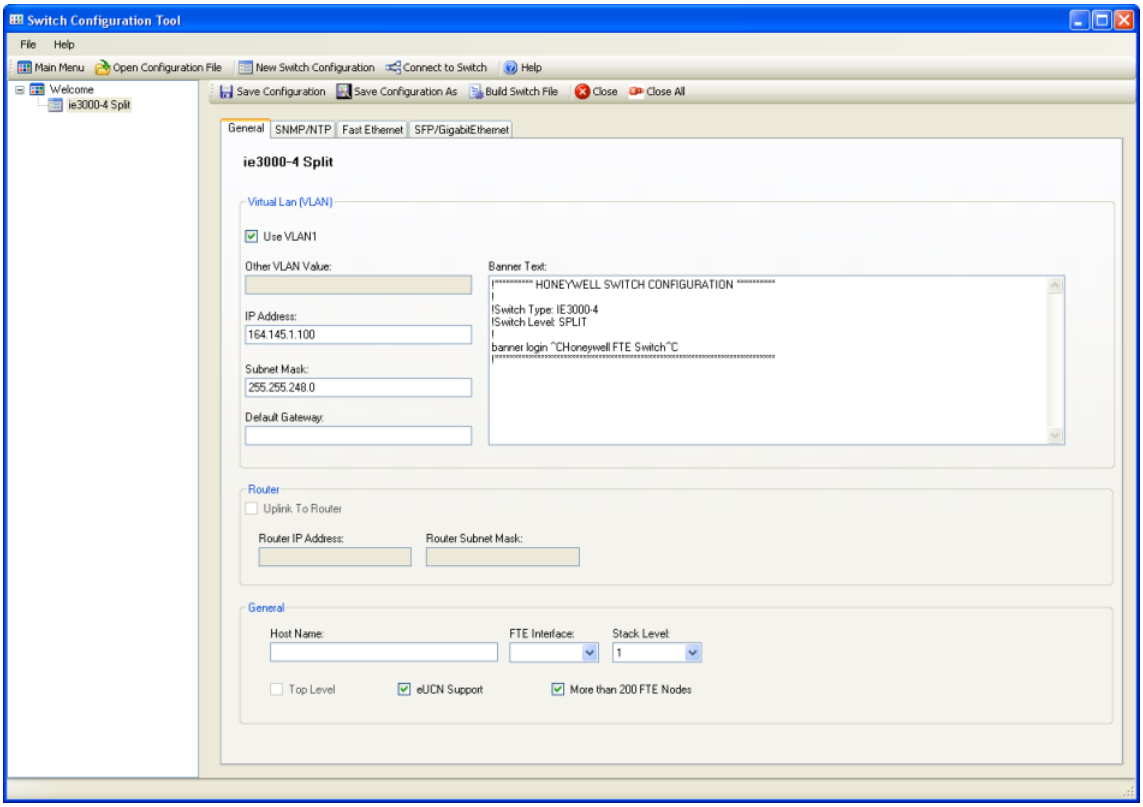
4.5 Switch configuration form

You can use the switch configuration form for setting the general properties of a switch and to configure the nodes and GBIC ports for a switch. The configuration form consists of a tool bar and the following four tabs.

- General
- SNMP/NTP
- Fast Ethernet
- SFP/Gigabit Ethernet

Only for 3550-24FX switches, the *Fiber* tab appears.

The following image illustrates the switch configuration form.



4.5.1 Toolbars in switch configuration form

The following image illustrates the options available on the toolbar in switch configuration form.

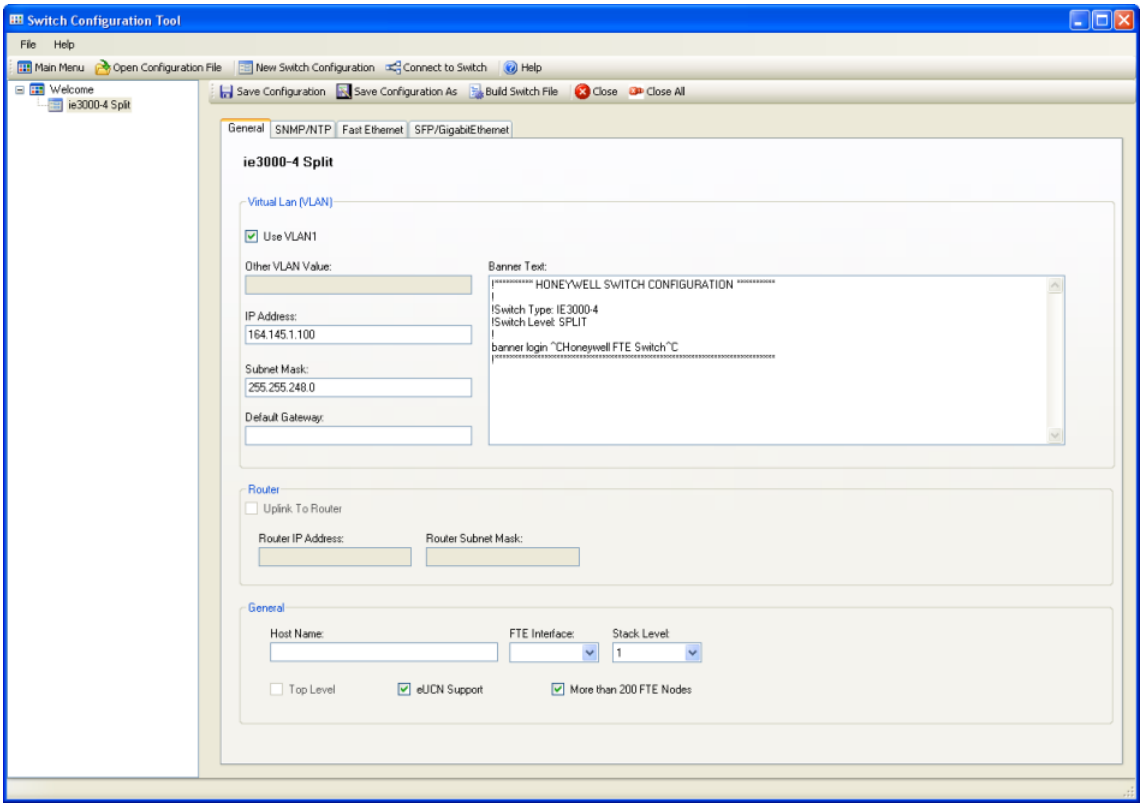
The following table lists the options available on the switch configuration form toolbar.

Options	Description
Save 	Used for saving the form settings as a switch (*.sfl) file.

Options	Description
Save Configuration As	Used for saving the form settings with a different name in a the same file extension/file format.
Generate Text File	Used for generating a text file and downloading it to the physical switch or device.
Close Form	Used for closing the current form and removing the connection from the project explorer.
Close All Forms	Used for closing all the forms and removing the connection of all the forms from the project explorer.

4.5.2 General tab

You can configure the overall features of the switch in the General tab. The following image illustrates the General tab.



The following table summarizes the options available on the General tab.

Options	Description
IP Address	TCP IP address of the switch, used for switch access and SNMP designation.
Subnet Mask	Enter the Subnet Mask for the switch

Options	Description
Use VLAN1	Use VLAN1 , if no other VLAN is defined on this network. To use an other VLAN, clear this check box and enter a VLAN in the "Other VLAN Value" entry port.
Other VLAN Value	VLAN Designation for the Network (that is 101) other than the default of VLAN1. Must be the same for all switches in this network.
Uplink to Router	Select if the switch is the TOP LEVEL connection, connected directly to the router. Note: this option is disabled for 2950 and 2955 switches.
Top Level	Select if the switch is at the TOP LEVEL of network tree, select the **Uplink to Router** check box, if this switch is also connected to a router.
Router IP Address	Router IP Address, this is usually the same as default gateway address. Note: this option is disabled for 2950 and 2955 switches.
Router Subnet Mask	Enter the Subnet Mask for router connection. Note: this option is disabled for 2950 and 2955 switches.
Default Gateway	Default gateway address is the router address that provides an access point to other networks. This can be the router address.
Banner Text	Place any command or comment (proceeded by !) that this tool does not provide an interface for. Edit Banner command for custom telnet banner.
Host Name	Enter String that appears for this switch (for example, C2960-FTE-Green).
FTE Interface	Select Yellow or Green for the FTE Interface side this switch is to be connected.
Stack Level	Select the number of switches configured in the switch stack. Note: Use this option only for Cisco 3750 and 3750x switches.
eUCN Support	Select if you want to configure eUCN (eNIM, eHPM) ports for this switch. For select switches only.
More than 200 FTE nodes	Select if the Experion system for which this switch is configured have more than 200 total FTE nodes.

The explanation for the various options on the General tab are as follows:

Virtual Lan (Vlan)

If this community uses VLAN1 for the switches, then no action is needed. The VLAN1 check box is selected by default.

If another VLAN, for example, VLAN101 is used, then clear **Use VLAN1** option. In **Other VLAN Value** field, type a number; in this example enter 101.

You can also configure the VLAN IP address, or management address of the switch. The default VLAN IP address, but you must change it to a unique address for this switch. For example, enter 10.0.1.101. The subnet mask must be configured to enable access to and from the SES server in the Experion system. It is recommended to make it match the server's mask. The default gateway is optional and must be used only if the NTP server or SNMP server is outside of the subnet mask configured previously.

Attention

For **Split Switch Types** the VLAN configured in the General tab applies to the level 2 side of the split, which includes the uplinks. The level 1 side defaults to "vlan 2" If "vlan 2" is already in use or the desired vlan for the Level 2 side, this can be changed by hand in the generated text.

Banner Text

The Banner Text window is used for any custom configuration items or boilerplate text, such as security warnings that the user's IT department may require. Router configuration commands must be entered here. In addition, you can enter the commands for other security settings required for the switches only if they are different from the preprogrammed security items.

A default Telnet login banner is supplied in the Banner text field on the general tab of any switch. In order to modify the banner text, replace the “Honeywell FTE Switch” text with any custom text. For example, the switch type could be added.

banner login ^C2960-24^C

Or a proprietary equipment notice:

banner login ^CWarning! This is proprietary Honeywell network equipment. Unauthorized access is strictly prohibited ^C

Any commands or comments you enter is saved. These saved commands or comments are used when minor changes to the switches configuration are required without having to re-enter the commands for a minor switch change.

Attention

The banner that appears in a telnet session must indicate the switch type and tool release. A default login banner is supplied in the Banner text field on the general tab of any switch. The switch type can be entered in the banner by replacing the “Honeywell FTE Switch” text with the switch type, for example, 2960-24.

banner login ^CHoneywell FTE Switch^C

Router

The router frame enables optional configurations for a top level switch. If your switch is the top level switch (where the crossover cable exists) connected directly to the router, then this frame can be used for configuring a filter that guarantees the range of the Level 3 access to Level 2. This feature prevents multicast packets from entering the router.

Select the **Uplink To Router** check box, if you want to configure the filtering for Level 3 to Level 2 access. Otherwise clear this check box.

If this filter is desired, select the **Uplink To Router** check box and enter the router address (it may be the same as the default gateway) and the subnet mask desired to limit the range of addresses accessible from Level 3.

By selecting this check box, a “router” uplink type becomes available in the **Fast Ethernet** tab under uplink type and in the **SFP/GigabitEthernet** tab under the Speed drop down list. This port is configured as a standard uplink with the addition of the filter mentioned above.

Attention

This option is not available for the 2955-12, 2950-24 or 2950-48 switch models. The advanced filtering commands do not work on these models.

WARNING

Do not select this box for Mixed switch configurations even though this option is available it is not recommended for the Mixed switch type.

Attention

A problem exists with the Fast Ethernet and SFP selections if Mixed or Level 2 switch types are selected. If the **Uplink To Router** check box is selected, then for Level 1 and Level 2 port types a router selection is added. Do not select these options for level 1 or level 2 port types, the protection that is specific to these port types are not enabled.

General Frame

The general frame is used for configuring the host name, the usage of the switch (Yellow or Green) and the stack level, if it is a 3750 switch that is stacked. You can stack up to nine 3750 switches. Additional switch hardware and expert configuration of the 3750 to enable stacking is required.

Enter the host name of the switch, that is C2960-FTE-Green.

Select Yellow or Green for the FTE Interface and the stack level for 3750 switches only.

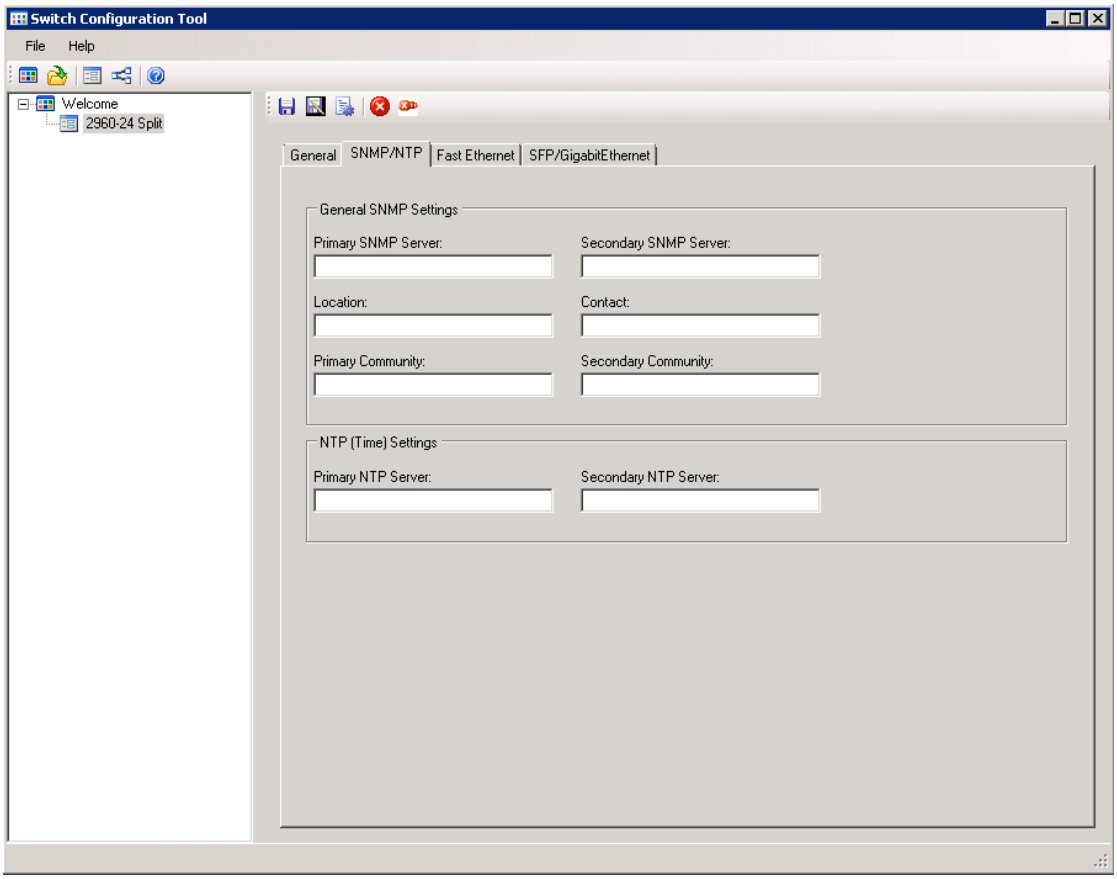
If this is a top level switch, select the **Top Level** check box. This adds the configuration for spanning tree priority for primary root for a Yellow switch and secondary root for a Green switch. This also enables the **Uplink To Router** check box.

4.5.3 SNMP/NTP tab

Use the SNMP/NTP tab for entering the Primary SNMP/NTP server address, that is the address of the Experion server set up to receive the traps. Enter the community name that matches the one in the Experion server in the Primary Community box. The default value in Experion Systems is set as public, use this value unless one has been defined for your system. The Secondary server is optional for a redundant server for SNMP traps and read-only access.

The Location and Contact boxes are optional information that may be entered if desired. The location and contact information is displayed on the CANE Switch Detailed display for this switch, if it is added to the CANE Network tree for the Experion System.

Following image illustrates the SNMP/NTP tab.



The following table summarizes the options available on the SNMP/NTP tab.

Options	Descriptions
Primary SNMP Server	Type the Server IP address of the Primary Experion SES server to receive SNMP trapped events from this switch.
Secondary SNMP Server	Type the Server IP address of either the Secondary Experion SES Server or another Experion SES to receive SNMP events from this switch.
Location	Type any text that helps to describe the location. The location information appears on the switch detail displays.
Contact	Type any text that gives required contact information. The contact information appears on the switch detail displays.

Options	Descriptions
Primary Community	Type the unique string that corresponds to how the switch detail displays are to access this switch's information for the Primary SNMP Server.
Secondary Community	Type the unique string that corresponds to how the switch detail displays are to access the information of the switch for the Secondary SNMP Server, leave blank for Redundant servers.
Primary NTP Server	Type the primary NTP server IP address of the network, if applicable.
Secondary NTP Server	Type the secondary NTP server IP address of the network , if applicable.

The following is a list of how the entries behave.

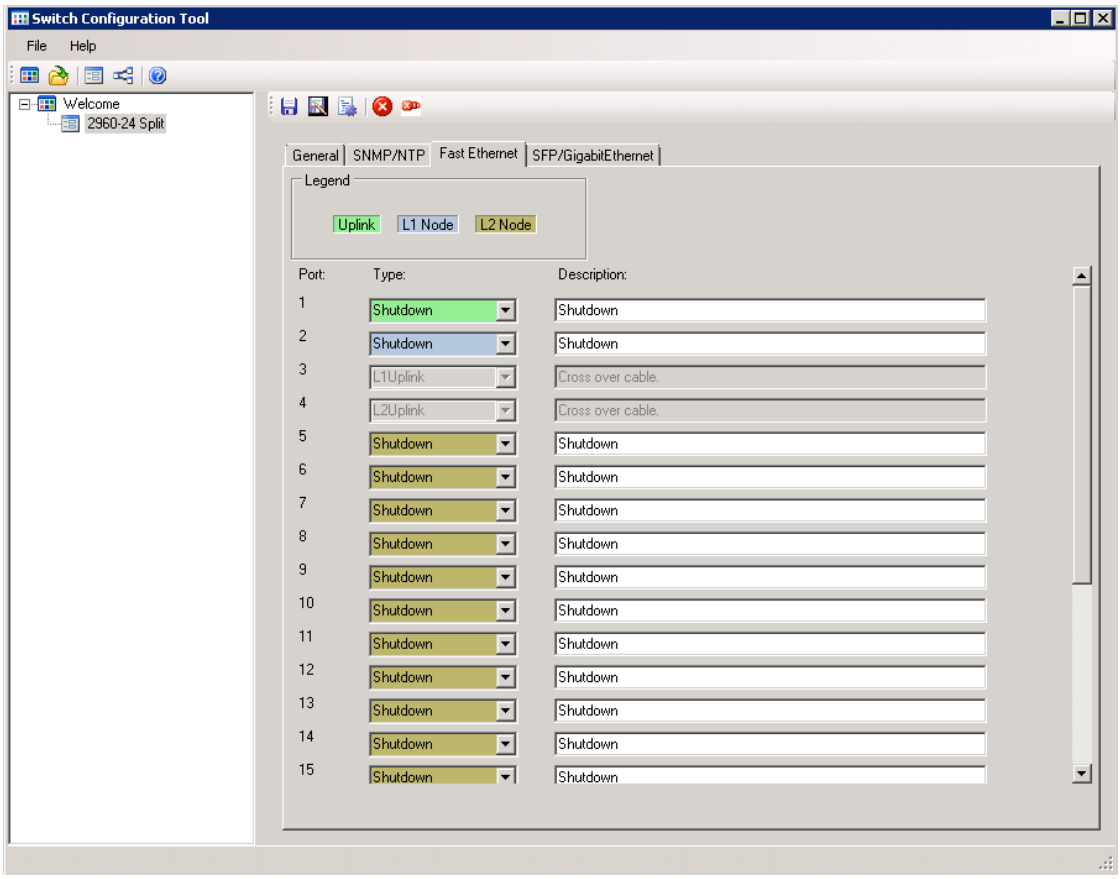
- If you type a primary host, then you must type a primary community.
- If you type a secondary host, the tool uses the primary community unless a secondary community is specified (a primary host is not required to specify a secondary host).
- If you type a primary community, the tool considers it as a RO community even if a host is not specified.
- If you type a secondary community, the tool considers it as a RO community even if a host is not specified (and currently even if a primary community is not specified).
- If you type the Primary NTP Server and the Secondary NTP Server, the tool synchronizes time among a set of distributed time servers and clients.

The NTP (Time) Setting is used for synchronizing time among a set of distributed time servers and clients. Type the Primary NTP Server and the Secondary NTP Server.

4.5.4 Fast Ethernet tab

You can used the Fast Ethernet tab for configuring the node types connected to the interfaces. The interface types are color coded for easy recognition. The color code appears under Legend. You can select the node type from the drop down boxes and enter a default description. Ensure to change the description to something more appropriate for the individual node. That way the configuration text can be printed out as a guide to the installer to know where to plug the cable to make the actual installation match the documentation.

The following image illustrates the Fast Ethernet tab.



Refer to the section “Switch type ” on page 19 for an explanation of the different port types available. All interfaces are automatically configured to shutdown if no node type is selected.

For IE 3000 Switches, the Port selections are numbered based on the expansion modules selected. You can select and add or change expansion modules as required. You cannot change the switch type selected, the uplinks go only to the number of uplinks selected initially. In addition, the number of L1 node also does not change except if you delete an expansion module. Note that, for split configuration deleting or changing the number of expansion modules can have undesired effects.

WARNING

Do not blank the description fields for the interfaces. This produces an error from the Cisco switch when the file is downloaded.

4.5.5 Fiber Tab

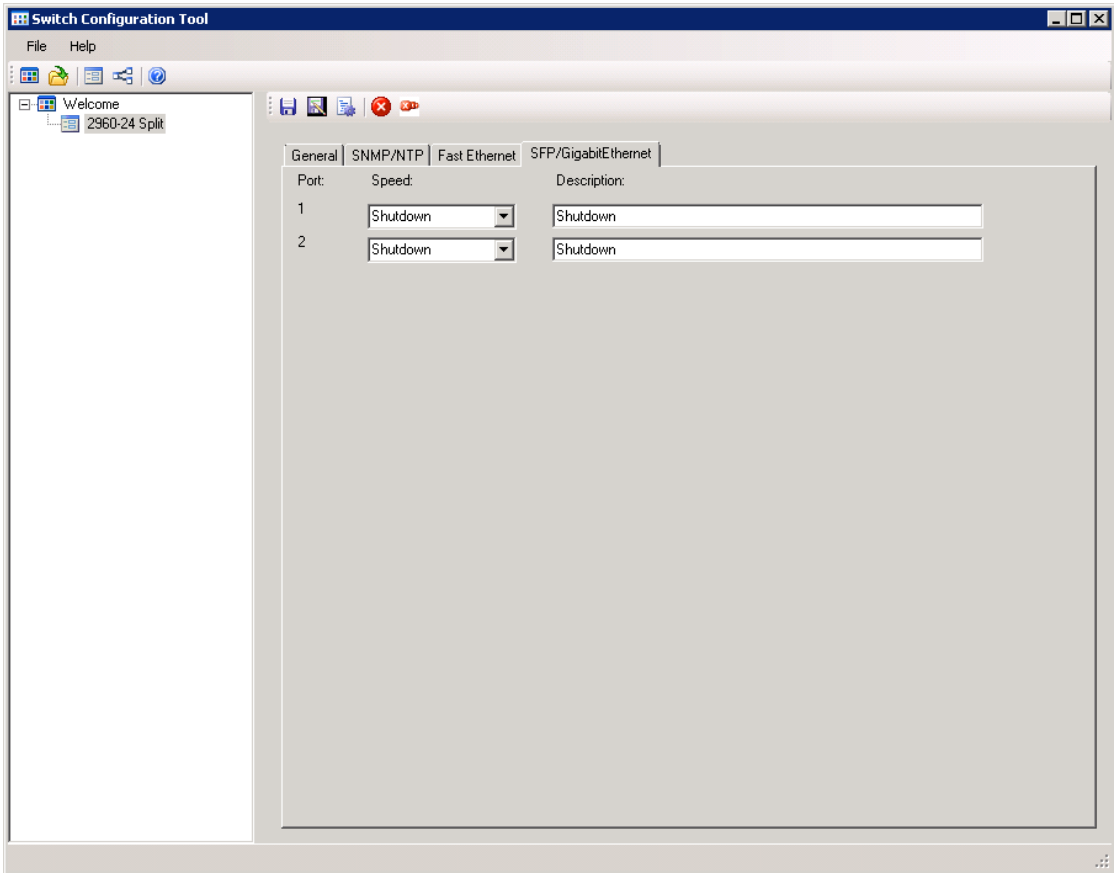
This tab is only displayed if the 3550-24FX switch is selected. The Fiber Tab for the *3550-24FX* switch Uplink ports only supports *100FX L2Uplink* and *CF9* selections which are the only options for the 355-24FX switch.

4.5.6 SFP/Gigabit Ethernet tab

You can use SFP/Gigabit Ethernet tab for configuring 2 separate SFP/RJ45 interfaces. Small Form-factor Pluggable (SFP) transceiver is used for switches that only accept data from SFP and do not have a gigabit port. The Gigabit Ethernet is used only for the older model of switches such as the 3550 and 2950. Each of these interfaces can only be set to fixed settings depending on the Switch Model. If Auto is the only selection, then the switch type does not support any other configuration for the port type.

The connection type is selected from the drop down list and a default description is entered. Ensure to change the description to something more appropriate for the individual connection, that is Uplink to Top Level Green. This way, the configuration text can be printed out as a guide to the installer to know, where to plug the cable to make the actual installation match the documentation. All interfaces are automatically configured to shutdown if no connection type is selected.

The following image illustrates an SFP/Gigabit Ethernet tab.



WARNING

It is important to install all SFP modules prior to downloading the configurations for any switch with SFPs. If proper SFPs are not installed, an error occurs during the download and you cannot configure the port correctly.

The following options are available for SFP on the 3560 switch types:

- 100 mb Uplink, Connection using a GLC-T SFP connection with speed set to 100 Mb/s and Duplex Full
- 100 mb Fiber, Connection using a GLC-GE-100FX SFP connection
- 1 Gb Uplink, Connection using a GLC-T SFP connection with speed set to 1 Gb/s and Duplex Full
- Auto, Connection using a GLC-T SFP connection with speed set to 100 Mb/s and Duplex Full
- Auto, Connection using a GLC-T or GLC-SX-MM SFP connection with speed set to Auto
- Router 100 Mb, Router uplink connection using a GLC-T SFP with speed set to 100 Mb/s and Duplex Full. This selection is only available if the switch is connected to a router and the configuration Uplink to Router is selected
- Router 1Gb, Connection using a GLC-SX-MM or GLC-T SFP connection with speed set to 1 Gb/s, this selection is only available if the switch is connected to a router and the configuration Uplink to Router is selected.

- Router Auto, router connection using a GLC-T or GLC-SX-MM SFP connection with speed set to Auto, this selection is only available if the switch is connected to a router and the configuration Uplink to Router is selected.

The following selections are valid for SFP/Gigabit Tab and GBIC Tab

- Auto
- Shutdown

The selection for the SFP for the 2960 switch type also includes

- 100 FX Fiber, this selection sets the media type to SFP. This selection is only valid for the WS-2960-24-TS-S and WS-2960-48-TS-S versions of the 2960 switch the TT version only Auto should be selected.
- 100Mb – Full Copper, this selection set the media type to RJ45. This selection is only valid for the WS-2960-24-TS-S and WS-2960-48-TS-S versions of the 2960 switch. For the TT version only Auto should be selected, but if 100Mb full is required an error at load time will be displayed since the media-type command is not valid on these switch models.
- Router Auto, this selection is only available if the switch is connected to a router and the configuration Uplink to Router is selected.

The following options are available for the SFP Tab on the IE3000 switch types:

- Auto, using any other SFP that is 1GB or other than the GLC-T or GLC-FE-100FX-RDG
- Shutdown
- 100 mb Full Copper, Connection using a GLC-T SFP connection with speed set to 100 Mb/s and Duplex Full
- 100FX Fiber, Connection using a GLC-FE-100FX-RGD SFP connection,
- Router Auto, setup for any of the SFPs to be used. This selection is only available if the switch is connected to a router and the configuration Uplink to Router is selected.

The Gigabit Ethernet Tab for the 3550-12 switch gigabit Ethernet ports 11 and 12 support

- 100Mb L2Uplink
- Auto

Attention

Only select Router Auto for one uplink on the entire switch and make sure that it does only connect to the router. There is no check to verify only one Router Port is configured.

For the IE3000 100FX Fiber and this connect must be specified exactly as a speed 100 and media type fiber. Auto does not work for this connection to other switches.

The GBIC Tab is for the 2950 and 3550 models only. These switches only allow the gigabit ports to be set to Shutdown or Auto there is no speed or duplex selections.

WARNING

Do not blank the description fields for the interfaces. This produces an error from the Cisco switch when the file is downloaded.

5 Getting Started with Switch Configuration Tool

The Switch Configuration Tool has two modes of operation. The first is to generate a switch configuration. The second is to load that configuration to a switch.

Attention

This tool cannot be used to download the configuration for the Cisco SFE 2000 switch, refer to the *Honeywell's SFE 2000 Installation Guide* for further information.

Related topics

"Starting Switch Configuration Tool" on page 38
"Checklist for configuring a switch" on page 39
"Creating a new switch configuration" on page 40
"Saving switch configuration" on page 43
"Opening existing switch configuration files" on page 44
"Generating Text files" on page 45
"Establishing a serial or telnet connection using Switch Configuration Tool" on page 46
"Loading the switch with new configuration" on page 50
"Backing up the current switch configuration" on page 58
"Editing switch settings using switch rules XML file" on page 59
"L2.5 switch configuration " on page 60

5.1 Starting Switch Configuration Tool

The Switch Configuration Tool can be started from the following two ways:

- By executing Launch switchtool.exe
- From Configuration Studio

5.1.1 Starting Switch Configuration Tool by executing Launch switchtool.exe

To start the Switch Configuration Tool.

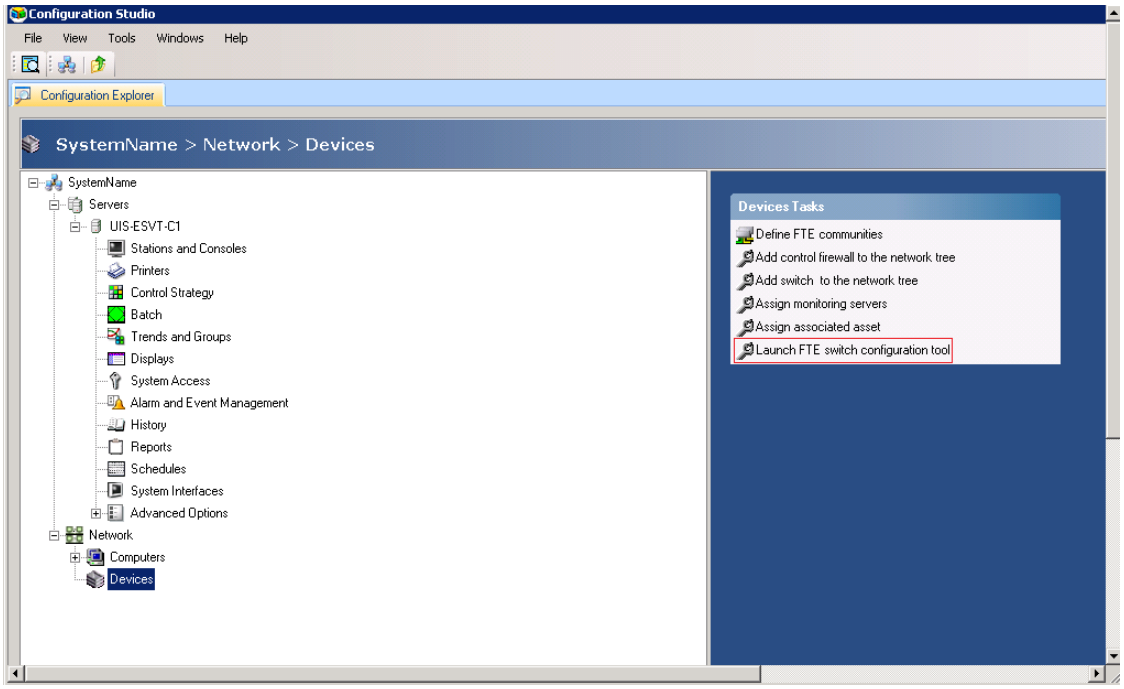
Choose **Start** > **All Programs** > **Honeywell Experion PKS** > **Engineering Tools** > **FTE SwitchTool** > **Launch switchtool.exe**.

The **Switch Configuration Tool** is launched.

5.1.2 Launching Switch Configuration tool from Configuration Studio

To launch the tool from Configuration Studio

1 In the Configuration Studio window, click **SystemName** > **Network**.



2 On the right pane, from **Devices Tasks**, click **Launch FTE switch configuration tool**.
The **Switch Configuration Tool** is launched.

5.2 Checklist for configuring a switch

The following provides a high level task for creating or configuring a switch.

1. Gather switch information and design network per the *Fault Tolerant Ethernet Overview and Implementation Guide*.
2. Using the Switch Configuration Tool establish a serial connection with the switch.
3. Configure the basic setup for the switch as per the *Fault Tolerant Ethernet Overview and Implementation Guide*. That is, set up the switch password and vlan. You need not enter the data such as IP address and other items as this is done by the tool.
4. Start the Switch Configuration Tool, and select the switch type.
5. Select the port types.
6. Configure the Yellow Switch first.
7. In the **General** tab, enter the following information.
   a. In the **Banner Text** area you can type any special commands.
      For example, if FTP command is to be setup, enter the commands in the Banner Text area as per the *Fault Tolerant Ethernet Overview and Implementation Guide*.
   b. Determine the size of the system. Click **More than 200 FTE Nodes** to check if the Experion system this switch is configured for has more than 200 total FTE nodes.
   c. Determine if the switch is used for **eUCN**.
   d. Determine if this is a top switch and if it is connected to the router
8. In the **SNMP/NTP** tab, configure SNMP related fields such as primary and secondary hosts.
9. In **Fast Ethernet** tab, set up ports as uplinks, L1 Nodes or L2 Nodes, and enter the description.
10. In **Fiber** tab if present, select the port types and enter the descriptions.
11. In **SFP/Gigabit Ethernet** tab, select the port types and enter the descriptions
12. Return to the **General** tab and review the entered data.
13. Save the switch configuration.
14. Repeat the procedure to generate the Green Switch file.
15. Compare the Yellow and Green switch configurations and change any inconsistencies.
16. Save the changes in a project that includes both files, if desired.
17. Generate the downloadable Text file for each switch. Review the text file before saving it.
18. Download the generated switch file to the switch using the serial connection for a new switch. For an existing switch on the network the telnet connection can be use.

Attention

After the reload command is implemented, the telnet connection will be lost, to view the bootup sequence of the switch, you must establish a serial connection with the switch.

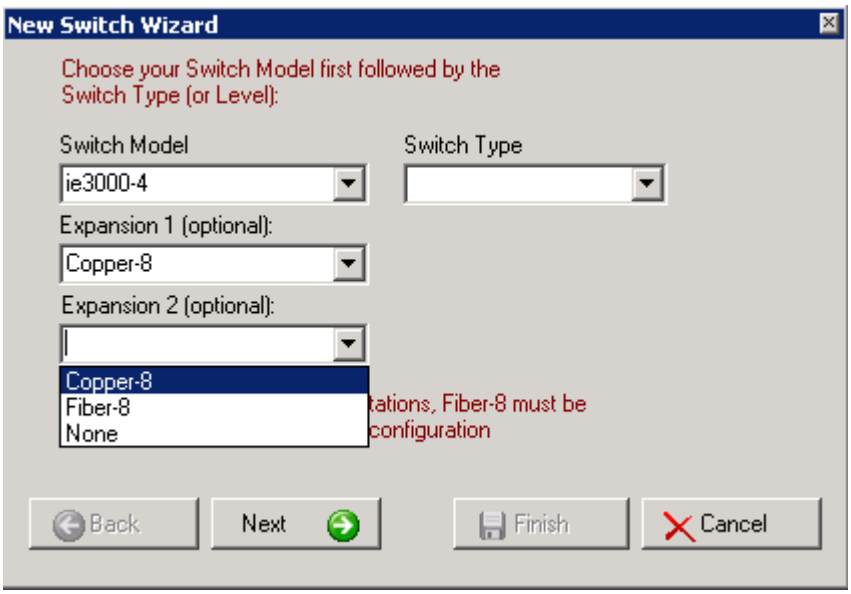
5.3 Creating a new switch configuration

To create a new switch configuration

1 In **Switch Configuration Tool** window, click **Configure a new Switch**.
The **New Switch Wizard** appears.

2 Select the required **Switch Model**.
For IE3000 (ie3000–4 and ie3000–8) switches, select **Expansion 1** as **Copper8 or Fiber8 or None**.

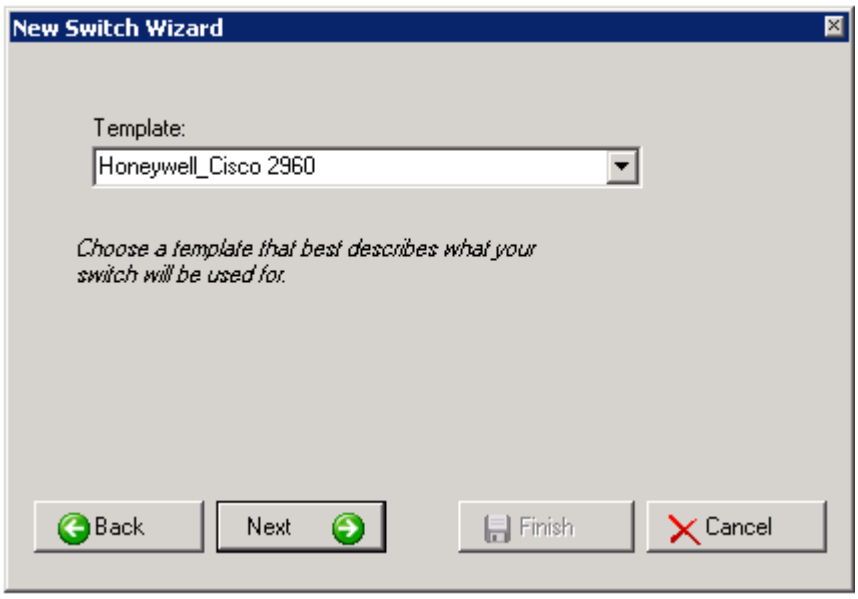
The **Expansion 2** list appears only when you select **Expansion 1** as **Copper8**. Select the required optional for Expansion 2.



Expansion modules can be added and modified later. If you are configuring a fiber expansion module, due to hardware limitation, it must be the last expansion module in series. So if the Fiber 8 was selected for Expansion 1 then there will be no Expansion 2 selection.

3 Select the required **Switch Type** and then click **Next**.
Only the selections applicable to the selected Switch Model appears in the Switch Type list.

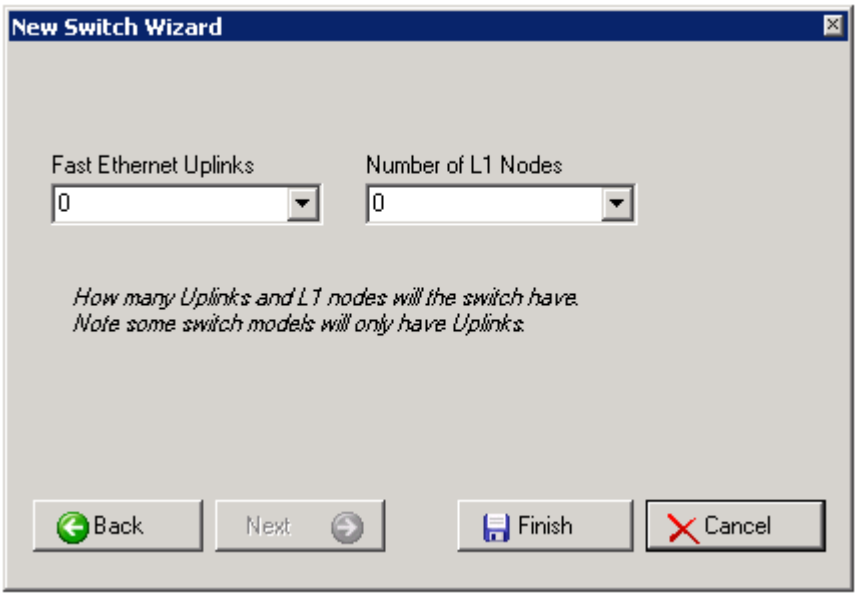
The **Template** selection page appears.



4 From the **Template** list, select the Honeywell template for the switch model selected.
For example, if you select 2960 as the switch model, the Honeywell template **Honeywell_Cisco 2960** appears in the Template list.

0

5 Click **Next**.
The port selection page appears.



6 Select the required number of **Fast Ethernet Uplinks**.

7 Select the required **Number of L1 Nodes** and then click **Finish**.
The switch configuration form with the selected switch type appears.

8 Configure the switch information on the **General** tab.

9 Click the **SNMP/NTP** tab and configure the switch information on the **SNMP/NTP** tab.

10 Click the **Fast Ethernet** tab and configure the switch information on the **Fast Ethernet** tab.

11 Click the **SFP/GigabitEthernet** tab and configure the switch information on the **SFP/GigabitEthernet** tab.

12 Click to save the switch configuration.
The **Save As** dialog box appears.

13 In **File name**, type an appropriate name for saving the switch configuration, and the click **Save**.
The switch configuration is save with the provided name.

5.4 Saving switch configuration

When the configuration steps are complete, save the file using the icon at the top of the toolbar. The name in the tree view in the left side pane changes to the saved name. Ensure to match the host name set in the Host Name box in the General tab for consistency. This only saves the internal format (*.slf files) for the switch configuration for use in the future.

These files can be used with newer versions of the Switch Configuration Tool. When you re-generate the *.txt files, updates to switch configurations are included in the newly generated file. As a result, a newer version of the switch configuration can be generated without re-entering the data, by opening the *.slf file in the new Switch Configuration Tool version and regenerating the text file.

5.5 Opening existing switch configuration files

To open an existing switch configuration file

1. Select the  icon on the toolbar.

   OR

   Choose **File** > **Open** > **Switch Configuration File**.

   The **Open** dialog box appears.
2. Browse to the directory location where the file that is to be opened is located.
3. Select the file, and then click **Open**.

   The selected file appears in the tree.
4. To make modifications to the file, select the file in the tree.

   The details appears on the right pane.
5. Edit the file and save.

This file can also be modified to create a new file similar just save it as a different name. Ensure that while saving the new file name, not to overwrite the file being copied. The save selection in some cases require the name to be re-selected or entered before it can be saved.

Creating a file that contains default values such as the ports configuration and SNMP and Banner text can be used as a baseline to generate similar files by just opening the template *.slf and changing the unique data such as switch name, Yellow or Green, IP Address and banner text. Many files can be generated quickly this way. This can reduce the risk of errors by getting the first configuration correct then generating the rest based on this file.

Attention

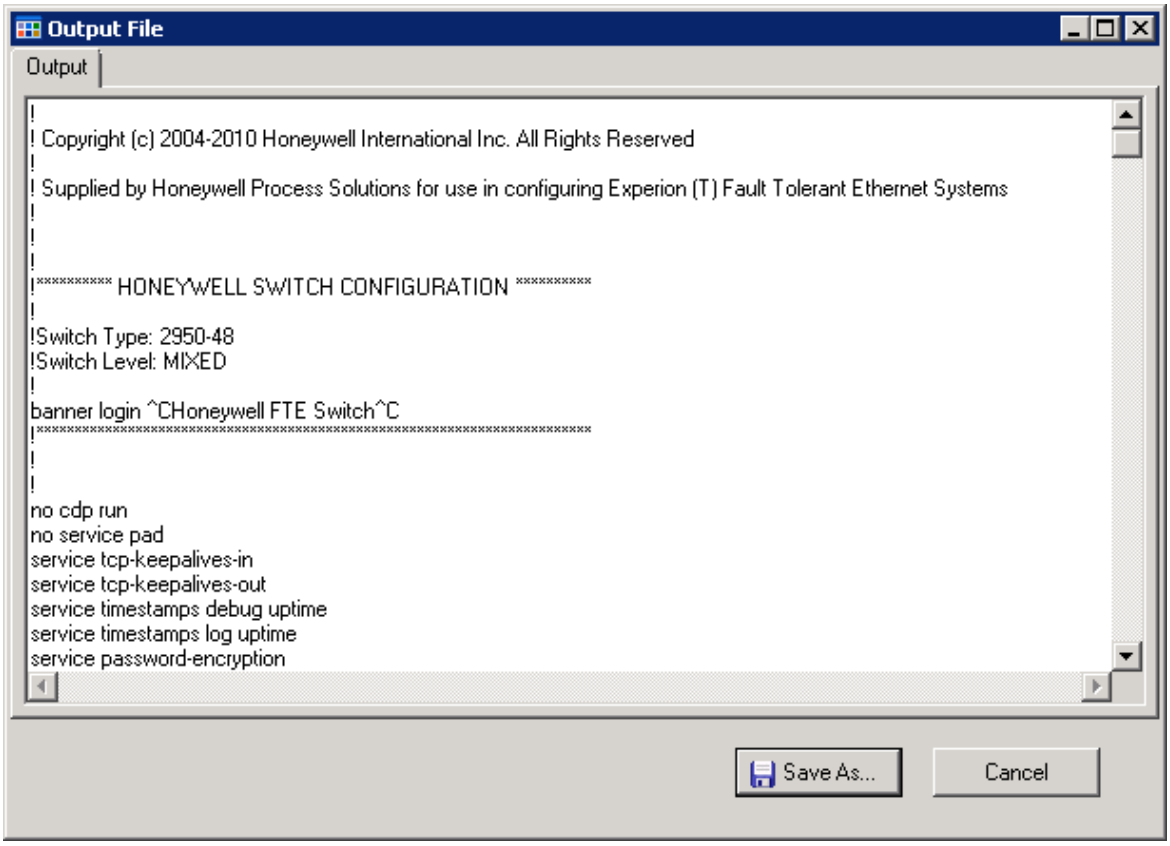
If the switch file was saved with a different name than originally opened the new file name appears in the Switch file tree and the original file will no longer be open in the switch tool. You must reopen the original file using the Open Switch Configuration file option.

5.6 Generating Text files

A text version of the file must be saved for reviewing and downloading it to a switch. To generate text files.

1. Select icon on the toolbar.

   The **Output File** dialog box appears.



2. Review this file to ensure it meets all expectations.
3. Any errors discovered during the file generation appears in an error tab. Review the error tab and correct the issues.
4. Select icon on the toolbar to generate the text file again.
5. Ensure that there are no errors in the error tab.
6. Click **Save As** to save the generated text file.

   Ensure that the file name matches the hostname for consistency.

If additional items are added in the text file, they will not be saved in the internal format file saved earlier that can be reloaded in the future for configuration modifications. Any additional configuration items must be added in the Banner Text box and then be saved in the internal format. Then the additional instructions appear in both the text file used for configuration and is available when the internal file is loaded at a future time.

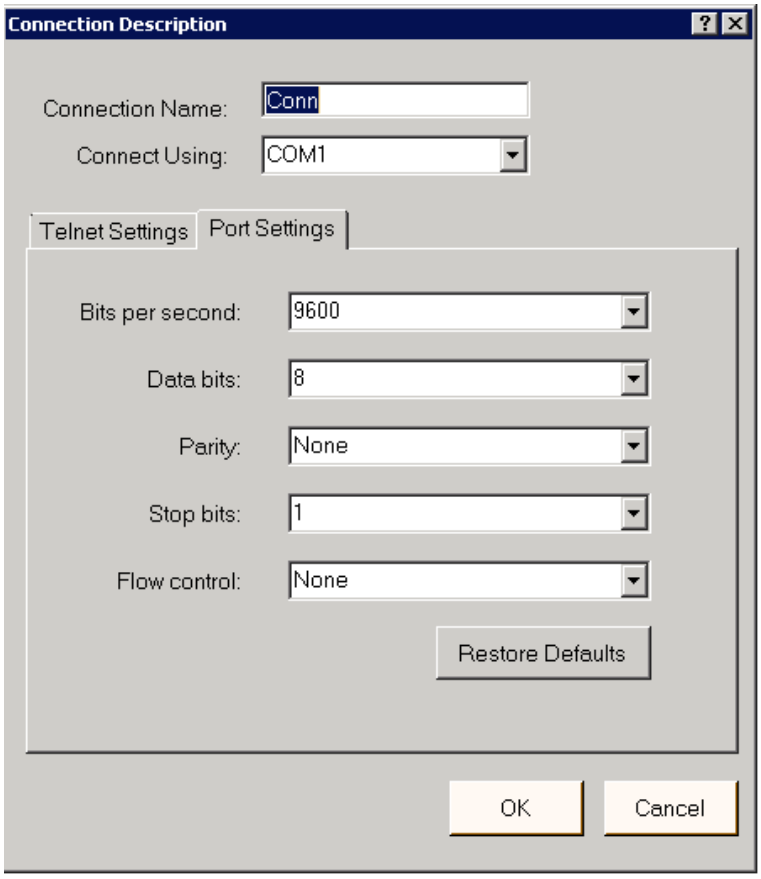
5.7 Establishing a serial or telnet connection using Switch Configuration Tool

This section describes the tasks to establish a serial or telnet connection with a switch.

5.7.1 Establishing a serial connection using the Switch Configuration Tool

To establish a serial connection using the Switch Configuration Tool

1 In the Switch Configuration Tool window, click icon.
The **Connection Description** dialog box appears.

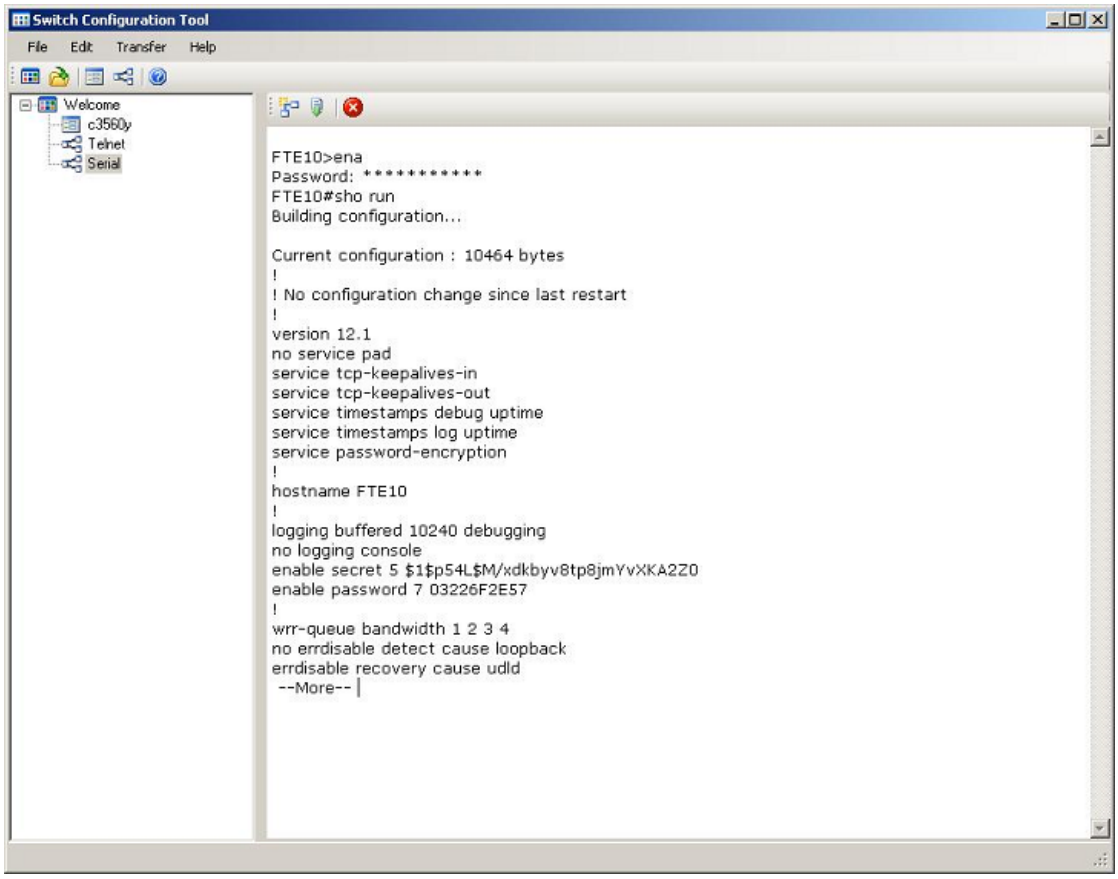


2 Select **Port Settings** tab.

3 In the **Connection Name** field, type a name for the connection.

4 From the **Connect Using** list, select the appropriate com port.
Other parameters must be left in the default state.

5 Click **OK**.
The switch name prompt must appear in the main window pane.

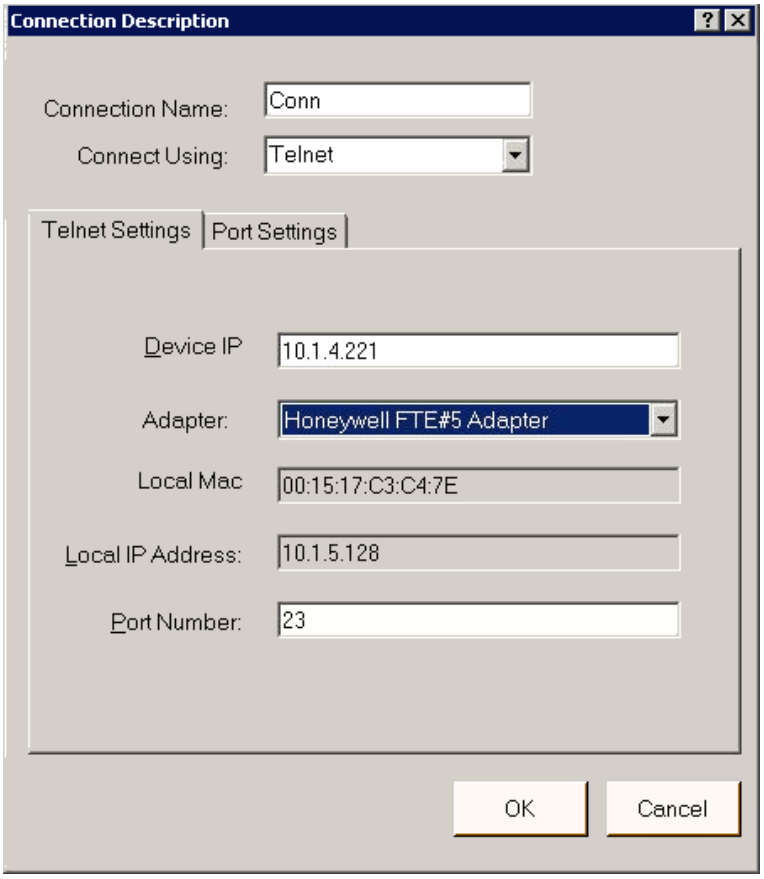


5.7.2 Establishing a telnet connection using the Switch Configuration Tool

To establish a telnet connection using the Switch Configuration Tool

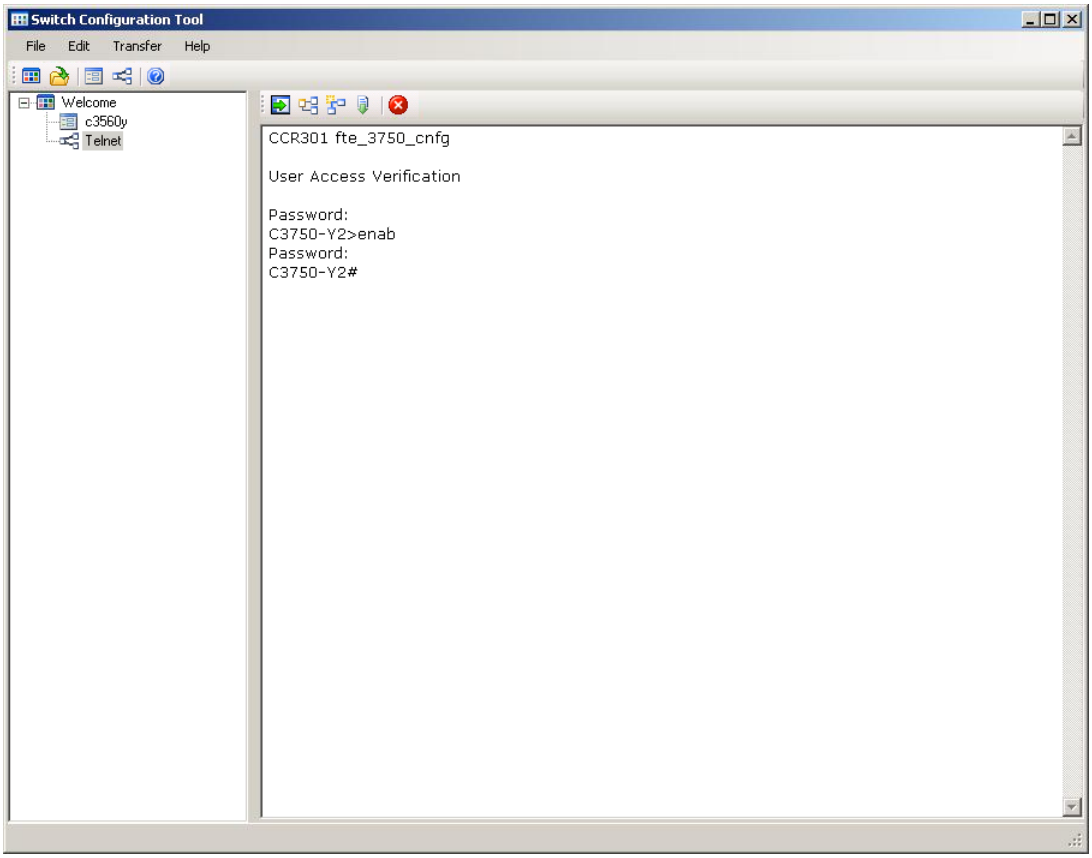
1 In the Switch Configuration Tool window, click icon.
The **Connection Description** dialog box appears.

2 Select **Telnet Settings** tab.



3 Enter the IP address for the switch to configure and then on the computer select the interface to use.

4 Click **OK**.
The switch name prompt must appear in the main window pane.



Attention

If you set up SSH and if you run the crypto image of IOS, then the telnet session will not be supported.

5.8 Loading the switch with new configuration

Once a switch has been configured and the switch text file has been generated, the data can be downloaded into the switch though a Serial or Telnet connection. The computer requires a serial connection to the switch being updated when using the serial method.

The following table provides the highlevel tasks for downloading the switch files in the switch.

Task	Refer to
1. Connect to the switch	Create a Serial or Telnet connection to the switch. • Refer to the section “Establishing a serial connection using the Switch Configuration Tool” on page 46 • Refer to the section “Establishing a telnet connection using the Switch Configuration Tool” on page 47
2. Download the switch text.	Download the switch text file created in the switch configuration form using the Telnet or Serial connection from the step above. The file must be copied to a switch flash file with a .txt or .text extension. • Refer to the section “Downloading the switch configuration file using serial connection” on page 51 • Refer to the section “Downloading the switch configuration file using telnet connection” on page 53
3. Loading the switch file to the running configuration	Refer to the section “Loading the switch file to the running configuration” on page 54 Verify the file loaded. Address any errors or warnings that occurred during the download. **Attention** Loading to the running configuration can only be performed when connected to the switch using the serial(COM) port)
4. Copy the configuration file to a switch flash file.	Refer to the section “Copying the configuration file to a switch flash file” on page 56

WARNING

The download capability in the switch tool is not be use for IOS download. These files cause the switch tool to crash and you will lose all of the work, if the configuration was not saved before the crash. To update the IOS you must use a FTP Server and separate telnet session from another telnet tool.

Refer to the Fault Tolerant Ethernet Overview and Implementation Guide for information about methods on how to update the switch IOS.

Attention

For the Cisco SFE2000 switch the tool can only be used to generate the text file. The special instructions for configuring the SFE2000 must be used. These instructions are specified in the *Honeywell SFE 2000 Installation Guide*.

The following toolbars appear on the switch configuration form after making a serial/telnet connection with the Cisco switches.

Options	Description
Start/Stop FTP 	Used for starting or terminating a telnet FTP session with a switch.
Change Directory 	Used for changing the local directory for the telnet session.
Make/Remove directory 	Used for making or removing a directory on the switch.
Upload/Download File 	Used for uploading or downloading the switch text file to/ from the switch.
Close Form 	Used for closing the current switch configuration form.

Related topics

“Downloading the switch configuration file using serial connection” on page 51
“Downloading the switch configuration file using telnet connection” on page 53
“Loading the switch file to the running configuration” on page 54
“Copying the configuration file to a switch flash file” on page 56

5.8.1 Downloading the switch configuration file using serial connection

This is the initial preferred method for configuring a new switch or existing switch not accessible on the network. This requires the serial cable that was supplied with the switch being configured. Make a note of which serial connection the cable was attached. Typically, a Honeywell-qualified workstation platform has two serial connections to choose from.

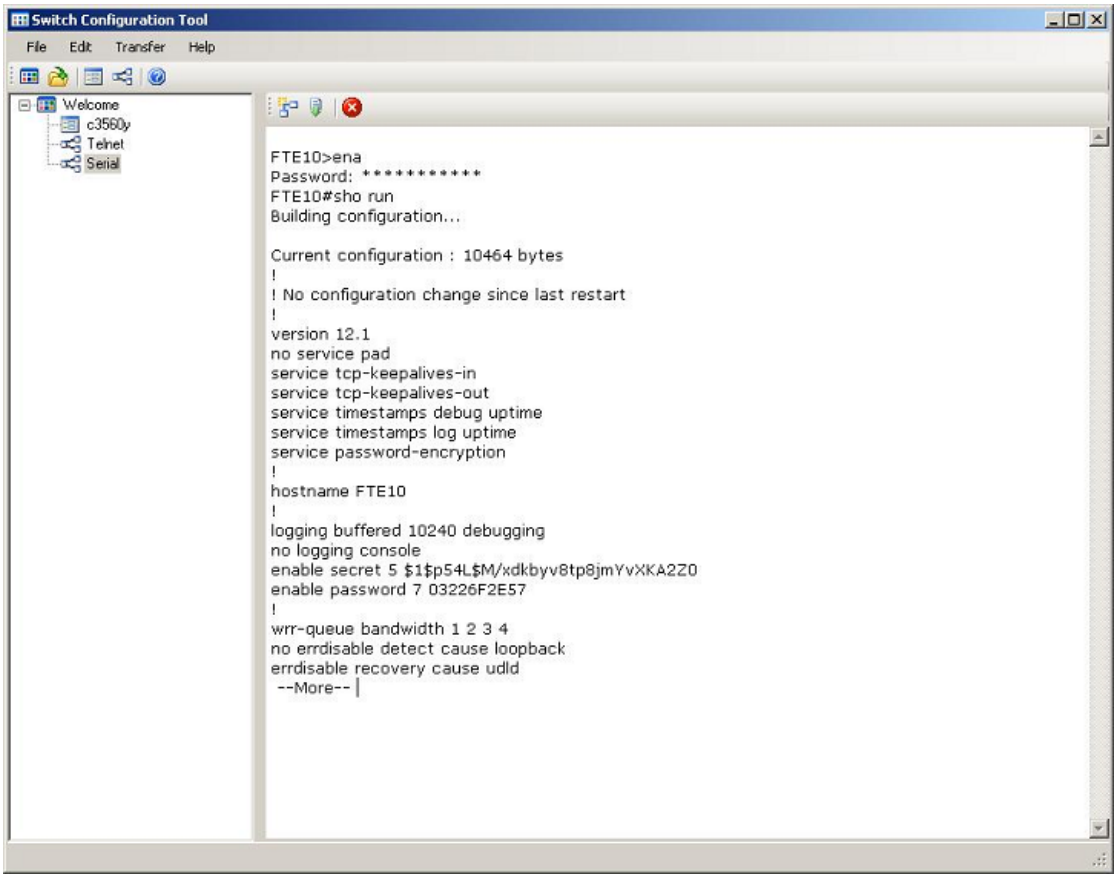
Prerequisites

If the switch is new, you must configure the switch as per the *Fault Tolerant Ethernet Overview and Implementation Guide*. You can also configure the switch as per the *Fault Tolerant Ethernet Overview and Implementation Guide* using the Switch Configuration Tool. The serial interface can be used to perform these procedures.

To download the switch configuration file using serial connection

1 Establish a serial connection with the switch. Refer to the section “Establishing a serial connection using the Switch Configuration Tool” on page 46.

2 Once the serial connection is established with the switch the following window appears.



3 In the right pane, for a previously programmed switch type **enable <cr>** and then enter the enable secret password.

4 To clear the switch type **"write erase" <cr>**.

Attention

This removes the config.text file from the switch FLASH memory. Backup of this file would be prudent if a return to the previous switch configuration is desired.

WARNING

It is important to remember that the switch will revert to initial configuration. **This must not be performed on a switch that is on process**. The interface configuration will be auto and will not connect, and a split switch will lose the isolation of the two VLANs.

5 Verify the prompt: **Erasing the nvram file system will remove all configuration files! Continue? [confirm]**.

6 Type **Y** to erase all configuration files.

7 Type **reload**.

The prompt **System configuration has been modified. Save? [yes/no]:** appears:

8 Verify the prompt and type **Y**.

The prompt **Proceed with reload? [confirm]** appears.

9 Type **Y**.

10 When the switch reloads, proceed with the initial configuration using *Fault Tolerant Ethernet Overview and Implementation Guide*. It is a good idea to configure the passwords desired in this initial configuration. All other configuration items including VLANs and hostname can be performed using the tool.

11 After initial configuration the switch can be loaded using the tool. Login into the Switch

12 Type **enable** and the enable secret password after the prompt appears, from the initial configuration.

5.8.2 Downloading the switch configuration file using telnet connection

Use this method for existing switches when their configuration is being updated or changed. To use telnet, the switch must already be on the network and configured with an IP address and even a default gateway depending on where on the network your telnet session is to be run.

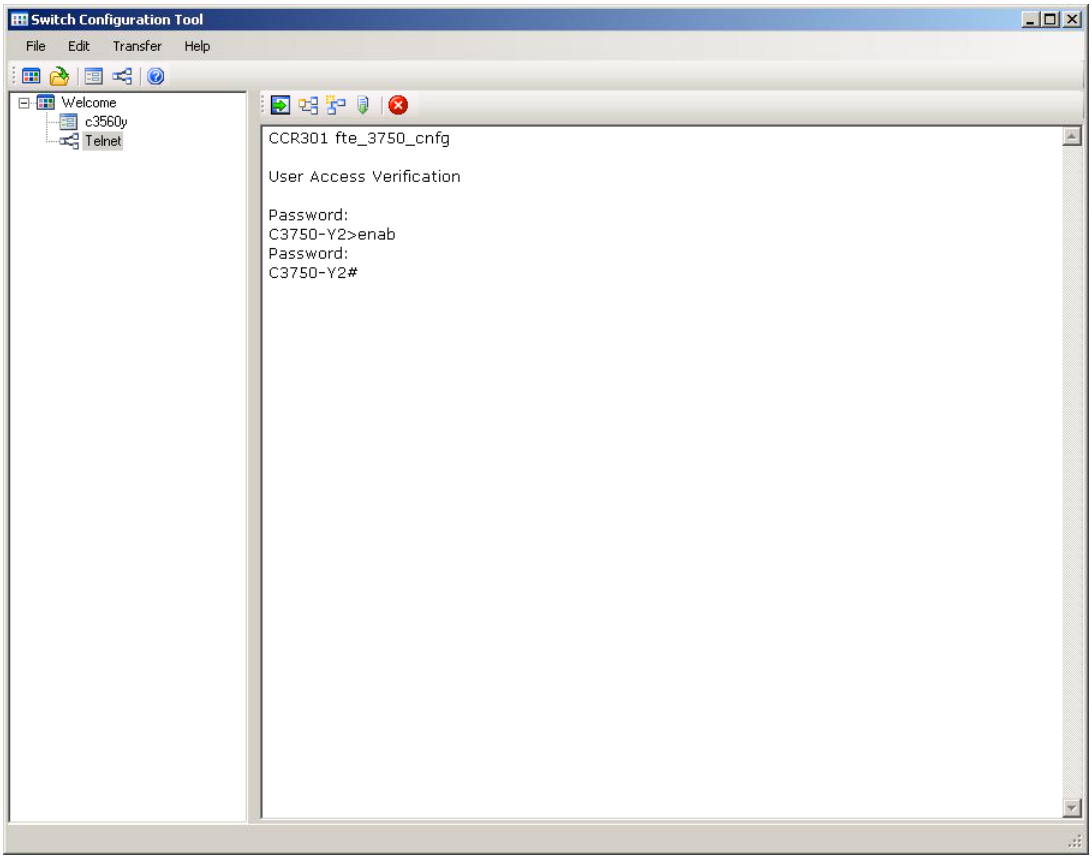
This is also a good way to back up a currently configured switch by using Trivial File Transfer Protocol (TFTP) to backup the existing switch configuration to a text file on the PC.

When you download a switch configuration using TFTP, you must first transfer the file to a flash device. Do not load a switch configuration directly to the running configuration. After the file has been transferred to a flash device, it can be loaded to the running-configuration.

To download the switch configuration file using telnet connection

1 Establish a telnet connection with the switch. Refer to the section “Establishing a telnet connection using the Switch Configuration Tool” on page 47.

2 Once the serial connection is established with the switch the following window appears.

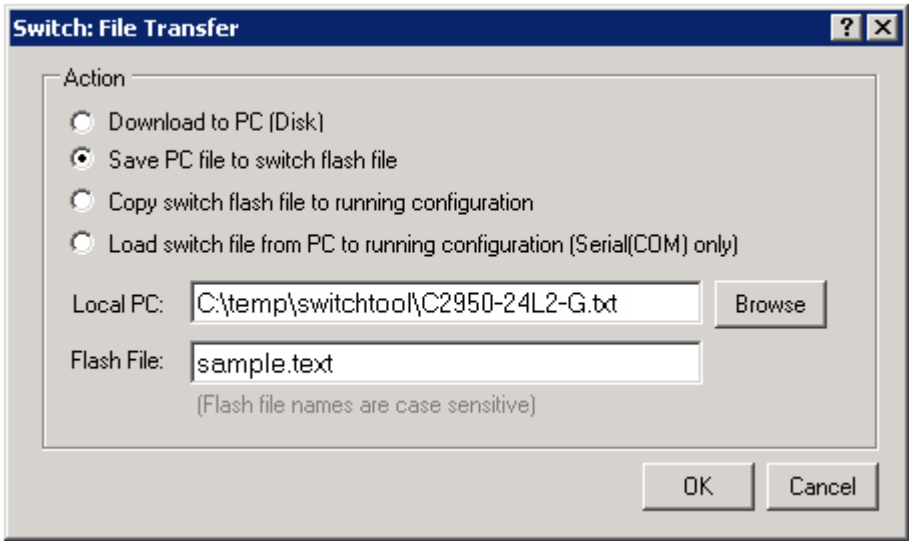


3 In the right pane, type the **Virtual Terminal Password** that was originally setup.

4 Type **enable** and the enable secret password after the prompt appears from the initial configuration.

5 Click the icon.
The **Switch File Transfer** dialog box appears.

6 Select **Save PC file to switch flash file** to copy the configuration text file to the flash file of the switch.



7 Browse to the location of the text version of the configuration file saved.

8 Enter the name of the file, which must be saved on the switch.

9 Click **OK**.
The tool issues the commands for **tftp** and send the file. Verify the file was saved using command in the telnet window and type dir and verify the file was created that is **sample.text** appears in the flash directory on the switch.

10 Type **write erase <cr>** to clear the switch.

Attention
This removes the config.text file from the switch FLASH memory. Backup of this file would be prudent if a return to the previous switch configuration is desired.

WARNING
It is important to remember that the switch reverts to initial configuration. **This must not be performed on a switch that is on process**. The interface configuration will be auto and will not connect, and a split switch will lose the isolation of the two VLANs

11 Verify the prompt: **Erasing the nvram file system will remove all configuration files! Continue? [confirm]**.

12 Type **Y**.
The **Verify Erase of NVRAM: Complete** prompt appears.

13 Type **reload**.
The **System configuration has been modified. Save? [yes/no]** prompt appears.

14 Type **n** and verify the prompt **Proceed with reload? [confirm]**.

15 Type **Y**.

16 The switch must be connected to a serial connection to complete the configuration.

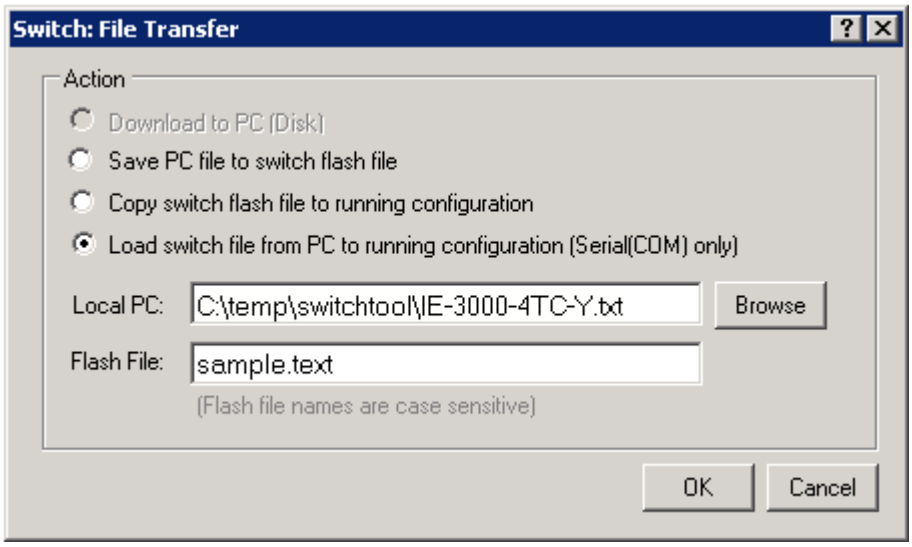
17 When the switch reloads, proceed with the initial configuration using *Fault Tolerant Ethernet Overview and Implementation Guide*. It is a good idea to configure the passwords desired in this initial configuration. All other configuration items including VLANs and hostname are done by the tool.

5.8.3 Loading the switch file to the running configuration

To load the switch file to the running configuration using serial connection

1 Click the icon on the toolbar.
The **Switch File Transfer** dialog box appears.

2 Select **Load switch file from PC to running Configuration (Serial(COM) only)**.



3 Browse to the location of the text version of the configuration file saved in a previous step and then click **OK**.

The tool issues the commands for **xmodem** and sends the file.

4 In the serial connection window, verify the load using the **show run** command.

5 The tool automatically writes a **mem** command when the file is loaded. A dir command displays that the config.text file is present indicating the write mem command was successful.

6 Type **show run**, and verify the setting match what was contained in the file downloaded.

7 Type **reload**, if the configuration was not saved the prompt, **System configuration has been modified. Save? [yes/no]** appears.

8 Type **Y**.

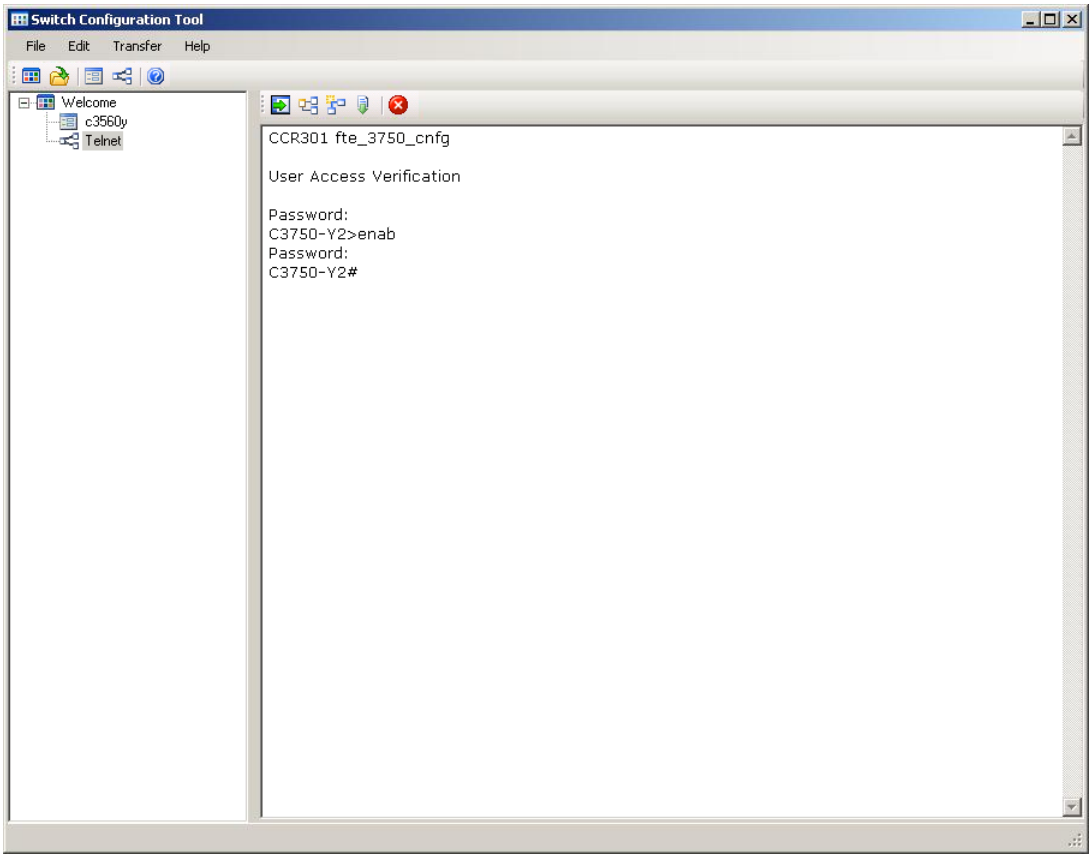
9 Verify the prompt **Proceed with reload? [confirm]**.

10 Type **Y**.

The switch is now ready for deployment.

To load the switch file to the running configuration using telnet connection

1 In the telnet connection window, in the right pane, type **enable** and the enable secret password.



2 Type **: copy flash:<file.text> system:running-config** to manually load the file to running-config.

3 Verify the prompt **Copy [running-config]?** .

4 Type **<cr>**.
Verify that the file data is transferred.

5 Type **write**.

6 Type **show run** and verify the setting match what was contained in the file downloaded.

7 Type **reload**, if the configuration was not saved the prompt **System configuration has been modified. Save? [yes/no]:** appears.

8 Type **Y**.
The prompt **Proceed with reload? [confirm]** appears.

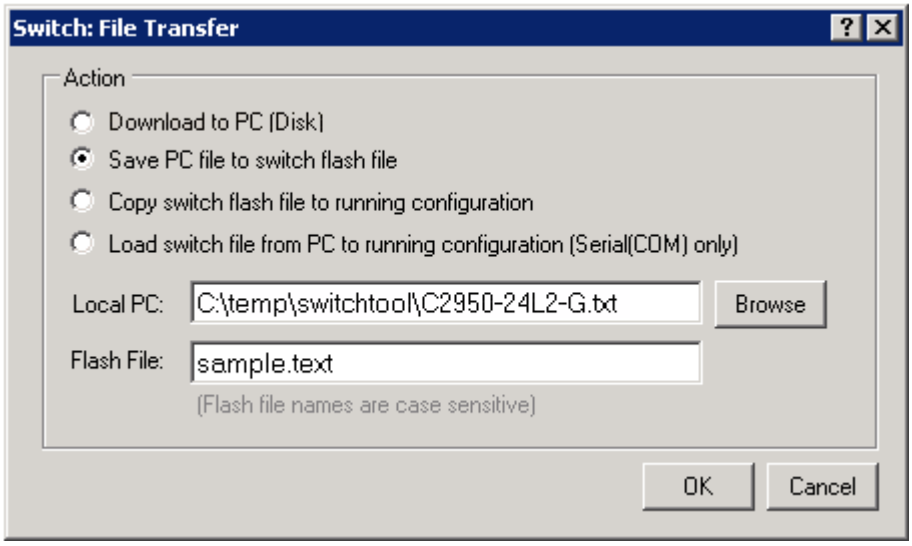
9 Type **Y**.
The switch is now ready for deployment.

5.8.4 Copying the configuration file to a switch flash file

To copy the configuration file to a switch flash file

1 Click the icon.
The **Switch File Transfer** dialog box appears.

2 Select **Save PC file to switch flash file** to copy the configuration text file to the flash file of the switch.



3 Click **Browse** and navigate to the location on the switch flash file where you want to take a backup of the configuration file.

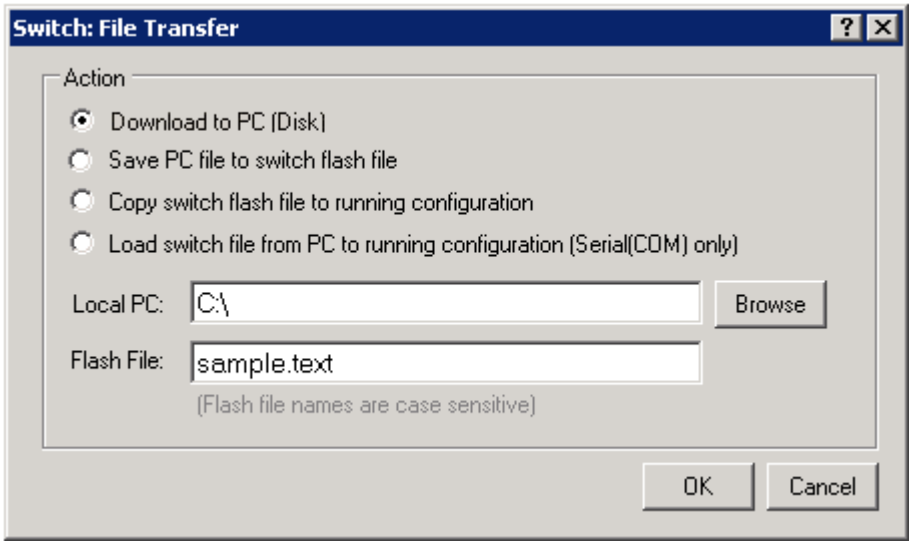
4 Click **OK**.

Verify the file loaded, and close the dialog boxes.

5.9 Backing up the current switch configuration

To take a backup of the current switch configuration

1. Establish a serial or telnet connection with the switch. Refer to the section “Establishing a serial or telnet connection using Switch Configuration Tool” on page 46.
   The telnet or serial connection is established with the switch.
2. Click .
   The **Switch: File Transfer** dialog box appears.



3. To copy the current switch configuration to a file on the PC, select **Download to PC (Disk)**.
4. Click **Browse** and navigate to the location where you want to take a backup of the configuration file on your computer.
5. In **Flash File** field, type an appropriate name for saving the configuration file.
   This saves the current configuration.
6. Click **OK**.
   The tool issues commands for tftp and sends the file.
   View the file using Wordpad, as Notepad does not wrap the text correctly.

5.10 Editing switch settings using switch rules XML file

Certain aspects of the switch settings are controlled by the switch rules XML file (switchdescription.xml). You can edit sections of this XML file to change the settings within the switch tool itself. Following is a sample of the contents within the switch rules XML file.

```
<Cisco_Catalyst>

<Name>2950-48</Name> <!--Switch Name -->

<Level1>true</Level1> <!--Does the switch support level 1 networks -->

<Level2>true</Level2> <!--Does the switch support level 2 networks -->

<Mixed>true</Mixed> <!--Does the switch support mixed networks -->

<Split>false</Split> <!--Does the switch support split networks -->

<Interface> <!--Each interface must have an interfacesection. Currently only GBIC and FastEthernet
names are supported -->

<Caption>Very FastEthernet</Caption> <!--Overrides the tab caption in the dialog -->

<Name>FastEthernet</Name> <!--Type of interface -->

<NumPort>48</NumPort> <!--Number of ports. Make SURE this is LAST in the interface definition as it
closes the interface -->

</Interface>

<Interface>

<Name>GBIC</Name>

&&n <Caption>Hello</Caption>

<ListValues>10;20;30</ListValues> <!--Override the combo box list values. Currently for GBIC only
-->

<NumPort>2</NumPort>

</Interface>

<Template>

<File>\Templates\Cisco 2950\Cisco_2950.stml</File> <!--The names of the switch file template -->

<Level>Level1;Level2;Split;Mixed</Level> <!--Levels the template applies to -->

<Description>Honeywell_Cisco 2950</Description> <!--Friendly name of the template -->

</Template>

<L1Nodes>Apple;Pear</L1Nodes>

<</Cisco_Catalyst>
```

5.11 L2.5 switch configuration

Use the existing templates available with the Experion release for configuring the L2.5 switches.

6 Projects

Projects are a way of grouping switch configuration files together. When a project is opened it opens all of it's associated switch configuration *.slf* files and they are listed in the under the project tree. This makes it easy to access all of the switch configurations at one time for across the network changes.

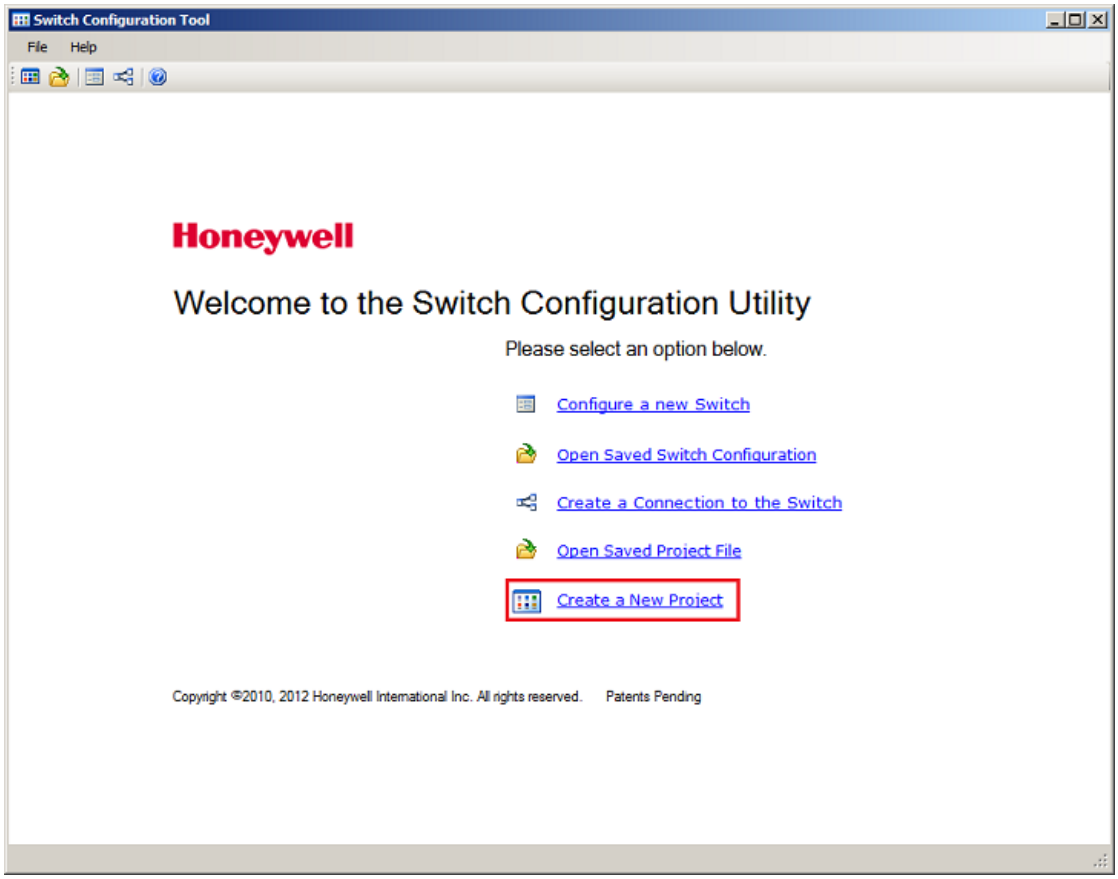
Related topics

"Creating projects" on page 62
"Opening projects" on page 64
"Saving projects" on page 66

6.1 Creating projects

The project file can be created after creating multiple switch configuration files or just one of the file. To create a project, on the Switch Configuration Tool window choose **File** > **Save Project As**.

1. In the **Switch Configuration Tool** window, click **Create a New Project**.



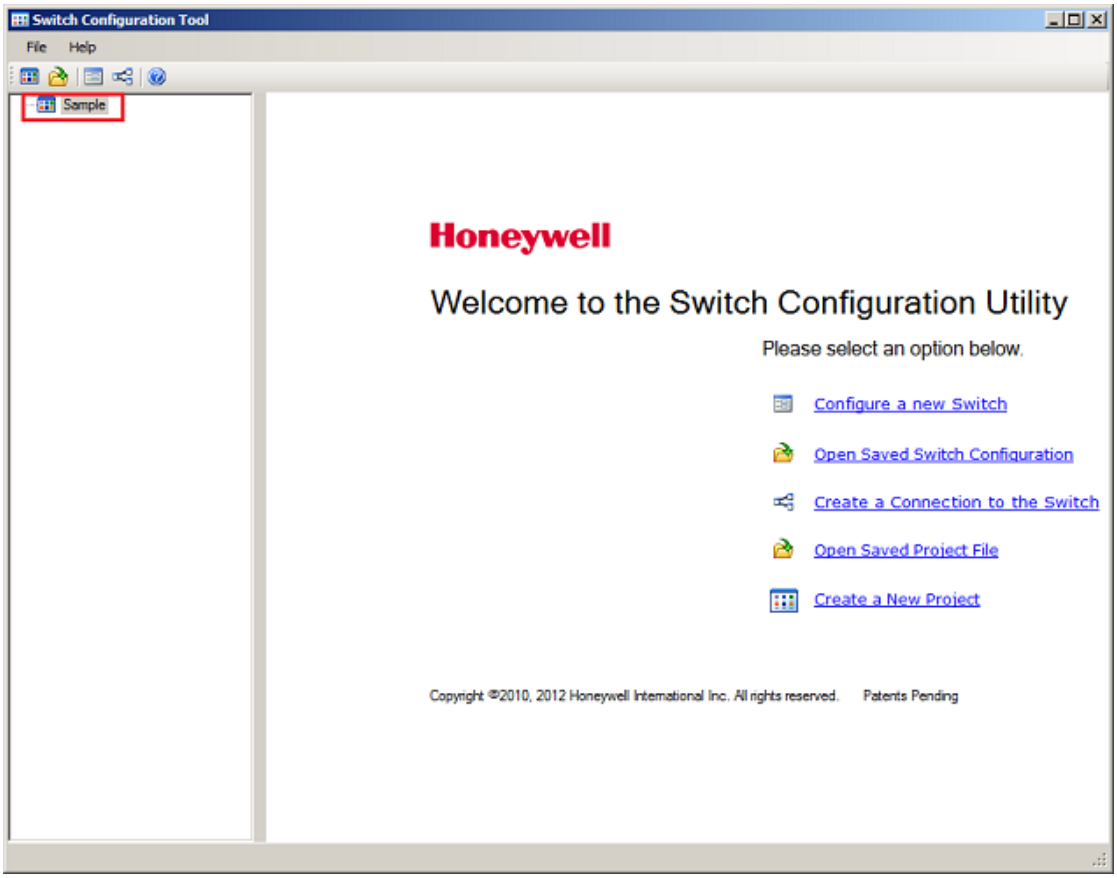
   The **New** dialog box appears.

2. In **File name**, type an appropriate name for the project.

   For example, type Sample.

3. Click **Open**.

   The Project name appears on the left pane.



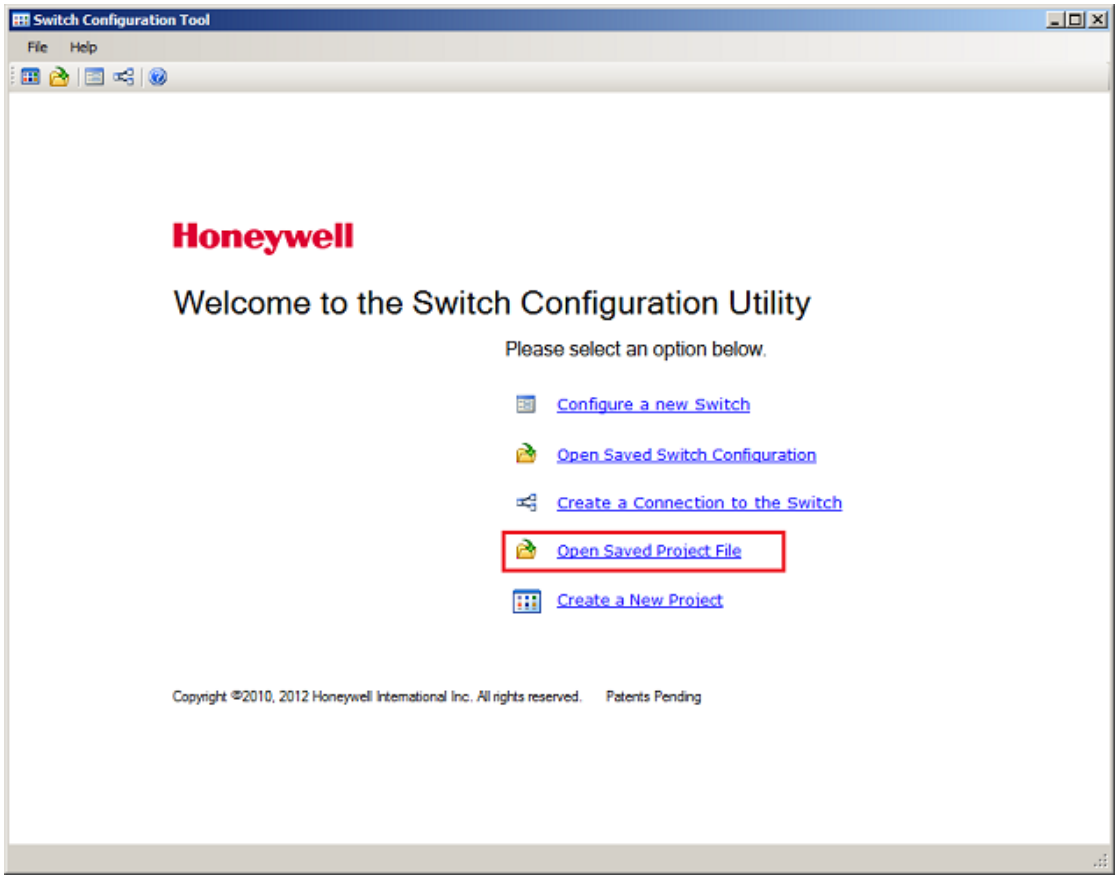
To update the project with the new files, choose **File** > **Save Project**.

6.2 Opening projects

You can make changes or review a complete network configuration by opening an existing project. When you open an existing project, all the switch files in the project are loaded.

To open an existing project

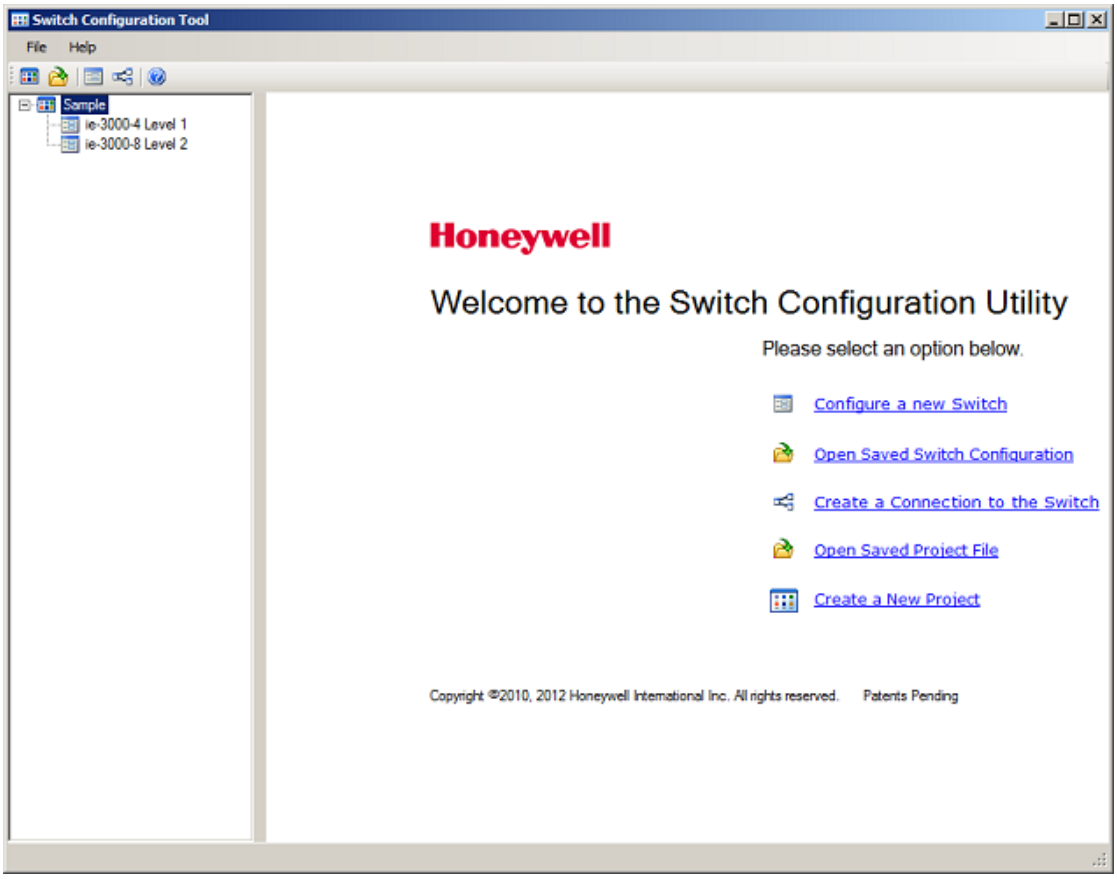
1. In the **Switch Configuration Tool** window, click **Open Saved Project File**.



   The **Open** dialog box appears.

2. Browse to the directory where your files are located and select the project file.

   The selected project and all the switch files in the project are listed in the left pane.



3. Review or edit the switch files of the project.

The project does not change the individual switch files, so each file that is changed will be as last saved even if was changed after the project was saved.

Attention

If all of the files are moved to another folder path different from the when the project file was saved, the tool does not open the files, due to the change in file location. You must save the project file by opening the switch files from their new location and then re-saving the project.

You must open one project at a time. Opening more than one project can cause the same switch file to be listed many times. To open a different project, first close the tool, then restart and open the new project or delete all of the switch files from the tree. You can delete all the files from the tree by selecting the switch file and using the **Delete** option. The delete option only deletes the switch file from the tree and not from the file system.

6.3 Saving projects

When saving a project ensure the file locations are where they reside while making changes to the switch files. Saving a project file is just like saving a file that contains a list of file paths. If the files are moved from the original path, then the files must be opened in the new location to ensure that, when the project file is saved it has the correct file location information.

To save a new project file in the Switch Configuration Tool window, choose **File** > **Save Project As** and enter the location and file name to be saved.

To save changes to the currently open project choose **File** > **Save Project**.

7 Notices

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7.1 Documentation feedback

You can find the most up-to-date documents on the Honeywell Process Solutions support website at:

http://www.honeywellprocess.com/support

If you have comments about Honeywell Process Solutions documentation, send your feedback to:

hpsdocs@honeywell.com

Use this email address to provide feedback, or to report errors and omissions in the documentation. For immediate help with a technical problem, contact your local Honeywell Process Solutions Customer Contact Center (CCC) or Honeywell Technical Assistance Center (TAC) listed in the “Support and other contacts” section of this document.

7.2 How to report a security vulnerability

For the purpose of submission, a security vulnerability is defined as a software defect or weakness that can be exploited to reduce the operational or security capabilities of the software.

Honeywell investigates all reports of security vulnerabilities affecting Honeywell products and services.

To report a potential security vulnerability against any Honeywell product, please follow the instructions at:

https://honeywell.com/pages/vulnerabilityreporting.aspx

Submit the requested information to Honeywell using one of the following methods:

- Send an email to security@honeywell.com.

  or

- Contact your local Honeywell Process Solutions Customer Contact Center (CCC) or Honeywell Technical Assistance Center (TAC) listed in the “Support and other contacts” section of this document.

7.3 Support

For support, contact your local Honeywell Process Solutions Customer Contact Center (CCC). To find your local CCC visit the website, https://www.honeywellprocess.com/en-US/contact-us/customer-support-contacts/Pages/default.aspx.

7.4 Training classes

Honeywell holds technical training classes on Experion PKS. These classes are taught by experts in the field of process control systems. For more information about these classes, contact your Honeywell representative, or see http://www.automationcollege.com.