MCCI Corporation
3520 Krums Corners Road
Ithaca, New York 14850 USA
Phone +1-607-277-1029
Fax +1-607-277-6844
www.mcci.com

MCCI USB Switch 3141/3201 GUI User Guide

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Document Release History

Rev A	2020-06-30	Initial Release
Rev B	2020-07-10	Improve GUI Panel Name
Rev C	2020-09-23	Mac app menu implementation

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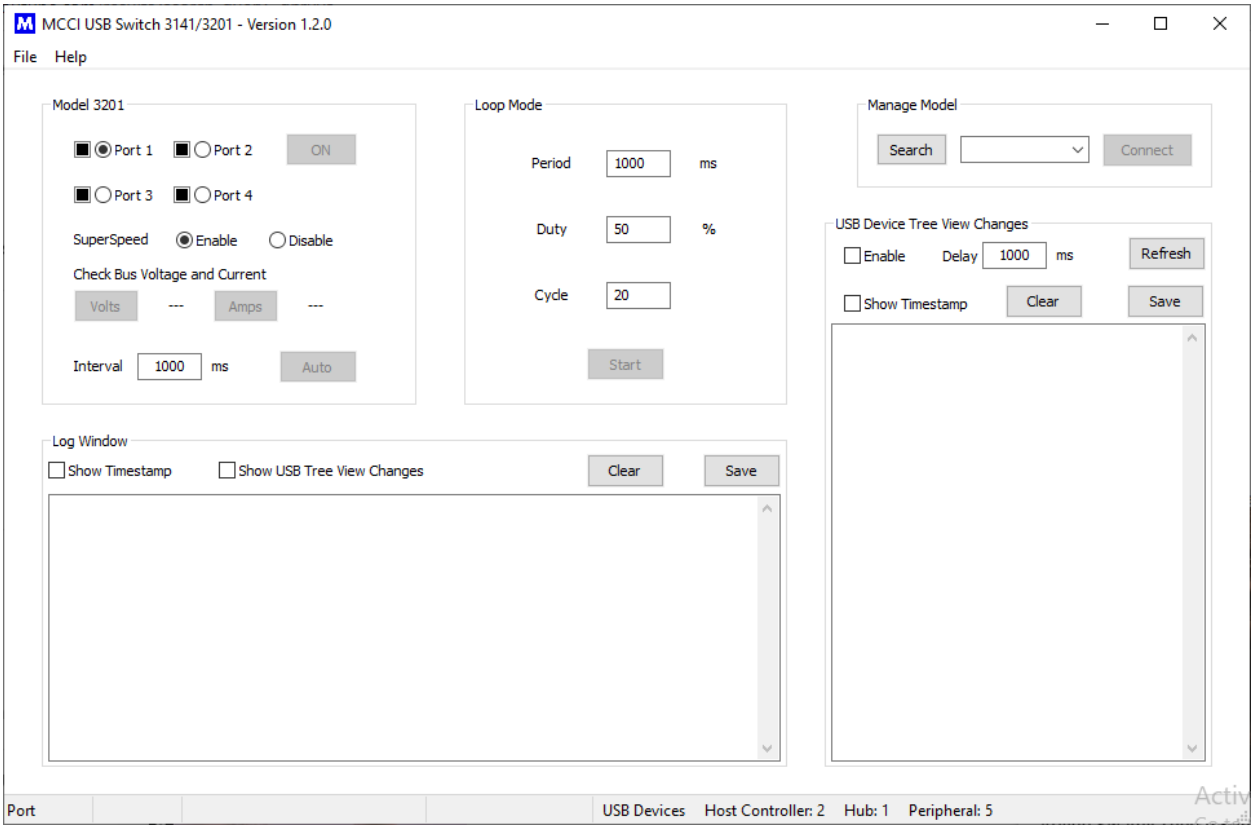
1 Introduction

MCCI® developed a common UI "MCCI® USB Switch 3141/3201 GUI" to control the Model 3141 USB4™ Switch and Model 3201 Enhanced Type-C Connection Exerciser. This document provides instructions on how to use features provided by the GUI application and other available control options. GUI overview is shown in the Figure 1

Figure 1 Model 3141/3201 GUI Overview



2 Models Supported

2.1 Model 3141 USB4™ Switch

The MCCI® Model 3141 USB4™ Switch is a computer-controlled programmable 2:1 switch, connecting two USB Type-C™ receptacles to a single Type-C plug. It is compatible with USB4 hosts and devices, as well as older protocols such as Thunderbolt™ 3, USB 3.2 gen2 or gen1, USB 2.0, USB Type-C Alternate Modes, and of course Power Delivery.

The Model 3141 USB4 Switch automates connect/disconnect of one or two devices to a USB Type-C port. It can be used in stress testing, switching between peripherals (for example, a dock and a display), or any automated reconfiguration of a USB Type-C port. For more information, see the product home page at www.mcci.com.

Figure 2 Model 3141 USB4 Switch

2.2 Model 3201 Enhanced Type-C Connection Exerciser

The MCCI model 3201 Enhanced Type-C Connection Exerciser (MUTT ConnEX-C) plugs and unplugs up to 4 USB-C® devices for automated testing of USB Type-C® products. For more information, see the product home page at www.mcci.com.

Figure 3 Model 3201 Type-C Connection Exerciser

3 Download and Installation

Download the installation setup for "MCCI USB Switch 3141/3201 GUI" software from here; Knowledge base section in MCCI portal (https://portal.mcci.com/portal/kb).

4 MCCI USB Switch 3141/3201 GUI Overview

When the installation successfully completes, execute "`UI3141-3201`" file, from `Start → All Programs`, or from the shortcut provided on the desktop. When the application starts, the following GUI screen displays as Figure 1. The GUI window contains these sections:

- `Manage Model`: Listed the number of devices attached in it and the user can select the device to be controlled.
- `Model 3201/3141 Ports Control`: It has the option to control the ports of the device, this varies for Model 3141 and 3201.
- `Loop Mode`: Switch the selected port in cyclic mode.
- `USB Tree View Changes`: It displays the features of the attached Devices on to the port.
- `Log Window`: Print the device's switching activity logs with timestamp.
- `Status Bar`: It displays the status of the connected switch devices and control system's USB controller status. As shown in Figure 4
- `Menu Bar`: It has a File and Help menu. As shown below in Figure 5

Figure 4 Status Bar

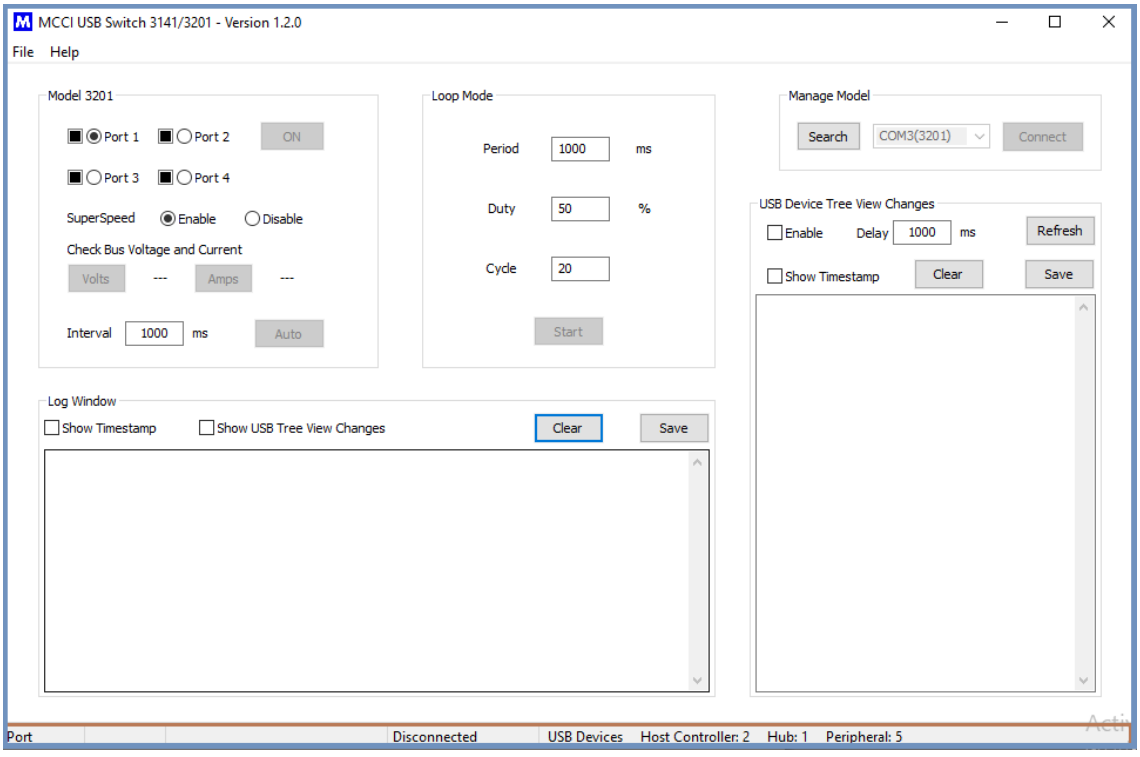
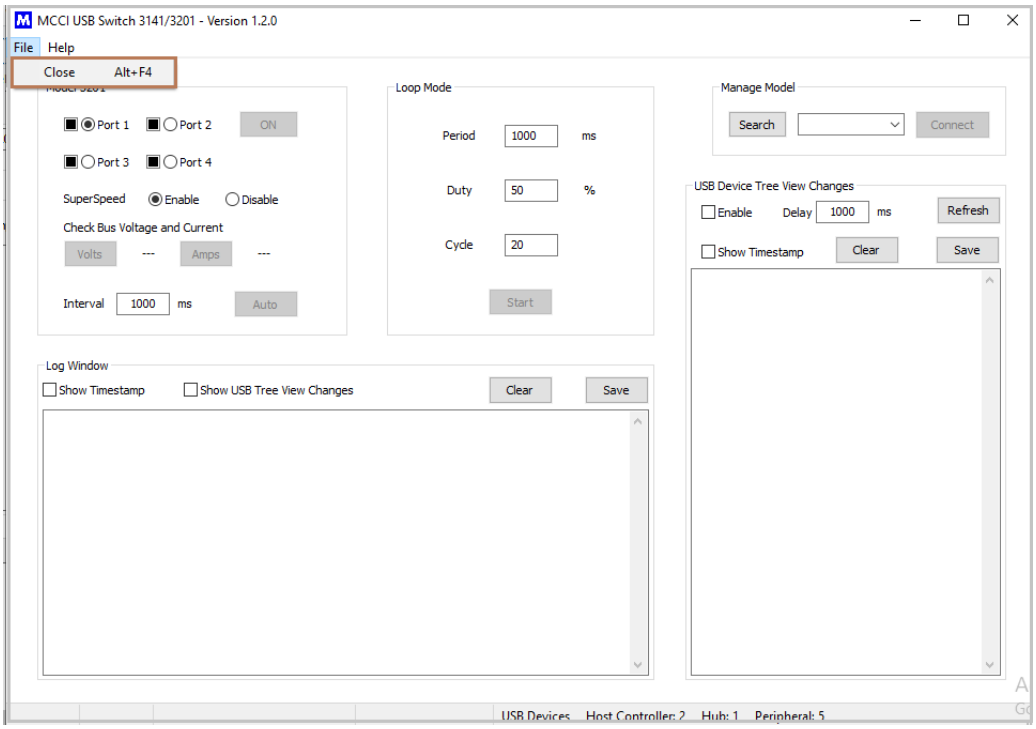
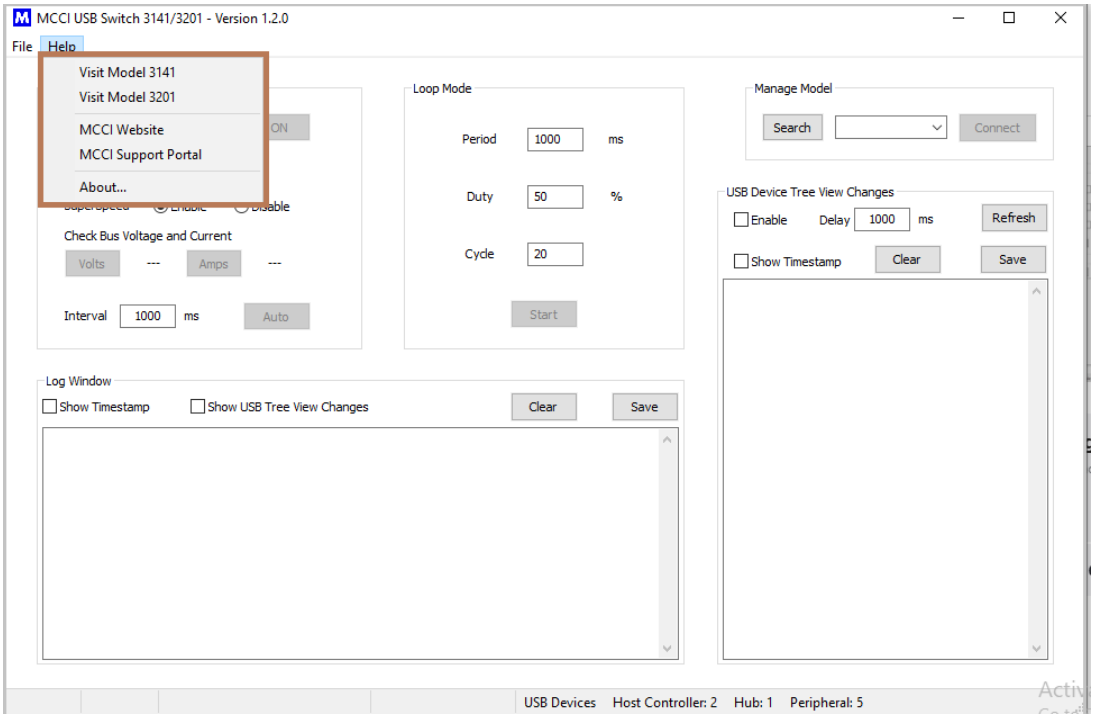


Figure 5 Menu Bar

FILE MENU



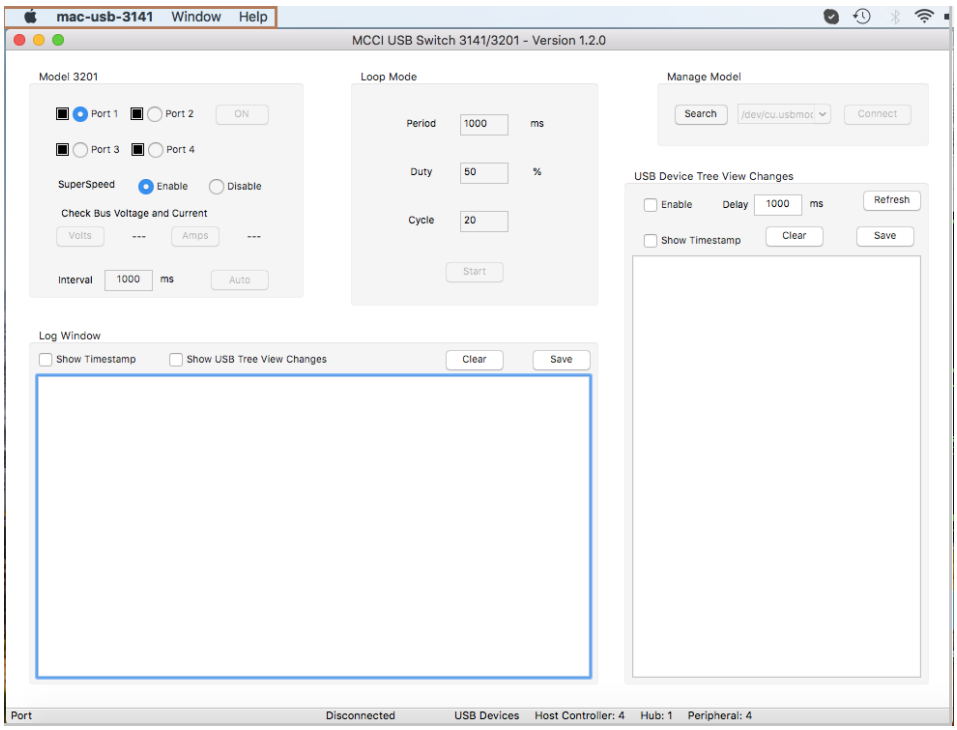
HELP MENU



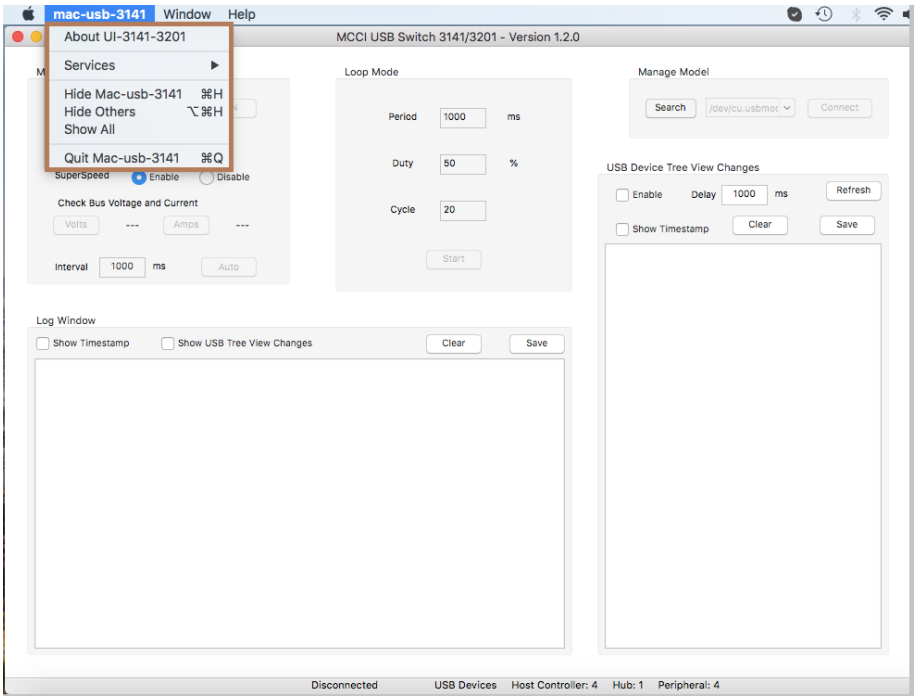
5 Mac OS Menu Overview

The menu bar in Mac OS has three menus, UI3141-3201, Window and Help menu as shown in Figure 6.

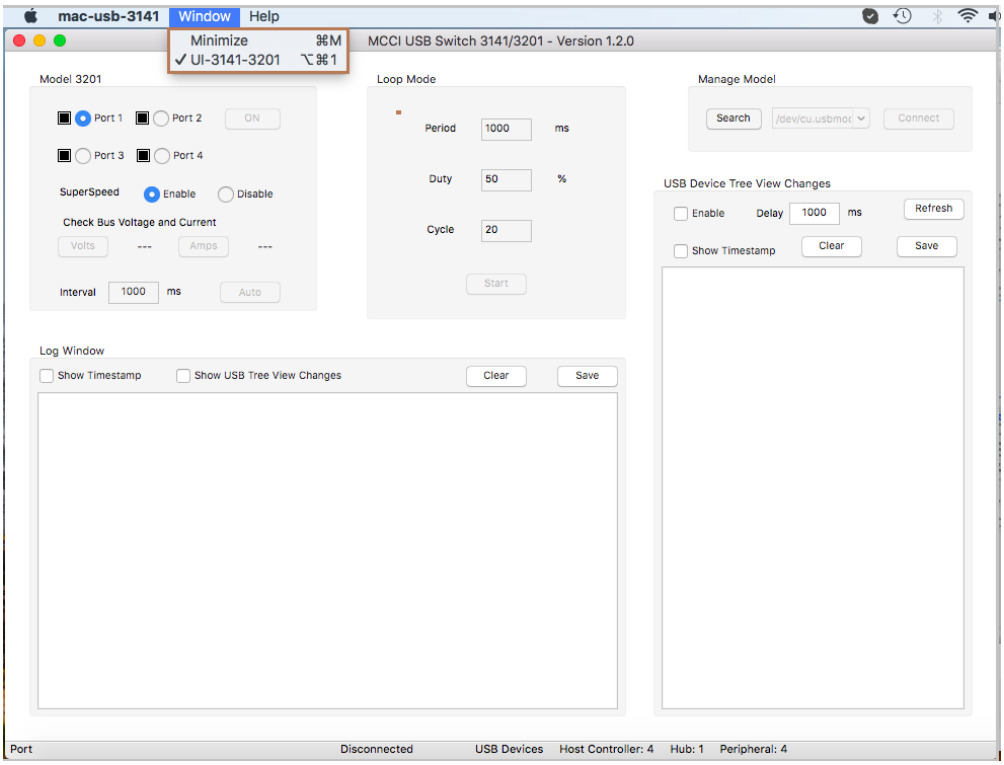
Figure 6 Menu bar in Mac OS



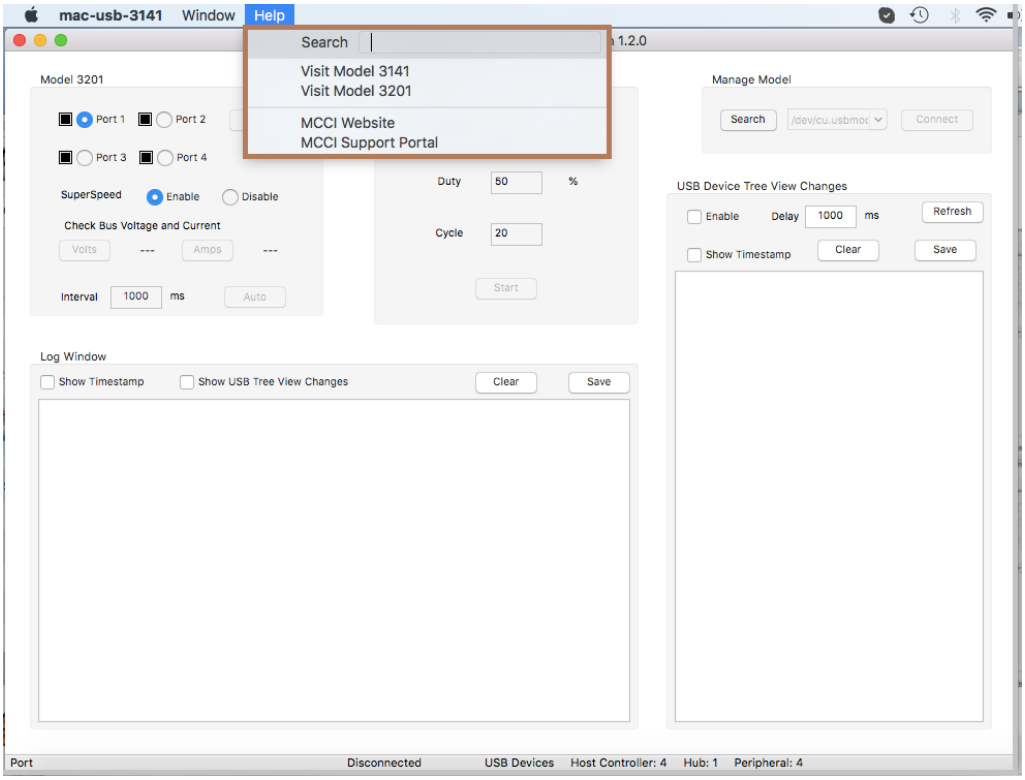
UI3141-3201 APP MENU



WINDOW MENU



HELP MENU



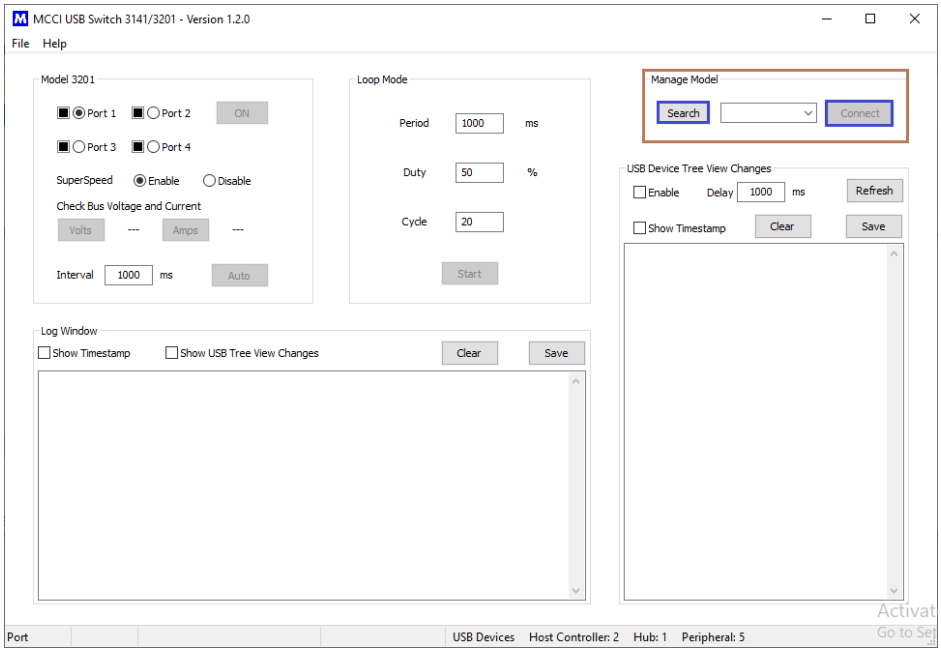
6 GUI Features and Options

The GUI features and options are explained in this section.

6.1 Model Selection

The GUI can automatically detect the 3141 and 3201 models. The models 3201 or 3141 can be selected from the `Manage Model` tab as shown in Figure 7.

Figure 7 Device Selection



Click the 'Search' button to get the list of connected, supported USB models, select a model from the drop down menu and click ‘connect’ button to manage the model. The Model panel gets changed based on the connected model.
The Manage Model control options and descriptions are mentioned in Table 1.

Table 1 Manage Model Options

Control Option	Description
Search	Clicking on that Search Button will show the attached devices in the USB bus/network
Connect	Clicking on that Connect Button, connect the selected device
Disconnect	Clicking on that Disconnect Button, Disconnect the selected device

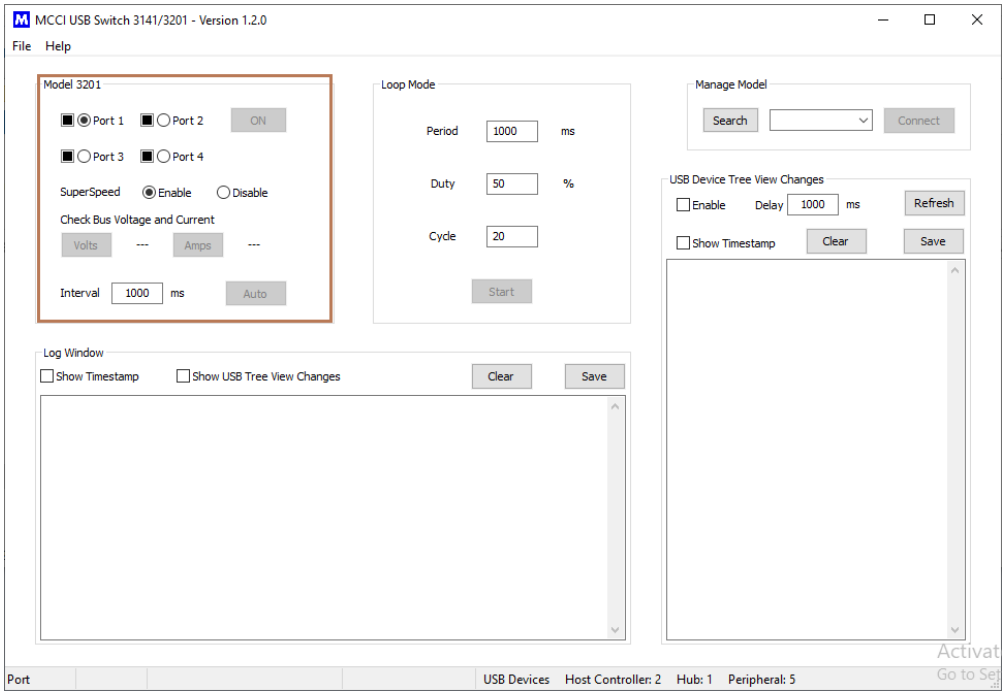
6.2 Model 3201 UI Control Window

The control window of 3201 Model appears in the UI, when the device should be changes 3201 Model is selected from the `Manage Model Panel` as shown in Figure 8.

The control options of Model 3201 are explained below:

- Four radio buttons to select the active port
- ON/OFF switch to control the port state.
- Radio button to Enable/Disable the SuperSpeed lines
- Volts and Amps button
    - Click on the Volts button will print the bus voltage
    - Click on the Amps button will print the current flow with the direction.
        - Negative value - Current flow from SUT (System Under Test) to DUT (Devices Under Test)
        - Positive value - Current flow from DUT to SUT
- Auto switch (continuously switch between the ports in the defined interval)
- Window to provide an auto-mode switching interval

Figure 8 Model 3201 UI Control Window



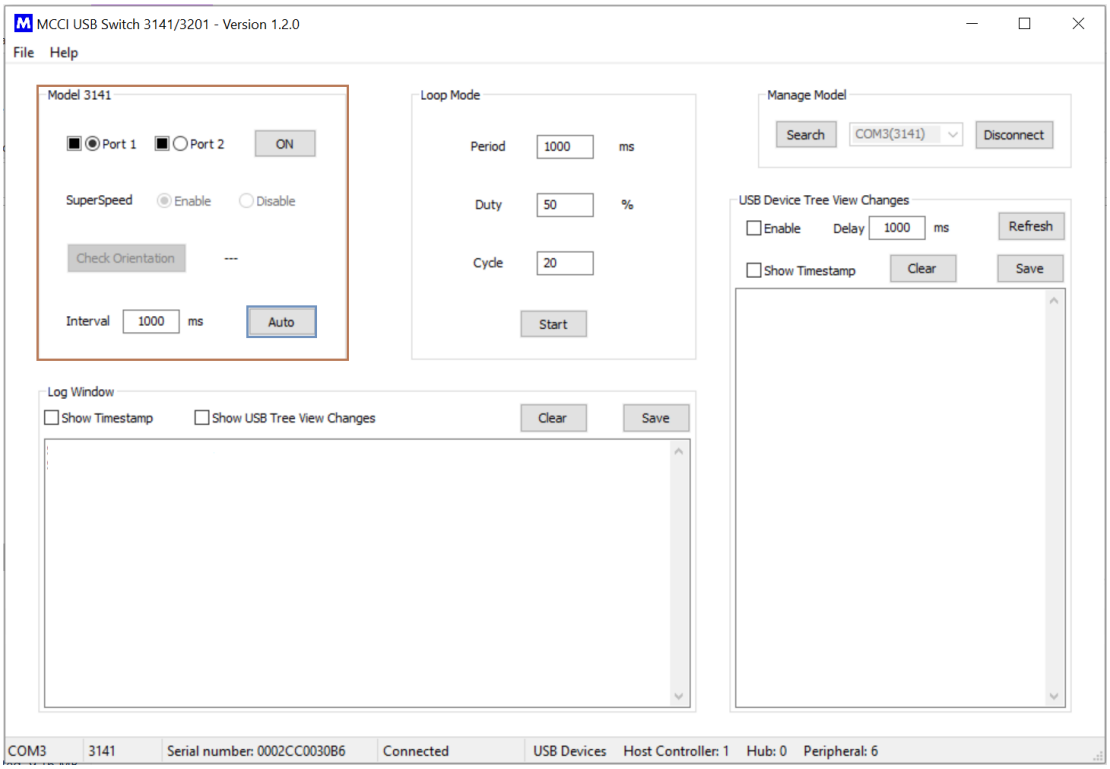
6.3 Model 3141 UI Control Window

The control window of 3141 Model appears in the UI, when the device should be changes 3141 Model is selected from the *`Manage Model Panel`* as shown in Figure 9.

The control options of Model 3141 are explained below:

- Two radio buttons to select the active port
- ON/OFF switch to control the port state.
- Check Orientation button to show the Type-C connector connection (Normal/Flip)
- Volts and Amps button prints the VBUS voltage and current consumption with direction
- Auto mode button and a window to provide switching interval.

Figure 9 Model 3141 UI Control Window



6.4 Modes of Operation

In order to control the device, the GUI has supported 3 modes of operation

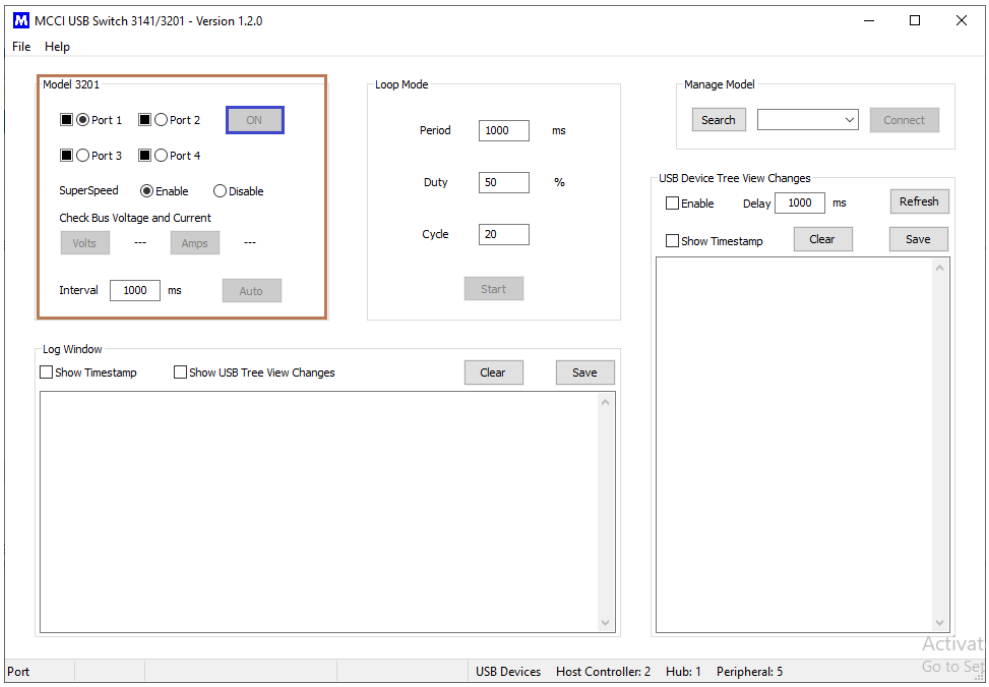
- Manual Mode
- Auto Mode
- Loop Mode

This section contains the detailed explanation about the modes.

6.4.1 Manual Mode

- The active port needs to be selected via the radio button.
- The selected switch port can be controlled manually using ON/ OFF button in the UI as shown in the Figure 10.
- Enable/Disable the SuperSpeed anytime using the radio button.

Figure 10 Model 3201/3141 Manual Mode



- The Model 3201 or Model 3141 Icon(s) and description are mentioned in Table 2.

Table 2 Model 3201/3141 Manual Mode Control Options

Icons	Description
PORT <n>	Select the active port using the radio button
ON/OFF	The selected port should be ON /OFF
Super speed Enable and Disable	Enable/Disable super speed option

6.4.2 Auto Mode

- In GUI, the auto mode is used to switch between the available port(s) of the selected device's continuously with configured delay (Default is 1000ms).
- User can't change the Port and Speed in the middle of loop mode execution
- This mode (Model 3201) can start/stop using the `Auto` button shown in Figure 11.
- This mode (Model 3141) can start/stop using the `Auto` button shown in Figure 12.

Figure 11 Model 3201 Auto Mode Controls

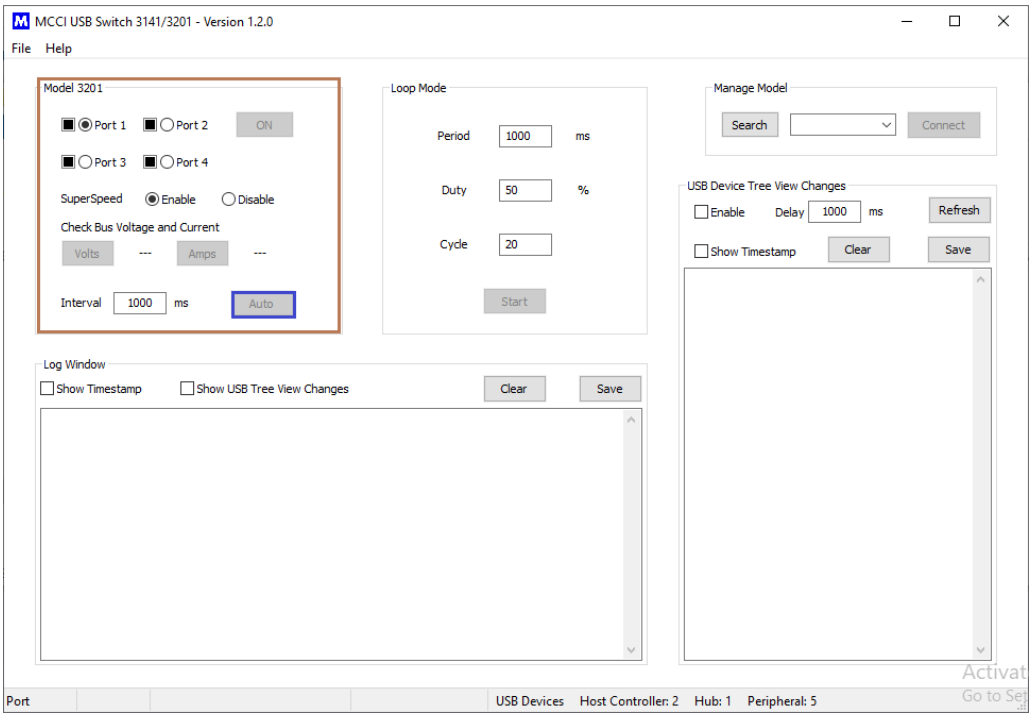
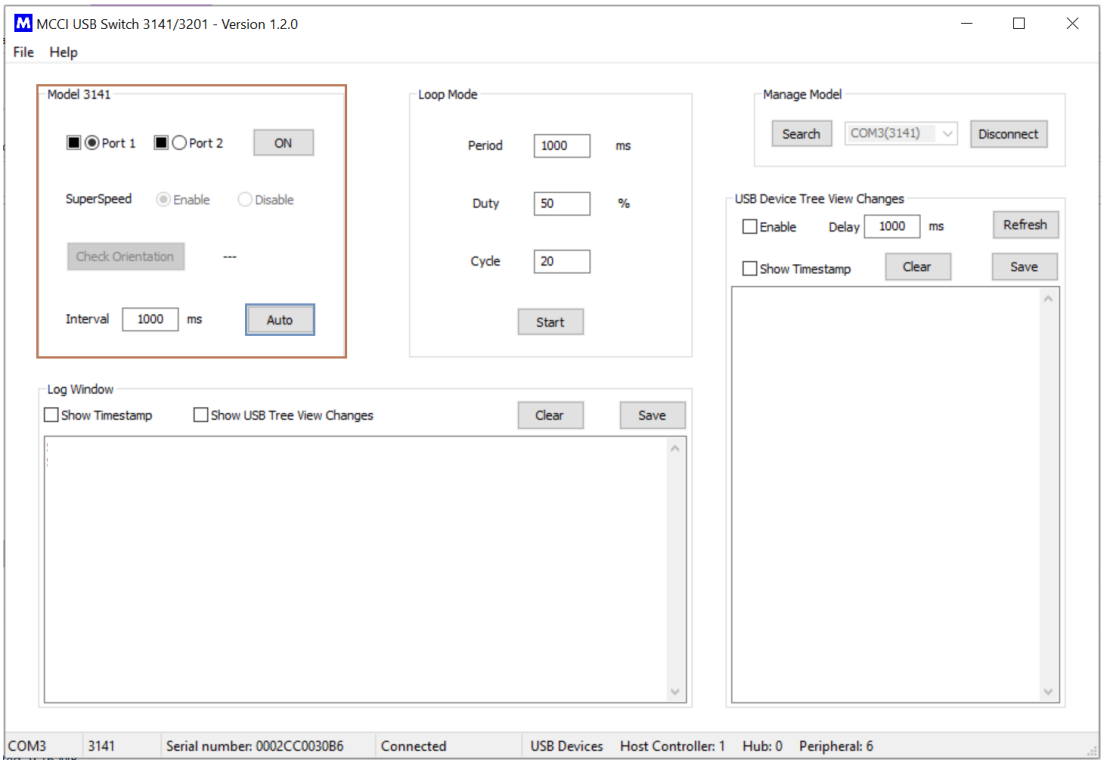


Figure 12 Model 3141 Auto Mode Controls



Note: If USB Device Tree Changes option is enabled, Then Delay specifies in that window is override the auto-mode interval.

The Model 3201 or 3141 auto mode control options and description are mentioned in Table 3.

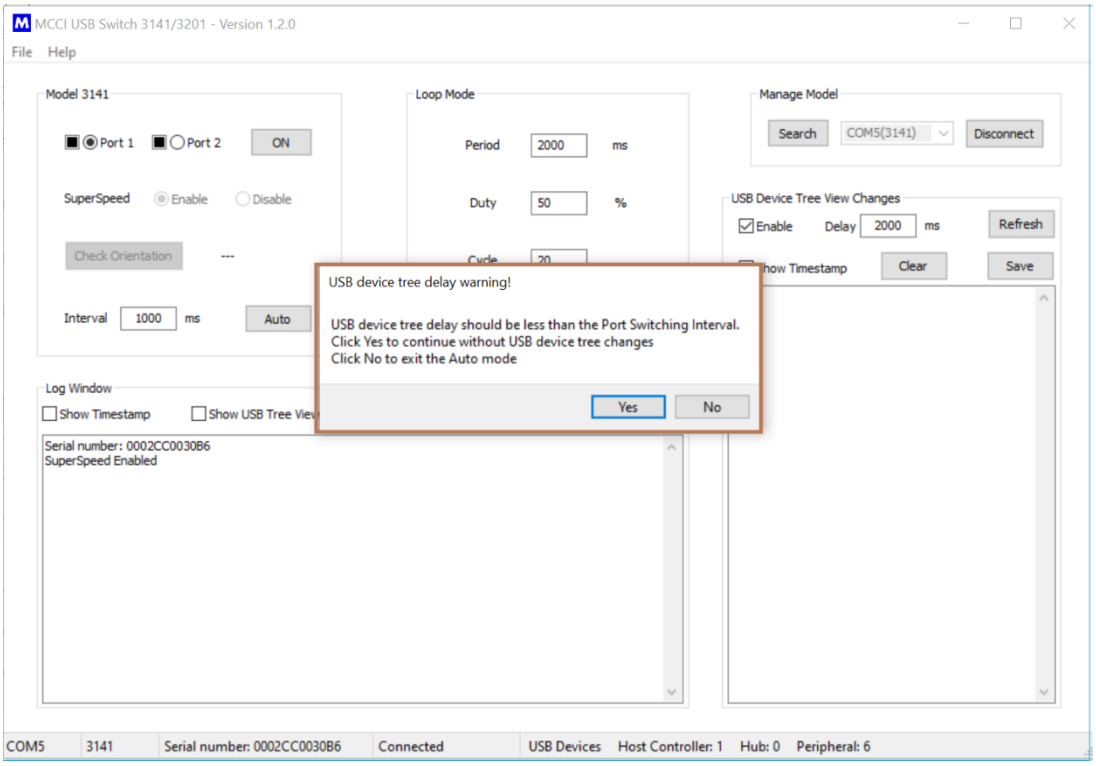
Table 3 Model 3201/3141 Auto Mode Control Options

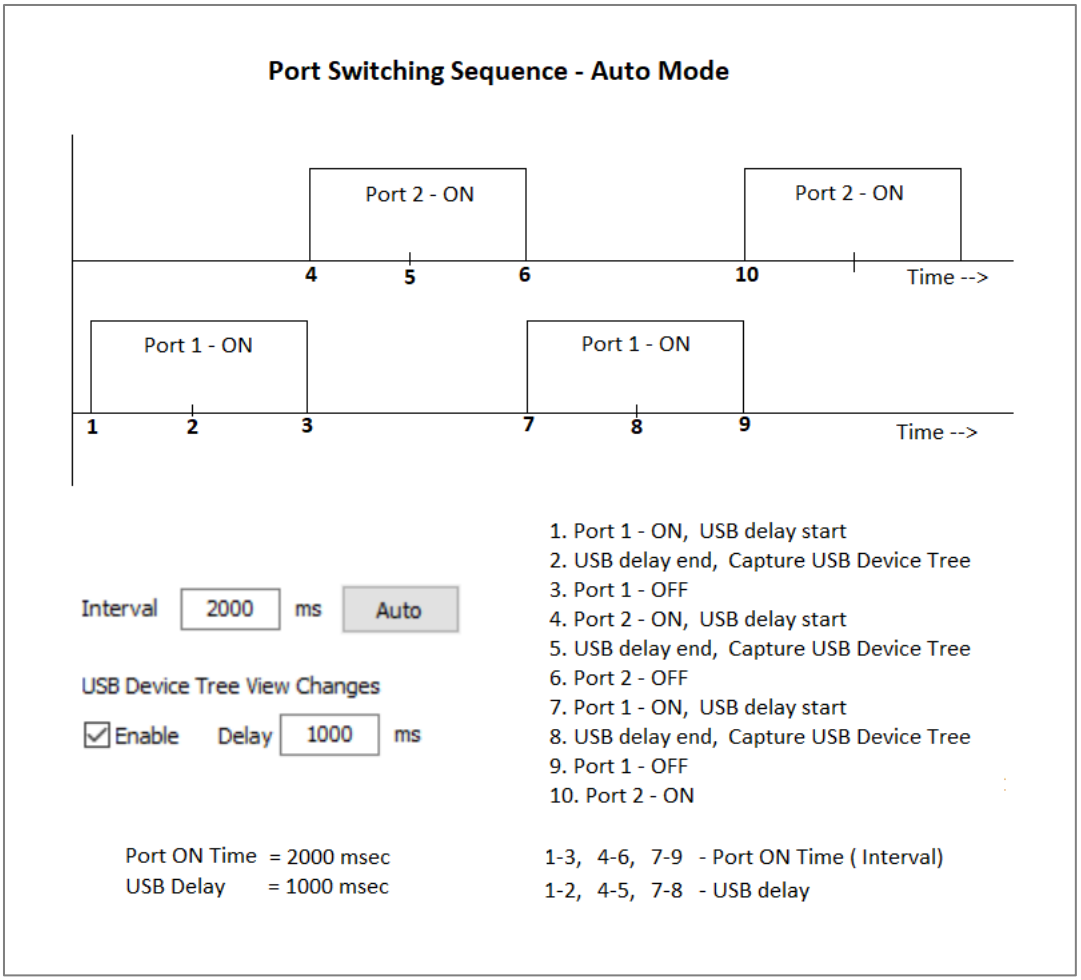
Control Option	Description
SuperSpeed Enable /Disable	Enable/Disable SuperSpeed option
Interval	Auto-mode switching interval (ms); Default 1000 ms
Auto/Stop	Start/Stop the auto mode

Whenever the `Auto` control is clicked, the program will compare the `Interval` time with the `USB Device Tree Changes` delay, if it is less than that, then warning message will be displayed with two choices ,the warning message shown in Figure 13.

Choice 1: Click Yes – to start the Auto mode without USB Device Tree Changes option.
Choice 2: Click No – to cancel the Auto mode start action, then user need to update the Interval time manually.

Figure 13 USB device tree delay warning-Auto Mode

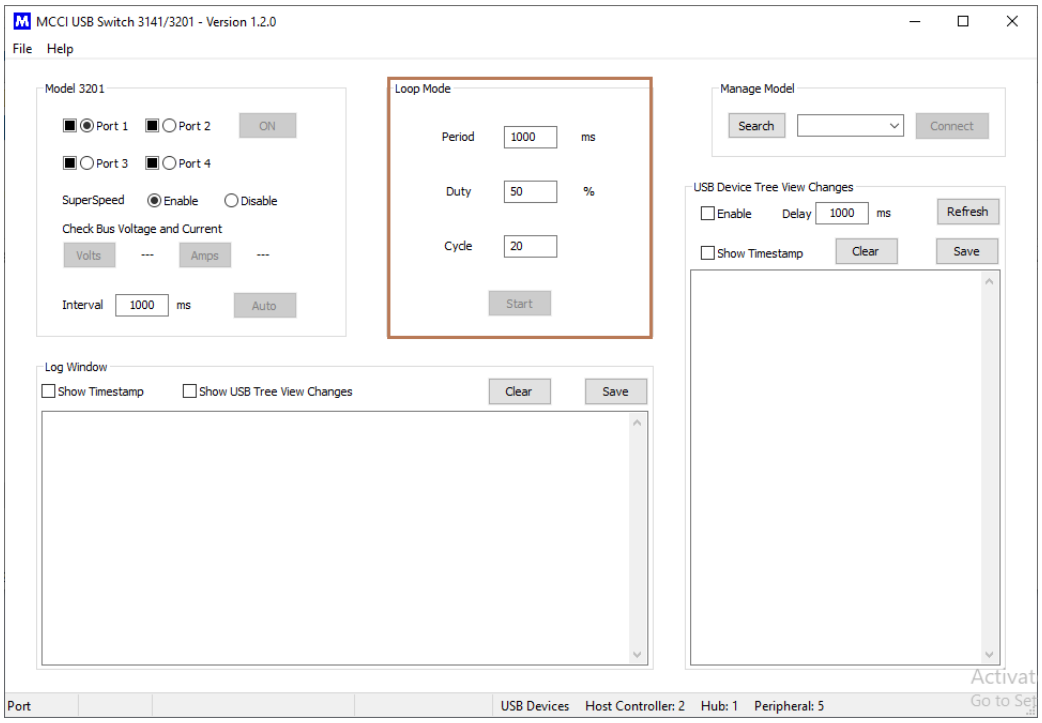




6.4.3 Loop Mode

- In Loop Mode, the selected port will be switched ON/OFF based on the number of cycles given, the period and duty will determine the ON/OFF time of the port.
- Click on the **`Start`** button automatically starts the loop mode operation.
- Click on the **`Stop`** button to stop the loop mode operation.
- User can't change the Port and Speed in the middle of loop mode execution.
- Loop mode control and its default values are shown in Figure 14.

Figure 14 Model 3201/3141 Loop Mode Controls



The Model 3201 or 3141 loop control options and description are mentioned in below Table 4.

Table 4 Model 3201/3141 Loop Mode Control Options

Control Option	Description
Period	Time between two successive on cycle (ms)
Duty	Percentage of ON time in total time period (ON + OFF).
Cycle	Number of cycles
Start/Stop	Start the loop / Stop the loop.

The Model 3201 or 3141 Loop mode configuration default values and Descriptions are mentioned in Table 5.

Table 5 Model 3201/3141 Loop Mode Configuration Default Values

Parameter	Default Values
Period	2000 ms
Duty	50%
Cycle	20

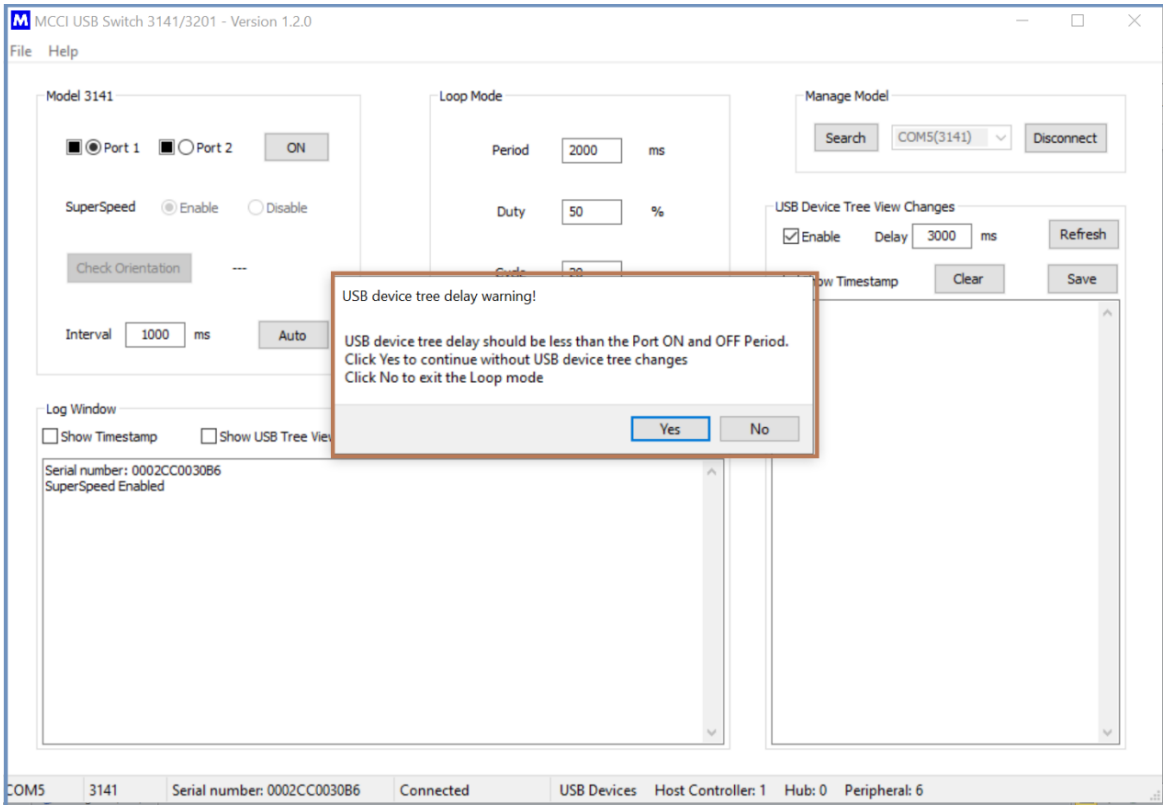
Note: If USB Device Tree Changes option is enabled, Then Delay specifies in that window is override the auto-mode interval.

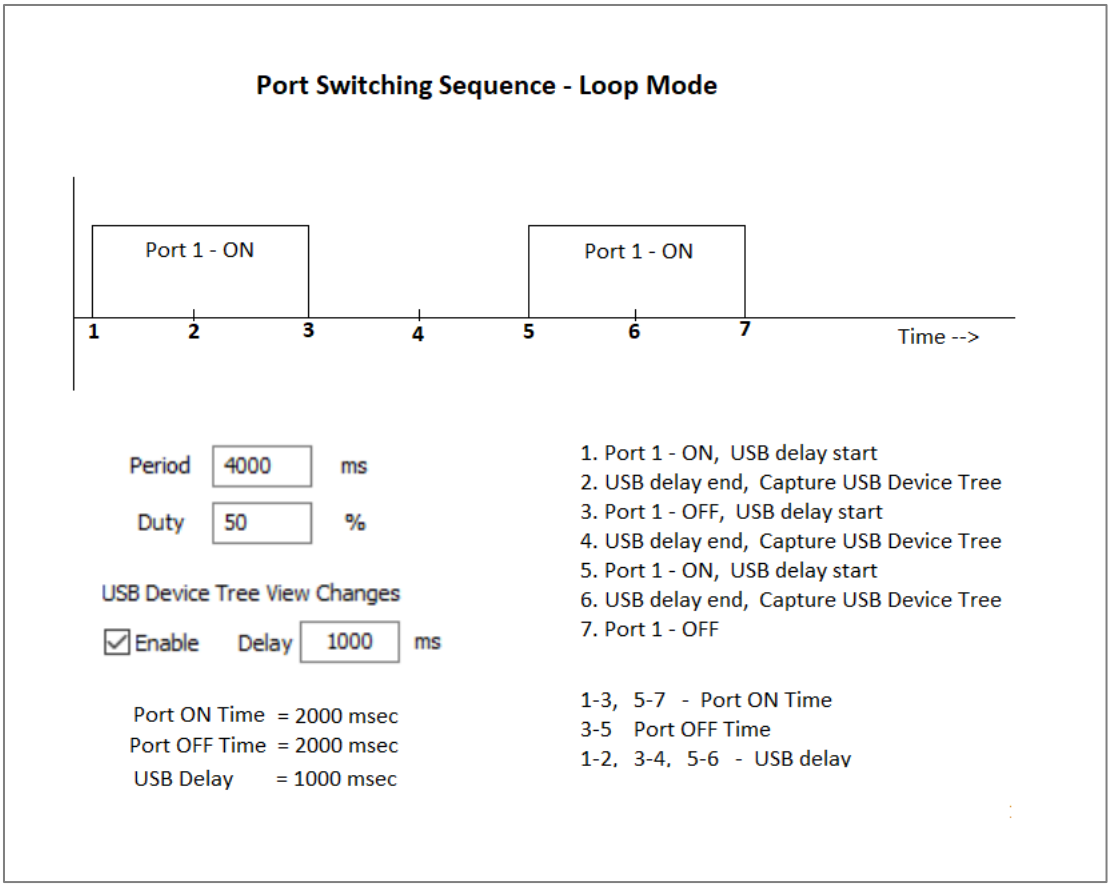
Whenever the Start control is clicked, the program will compare the Period (ON Time and OFF Time) with the USB Device Tree Changes delay, if it is less than that, then warning message will be displayed with two choices , the warning massage shown in Figure 15.

Choice 1: Click Yes – to start the Loop mode without USB Device Tree Changes option.

Choice 2: Click No – to cancel the Loop mode start action, then user need to update the Period and Duty manually.

Figure 15 USB device tree delay warning-Loop Mode





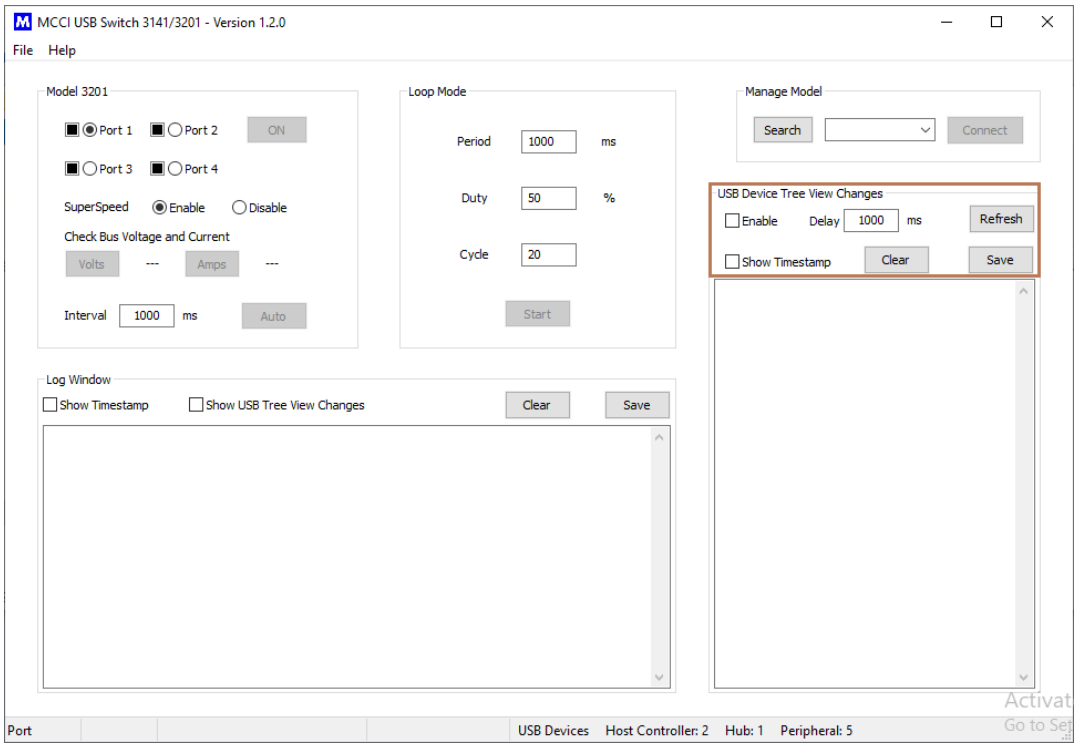
6.5 USB Tree View Changes

This feature is convenient for the users to check the plug-in/plug-out list of the USB devices after every port state changes.

The options of the `USB Tree View changes` are explained in this section. The respective UI window is shown in the Figure 16.

- `Enable`: Tick the checkbox to enable USB device tree changes feature
- `Delay`: Min delay required for port connect/disconnect of the device (Depends on connected device enumeration time)
- `Refresh`: Gets the list of connected USB device (s) and display the changes in “USB Device Tree View Changes” panel.
- `Show Timestamp`: Option to log the device changes with timestamp
- `Clear`: Clears the log window
- `Save`: Save the log to a file in selected location

Figure 16 USB Device Tree View Change Control Options



6.5.1 USB Delay Override

Whenever USB Device Tree Changes option is enabled, then the program will compare the Interval time with the USB Device Tree Changes delay, if it is less than that, then the Interval time will be overridden by the USB Device Tree Changes delay.

For example Interval = 1000 msec , Delay = 2000 msec, when the USB Device Tree Changes option is enabled, then the Interval will be updated as 2000 msec by the program.

Whenever USB Device Tree Changes option is enabled, then the program will compare the Period (Port ON Time and Port OFF Time) with the USB Device Tree Changes delay, if it is less than that, then the Period will be calculated based on the USB Device Tree Changes delay and Duty to make both Port ON Time and OFF Time equal to the USB Device Tree Changes delay.

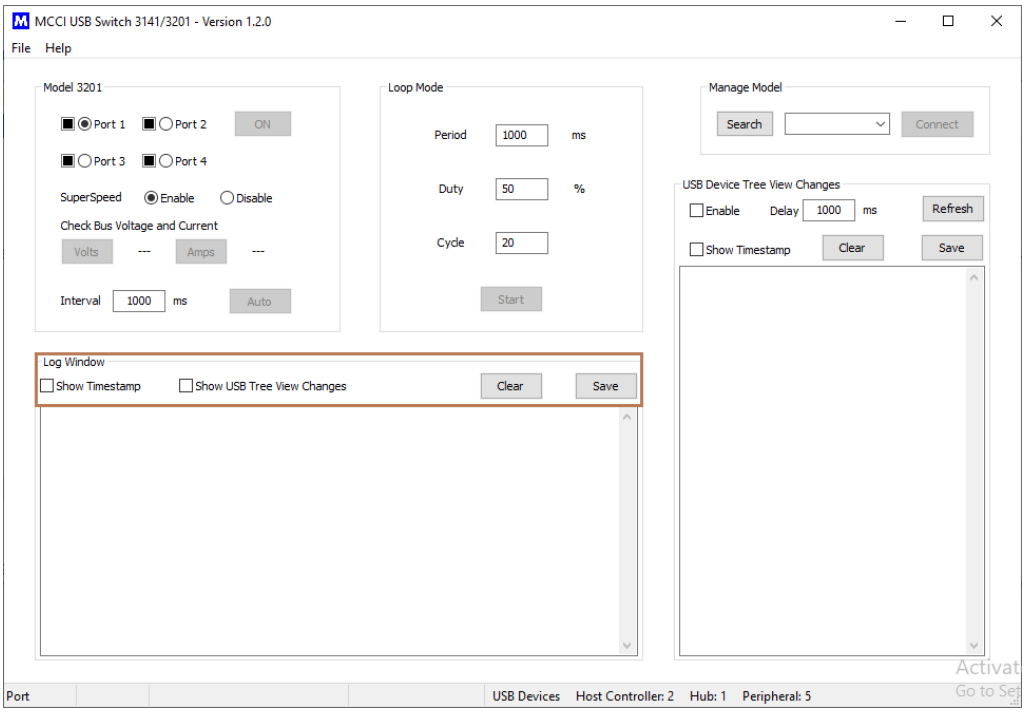
For example Period = 4000 msec, Duty = 75%, Delay = 2000 msec. Based on the Period and Duty Port ON Time = 3000 msec, Port OFF Time = 1000 msec. When the USB Device Tree Changes option is enabled, then the Period will be updated as 8000 msec to make the Port OFF Time equal to the Delay which is 2000 msec.

7 Log Window

The log window helps to log the device activities, it has an option to enable and disable the timestamp. Log window UI show in Figure 17.

- `Show Timestamp`: Option to log the device changes with timestamp
- `Show USB Tree View Changes`: Option to merge the USB device tree view changes log in the log window
- `Clear`: Clears the log window
- `Save`: Save the log to a file in selected location.

Figure 17 Log Window



7.1 Disconnect & Close the Application

7.1.1 Disconnect

To DISCONNECT the device, click the `Disconnect` option from the `Manage Model` panel and the selected device can be disconnected.

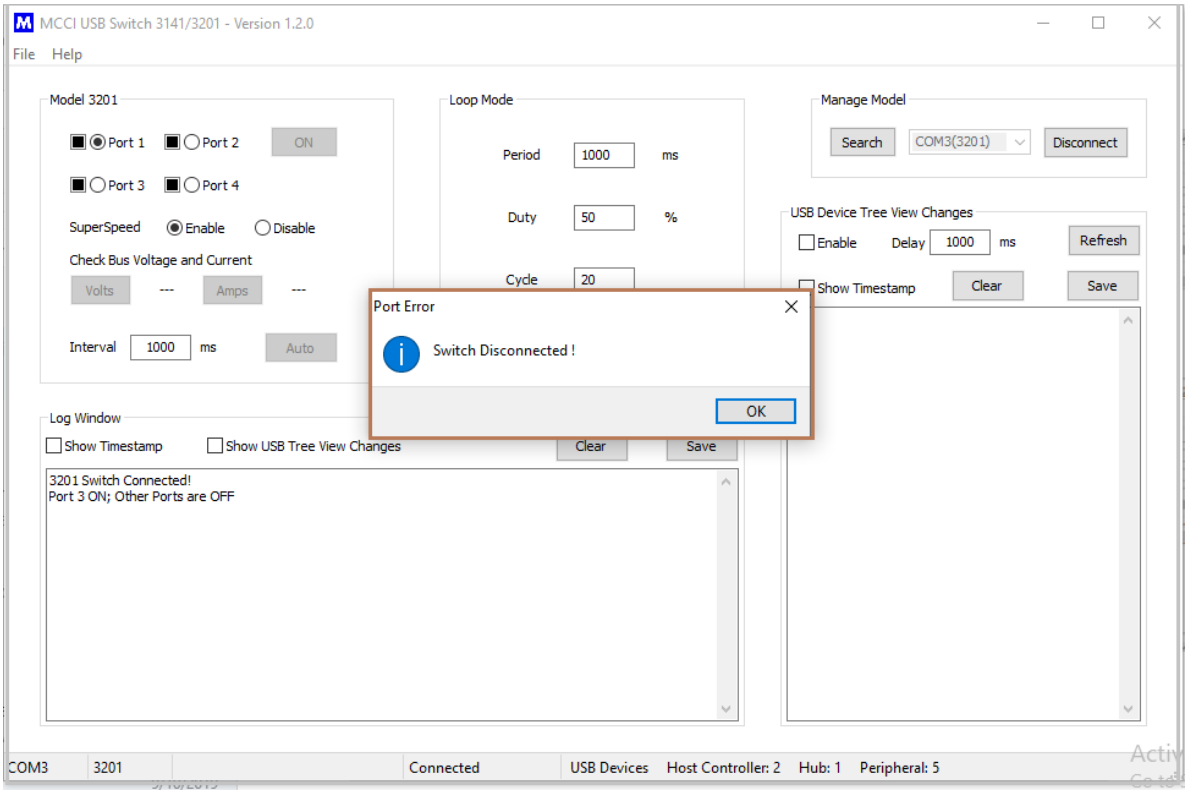
7.1.2 Close

To Close the application. Click `Close` from the `File Menu` as displayed in Figure 5. The application is closed.

7.2 Disconnect Pop-up Notification

The connected 3201 or 3141 device is plugged out while it's being executed the notification message will pop up as **"Switch Disconnected!"** and the notification are shown in the Figure 18.

Figure 18 Disconnect Pop-up Notification



8 Getting Help

If you have a question about using the GUI usage or operation, please visit MCCI's support community. Feel free to post a question! We'll do our best to assist, and you may benefit from the experience of others. You may also post private questions to MCCI by opening a ticket or by sending email to techsupport@mcci.com.