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MCCI Cricket UI User Guide

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PROPRIETARY NOTICE AND DISCLAIMER

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.
Rev D	2021-01-05	Add Support for 2101 USB Connection exerciser and Improvement in UI design.
Rev E	2021-02-23	Python implemented to Pep8 coding standard. Package release for Raspberry Pi OS Ubuntu 18.04.
Rev F	2021-05-03	Add support for 2301 USB Connection Exerciser.
Rev G	2021-07-14	Add new feature for three computers and Two computers system.
Rev H	2021-12-07	Feature added Plotting of VBUS VI, USB tree view removed and merged with log window.
Rev I	2022-12-07	Supporting Thunderbolt device tree view in Mac DUT(device under test) feature added.
Rev J	2023-05-24	Add support for MCCI USB Switch 3142. Add support for Firmware update through Switch 3141 and Switch 3142.

Rev K	2023-11-30	Add VI chart support for Switch 3142. USB4/TB4 Speed Information. USB4/TB4 Tree View.
Rev L	2024-01-22	Supported Two and Three Computer system. Added support for disconnecting switch.
Rev M	2024-05-13	Support USB3 Tree View.

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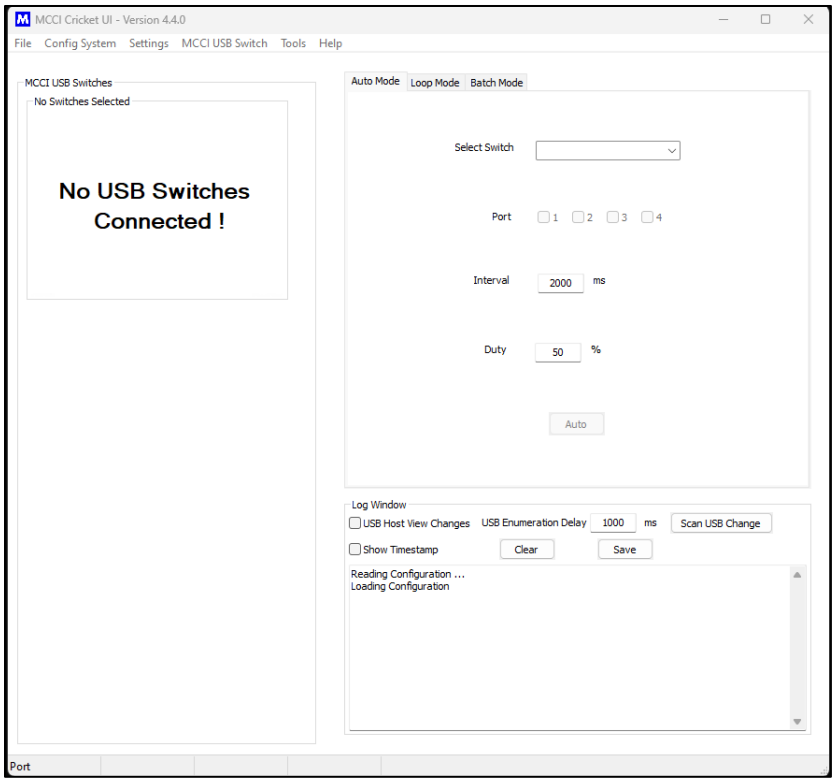
1 Introduction

MCCI developed a common UI "**MCCI® Cricket UI**" to control the "MCCI USB Switch 3141" and "MCCI USB Switch 3201 Enhanced Type-C Connection Exerciser", " MCCI USB Switch 2301 Type-A gen2 Connection Exerciser" and "MCCI USB Switch 2101 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 MCCI Cricket UI Overview



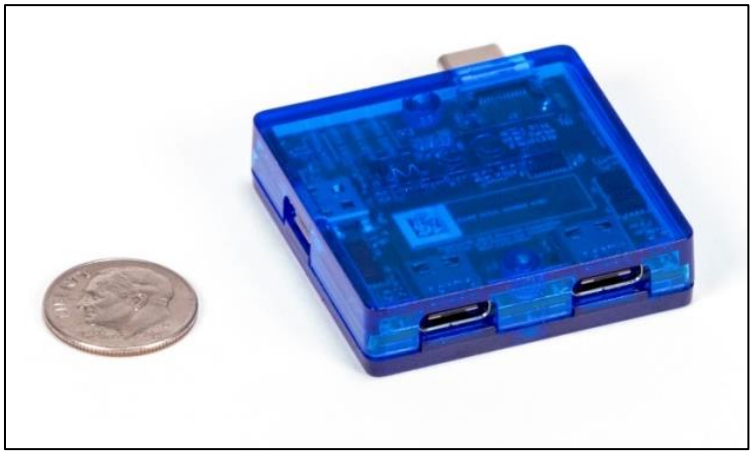
2 MCCI USB Switch Supported

2.1 MCCI USB4 Switch 3141

The MCCI® MCCI USB4™ Switch 3141 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 show in Figure 2

The MCCI USB Switch 3141 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 MCCI USB4 Switch 3141



2.2 MCCI USB Switch 3201 Enhanced Type-C Connection Exerciser

The MCCI MCCI USB Switch 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 shown Figure 3. For more information, see the product home page at www.mcci.com.

Figure 3 MCCI USB Switch 3201 Type-C Connection Exerciser

2.3 MCCI USB Switch 2101 USB Connection Exerciser

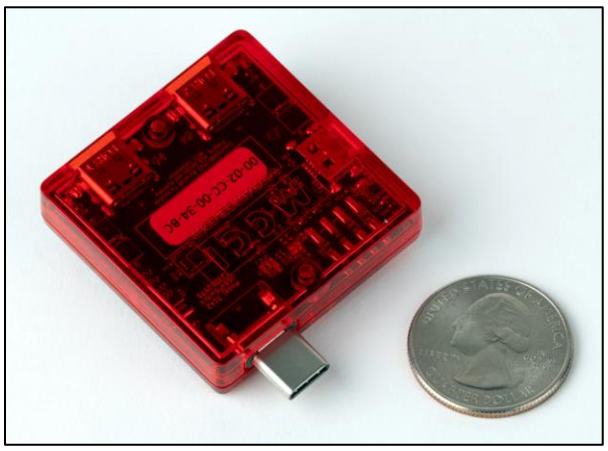
The MCCI USB 3.0 Connection Exerciser MCCI USB Switch 2101 Figure 4 automatically connects and disconnects a USB 2.0 or 3.2 gen1 host and device under push-button or software control. Connections can be single-stepped or repeated. The manual modes are useful for debugging attach/detach scenarios. For more information, see the product home page at www.mcci.com.

Figure 4 MCCI USB Switch 2101 Connection Exerciser

2.4 MCCI USB4 Switch 3142

The MCCI® Model 3142 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 at signaling rates up to 40 gigabits/second, as well as other protocols such as Thunderbolt™ 4, Thunderbolt™ 3, USB 3.2, USB 2.0, USB Type-C Alternate Modes, and of course USB Power Delivery. It also supports Extended Power Range (EPR) sources and sinks, allowing it to be used with source and sinks at up to 48V at 5A. The MCCI USB Switch 3142 automates connect/disconnect of one or two devices to a USB Type-C port. Itcan be used in stress testing, switching between peripherals (for example, a dock and a display), or any show in Figure 5 automated reconfiguration of a USB Type-C port. For more information, see the Product Home Page atwww.mcci.com.

Figure 5 MCCI USB4 Switch 3142

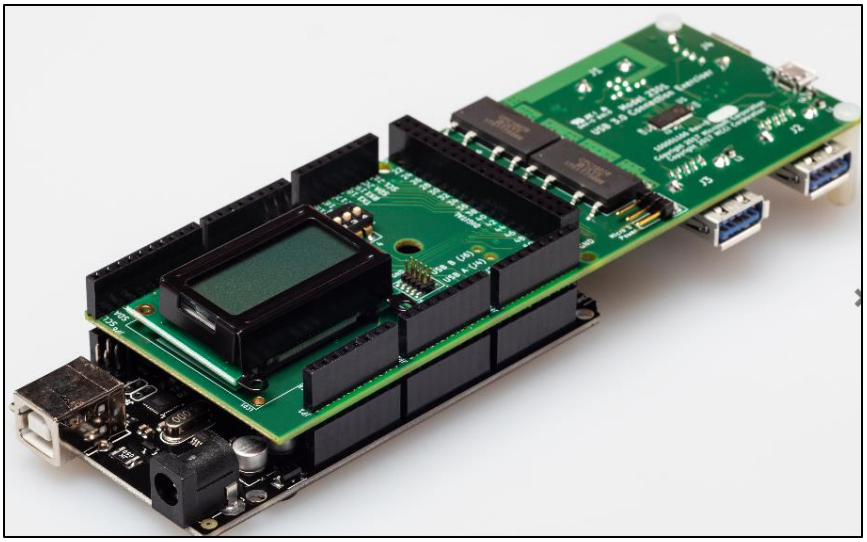


2.5 MCCI USB Switch 2301 Type-A USB3.2 Gen2 Connection Exerciser

The MCCI USB Switch 2301 Type-A Connection Exerciser provides a four-to-one USB switch to automate interoperability tests for systems USB 3.2 gen1 or gen2. It uses the supplied Arduino-based controller and electronic switches to electrically plug and unplug any of the four different input ports. The Gen2-

capable Type-B plug can be connected to either of two Type-A receptacles, to a Standard-A receptacle (USB 2.0 only), or a Micro-B receptacle (USB 2.0 only). The Type-A Gen2 receptacles support USB 3.2 (gen 1 and gen 2) and USB 2.0 (high speed, full speed and low-speed) devices. The Standard-A receptacle supports USB 2.0 devices. . For more information, see the product home page at www.mcci.com, for the reference to show Figure 6

Figure 6 MCCI USB Switch 2301 Type-A USB3.2 Gen2



3 Downloading and Installation

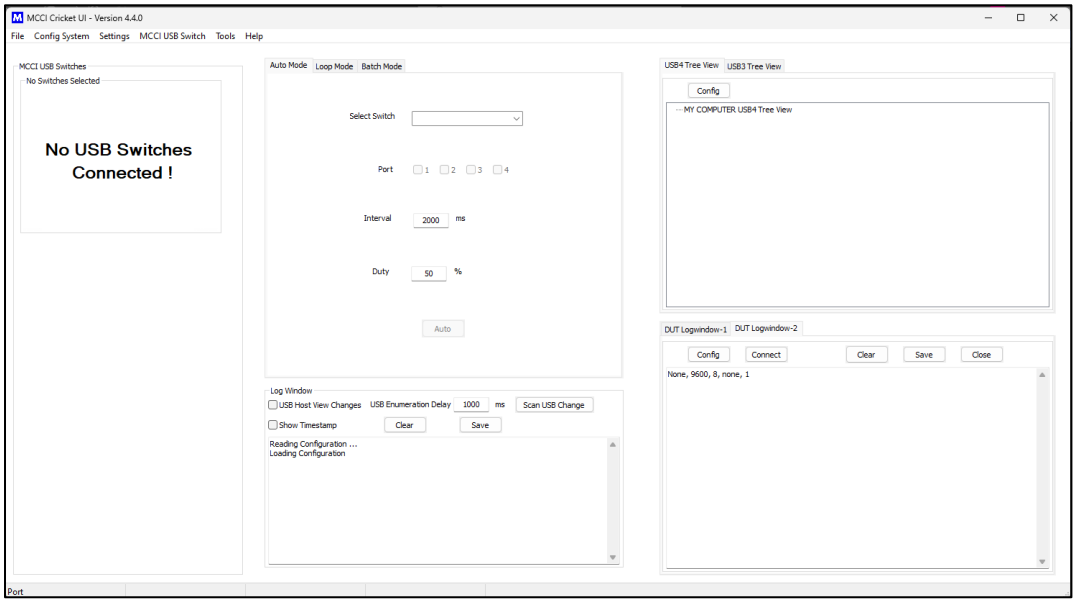
Download the installation setup for "MCCI USB Switch Cricket UI" software from here, the Knowledge base section in MCCI portal (https://portal.mcci.com/portal/kb) and follow the instruction for software installation.

4 MCCI Cricket UI Overview

When the installation successfully completes, execute the "Cricket UI" file, from Start → All Programs, or from the shortcut provided on the desktop. When the application starts, the following GUI screen displays, the GUI window contains these following sections to shows in the Figure 7

- MCCI USB Switch 3201/Switch 3141/Switch 3142/Switch 2101/ Switch 2301.
- **Port Control**: MCCI USB Switch 3141, 3201, 2301, and 2101 offer options to control individual ports on the device.
- **Loop Mode:** Allows users to cyclically switch between selected ports.
- **Device Selection or Auto mode:** Displays a list of attached devices, enabling users to choose the device they want to control.
- **USB Device Tree View:** Provides a detailed view of the attached devices and their features on each port.
- **Log Window:** Prints device switching activity logs along with timestamps for reference.
- **Menu Bar:** Includes File, Config System, Setting, MCCI USB Switch, Tools and Help menus for additional functionalities.
- **Scan USB Changes:** Shows details of USB device Added or Removed Information.

Figure 7 MCCI Cricket UI v4.2.0 Overview



5 Different Computer System

This Cricket UI application consists of three modules, such as User Interface, Device Control and USB Test Host.

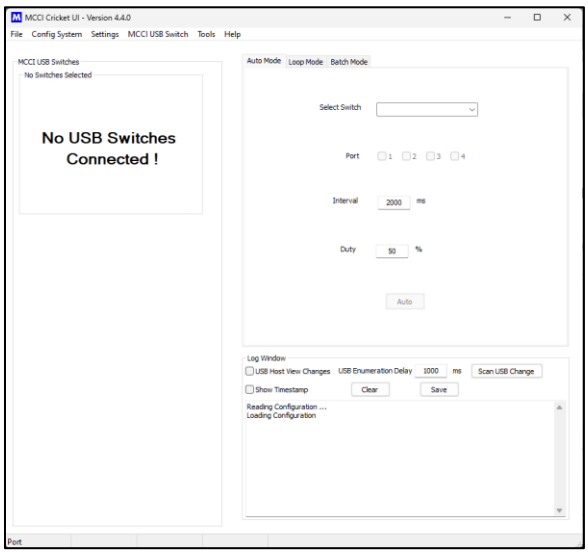
User Interface enables the user to access all features of this application which includes interface and control of all required USB Connection Exercisers (USB Switches), this module is called as User Computer. Device Control module works closely with the connected USB switches gets input from and send responds to the User Interface module, this USB Switch is called as Control Computer,

USB Test Host module provides the list of USB devices connected with the computer; User Interface module sends request to this module whenever USB device list is required. This module is called Test Host Computer.

5.1 User Computer

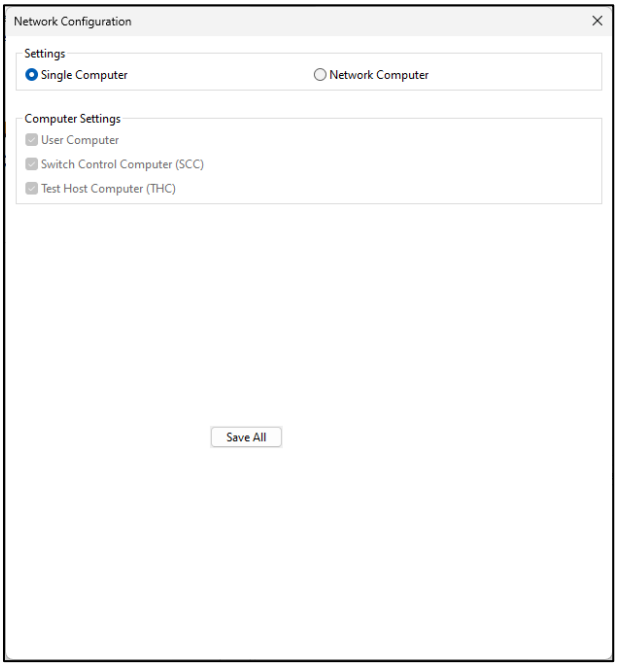
Open the application in one computer, go to the *Config System* and select the *User Computer* sub menu, now the application runs user interface module in that computer, in this configuration all the three modules are runs in a single computer, user can enable this as show. Configuration by selecting all sub menu provided under the *Config System* menu shown in Figure 8.

Figure 8 USER (Main) Computer



6 Single Computer System

Figure 9 Singe computer System.



1. Goto Setting Menu
2. Select all check boxes.
3. Click on Save All.

Users can select all the checkboxes corresponding to the User Computer, Switch Control Computer, and Test Host Computer. After making the selections, click on "Save All." Now, the system is configured to function as a single integrated computer, combining the capabilities of the User Computer, Switch Control Computer, and Test Host Computer for the reference shown in Figure 9.

7 Multicomputer

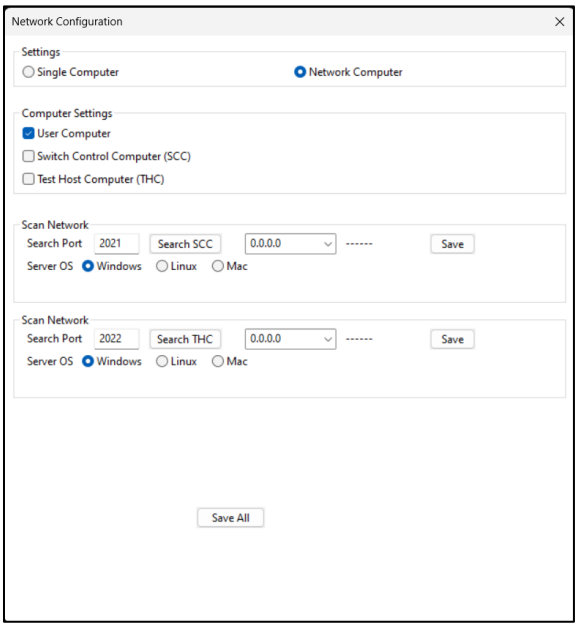
The Multicomputer system is designed to facilitate networking on a local network. It consists of three main entities: User Computer, Switch Control Computer, and Test Host Computer. The system provides a user interface that allows users to configure and manage the network settings.

7.1 User Computer:

The User Computer is the primary computing device used by the end-user. It is equipped with the Multicomputer UI, allowing the user to configure and control the network settings. Users can specify parameters such as IP addresses, Port address, and other network-related configurations through the intuitive interface. For the reference shown in below Figure 10.

1. Goto Settings Menu
2. Click on Configurations.
3. Select “Network Computer”
4. Enable “User Computer”
5. Disable Switch Control Computer.
6. Disable Test Host Computer.

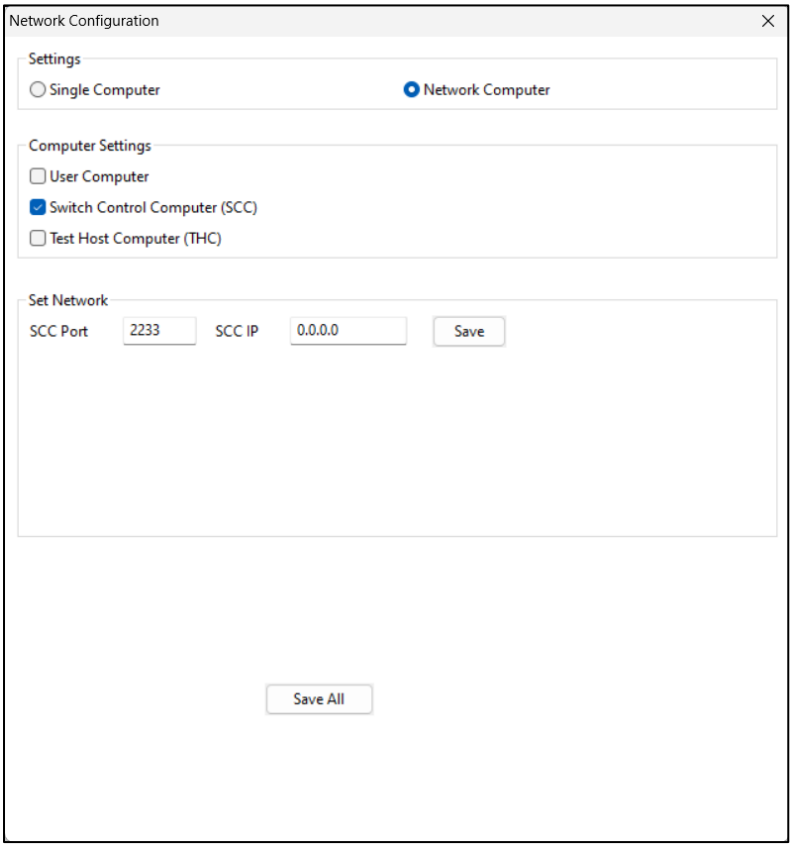
Figure 10 User Computer Setting



7.2 Switch Control Computer:

The switch control computer acts as a Server. When a user's computer attempts to connect through the local network with the same subnet port address, once the connection is established, the user's computer initiates a search for switches. The primary responsibility of the Switch Control Computer is to control the MCCI switches for the reference shown in below Figure 11.

Figure 11 Switch Control Computer



1. Goto Setting Menu.
2. Click on Configuration menu.
3. Select “Network Computer”
4. Enable Switch Control Computer.
5. Disable User Computer and Test Host Computer

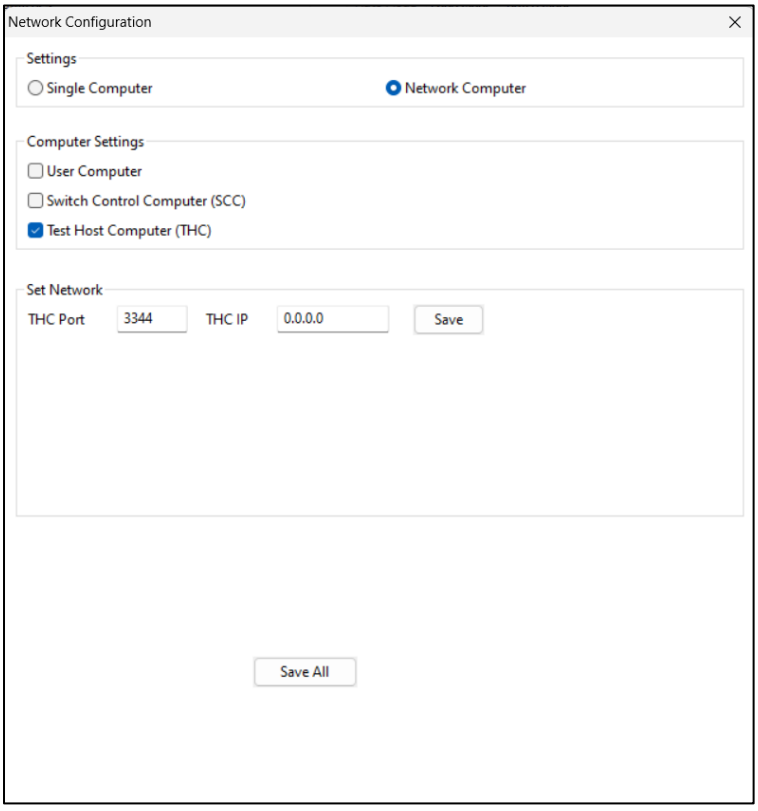
7.3 Test Host Computer

The Test host computer acts as a Server. When a user's computer attempts to connect through the local network with the same subnet port address, once the connection is established, the user's computer updates the USB host changes for the reference show in below Figure 12.

The main function of the Test Host Computer is to monitor and assess device host performance when a device is added or removed.

1. Goto Setting Menu.
2. Click on Configuration menu.
3. Select “Network Computer”.
4. Enable Test Host Computer.
5. Disable User Computer and Switch Control Computer.

Figure 12 Test Host Computer



8 Two Computer System

Figure 13 System-1 User Computer (Client)

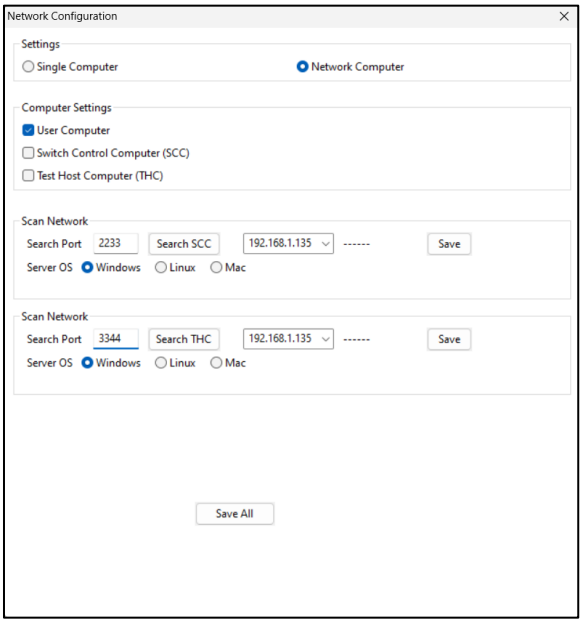
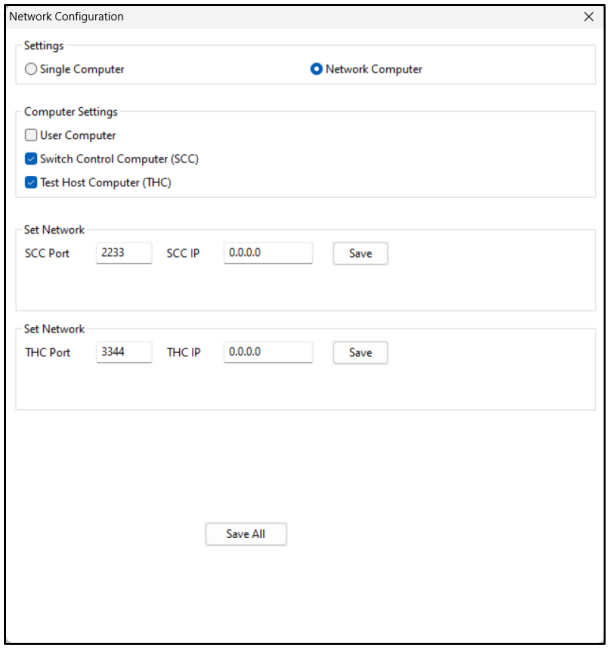


Figure 14 System-2 SCC and THC (Server)



Assuming the User computer is running Windows while the Switch Control Computer (SCC) and Test Host Computer (THC) are set up on Linux, Mac, or Windows servers, the User computer should select the appropriate server OS type.

After the setup is complete, configure the port settings for both SCC and THC. Click on "Search SCC" and "Search THC" to initiate a continuous search for the servers. Once a connection is established, the user gains control over the MCCI Switches and USB Host.

For the user understanding shown the Figure 13 and Figure 13

9 Three Computer System

System 1: User Computer (UC) on Linux/Mac/Windows see the setup in below Figure 15.

System 2: Switch Control Computer (SCC) on Linux/Mac/Windows see the setup in below Figure 16

System 3: Test Host Computer (THC) on Linux/Mac/Windows see the setup in below Figure 17

In this scenario, the User computer runs on Windows, while the SCC and THC are set up on separate machines, each running Linux, Mac, or Windows.

After completing the setup, configure the port settings for both SCC and THC. Execute the "Search SCC" and "Search THC" commands to initiate a continuous search for the respective servers. Once a successful connection is established, the user gains control over the MCCI Switches and USB Host.

Figure 15 User Computer

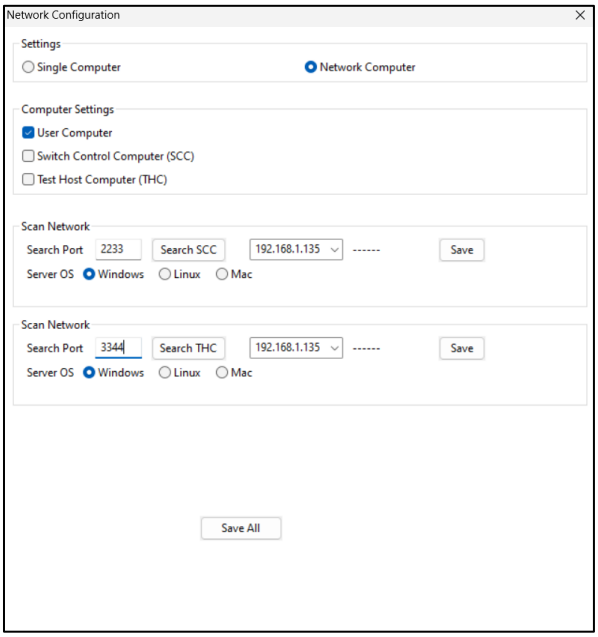


Figure 16 Switch Control Computer (Server-1)

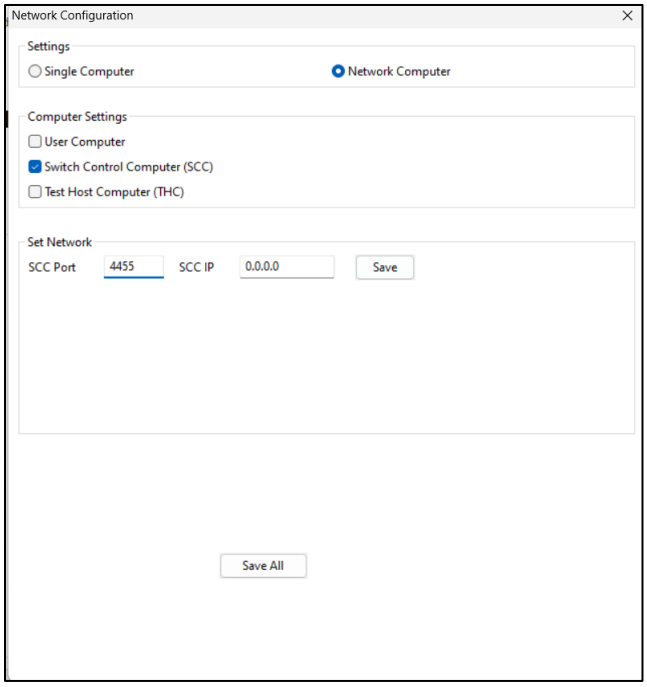
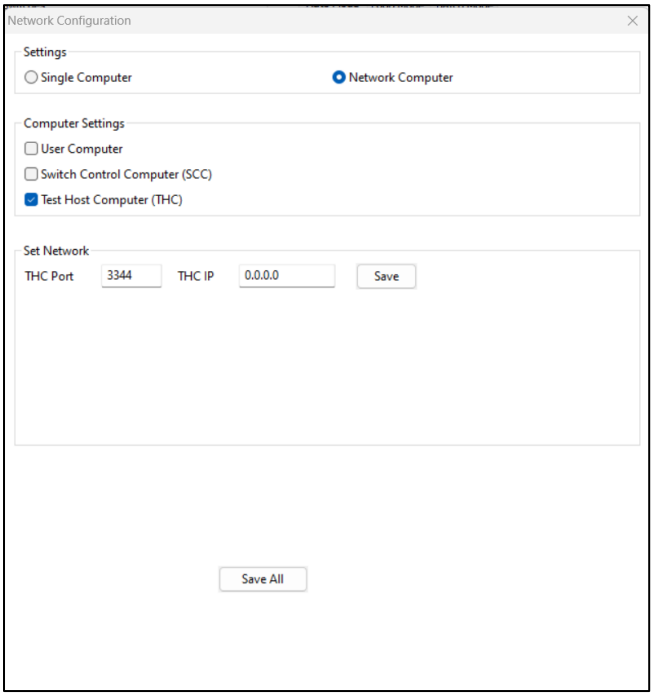


Figure 17 Test Host Computer (Server-2)



10 GUI Feature and Option

10.1 Select MCCI USB Switch

Upon clicking the "MCCI USB Switch" menu, the GUI will automatically initiate a scan for connected devices. If a single USB switch is detected, it will be connected directly. In the case of multiple switches, a dialog window will appear, prompting the user to select the desired switch. Once selected, the chosen switch will be added to the selection window and connected.

This enhancement ensures a seamless user experience, allowing for effortless connection to the appropriate MCCI USB Switch.

10.1.1 Automatic MCCI USB Switch Detection:

Open the application and navigate to "Select MCCI USB Switch. “Choose the "Connect" submenu. A dialog window titled "Select MCCI USB Switch" will appear. The application will automatically search for available MCCI USB Switch devices.

10.1.2 Manual MCCI USB Switch Search:

Click the "Search" button to generate a list of connected and supported MCCI USB Switches. From the dropdown menu, select the desired USB Switch. Click the "Connect" button to establish a connection with the selected USB Switch. The MCCI USB Switch panel will dynamically adjust based on the connected Switches. This dual approach provides users with the flexibility to either let the application automatically detect the MCCI USB Switch or manually select from the available options, ensuring a seamless and user-friendly experience.

Control Option	Description
Search	Clicking on that Search Button will show the attached devices in the USB bus/network.
Connect Menu	Clicking on that Connect Button, connect the selected device.
Disconnect Option	In the drop-down list, will find the switch names and COM port numbers of all connected MCCI switches. Select the desired COM port, then click the 'Disconnect' button.

11 Single and Multiple Switch Connection

- Single Switch Connection:
  Upon selecting a single switch, the application establishes a connection, and the interface reflects the presence of the single connected switch device.

- Multiple Switch Connection:

If the user chooses more than one switch (multiple switches), the application establishes connections accordingly. The interface adjusts to display the connected multiple switch devices, to show In Figure 18, Figure 19

Figure 18 Switch Selection Dialog

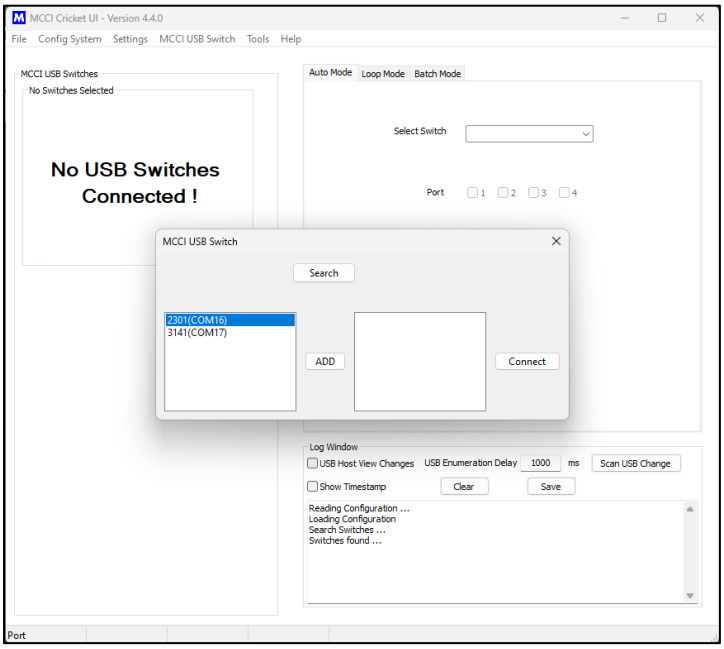
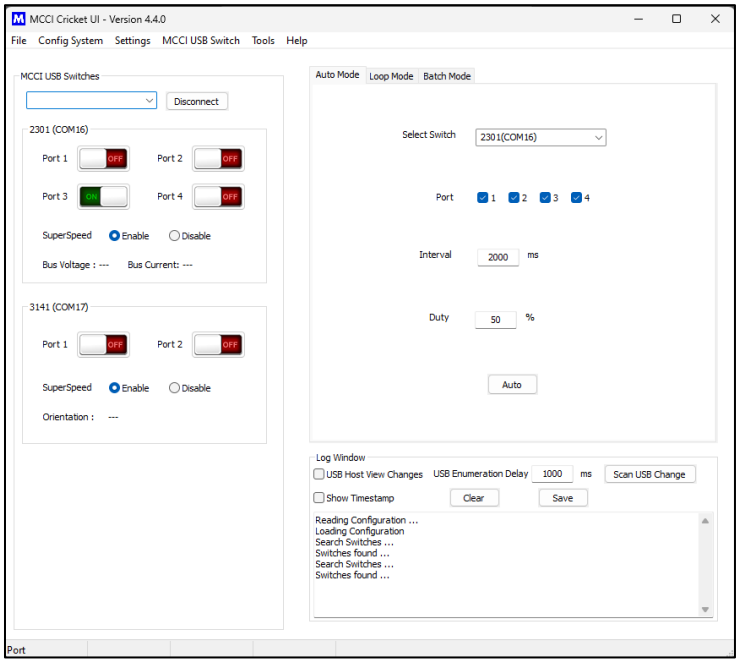


Figure 19 Multiple Switch Connecting

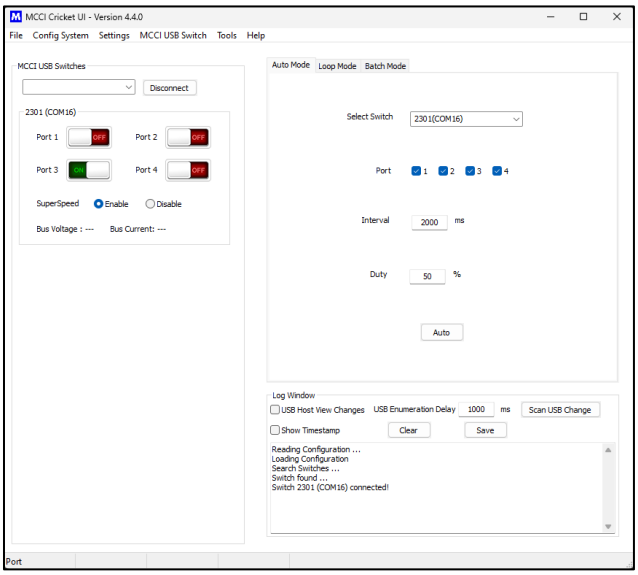


12 MCCI USB Switch 3201 UI Control Window

When the MCCI USB Switch 3201 device is selected from the Manage MCCI USB Switch Figure 20, the control window appears in the UI, featuring the following options:

- Port Buttons:
  Activated after the device is connected, allowing users to control individual ports.
- ON/OFF Switch:
  Controls the state of the port.
- Radio Buttons:
  Choose between Super Speed (Enable) or High Speed (Disable) lines.
- Volts and Amps Buttons:
  Clicking on the "Volts" button prints the Bus Voltage.
  Clicking on the "Amps" button prints the Current Flow with direction:
  Negative Value: Current flows from System Under Test (SUT) to Devices Under Test (DUT).
  Positive Value: Current flows from DUT to SUT.
- Auto Switch:
  Continuously switches between the ports in the defined interval and duty cycle.

Figure 20 Switch 3201 UI Control Window



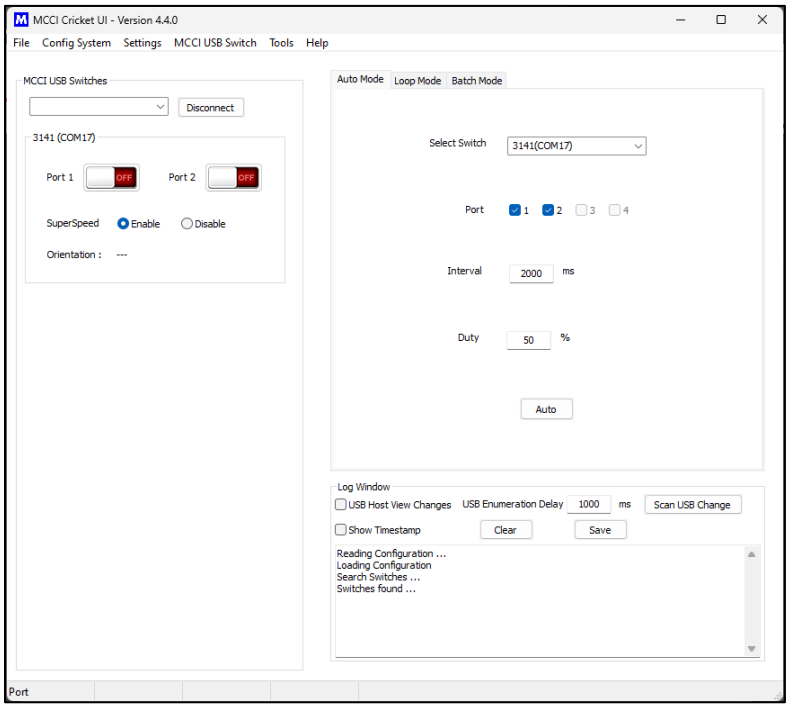
13 MCCI USB Switch 3141 UI Control window

The control window of MCCI USB Switch 3141 appears in the UI, when the MCCI USB Switch 3141 device is selected from the `Select MCCI USB Switch Panel` as shown in Figure 21.
The control options of MCCI USB Switch 3141 are explained below:

- The **Port** buttons will get activated after the device is connected.
- **ON/OFF** switch to control the port state.

- Radio buttons to **Enable**/**Disable** Super Speed lines (NOTE: Supports ONLY SuperSpeed).
- **Check Orientation** button to show the Type-C connector connection (Normal/Flip)
- **Auto** mode button (continuously switch between the ports in the defined **interval** and **Duty)** to provide switching interval.

Figure 21 Switch 3141 UI Control Window



14 MCCI USB Switch 3142 UI Control Window

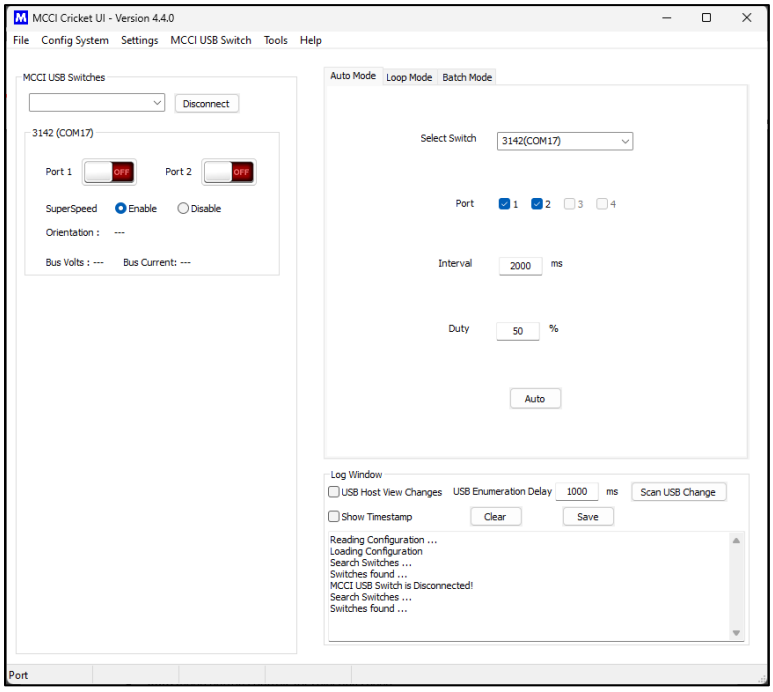
The control window of MCCI USB Switch 3142 appears in the UI, when the MCCI USB Switch 3142 deviceis selected from the `Select MCCI USB Switch Panel` as Figure 22.

The control options of MCCI USB Switch 3142 are explained below:

- The **Port** buttons will get activated after the device is connected.
- **ON/OFF** switch to control the port state.
- Radio buttons to **Enable**/**Disable** Super Speed lines (NOTE: Supports ONLY SuperSpeed).
- **Check Orientation** button to show the Type-C connector connection (Normal/Flip)
- **Auto** mode button (continuously switch between the ports in the defined **interval** and **Duty)** toprovide switching interval.
- Volts and Amps button
    - Clicking on the **Volts** button will print the Bus Voltage
    - Clicking 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.

Figure 22 Switch 3142 UI Control Window



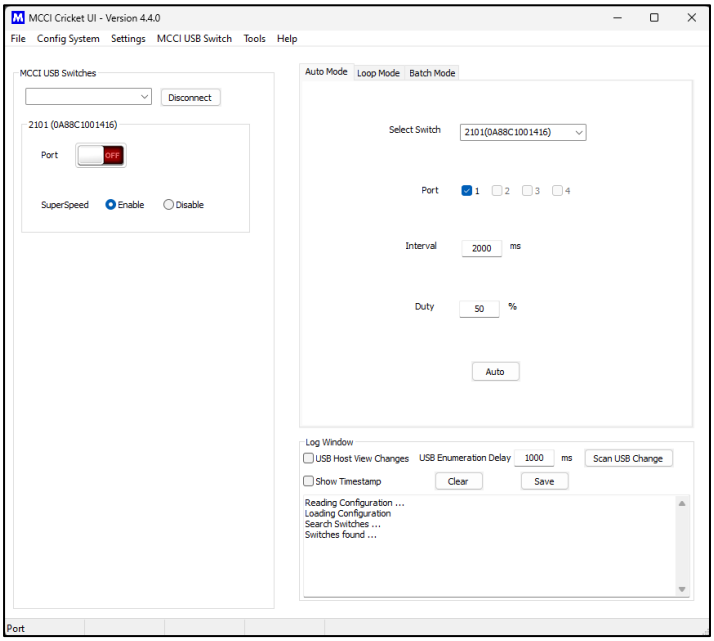
15 MCCI USB Switch 2101 Control UI Window

The control window of MCCI USB Switch 2101 appears in the UI, when the MCCI USB Switch 2101 device is selected from the `Select MCCI USB Switch Panel` as shown in Figure 23.

The control options of MCCI USB Switch 2101 are explained below:

- The **Port** button will get activated after the device is connected.
- **ON/OFF** switch to control the port state.
- **Auto** mode button controls for selecting speed.
    - Radio buttons to select SuperSpeed (**Enable**) or High Speed (**Disable**) lines.

Figure 23 Switch 2101 UI Control Window



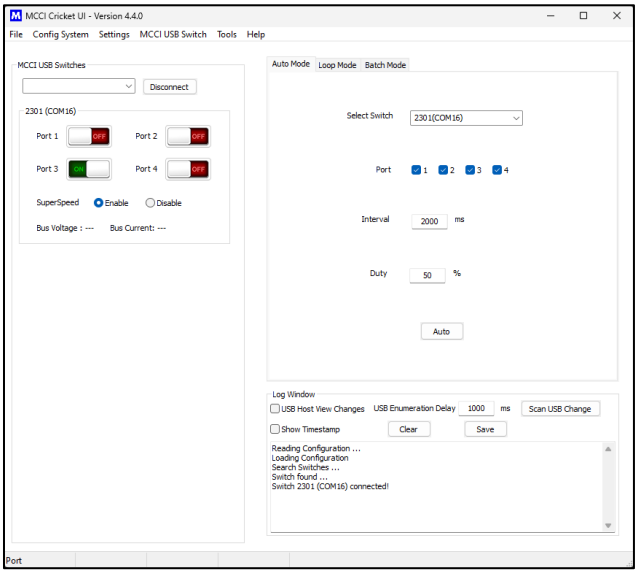
16 MCCI USB Switch 2301 Control UI Window

The control window of MCCI USB Switch 2301 appears in the UI, when the MCCI USB Switch 2301 device is selected from the `Select MCCI USB Switch Panel` as shown in Figure 24

The control options of MCCI USB Switch 2301 are explained below:

- The **Port** buttons, which will get activated after the device is connected.
- **ON/OFF** switch to control the port state.
-
- Radio buttons to select Super Speed (**Enable**) or High Speed (**Disable**) lines.
- Volts and Amps button
    - Clicking on the **Volts** button will print the Bus Voltage
    - Clicking 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** and **Duty**).

Figure 24 Switch 2301 UI Control Window



17 Modes of Operation

To control the device, the GUI has supported 3 modes of operation.

- Manual Mode
- Auto Mode
- Loop Mode
- Batch Mode

17.1 Manual Operation Mode

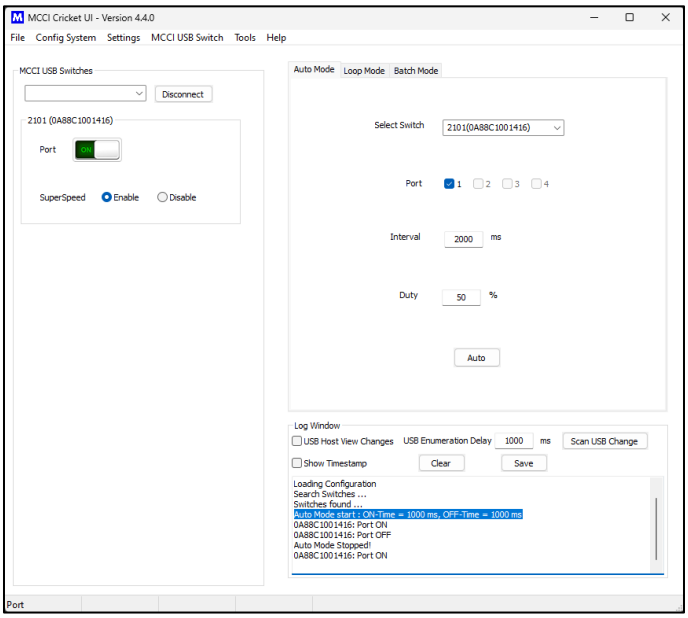
- Port Switch control:
  Utilize the available button(s) in the UI to manually control the port switch.
- ON/OFF Button:
  Enables or disables the ports of the connected device.
- Super Speed Lines Control:
  Use the radio button to enable or disable the Super Speed lines at any time.

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

17.2 Auto Mode

- **Functionality**:
  Used to continuously switch between available port(s) of the selected device(s) with a configured interval/delay (default is 1000ms) and duty cycle (default is 50%) to shown in Figure 25.
- **Duty Cycle Definition:**
  The ratio of time allocated for the switch to be ON compared to the time the load switch is OFF.
- **User Restrictions:**
  Port and speed changes are not allowed in the middle of Auto mode execution.
- **MCCI USB Switch 3201/3141/3142/2301/2101:**
  Start/Stop Auto mode using the Auto button.

Figure 25 Auto Mode



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

Control Option	Description
Port	Switching the port(s) between selection of port numbers
Duty	Percentage of ON time in total period (ON + OFF).
Interval	Auto-mode switching interval (Default 1000 MS)
Auto/Stop	Start/Stop the auto mode

Whenever MCCI USB Switch(s) are connected the corresponding port will be enabled.

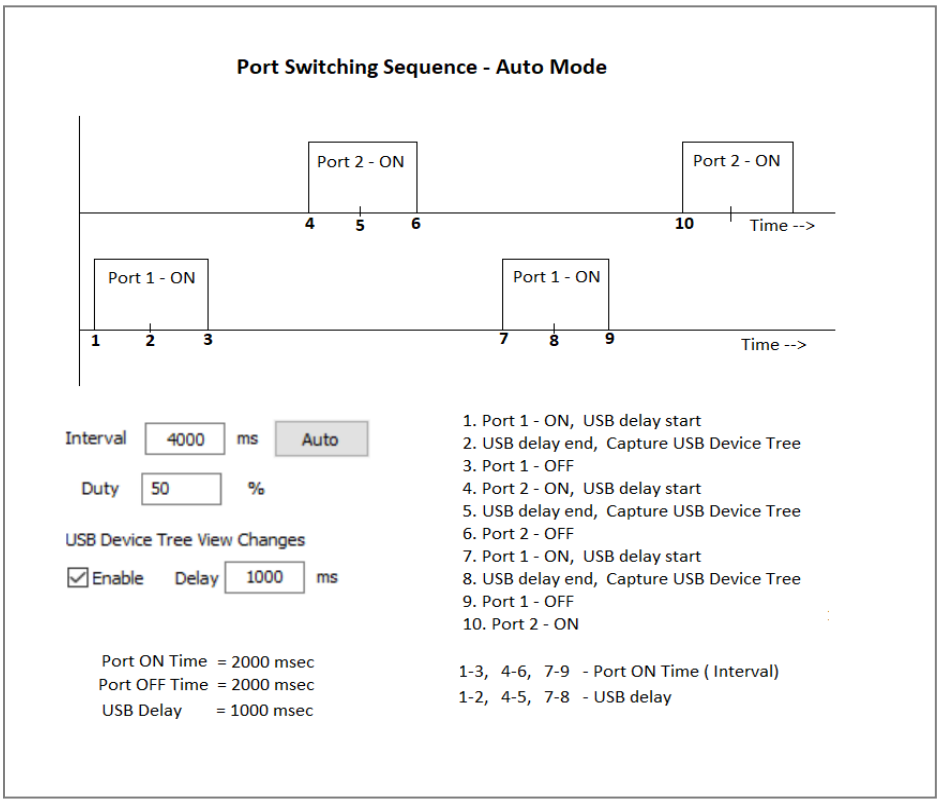
Whenever switching the MCCI USB Switch(s) make sure to enable the port by checking and then switch the auto mode, *depending on port selection auto mode is working.*

- MCCI USB Switch "3201" Enable the "four" ports.
- MCCI USB Switch "2301" Enable the "four" ports.
- MCCI USB Switch "3141" Enable the "Two" ports.
- MCCI USB Switch "3142" Enable the "Two" ports.
- MCCI USB Switch "2101" Enable the "one" port.

Note: without selecting any port click on auto mode button warning message will occurred here open the one dialog window with name as *"please Select a port to continue Auto mode".*

whenever the `Auto` control is clicked, the program will compare the `Interval` time with the `USB` Host `Device View Changes` delay, if it is less than that, then warning message will be displayed with two options, the warning message.

Option 1: Click `Yes` – to start the Auto mode without USB Device Tree Changes option.
Option 2: Click `No` – to cancel the Auto mode start action, then the User needs to update the Interval time manually.

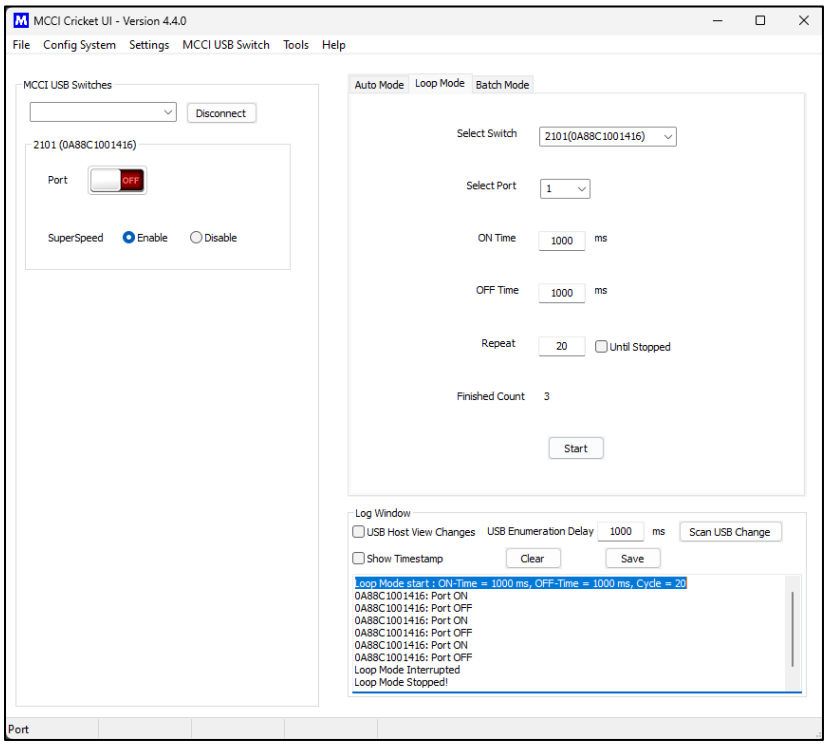


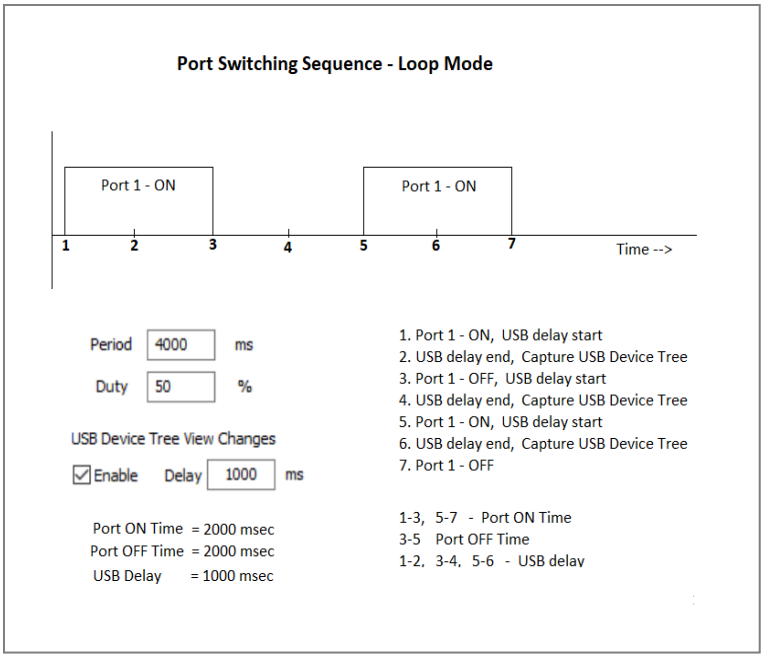
17.3 Loop Mode

Here, the Loop Mode execution is similar in all devices as shown in Figure 26.

- In the loop mode the connected device port numbers will be automatically detected, select a port number from `Port` drop down menu, the detected port will be switched ON and OFF based on the repeat cycles given the `Period`, `Duty` will determine the ratio of the ON/OFF time for the selected port(s).
- Click on the `Start` button to start 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.

Figure 26 Loop Mode

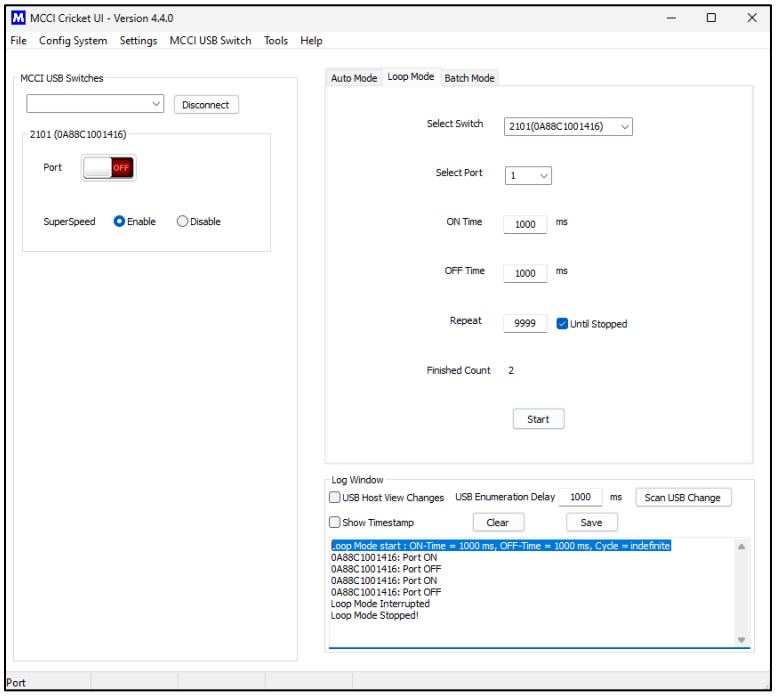




17.3.1 Until Stopped

- In the loop mode the connected device port numbers will be automatically detected, Select. port number from `Port` drop down menu, the detected port will be switched ON and OFF based on the given the `Period`, `Duty` will determine the ratio of the ON/OFF time for the selected port(s).
- If the “Until stopped” checkbox is checked.
- The port will work depending on the configuration until the “`Stop`” button is pressed.
- Click on the `Start` button to start 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 shown in Figure 27

Figure 27 Loop Mode (Until Stopped)



The loop control options and descriptions are mentioned in Table 1 Loop Controls

Table 1 Loop Controls

Control Option	Description
Port	Select a port number from drop down menu.
Period	Time between two successive ON/OFF cycle (MS).
Duty	Percentage of ON/OFF Time in total time period (ON + OFF).
Cycle	Number of cycles.
Until stopped	Until stopped the loop.
Start/Stop	Start the loop / Stop the loop.

The MCCI Cricket UI Loop mode configuration default values and Descriptions are mentioned in Table 2 Loop Control Parameters

Table 2 Loop Control Parameters

Parameter	Default Values
Port	Port are updated in depends on connecting device.
Period	2000 MS
Duty	50%
Cycle	20

Note: If USB Device Tree Changes option is enabled, Then Delay specifies in that window is overrides 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 options, the warning message.

Option 1: Click `yes` to start the Loop mode without USB Device Tree Changes option.

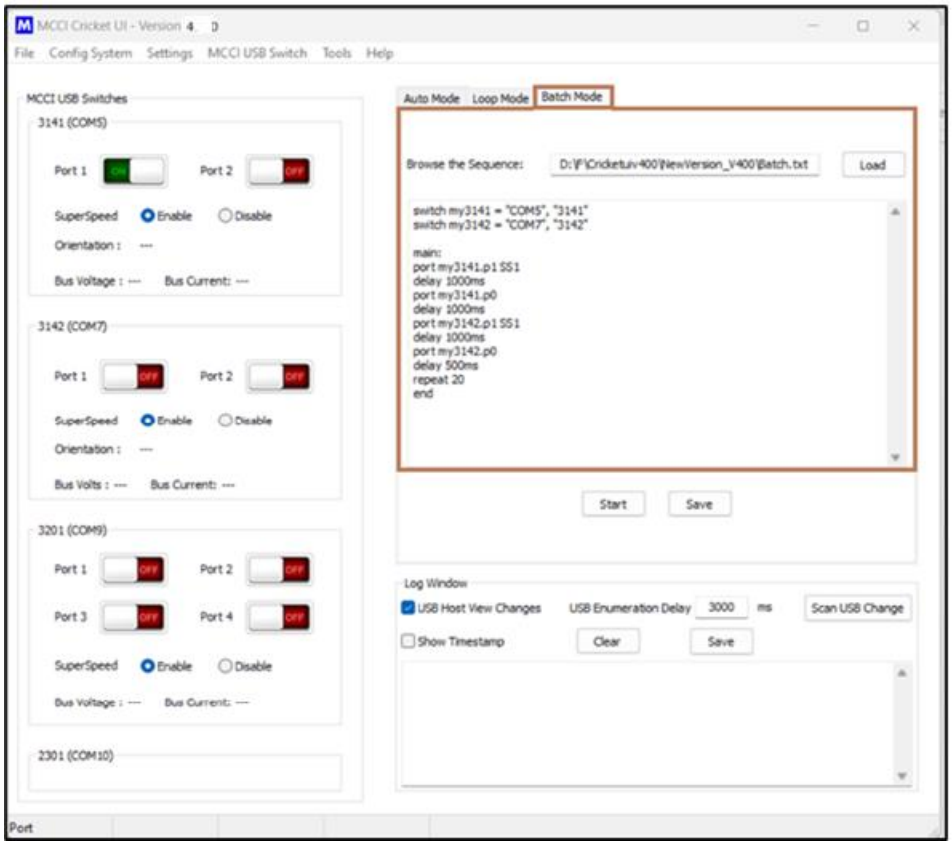
Option 2: Click `No` to cancel the Loop mode start action, then user need to update the `Period` and `Duty` manually.

17.3.2 Batch Mode

This mode provides customized way to control the USB Switches with simple instructions. Users canconnect and control multiple MCCI USB Switches with simple syntax such as switch, port, speed, read, delay, and repeat, to show in below Figure 28.

- Click on the `Start` button to start the Batch mode operation.
- Click on the `Stop` button to stop the Batch mode operation.
- Click on the `Save` button to Save the Batch mode Script.
- A load button is used for importing a specific batch mode script file in script log window.

Figure 28 Batch Mode

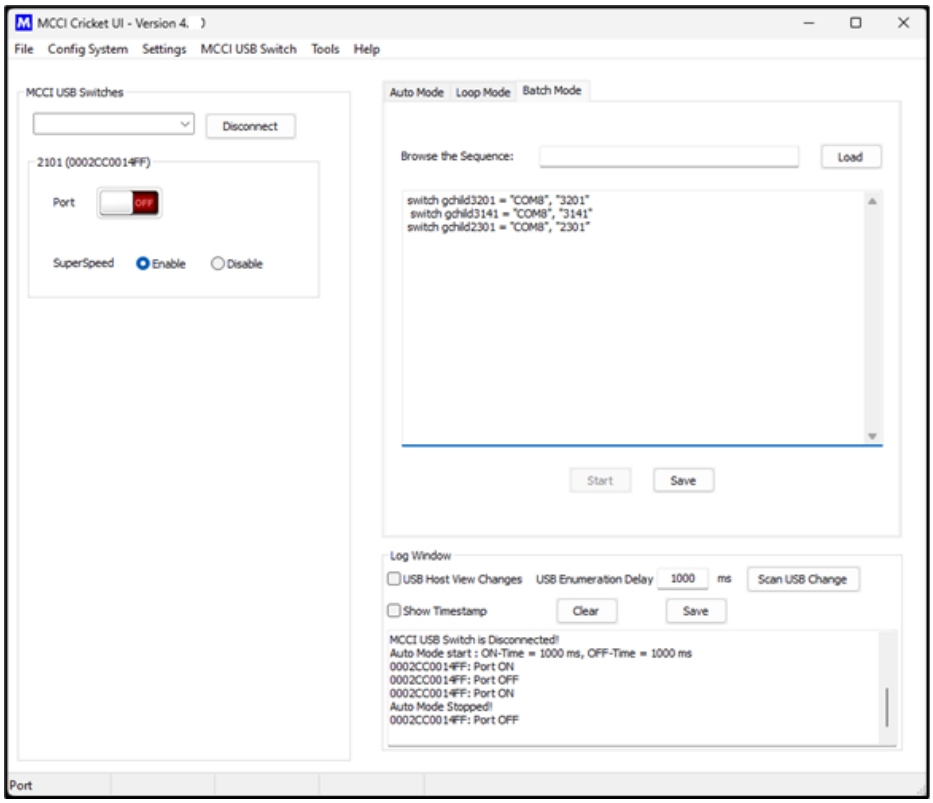


17.3.3 Batch Mode Syntax

Batch mode commands can be created by using simple syntax. Example script for the Batch mode operation as show below Table 6, Table 7, Table 8Table 6 batch mode script with single device.

Below image shown in batch mode script and Run script.

Figure 29 Batch Mode



starts with key word - "switch."

- assign name for the switch - "gchild3201" (users' choice)
- Port connected - "COMX" (COM port in which the required switch is connected)
- Model of the Switch - "3201" (When user connected MCCI USB Switch 3201)
- Model of the Switch - "3141" (When user connected MCCI USB Switch 3141)
- Model of the Switch - "2301" (When user connected MCCI USB Switch 2301)
- Model of the Switch - "2301" (When user connected MCCI USB Switch 3142)

Example:

switch gchild3201 = "COM8", "3201"
switch gchild3141 = "COM8", "3141"
switch gchild2301 = "COM8", "2301"

Program loop starts with the key word "main" and end

"main" <script> "end"

Switch ON port x of connected 3201, 3141, 2101 ,2301 and 3142

- Starts with key word – "port"

  Mention the port no – "gchild<switch name>.pX" < Switch name dot pX = here X is the port

- number like p1, p2, p3 or p3)
- Mentioned the speed info – “SS1” (for super speed) and “SS0” (for High speed)

Example:

port gchild3201.p1 SS1

Adding of delay

- starts with the keyword - "delay."
- provide the delay in msec - "1000ms" (integer value followed by unit "ms")

Example

delay 3000ms

Switch OFF port x of connected 3201, 3141, 2101 and 2301

example.

- port gchild3201.p0

Repeat the loop.

a. starts with the keyword - "repeat."

b. Integer value to repeat the loop (code between main and end)

Example

repeat 1000

Other commands

a. starts with the key word - "read"

b. Options

1. "voltage" - to read the voltage.
2. "current" - to read the current
3. "USB” - to read the USB Tree view change (connected/disconnected USB device lists)

Example

read USB

read voltage.

read current.

18 Voltage and Current Plotting

18.1 VBUS V/I monitor Menu.

Users can view the chart of VBUS Volt (V) and Current (A) data of the USB test device which is connected to the selected USB Switch. Volt and Current data plotted in a single chart, Volt scale represented in the left Y axis and the Current scale represented in the right Y axis.

Open the application go to the Select ***MCCI USB Switch*** and select ***"VBUS V/I Plot"*** submenu, then a dialog window will appear with title name name of VBUS V/I Plot. Here Display the plot for MCCI USB Switch 3201 and 2301 Connection Exerciser only shown in Figure 30 Voltage data shows in Volts (V) and Amps (A) data shows in Amps with same period of samples Times in Seconds Time (Sec).

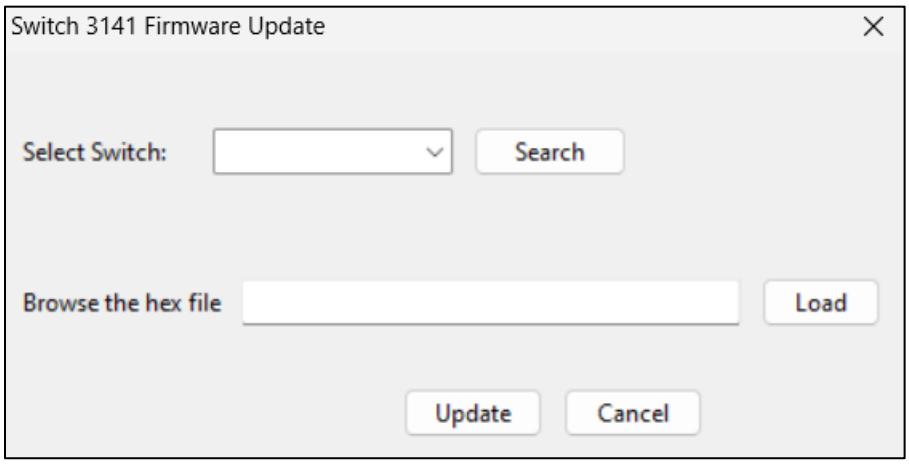
Parameter	Default Values
X-Width	Total number of samples viewed in a chart, maximum limit of 500 samples
Pause	To Pause and Resume the live chart
Load	Load the selected CSV file and show Volt and Current data in chart
Save	Save the Volt and Current chart as CSV file.

Figure 30 V/I Bus Plotting

19 Firmware Update

Here Cricket UI provides the feature of Firmware update to MCCI USB Switch 3141 and MCCI USB Switch 3142 shown in below Figure 31.

Figure 31 Model 3141/3142 Firmware Update



19.1 Tools Menu

- Go to the Tools menu and select submenu of USB Switch3141-3142 Firmware Update.
- disconnect the switches for Before connecting the MCCI Switch3141/3142.
- Once searching switches found in dropdown box list, select Switch.
- Load Switch3141 or Switch3142 <.ino > hex files from the local machine.
- Just click on update, started the Firmware update.

20 DUT Log Window

Device Under Test shortly called as DUT, this feature enables the user to test their device behavior bymonitoring the data over the serial port. There are two DUT Log panels available to connect serial port of two test devices. Users can show/hide the DUT Log panels based on their test scenario visit below image shown in Figure 32.

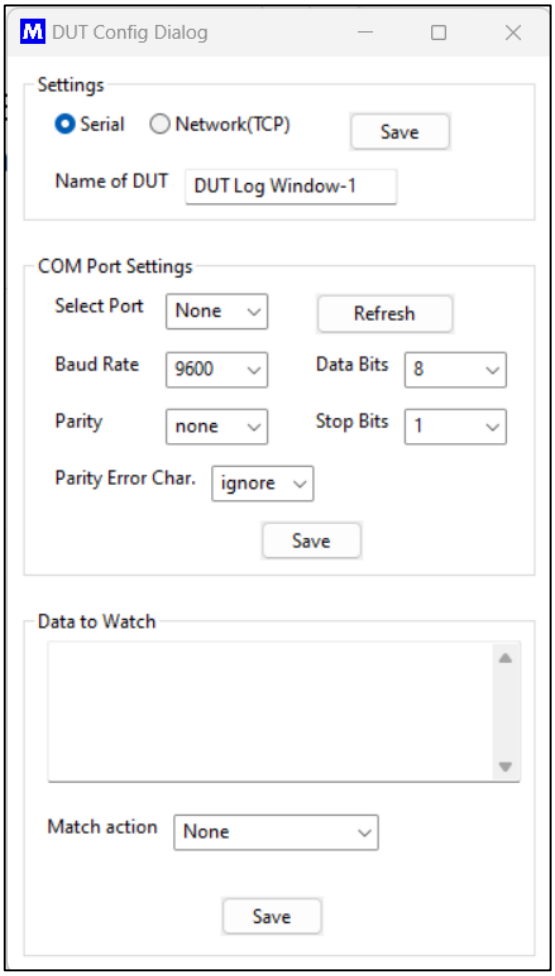
20.1 DUT Config Dialog

This dialog contains three sections. Settings, COM port settings and Data to watch Settings. To select the interface type, by default it is serial, no support provided for network interface. Also, userscan customize the name of the DUT Log Window. Click on “save” to retain the settings data in future.

20.1.1 COM Port setting

To configure the serial port related settings such as select port, baud rate, start and stop bits, etc. Clickon “save” to retain the settings data in future.

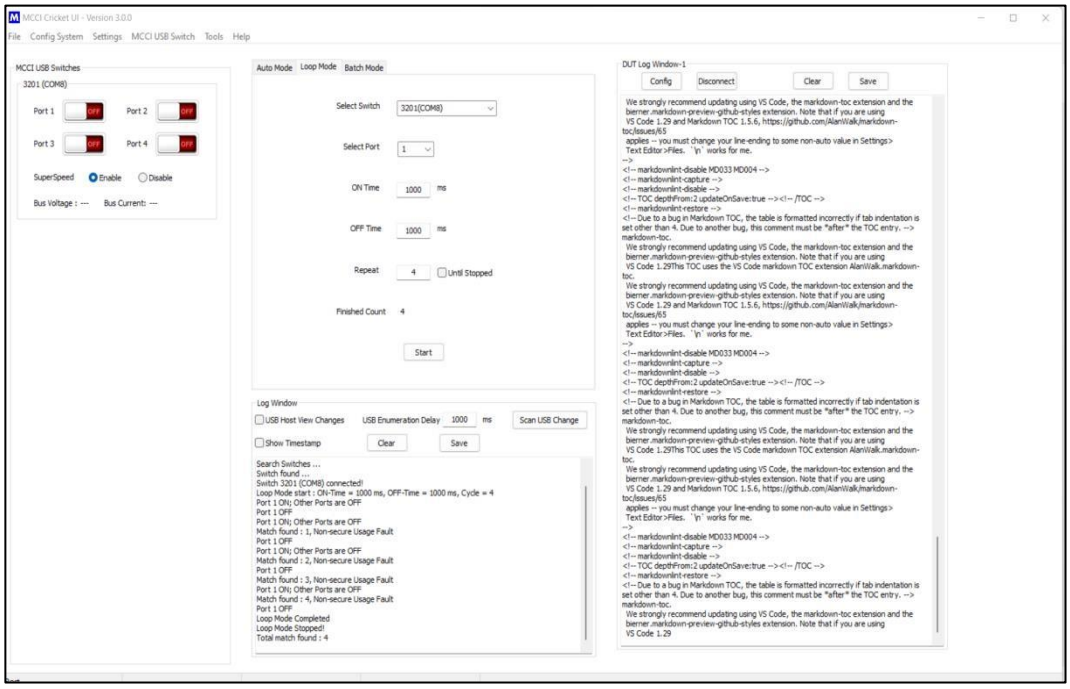
Figure 32 DUT Config



20.1.2 Data to Watch and Match action.

Users can provide words to watch surrounded with double quotes, can provide multiple words to watch. Application parses the serial in data continuously, if any match found it will do the action as selected in the “Match Action” section. There are two actions, one is “stop sequence” and another one is “count match”. When user selects the “stop sequence”, the application will stop the USB.once the data match is found. When use selects the “count match”, the application starts to count the match and display the number of matches found in the Log window. All the DUT related actions will bedisplayed in the Log window shown in image.

Figure 33 Data to watch Log



21 USB4/Thunderbolt and USB3 Tree view window

introduced a new feature - the USB4 and Thunderbolt4 Tree View Window. This enhancement allows users to dynamically visualize and manage connected USB4 and Thunderbolt4 devices. Below are the key details regarding this new functionality as please show in below Figure 34

Menu Option:

Navigate to Tree View in the Cricket UI application.

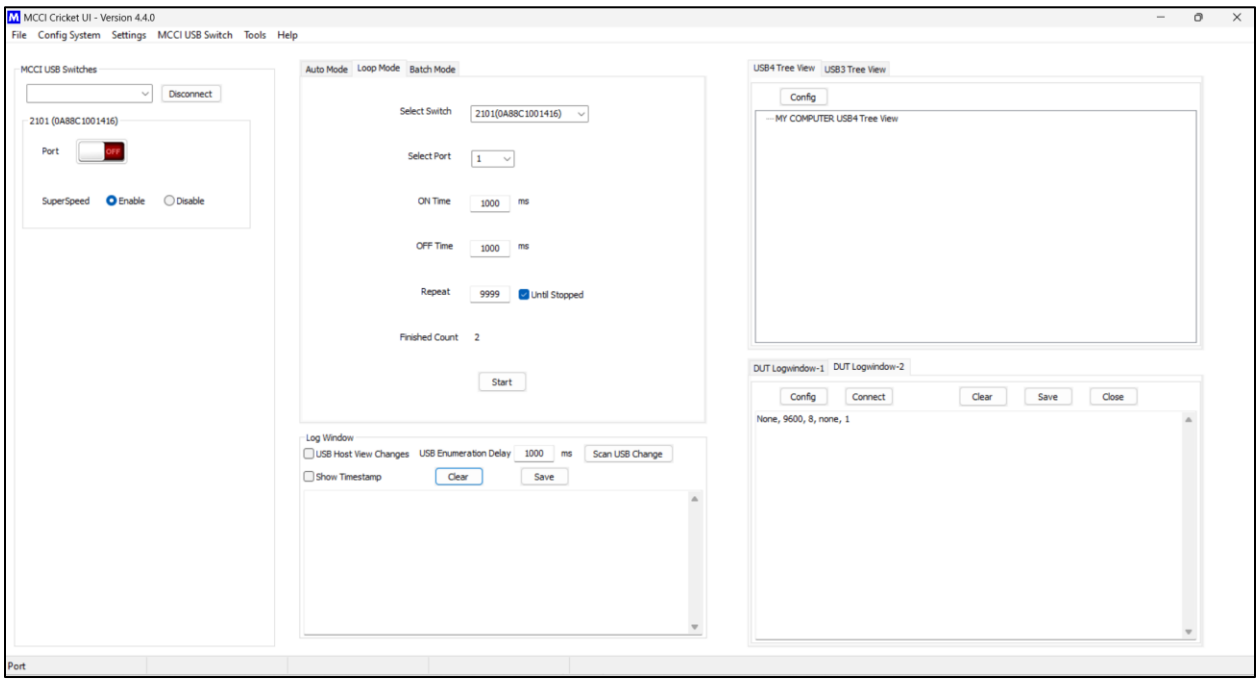
Activation:

Clicking on the Tree View activities the USB4 and Thunderbolt4 Tree view window.

Real-Time update:

The Tree View is updated in real-time based on any additions or removals of USB4 and Thunderbolt4 devices.

Figure 34 USB4/TB4 Tree View

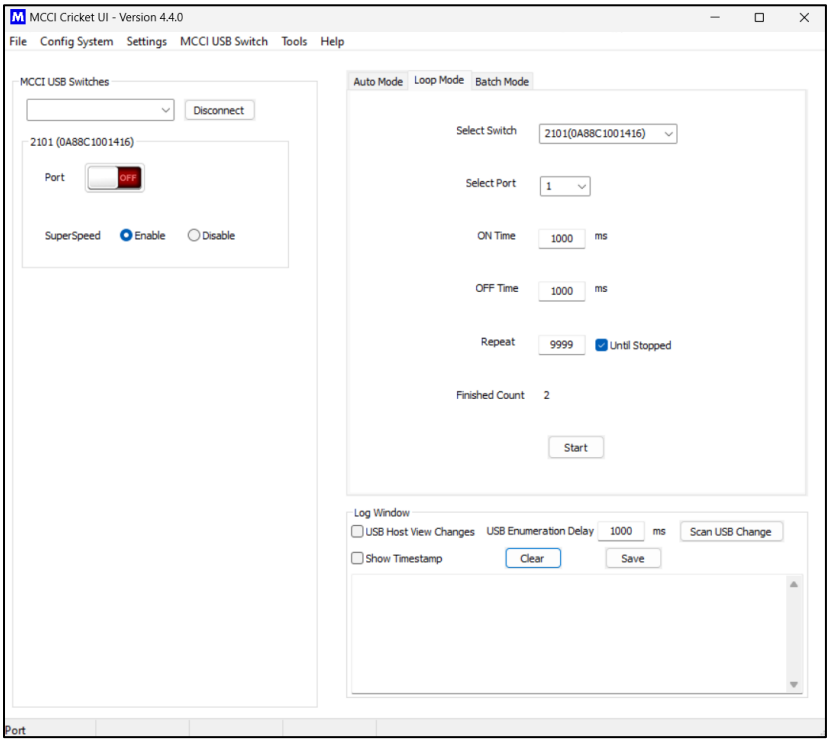


22 Log Window

The log window helps to log the device activities, it has an option to enable and disable the timestamp. Log window and plug-in/plug-out list of the USB devices after every port state changes in UI. USB `Host View Changes`: to check the plug-in/plug-out list of the USB devices after every port state changes.

- `Show Timestamp`: Option to log the device information with timestamp please shown in Figure 35
- `Show USB Tree View Changes`: Option to display 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 35 Log window



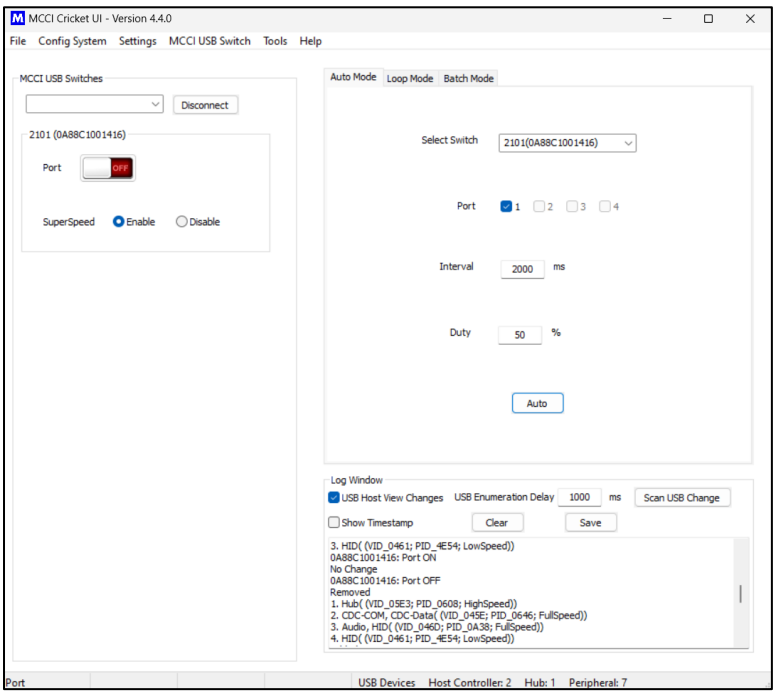
22.1 USB Host View Changes.

This feature is convenient for the users to check the plug-in/plug-out list of the USB devices after every port state changes, as shown in below Figure 36

The options of the `USB Host View changes` are explained in this section. The respective UI window is shown in the `USB Enumeration Delay`: Minimum delay required for port connect/disconnect feature of the device (Depends on connected device enumeration time)

- `Scan USB Change`: Gets the list of connected USB device(s) and displays the Device information in the “USB Device Tree View Changes” panel.

Figure 36 USB Tree (Host) view changes



22.1.1 USB delay override

Auto Mode

- Whenever `Show USB Tree View Changes` option is enabled, the program will compare the `Interval` time with the USB Device Tree View Changes `Delay`, if it is less, then the `Interval` time will be overridden by the USB Device Tree View Changes `Delay`.
- For example, `Interval` = 1000 MS, Delay = 2000 MS, `Duty` = 50%, when the `Show USB Tree View Changes` option is enabled, then the `Interval` will be updated as 1500 MS by the program.

Loop Mode

- Whenever `Show USB Tree View Changes` option is enabled, the program will compare the `Period` (Port ON and OFF Time) with the `USB Device Tree View Changes` delay, if it is less, then the `Period` will be calculated based on the USB Device Tree Changes `Delay`, and the `Duty` to make both Port ON and OFF Time equal to the USB Device Tree Changes delay.
- For example, `Period` = 4000 MS, Duty = 75%, Delay = 2000 Ms. Based on the `Period` and `Duty` Port ON Time = 3000 MS, Port OFF Time = 1000 Ms. When the `Show USB Tree View Changes` option is enabled, then the `Period` will be updated as 8000 MS to make the Port OFF Time equal to the Delay which is 2000 Ms.

23 Disconnect and Close the Application

23.1 Disconnect

To disconnect a device, click the `Disconnect` option from the `Select MCCI USB Switch` panel and the selected device can be disconnected.

23.2 Close

To close the application, Click `Close` from the `File Menu` as displayed in. The application will be closed.

24 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.