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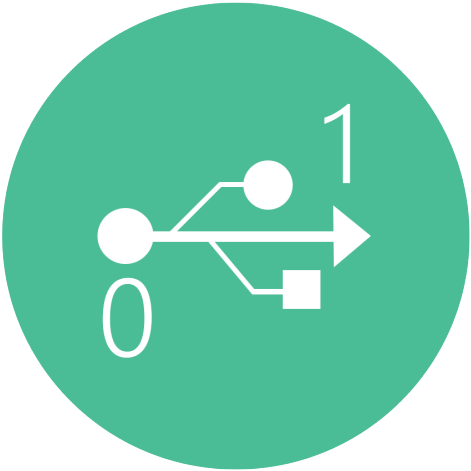
USB Hub Administrator

Software Manual



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USB Hub Administrator

Actual products may vary from photos

For the latest information and specifications visit
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About the Application

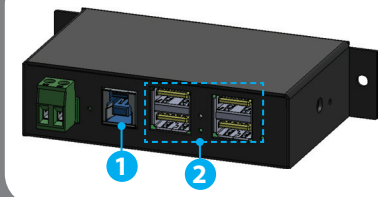
The StarTech.com USB Hub Administrator application installs onto the computers connected to the StarTech.com Managed USB Hub, providing users with access to addition features.

Requirements

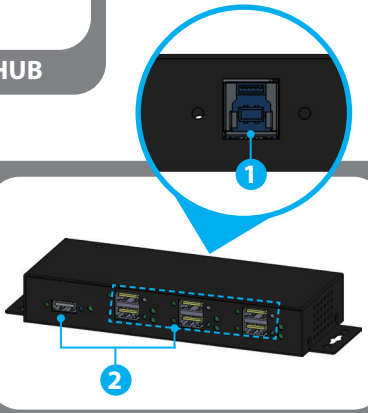
- StarTech.com Managed USB Hub
  - 5G4AINDRM-USB-A-HUB or 5G7AINDRM-USB-A-HUB
- USB Enabled Host Computer
  - Requires USB 5Gbps or Faster
- USB Peripheral Devices
  - Up to 4 or 7, depending on model of Managed USB Hub

For the latest drivers/software, technical specifications, and declarations of conformance, please visit:
www.StarTech.com/support

Critical Components for Application Use



5G4AINDRM-USB-A-HUB



5G7AINDRM-USB-A-HUB

	Component	Function
1	USB-B Host Port	• Connect to a USB-A Port on a Host Computer
2	USB-A Data Ports	• Connect USB Peripherals

To view manuals, videos, drivers, downloads, technical drawings, and more visit www.StarTech.com/support

Important Hardware Setup Note:

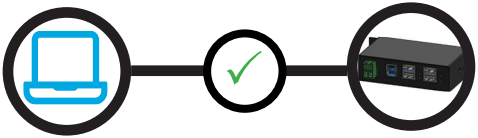
The Hardware setup steps outlined below are all that's required for the **StarTech.com USB Hub Administrator** application to operate.

However, for full operation of the **Managed USB Hub**, additional steps to power the Hub may be required.

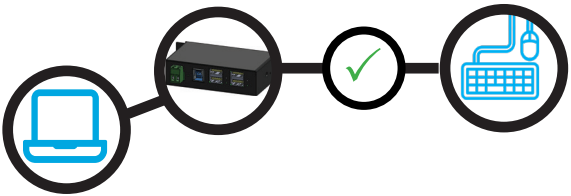
Please consult the documentation included with the **Managed USB Hub** or download the documentation by visiting: StarTech.com/5G4AINDRM-USB-A-HUB, or StarTech.com/5G7AINDRM-USB-A-HUB

Hardware Setup

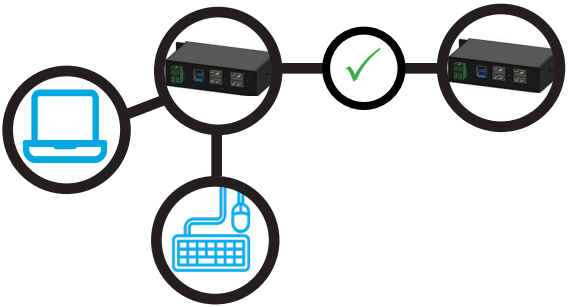
1. Connect the **USB-B Host Port** on the **Managed USB Hub** to a **USB-A Port** on the **Host Computer** using the included cable.



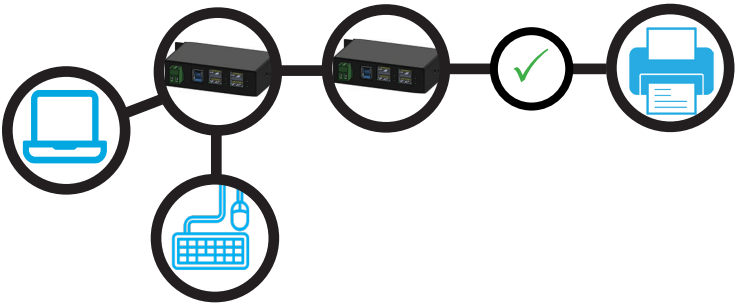
2. Connect the **USB Peripherals** to the **USB-A Peripheral Ports** on the **Managed USB Hub** (cabling not included).



3. (Optional) Daisy-chain a second **Managed USB Hub** to the first **Managed USB Hub** by connecting the **USB-B Host Port** on the second **Managed USB Hub** to a **USB-A Peripheral Port** on the first **Managed USB Hub** using the included cable.



4. (Optional) Connect **USB Peripherals** to the **USB-A Peripheral Ports** on the second **Managed USB Hub** (cabling not included).



Download and Install the Application

The **StarTech.com USB Hub Administrator** Application is free to download and install.

Windows Installation

1. Navigate to:

   www.StarTech.com/5G4AINDRM-USB-A-HUB or
   www.StarTech.com/5G7AINDRM-USB-A-HUB

   and click the **Drivers/Downloads** tab.
2. Under **Software**, download the **Windows.zip** file.
3. Right-click the zip folder that you downloaded, select **Extract All**, and follow the on-screen instructions.
4. In the list of extracted files, open the **Windows** folder and right-click the **STARTECH_USBCTRL-...(.exe)** file and select Run as Administrator.
5. Follow the on-screen instructions to complete the installation. The **Host Computer** may require restart during the installation process. Please save any unsaved work, before proceeding.

macOS Installation

1. Navigate to:

   www.StarTech.com/5G4AINDRM-USB-A-HUB or
   www.StarTech.com/5G7AINDRM-USB-A-HUB

   and click the **Drivers/Downloads** tab.

2. Under **Software**, download the **Mac OS.zip** file.

3. Double-click the zip folder that you downloaded, macOS will unzip the folder using **Archive Utility**.

4. Open the **Mac OS** folder, and double-click the **CUSBM_GUI(.dmg)** installation package.

5. Follow the on-screen instructions to complete the installation. The **Host Computer** may require restart during the installation process. Please save any unsaved work, before proceeding.

Application Operation

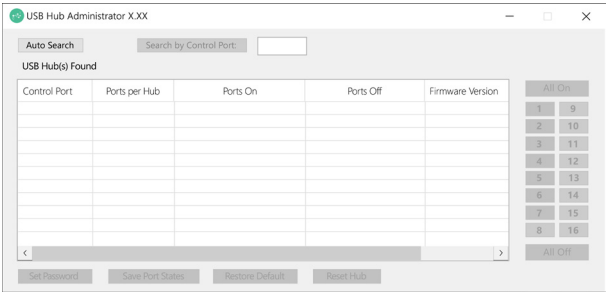
Windows Application Operation

Launching the Application

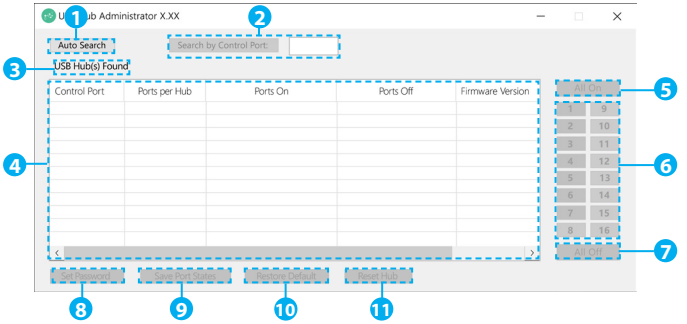
Select the icon on the Windows Desktop to launch the application.

Note: During the software installation process, a box is checked by default to create a Windows Desktop icon. If this the check is removed during installation, or the icon has otherwise been deleted, the application can be accessed from the program list within the Windows Start Menu.

The application will launch.



Application Overview - Graphic User Interface (GUI)



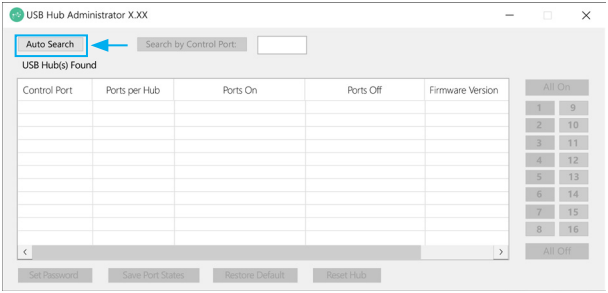
Default password: **pass**

	Component	Function
1	Auto Search Button	• Automatically detects Hubs connected to the Host Computer
2	Manual Search Function	• Enables users to manually detect Hubs connected to the Host Computer by COM Number
3	Hubs Found Indicator	• Indicates the number of Hubs connected to the Host Computer
4	Hub Status Table	• Displays information and settings regarding the connected hub(s) • Enables users to select a specific hub for modification
5	All On Port Function	• Turns all Ports on the selected Hub(s) into the ON mode
6	Individual Port Buttons	• Turns individual ports, on the selected Hub(s), into the ON or OFF mode
7	All Off Port Button	• Turns all Ports on the selected Hub(s) into the OFF mode
8	Set Password Function	• Enables users to protect the selected Hub(s) from unwanted changes by enabling password protection
9	Save Port State Function	• Enables users to save the current port sates to the select hub(s) internal flash memory.
10	Restore Default Function	• Restores the select Hub(s) factory default settings
11	Reset Hub Function	• Restarts the selected Hub(s)

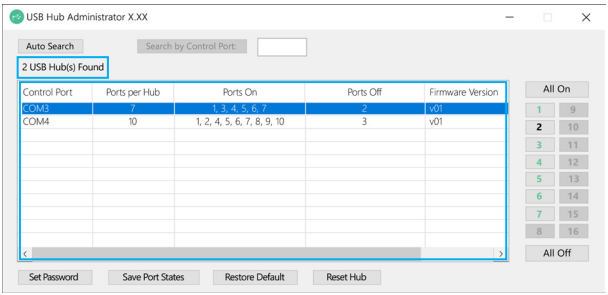
Detect Managed USB Hubs

Once the application is launched, Hubs connected to the Host Computer can be automatically detected.

Click the **Auto Search** button.



The number of located hubs will be displayed in **Hubs Found Indicator**, and the Hubs along with their specific information and current settings will be displayed in the **Hubs Status Table**.



Note: If the COM Number for a specific Hub is known, Hubs can alternatively be detected by entering the specific COM Number in the **Manual Search Function** field and clicking the **Search by Control Port** button.

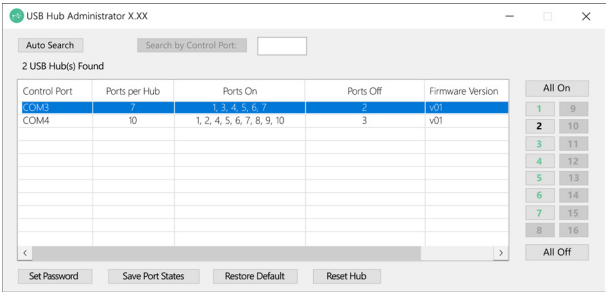
Set a Password

Notes:

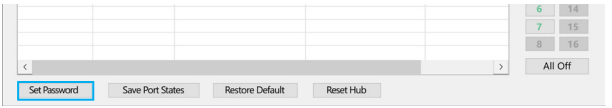
- The default password is "pass".
- A password will always be required when changing the password.
- For all other operation if the default password has not been changed a password will not be required.
- See the Password Requirement Section (p.77) for guidelines on choosing a password.

To set a Password

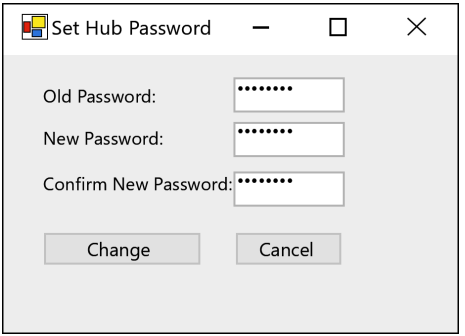
1. Select the desired Hub from the **Hubs Status Table** by clicking the row that the desired Hub is displayed in.



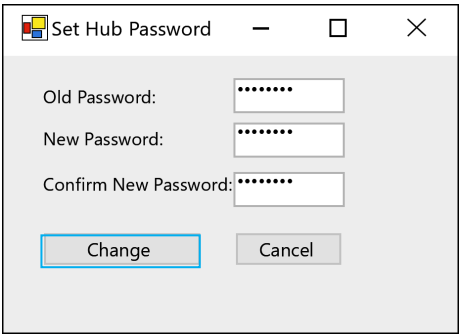
2. Press the **Set Password Button**, to display the **Set Hub Password** window.



3. Enter the old (existing) password, new password, and confirmed new password in the specified fields.



4. Click the Change button.



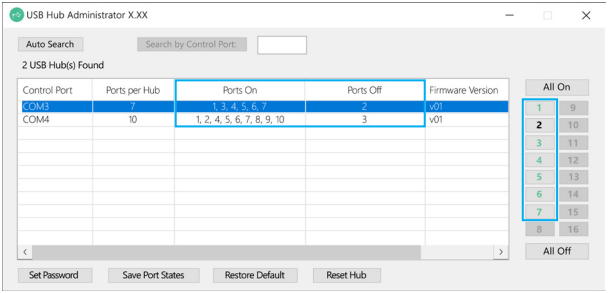
The new password has been set.

Turn USB Ports On or Off

Using the application USB Ports on each detected Hub can be turned **On** or **Off**.

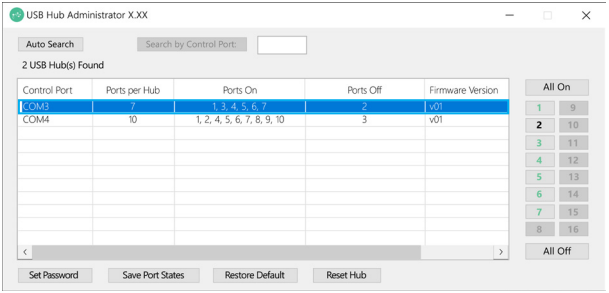
When a specific Hub is selected, the current port status of each port is displayed in the **Hub Status Table** under the **Ports On** and **Ports Off** columns respectively when a specific Hub is selected.

The current port status can also be determined by the color of the number in the **Individual Port Button,** when a specific Hub is selected (**Green** indicates On, **Black** Indicates Off).

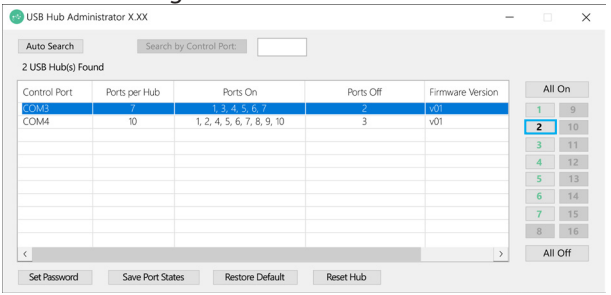


To Turn a Specific Port ON or Off:

1. Select the desired Hub from the **Hubs Status Table** by clicking the row that the desired Hub is displayed in.



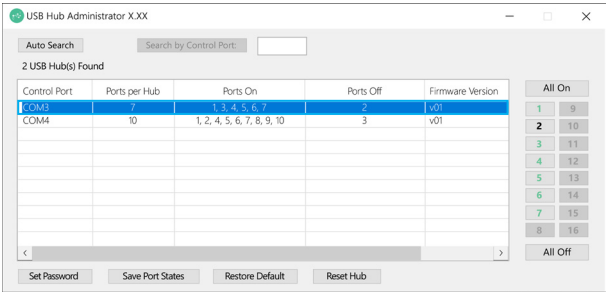
2. Press the **Individual Port Button** that corresponds to the port that is being turned **On** or **Off**.



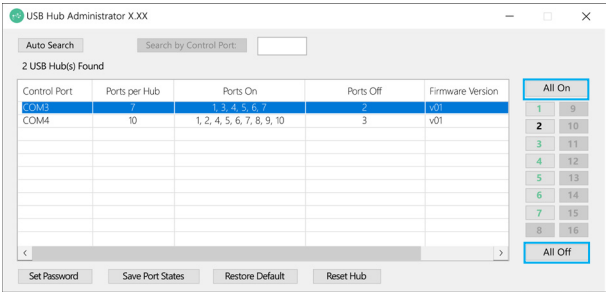
The Port has been toggled **On** or **Off**, depending on the port status prior to pressing the **Individual Port Button**.

Turn All Ports On or Off:

1. Select the desired Hub from the **Hubs Status Table** by clicking the row desired Hub is displayed in.



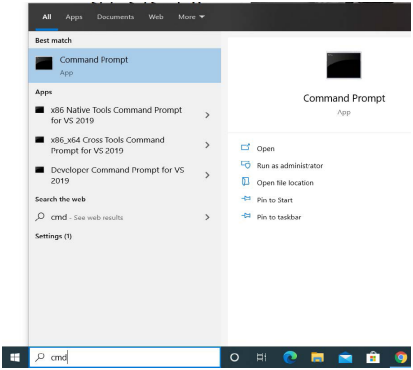
2. Press the **All On Button** or **All Off Button**, depending on the desired action.



All ports will be turned **On** or **Off**, depending on the selected button.

Windows Command Prompt Operation

To run the Windows command prompt, type cmd in Windows Search Box, then press <Enter>:



Query all hubs

To obtain all information regarding each connected Managed Hubs, type **CUSBC /Q** into the command prompt.

```
C:\Users\      >cusbc /q
1 USB Managed Hub(s) Found.
COM3, 4 ports, On=1,2,3,4, Off=None, FW=v02
```

The hub information is displayed. This important information can be used to control the Hubs. The information tells you:

- Control Port is **COM3**, it was assigned by the system automatically. This information will be used for any command on CUSBC.exe.
- The hub has **4 ports**.
- Current Port States: **All ports** are **On**, **no ports** are **Off**.
- Firmware version is **v02**.

CUSBC Help Message

You can get the CUSBC Help Message when type **CUSBC /?** or **CUSBC** without any argument. The help message will be displayed.

CUSBC Command Format

The CUSBC command format as follows. There are 3 portion parameters: command, password and command argument. The password and argument are optional for some commands.

CUSBC command [password] [argument]

where

command : It consists of a slash (/), a command character and a colon (:) plus a COM port number, e.g. /S:COM3 is a valid parameter

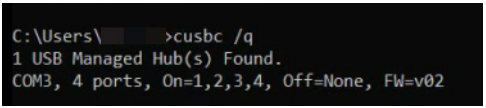
password: It consists of maximum 8 characters.

argument: It is to tell the CUSBC what value to be set in the hub

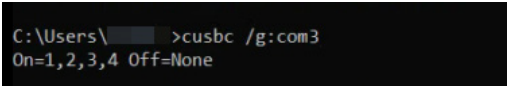
Examples:

The following examples guide you how to issue the commands to control the hub:

1. To query the hubs: **Type CUSBC /Q**



2. Given the control port COM3 by the above Query command, you can issue Get the Port States command:
   Type **CUSBC /G:COM3**

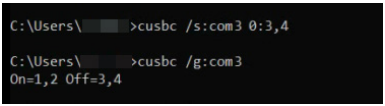


You can see all 7 ports are On, there is no port is Off.

3. Suppose you want to turn port 3 and 4 to Off, then you need to provide the command argument
   Type **CUSBC /S:COM3 0:3,4**

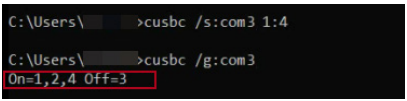
where

"0:" means to set the ports to Off, if you want to turn it to On, replace it with **"1:"** instead **"3,4"** means port 3 and port 4 will be set.



You will see the LEDs of the port 3 and 4 are Off. We have sent another **Get Port States** command, you can see the port states displayed and tell you port **3** and **4** are **Off**.

4. If you want to turn On port 4, please type:
   CUSBC /S:COM3 1:4.



You can see the port **4** is On and only port **3** is still Off.

Get the Port States: /G

This Get Port States command (/G) is to read the current port states from the hub. It can report in 3 formats: description, binary-encoded string and hexadecimal-encoded string. The fist format is user friendly to read, however, the later 2 formats are easily to be handled programmatically.

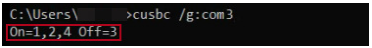
CUSBC /S:COMn [option]

Where

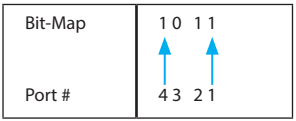
COMn: Control Port assigned by the System, e. g. COM3

Option: Output format, **-B** for binary-bit-mapped sting and -H for hexadecimal-bit-mapped string

- Get Port States in common description: **CUSBC /G:COM3**



- Get Port States in bit-mapped string format: **CUSBC /G:COM3 -B**



- Get Port States in hexadecimal-bit-mapped string:
  CUSBC /G:COM3 -H

Hexadecimal	F4 (LSB)	FF	FF	FF (MSB)
Bit-Map	1111 0100	1111 1111	1111 1111	1111 1111
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

Set Port States: /S and /F

There are 2 commands to set the port states, /S and /F. Both work with the same command format except /S is to set the port states temporarily (once the hub is powered off and powered on again, these unsaved port states will be lost), however, /F is to set the port states and saved them to the flash memory permanently. No mater you do a hardware reset or power off the hub, the saved port states will be retrieved when it is restarted. There is another command /W (to be described in the later paragraph) to save the current port states to the flash memory without changing it. Logically, /F command functions like executing a /S command and a /W command.

CUSBC /S:COMn [password] states

Where

COMn: Control Port assigned by the System, e. g. COM3

password: if you have not set the password, you don't need to enter this option. However, you need to enter the password once you have set your own password with /P command (to be described in later paragraph)

states: It consists of 2 ports, one is what states you want to change, the other is which ports you want to change.

States to change:

0: Off

1: On

T: Toggle (invert)

B: Bit mapped string

H: Hexadecimal bit mapped string

Ports to be changed:

ALL: All ports

Ports by a list: The port numbers are listed with a coma delimiter (,). For example, 1,2,5

Bit-mapped-string for **B** and **H** options

Examples:

Query hubs to get the control port: **CUSBC /Q**

Assumes you were given COM3 control port by the above Query command, try the following command examples and check the corresponding port state LEDs on the hub whether they act correctly:

Turn Off port 3: **CUSBC /S:COM3 pass 0:3**

Turn On port 3: **CUSBC /S:COM3 pass 1:3**

Try again without password: **CUSBC /S:COM3 0:3**

Toggle (invert) port 3: **CUSBC /S:COM3 T:3**

Toggle (invert) port 3: **CUSBC /S:COM3 T:3**

Turn Off port 1 and 2: **CUSBC /S:COM3 0:1,2**

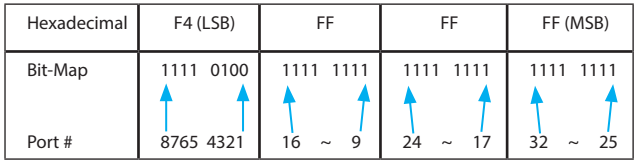
Turn On all ports: **CUSBC /S:COM3 1:ALL**

Turn Off port 3 by a bit-mapped string (if your hub is 7-port): **CUSBC /S:COM3 B:1111110**

Turn Off port 3 by a bit-mapped string (if your hub is 4-port): **CUSBC /S:COM3 B:1110**

To set the port states by a hexadecimal bit-mapped string, let's explain how the port states were mapped to the corresponding bits in the string. The string consists 4 bytes which indicate 32 bits for 32-port states. A "1" indicates On, "0" indicates Off. The 4 bytes were aligned in little-endian.

If you want to express the port 1, 2, 4 are Off. The string should be **F4 FF FF FF**:



Turn Off port 1,2,4 by hexadecimal bit-mapped string:
CUSBC /S:COM3 H:F4FFFFFF

Change Password: /P

> ***See*** *the Password Requirement Section (p.77) for guidelines on choosing a password.*

The /P command is to set (or change) the access password of the Managed USB hub. The factory default password is "pass". Once the password is changed successfully, you need to include the new password for your new commands afterwards.

CUSBC /P:COMn [old_password] new_password

Where

COMn: Control Port assigned by the System, e. g. COM3

old_passoword: The current password to be changed (8 characters maximum)

new_password: The new password (8 characters maximum)

Examples:

Set password from its factory default to the new password "new": **CUSBC /P:COM3 new**

Change password "new" to "new2": **CUSBC /P:COM3 new new2**

Save Port States as Power-on Default: /W

The /W command is to save the current port sates to the hub's internal flash memory. Once the port states were saved, the hub will initiate its port states according to these settings when it is powered up or reset.

CUSBC /W:COMn [password]

Where

COMn: Control Port assigned by the System, e. g. COM3

password: Access password, can be omitted if it is the same as the factory default

Examples:

Save the current port states: **CUSBC /W:COM3**

Save the current port states with the password "pass": **CUSBC /W:COM3 pass**

Restore to Factory Default Settings: /D

The /D command is to restore the hub's factory default settings. If you want to restore the factory default settings while you have forgotten the password, then you have to use the push button on the hub (power off the hub, press the button and hold, power on the hub) instead. Once the hub has been restored to its factory default settings, its password is "pass" and all ports are set to On.

CUSBC /D:COMn [password]

Where

COMn: Control Port assigned by the System, e. g. COM3

password: Access password, can be omitted if it is the same as the factory default

Examples:

Restore the factory default settings: **CUSBC /D:COM3**

Restore the factory default settings with the password "pass": CUSBC /D:**COM3 pass**

Hardware Reset the Entire Hub: /R

In some cases, you may want to reset the hub without physically unplugging or powering it off. The

/R command can do similarly for you.

CUSBC /R:COMn [password]

Where

COMn: Control Port assigned by the System, e. g. COM3

password: Access password, can be omitted if it is the same as the factory default

Examples:

Reset the hub: **CUSBC /R:COM3**

Reset the hub with the password "**pass**": **CUSBC /R:COM3 pass**

Using CUSBC.exe Programmatically

Some of the CUSBC command options are to return its output result in formatted strings. The formatted string is very helpful for your application software to parse it. Their formats are described below.

1. Query commands:

The application software usually need 2 commands, one is to query how many hubs detected and what are their control ports. The other command is to ask more information of the specific hub

- To query all connected hubs:

CUSBC /Q -F

0002COM3,4

Where

0002: 4 characters for number of hubs installed, 0002 indicates 2 hubs detected.

COM3,4: separated by the ',' character, control ports are COM3 and COM4

- To get the information of each hub:

CUSBC /Q:COM3 -F

FBFFFFFF0Av01

Where

FBFFFFFF: 8 characters hexadecimal bit-mapped, indicates the current Port States

0A 2: characters hexadecimal for number of ports, 0A means 10 ports

v01 3: characters for firmware version

To query the other hub:

CUSBC /Q:COM4 -F

FDFFFFFF07v01

2. Get Port States:

The Get Port States command provides 2 formatted string options:

- Bit-mapped: -B

e.g.

CUSBC /G:COM3 -B

1111111011

The 10 characters (0 is off, 1 is on) indicate the port states for port 1 to 10 respectively.

The rightmost character indicates port 1. The leftmost character indicates port 10. The above example indicates Port 3 is off

- Hexadecimal bit-mapped: -H

e.g.

CUSBC /G:COM4 -H

FBFFFFFF

The 8 hexadecimal bit-mapped characters (FB FF FF FF) indicates the 32 port states for port 1 to 32 respectively. They are mapped as the following table:

Hexadecimal	FB (LSB)	FF	FF	FF (MSB)
Bit-Map	1111 1011	1111 1111	1111 1111	1111 1111
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

3. Set Port States:

Similar to the Get Port State commands mentioned above, the Set Port States command provides 2 formatted string options B and H as well:

- Bit-mapped: **-B**

e.g. The following command turns off Port 2 and 9 and the other ports are on

CUSBC /S:COM3 B:1011111101

- Hexadecimal bit-mapped: **-H**

e.g. The following command set port 1, 6, 10, 15, 20, 27 and 31 to off and the other ports are on:

CUSBC /S:COM3 H:DEBDF7BB

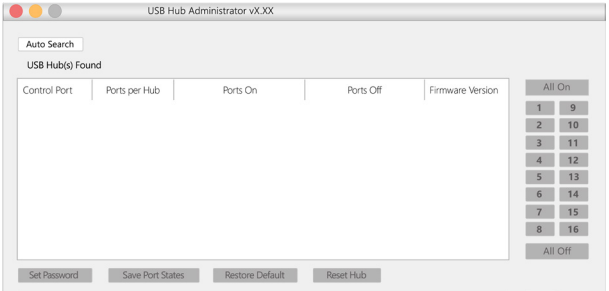
Hexadecimal	DE (LSB)	BD	F7	BB (MSB)
Bit-Map	1101 1110	1011 1101	1111 0111	1011 1011
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

macOS Application Operation

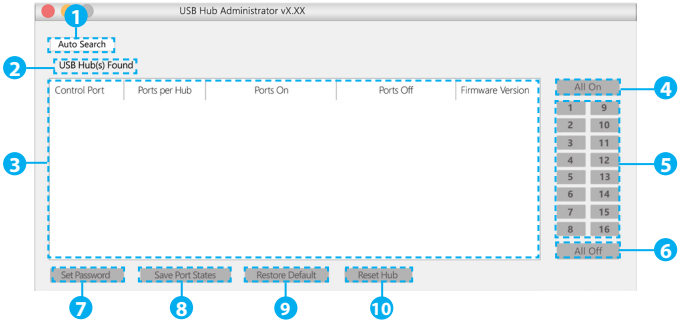
Launching the Application

Select the application icon from the macOS **Applications** folder.

The application will launch.



Application Overview - Graphic User Interface (GUI)



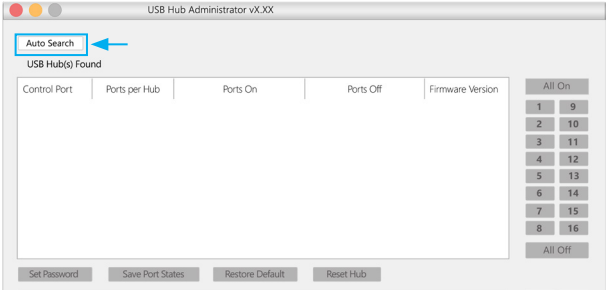
Default password: **pass**

	Component	Function
1	**Auto Search Button**	• Automatically detects Hubs connected to the Host Computer
2	**Hubs Found Indicator**	• Indicates the number of Hubs connected to the Host Computer
3	**Hub Status Table**	• Displays information and settings regarding the connected hub(s) • Enables users to select a specific hub for modification
4	**All On Port Function**	• Turns all Ports on the selected Hub(s) into the ON mode
5	**Individual Port Buttons**	• Turns individual ports, on the selected Hub(s), into the ON or OFF mode
6	**All Off Port Button**	• Turns all Ports on the selected Hub(s) into the OFF mode
7	**Set Password Function**	• Enables users to protect the selected Hub(s) from unwanted changes by enabling password protection
8	**Save Port State Function**	• Enables users to save the current port sates to the select hub(s) internal flash memory.
9	**Restore Default Function**	• Restores the select Hub(s) factory default settings
10	**Reset Hub Function**	• Restarts the selected Hub(s)

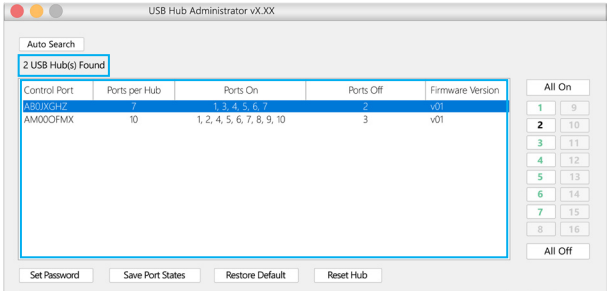
Detect Managed USB Hubs

Once the application is launched, Hubs connected to the Host Computer can be automatically detected.

Click the **Auto Search** button.



The number of located hubs will be displayed in **Hubs Found Indicator**, and the Hubs along with their specific information and current settings will be displayed in the **Hubs Status Table**.



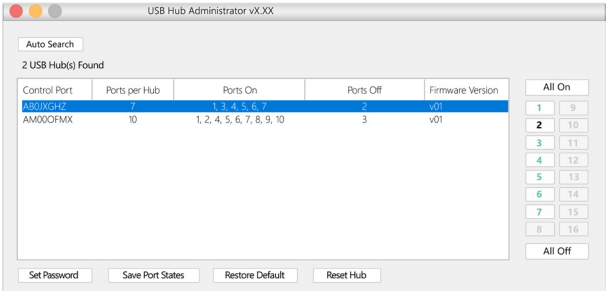
Set a Password

Notes:

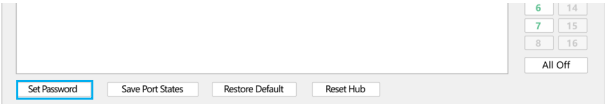
- The default password is "pass".
- A password will always be required when changing the password.
- For all other operation if the default password has not been changed a password will not be required.
- See the Password Requirement Section (p.77) for guidelines on choosing a password.

To set a Password

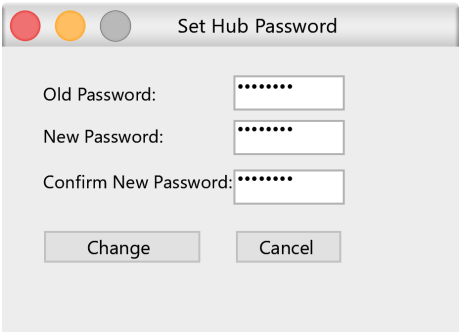
1. Select the desired Hub from the **Hubs Status Table** by clicking the row that the desired Hub is displayed in.



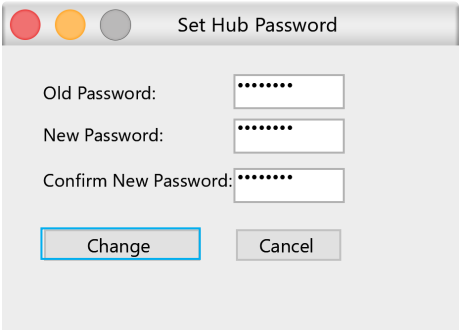
2. Press the **Set Password Button**, to display the **Set Hub Password** window.



3. Enter the old (existing) password, new password, and confirmed new password in the specified fields.



4. Click the Change button.



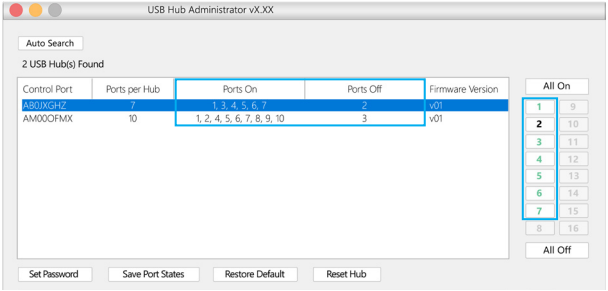
The new password has been set.

Turn USB Ports On or Off

Using the application USB Ports on each detected Hub can be turned **On** or **Off**.

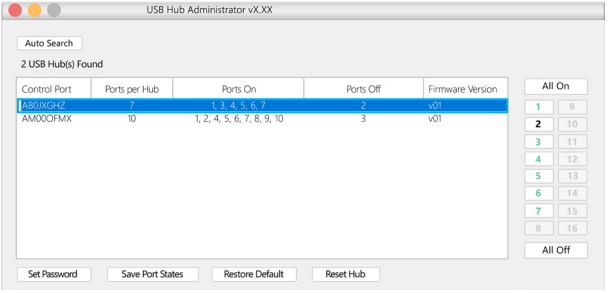
When a specific Hub is selected, the current port status of each port is displayed in the **Hub Status Table** under the **Ports On** and **Ports Off** columns respectively. When a specific Hub is selected.

The current port status can also be determined by the color of the number in the **Individual Port Button,** when a specific Hub is selected (**Green** indicates On, **Black** Indicates Off).

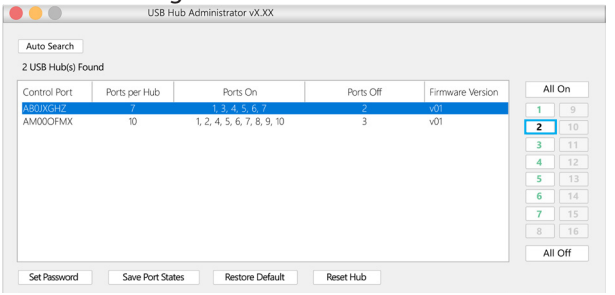


To Turn a Specific Port ON or Off:

1. Select the desired Hub from the **Hubs Status Table** by clicking the row desired Hub is displayed in.



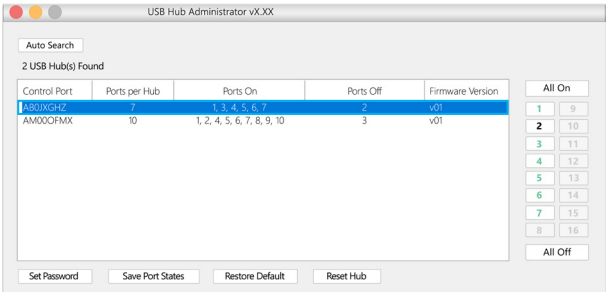
2. Press the **Individual Port Button** that corresponds to the port that is being turned **On** or **Off**.



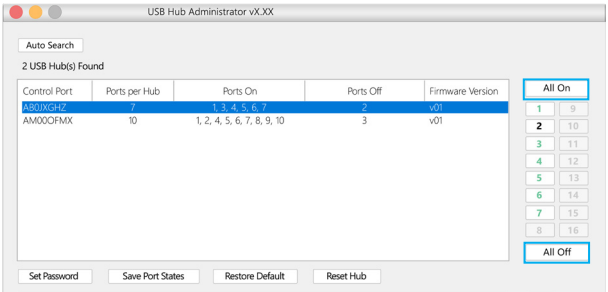
The Port has been toggled **On** or **Off**, depending on the port status prior to pressing the **Individual Port Button**.

Turn All Ports On or Off:

1. Select the desired Hub from the **Hubs Status Table** by clicking the row desired Hub is displayed in.



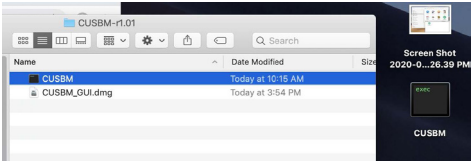
2. Press the **All On Button** or **All Off Button**, depending on the desired action.



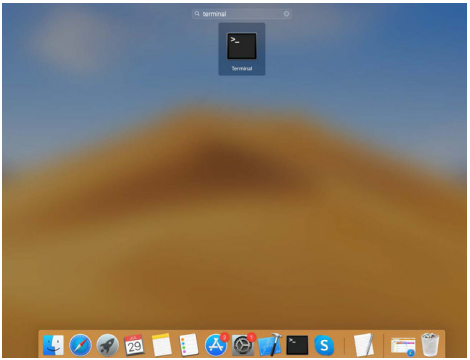
All ports will be turned **On** or **Off**, depending on the selected button.

macOS Terminal Operation

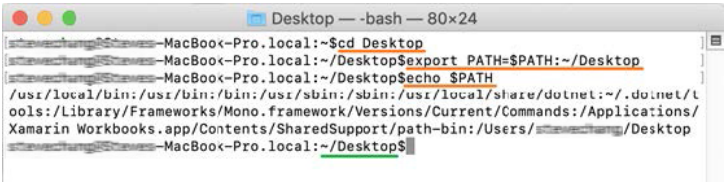
Drag the **CUSBM** script to the **Desktop**.



To run the Terminal app, click Launchpad in the Dock, type terminal in the search bar, and click the appeared Terminal app icon. Or if there is a Terminal icon in the dock, simply click it.

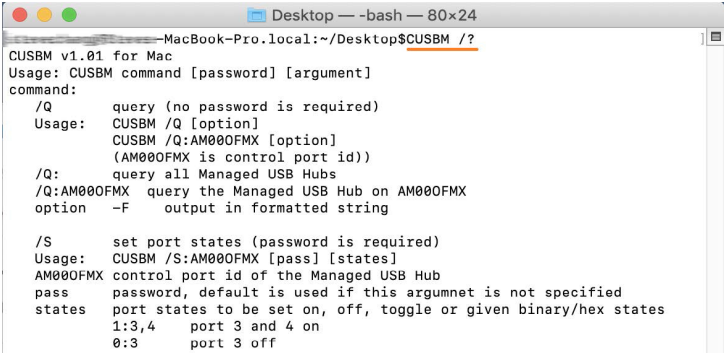


- Go to Desktop folder by typing **cd Desktop**
- Type **export PATH=$PATH:~/Desktop** to add the path where the **CUSBM** located (~/Desktop) to the PATH variable (it enables you to run **CUSBM** script without adding "./" two leading characters indicating the current folder afterwards). Please note that this command only adds the path temporally. It will lose once you close the Terminal app. If you want to make this change permanently, you need to add it to **/etc/ bash.bashrc** file with a text editor so it will be executed anytime the Terminal is opened.
- Type **echo $PATH** to check if the "**Desktop**" string was correctly added to PATH variable or not. If it is correctly added, you are ready to control the Managed USB hub with **CUSBM** script.



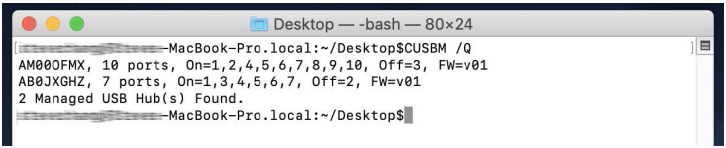
CUSBM Help Message

You can get the **CUSBM** Help Message when type **CUSBM /?** or **CUSBM** without any argument. The help message then will be displayed as the following screenshot:



Query all hubs

At the beginning, you may want to know the connected Managed Hubs' information so you know how to control it. You can type **CUSBM /Q**



The hubs information was displayed as above screenshot. This information is very important for your later control use. The information tells you:

- 2 Hubs were detected
- Control Port are AM00OFMX and AB0JXGHZ respectively, they were assigned by the system automatically. This information will be used for any commands on CUSBM script.
- The first hub has 10 ports and the other has 7 ports
- Current Port States:

  The first Hub: All ports are On except Port 3

  The second Hub: All ports are On except Port 2

- Both Hubs' Firmware version is v01

CUSBM Command Format

The CUSBM command format as follows. There are 3 portion parameters: command, password and command argument. The password and argument are optional for some commands.

CUSBM command [password] [argument]

where

command: It consists of a slash (/), a command character and a colon (:) plus a COM port name, e.g. /S: AM00OFMX is a valid parameter

password: It consists of maximum 8 characters.

argument: It is to tell the CUSBM what value to be set in the hub

Examples:

The following examples guide you how to issue the commands to control the hub:

- To query the hubs: Type **CUSBM /Q**

- Given the control port AM00OFMX by the above Query command, you can issue Get the Port States command: Type **CUSBM /G:**AM00OFMX

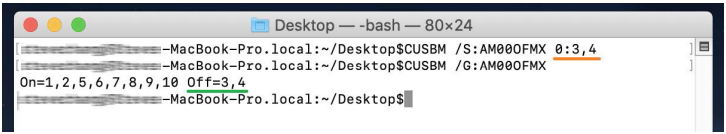
You can see all ports are On except Port 3.

- Suppose you want to turn port 3 and 4 to Off, then you need to provide the command argument:
  Type CUSBM /S:AM00OFMX 0:3,4

where

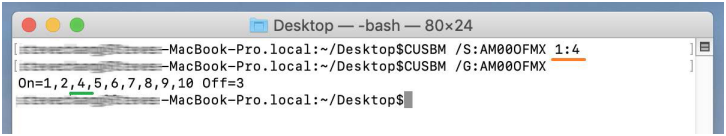
"0:" means to set the ports to Off, if you want to turn it to On, replace it with "1:" instead

"3,4" means port 3 and port 4 will be set



You will see the LEDs of the port 3 and 4 are Off. We have sent another Get Port States command, you can see the port states displayed and tell you port 3 and 4 are Off.

- If you want to turn on port 4, please type
  CUSBM /S: AM00OFMX 1:4



You can see the port 4 is On and only port 3 is still Off.

Get the Port States: /G

This Get Port States command (/G) is to read the current port states from the hub. It can report in 3 formats: description, binary-encoded string and hexadecimal-encoded string. The fist format is user friendly to read, however, the later 2 formats are easily to be handled programmatically.

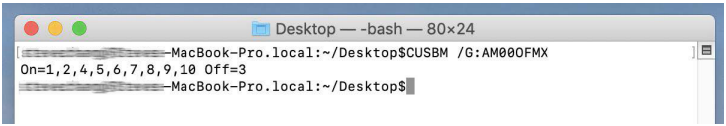
CUSBM /S: Comport_name [option]

Where

Comport_name: Control Port assigned by the System, e. g. **AM00OFMX**

Option: Output format, -B for binary-bit-mapped sting and -H for hexadecimal-bitmapped string

- Get Port States in common description:
  CUSBM /G: AM00OFMX



- Get Port States in bit-mapped string format:
  CUSBM /G: AM00OFMX -B

Bit-Map	111 0100
Port #	765 4321

- Get Port States in hexadecimal-bit-mapped string: **CUSBM /G: AM00OFMX -H**

Hexadecimal	F4 (LSB)	FF	FF	FF (MSB)
Bit-Map	1111 0100	1111 1111	1111 1111	1111 1111
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

Set Port States: /S and /F

There are 2 commands to set the port states, /S and /F. Both work with the same command format except /S is to set the port states temporarily (once the hub is powered off and powered on again, these unsaved port states will be lost), however, /F is to set the port states and saved them to the flash memory permanently. No mater you do a hardware reset or power off the hub, the saved port states will be retrieved when it is restarted. There is another command /W (to be described in the later paragraph) to save the current port states to the flash memory without changing it. Logically, /F command functions like executing a /S command and a /W command.

CUSBC /S: Comport_name [password] states

Where

Comport_name: Control Port assigned by the System, e. g. AM00OFMX

Password: if you have not set the password, you don't need to enter this option. However, you need to enter the password once you have set your own password with /P command (to be described in later paragraph)

States: It consists of 2 ports, one is what states you want to change, the other is which ports you want to change.

States to change:

0: Off

1: On

T: Toggle (invert)

B: Bit mapped string

H: Hexadecimal bit mapped string

Ports to be changed:

ALL: All ports

Ports by a list: The port numbers are listed with a coma delimiter (,). For example, 1,2,5

Bit-mapped-string for **B** and **H** options

Examples:

Query hubs to get the control port: **CUSBM /Q**

Assumes you were given AM00OFMX control port by the above Query command, try the following command examples and check the corresponding port state LEDs on the hub whether they act correctly:

Turn Off port 3: **CUSBM /S: AM00OFMX pass 0:3**

Turn On port 3: **CUSBM /S: AM00OFMX pass 1:3**

Try again without password: **CUSBM /S: AM00OFMX 0:3**

Toggle (invert) port 3: **CUSBM /S: AM00OFMX T:3**

Toggle (invert) port 3: CUSBM /S: AM00OFMX T:3

Turn Off port 1 and 2: **CUSBM /S: AM00OFMX 0:1,2**

Turn On all ports: **CUSBM /S: AM00OFMX 1:ALL**

Turn Off port 3 by a bit-mapped string (if your hub is 7-port):
CUSBM /S:COM3 B:1111110

Turn Off port 3 by a bit-mapped string (if your hub is 4-port):
CUSBM /S:COM3 B:1110

To set the port states by a hexadecimal bit-mapped string, let's explain how the port states were mapped to the corresponding bits in the string. The string consists 4 bytes which indicate 32 bits for 32-port states. A "1" indicates On, "0" indicates Off. The 4 bytes were aligned in little-endian.

If you want to express the port 1, 2, 4 are Off. The string should be **F4 FF FF FF**:

Turn Off port 1,2,4 by hexadecimal bit-mapped string: CUSBM /S: AM00OFMX H:F4FFFFFF

Hexadecimal	F4 (LSB)	FF	FF	FF (MSB)
Bit-Map	1111 0100	1111 1111	1111 1111	1111 1111
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

Change Password: /P

> ***See*** *the Password Requirement Section (p.77) for guidelines on choosing a password.*

The /P command is to set (or change) the access password of the Managed USB hub. The factory default password is "pass". Once the password is changed successfully, you need to include the new password for your new commands afterwards.

CUSBM /P: Comport_name [old_password] new_password

Where

Comport_name: Control Port assigned by the System, e. g. AM00OFMX
old_passoword The current password to be changed (8 characters maximum)
new_password The new password (8 characters maximum)

Examples:

Set password from its factory default to password "new":
CUSBM /P: AM00OFMX new

Change password "new" to "new2":
CUSBM /P: AM00OFMX new new2

Save Port States as Power-on Default: /W

The /W command is to save the current port sates to the hub's internal flash memory. Once the port states were saved, the hub will initiate its port states according to these settings when it is powered up or reset.

CUSBM /W: Comport_name [password]

Where

Comport_name: Control Port assigned by the System, e. g. AM00OFMX

password: Access password, can be omitted if it is the same as the factory default

Examples:

Save the current port states: **CUSBM /W: AM00OFMX**

Save the current port states with the password "pass": **CUSBM /W: AM00OFMX pass**

Restore to Factory Default Settings: /D

The /D command is to restore the hub's factory default settings. If you want to restore the factory default settings while you have forgotten the password, then you have to use the push button on the hub (power off the hub, press the button and hold, power on the hub) instead. Once the hub has been restored to its factory default settings, its password is "**pass**" and **all ports are set to On**.

CUSBM /D: Comport_name [password]

Where

Comport_name: Control Port assigned by the System, e. g. AM00OFMX

password: Access password, can be omitted if it is the same as the factory default

Examples:

Restore the factory default settings: **CUSBM /D: AM00OFMX**

Restore the factory default settings with the password "pass": **CUSBM /D: AM00OFMX pass**

Hardware Reset the Entire Hub: /R

In some cases, you may want to reset the hub without physically unplugging or powering it off. The /R command can do similarly for you.

CUSBM /R: Comport_name [password]

Where

Comport_name: Control Port assigned by the System, e. g. AM00OFMX

password: Access password, can be omitted if it is the same as the factory default

Examples:

Reset the hub: **CUSBM /R: AM00OFMX**

Reset the hub with the password "pass":

CUSBM /R: AM00OFMX pass

Using CUSBM Programmatically

Some of the CUSBM command options are to return its output result in formatted strings. The formatted string is very helpful for your application software to parse it. Their formats are described below.

4. Query commands:

The application software usually need 2 commands, one is to query how many hubs detected and what are their control ports. The other command is to ask more information of the specific hub

- To query all connected hubs:**CUSBM /Q -F**

0002,AM00OFMX, AB0JXGHZ

Where

0002: 4 characters for number of hubs installed, 0002 indicates 2 hubs

detected.

AM00OFMX, AB0JXGHZ: separated by the ", character, control ports are AM00OFMX and AB0JXGHZ

- To get the information of each hub:

CUSBM /Q:AM00OFMX -F

FBFFFFFF0Av01

Where

FBFFFFFF: 8 characters hexadecimal bit-mapped, indicates the current Port States

0A: 2 characters hexadecimal for number of ports, 0A means 10 ports

v01: 3 characters for firmware version

To query the other hub:

CUSBM /Q:AB0JXGHZ -F

FDFFFFFF07v01

5. Get Port States:

The Get Port States command provides 2 formatted string options:

- Bit-mapped: -B

e.g.

CUSBM /G:AM00OFMX -B

1111111011

The 10 characters (0 is off, 1 is on) indicate the port states for port 1 to 10 respectively. The rightmost character indicates port 1. The leftmost character indicates port 10. The above example indicates Port 3 is off

- Hexadecimal bit-mapped: -H

e.g.

CUSBM /G:AM00OFMX -H

FBFFFFFF

The 8 hexadecimal bit-mapped characters (FB FF FF FF) indicates the 32 port states for port 1 to 32 respectively. They are mapped as the following table:

Hexadecimal	FB (LSB)	FF	FF	FF (MSB)
Bit-Map	1111 1011	1111 1111	1111 1111	1111 1111
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

6. Set Port States:

Similar to the Get Port State commands mentioned above, the Set Port States command provides 2 formatted string options **B** and **H** as well:

- Bit-mapped: **-B**

e.g. The following command turns off Port 2 and 9 and the other ports are on

CUSBM /S:AM00OFMX B:1011111101

- Hexadecimal bit-mapped: **-H**

e.g. The following command set port 1, 6, 10, 15, 20, 27 and 31 to off and the other ports are on:

CUSBM /S:AM00OFMX H:DEBDF7BB

Hexadecimal	DE (LSB)	BD	F7	BB (MSB)
Bit-Map	1101 1110	1011 1101	1111 0111	1011 1011
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

Linux Terminal Operation

(Intel: cusbi and ARM: cusba)

The cusbi (or cusba for ARM CPU) is the prebuilt Managed USB Hub control software which is running on an Intel/AMD CPU based Linux system. Once the cusbi is be copied to the specific folder, you need to set the environment variable on Linux accordingly so it can be executed on the terminal at that folder. By the way, you need to login as the root to grant cusbi the privileges to access the hub.

Running the Linux Terminal

The cusbi is shipped in a compressed file (such as cusbi-r1.02.tar.gz), you need to copy it to your Linux system. Please copy it to the Desktop (Ubuntu for example), then extract it.

The cusbi is displayed on the Desktop, click the Terminal icon on the left screen to run the Terminal app:

Before executing any cusbi command, we need to set up the environment:

- Go to Desktop folder
- To get root privileges in the Terminal window for accessing hub, type sudo -s then enter the password.
- Type export PATH=$PATH:~/Desktop to add the path where the cusbi located (~/Desktop) to the PATH variable (it enables you to run cusbi without adding "./" two leading characters indicating the current folder every time). Please note that this command only adds the path temporally. It will lose once you close the Terminal app. If you want to make this change permanently, you need to add it to /etc/ bash.bashrc file with a text editor so it will be executed anytime the Terminal is opened.

- Type echo $PATH to check if the "Desktop" string was correctly added to PATH variable or not. If it is correctly added, you are ready to control the Managed USB hub with cusbi utility.

To invoke the help message, you can type the following commands:

cusbi /?

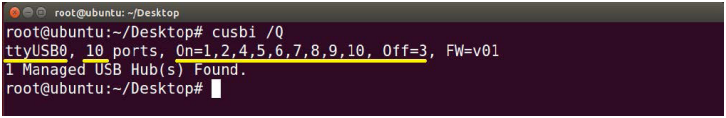
cusbi

```
root@ubuntu: ~/Desktop
root@ubuntu:~/Desktop# cusbi
cusbi v1.02 for Linux/x86-64
Usage: cusbi command [password] [argument]
command:
   /Q       query (no password is required)
   Usage:   cusbi /Q [option]
            cusbi /Q:ttyUSBn [option]
   /Q:      query all Managed USB Hubs
   /Q:ttyUSBn  query the Managed USB Hub on ttyUSBn (n = 1 to 255)
   option   -F    output in formatted string

   /S       set port states (password is required)
   Usage:   cusbi /S:ttyUSBn [pass] [states]
   ttyUSBn     control port number of the Managed USB Hub (n = 1 to 255)
   pass     password, default is used if this argument is not specified
   states   port states to be set on, off, toggle or given binary/hex states
            1:3,4    port 3 and 4 on
            0:3      port 3 off
            T:1,2    toggle port 1 and 2 states
```

Query all hubs

At the beginning, you may want to know the connected Managed Hubs' information so you know how to control it. You can type **cusbi /Q**

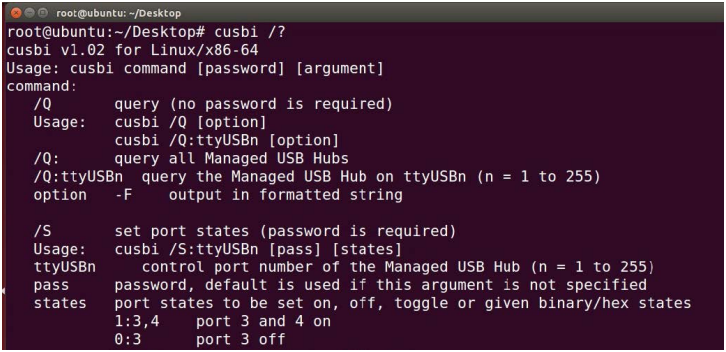


The hub information was displayed as above screenshot. This information is very important for your later control use. The information tells you:

- Control Port is **ttyUSB0**, it was assigned by the system automatically. This information will be used for any command on cusbi.
- The hub has **10 ports**
- Current Port States: **All ports** are **On**, **no** ports are **Off**.
- Firmware version is **v01**

cusbi Help Message

You can get the cusbi Help Message when type cusbi /? or cusbi without any argument. The help message then will be displayed as the following screenshot:



cusbi Command Format

The cusbi command format as follows. There are 3 portion parameters: command, password and command argument. The password and argument are optional for some commands.

cusbi command [password] [argument]

where

command : It consists of a slash (/), a command character and a colon (:) plus a control port number, e.g. /S:ttyUSB0 is a valid parameter

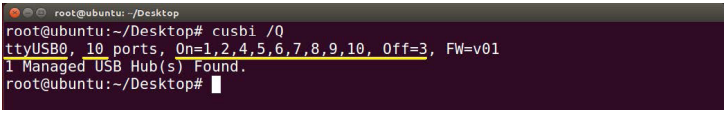
Password: It consists of maximum 8 characters.

Argument: It is to tell the cusbi what value to be set in the hub

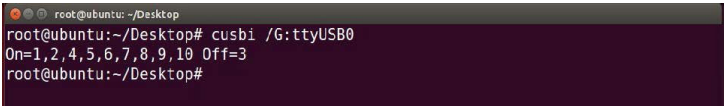
Examples:

The following examples guide you how to issue the commands to control the hub:

1. To query the hubs: Type **cusbi /Q**



2. Given the control port ttyUSB0 by the above Query command, you can issue Get the Port States command: Type **cusbi /G:ttyUSB0**



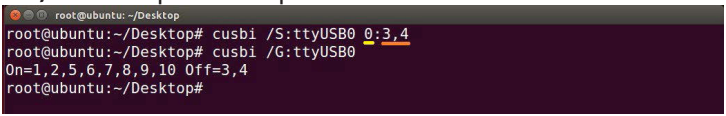
You can see all ports are On, there is no port is Off.

3. Suppose you want to turn port 3 and 4 to Off, then you need to provide the command argument: Type **cusbi /S:ttyUSB0 0:3,4**

where

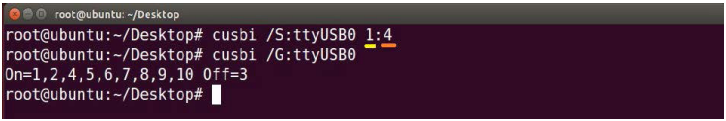
"0:" means to set the ports to Off, if you want to turn it to On, replace it with "1:" instead

"3,4" means port 3 and port 4 will be set



You will see the LEDs of the port 3 and 4 are Off. We have sent another Get Port States command, you can see the port states displayed and tell you port 3 and 4 are Off.

4. If you want to turn On port 4, please type
cusbi /S:ttyUSB0 1:4



You can see the port 4 is On and only port 3 is still Off.

Get the Port States: /G

This Get Port States command (/G) is to read the current port states from the hub. It can report in 3 formats: description, binary-encoded string and hexadecimal-encoded string. The fist format is user friendly to read, however, the later 2 formats are easily to be handled programmatically.

cusbi /S:ttyUSBn [option]

Where

ttyUSBn: Control Port assigned by the System, e. g. ttyUSB0

Option: Output format, **-B** for binary-bit-mapped sting and **-H** for hexadecimal-bit-mapped string

- Get Port States in common description: **cusbi /G: ttyUSB0**

```
root@ubuntu: ~/Desktop
root@ubuntu:~/Desktop# cusbi /G:ttyUSB0
On=1,2,4,5,6,7,8,9,10 Off=3
root@ubuntu:~/Desktop#
```

- Get Port States in bit-mapped string format: **cusbi /G: ttyUSB0 -B**

```
root@ubuntu: ~/Desktop
root@ubuntu:~/Desktop# cusbi /G:ttyUSB0 -B
1111111011
root@ubuntu:~/Desktop#
```

Bit-Map	111 0100
Port #	765 4321

- Get Port States in hexadecimal-bit-mapped string: **cusbi /G:ttyUSB0 -H**

```
root@ubuntu: ~/Desktop
root@ubuntu:~/Desktop# cusbi /G:ttyUSB0 -H
FBFFFFFF
root@ubuntu:~/Desktop#
```

Hexadecimal	F4 (LSB)	FF	FF	FF (MSB)
Bit-Map	1111 0100	1111 1111	1111 1111	1111 1111
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

Set Port States: /S and /F

There are 2 commands to set the port states, /S and /F. Both work with the same command format except /S is to set the port states temporarily (once the hub is powered off and powered on again, these unsaved port states will be lost), however, /F is to set the port states and saved them to the flash memory permanently. No mater you do a hardware reset or power off the hub, the saved port states will be retrieved when it is restarted. There is another command /W (to be described in the later paragraph) to save the current port states to the flash memory without changing it. Logically, /F command functions like executing a /S command and a /W command.

CUSBC /S: ttyUSB0n[password] states

Where

ttyUSBn: Control Port assigned by the System, e. g. ttyUSB0

password: if you have not set the password, you don't need to enter this option. However, you need to enter the password once you have set your own password with /P command (to be described in later paragraph)

states: It consists of 2 ports, one is what states you want to change, the other is which ports you want to change.

States to change:

0: Off

1: On

T: Toggle (invert)

B: Bit mapped string

H: Hexadecimal bit mapped string

Ports to be changed:

ALL: All ports

Ports by a list: The port numbers are listed with a coma delimiter (,). For example, 1,2,5

Bit-mapped-string for **B** and **H** options

Examples:

Query hubs to get the control port: **cusbi /Q**

Assumes you were given ttyUSB0 control port by the above Query command, try the following command examples and check the corresponding port state LEDs on the hub whether they act correctly:

Turn Off port 3: **cusbi /S: ttyUSB0 pass 0:3**

Turn On port 3: **cusbi /S: ttyUSB0 pass 1:3**

Try again without password: **cusbi /S: ttyUSB0 0:3**

Toggle (invert) port 3: **cusbi /S: ttyUSB0 T:3**

Toggle (invert) port 3: **cusbi /S: ttyUSB0 T:3**

Turn Off port 1 and 2: **cusbi /S: ttyUSB0 0:1,2**

Turn On all ports: **cusbi /S: ttyUSB0 1:ALL**

Turn Off port 3 by a bit-mapped string (if your hub is 7-port): cusbi /S:ttyUSB0 B:1111110

Turn Off port 3 by a bit-mapped string (if your hub is 4-port): cusbi /S:ttyUSB0 B:1110

To set the port states by a hexadecimal bit-mapped string, let's explain how the port states were mapped to the corresponding bits in the string. The string consists 4 bytes which indicate 32 bits for 32-port states. A "1" indicates On, "0" indicates Off. The 4 bytes were aligned in little-endian.

If you want to express the port 1, 2, 4 are Off. The string should be **F4 FF FF FF:**

Hexadecimal	F4 (LSB)	FF	FF	FF (MSB)
Bit-Map	1111 0100	1111 1111	1111 1111	1111 1111
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

Turn Off port 1,2,4 by hexadecimal bit-mapped string: cusbi /S:ttyUSB0 H:F4FFFFFF

Change Password: /P

> ***See*** *the Password Requirement Section (p.77) for guidelines on choosing a password.*

The /P command is to set (or change) the access password of the Managed USB hub. The factory default password is "pass". Once the password is changed successfully, you need to include the new password for your new commands afterwards.

cusbi /P: ttyUSBn [old_password] new_password

Where

ttyUSBn: Control Port assigned by the System, e. g. ttyUSB0

old_passoword The current password to be changed (8 characters maximum)

new_password The new password (8 characters maximum)

Examples:

Set password from its factory default to the new password "new": **cusbi /P:ttyUSB0 new**

Change password "new" to "new2": **cusbi /P:ttyUSB0 new new2**

Save Port States as Power-on Default: /W

The /W command is to save the current port sates to the hub's internal flash memory. Once the port states were saved, the hub will initiate its port states according to these settings when it is powered up or reset.

cusbi /W: ttyUSBn [password]

Where

ttyUSBn: Control Port assigned by the System, e. g. ttyUSB0

password: Access password, can be omitted if it is the same as the factory default

Examples:

Save the current port states: **cusbi /W:ttyUSB0**

Save the current port states with the password "pass": **cusbi /W:ttyUSB0 pass**

Restore to Factory Default Settings: /D

The /D command is to restore the hub's factory default settings. If you want to restore the factory default settings while you have forgotten the password, then you have to use the push button on the hub (power off the hub, press the button and hold, power on the hub) instead. Once the hub has been restored to its factory default settings, its password is "**pass**" and **all ports are set to On**.

cusbi /D: ttyUSBn [password]

Where

ttyUSBn: Control Port assigned by the System, e. g. ttyUSB0

password: Access password, can be omitted if it is the same as the factory default

Examples:

Restore the factory default settings: **cusbi /D:ttyUSB0**

Restore the factory default settings with the password "pass": **cusbi /D:ttyUSB0 pass**

Hardware Reset the Entire Hub: /R

In some cases, you may want to reset the hub without physically unplugging or powering it off. The /R command can do similarly for you.

cusbi /R: ttyUSBn [password]

Where

ttyUSBn: Control Port assigned by the System, e. g. ttyUSB0

password: Access password, can be omitted if it is the same as the factory default

Examples:

Reset the hub: **cusbi /R:ttyUSB0**

Reset the hub with the password "pass": **cusbi /R:ttyUSB0 pass**

Using cusbi Programmatically

Some of the cusbi command options are to return its output result in formatted strings. The formatted string is very helpful for your application software to parse it. Their formats are described below.

4. Query commands:

The application software usually need 2 commands, one is to query how many hubs detected and what are their control ports. The other command is to ask more information of the specific hub

- To query all connected hubs:
  cusbi /Q -F
  0002ttyUSB0,1

Where

0002: 4 characters for number of hubs installed, 0002 indicates 2 hubs detected.

ttyUSB0,1: separated by the ‘,’ character, control ports are ttyUSB0 and ttyUSB1

- To get the information of each hub:
  cusbi /Q:ttyUSB0 -F
  FBFFFFFF0Av01

Where

FBFFFFFF 8 characters hexadecimal bit-mapped, indicates the current Port States

0A 2 characters hexadecimal for number of ports, 0A means 10 ports

v01 3 characters for firmware version

To query the other hub:

cusbi /Q:ttyUSB1 -F

FDFFFFFF07v01

5. Get Port States:

The Get Port States command provides 2 formatted string options:

- Bit-mapped: **-B**
  e.g.

  cusbi /G:ttyUSB0 -B
  1111111011

The 10 characters (0 is off, 1 is on) indicate the port states for port 1 to 10 respectively. The rightmost character indicates port 1. The leftmost character indicates port 10. The above example indicates Port 3 is off

- Hexadecimal bit-mapped: **-H**
  e.g.

  cusbi /G:ttyUSB0 **-H**
  FBFFFFFF

The 8 hexadecimal bit-mapped characters (FB FF FF FF) indicates the 32 port states for port 1 to 32 respectively. They are mapped as the following table:

Hexadecimal	FB (LSB)	FF	FF	FF (MSB)
Bit-Map	1111 1011	1111 1111	1111 1111	1111 1111
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

6. Set Port States:

Similar to the Get Port State commands mentioned above, the Set Port States command provides 2 formatted string options **B** and **H** as well:

- Bit-mapped: **-B**
  e.g. The following command turns off Port 2 and 9 and the other ports are on

  cusbi /S:ttyUSB0 B:1011111101

- Hexadecimal bit-mapped: **-H**
  e.g. The following command set port 1, 6, 10, 15, 20, 27 and 31 to off and the other ports are on:

  cusbi /S:ttyUSB0 H:DEBDF7BB

Hexadecimal	DE (LSB)	BD	F7	BB (MSB)
Bit-Map	1101 1110	1011 1101	1111 0111	1011 1011
Port #	8765 4321	16 ~ 9	24 ~ 17	32 ~ 25

Password Requirements

When associating a password to a connected USB hub the following must be adhered to:

- The password cannot exceed 8 characters.
- The password cannot contain unsupported characters.
- The passwords cannot contain a leading space or trailing space.

Supported Characters

Lowercase characters **{a-z}**

Uppercase characters **{A-Z}**

Numbers **{0-9}**

The following special characters:

{ !#$%&'()*+,-./:;<=>?@[\]^_`{|}~}

Unsupported Characters

Any other characters, such as accented or non-English alphabetic characters (ü î ø å é) are unsupported and will result in an error or lead to unstable operation.

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
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- Cables (including power and charging cables) should be placed and routed to avoid creating electric, tripping or safety hazards.

Mesures de sécurité

- Les terminaisons de câblâge ne doivent pas être effectuées lorsque le produit et/ou les câbles électriques sont sous tension.
- Les câbles (y compris les câbles d'alimentation et de chargement) doivent être placés et acheminés de façon à éviter tout risque électrique, de chute ou de sécurité

安全対策

- 電源が入っている状態の製品または電線の終端処理を行わないでください。
- ケーブル（電源ケーブルと充電ケーブルを含む）は、適切な配置と引き回しを行い、電気障害やつまづきの危険性など、安全上のリスクを回避するようにしてください。

Misure di sicurezza

- I terminiali dei fili elettrici non devono essere realizzate con il prodotto e/o le linee elettriche sotto tensione.
- I cavi (inclusi i cavi di alimentazione e di ricarica) devono essere posizionati e stesi in modo da evitare pericoli di inciampo, rischi di scosse elettriche o pericoli per la sicurezza.

Säkerhetsåtgärder

- Montering av kabelavslutningar får inte göras när produkten och/eller elledningarna är strömförda.
- Kablar (inklusive elkablar och laddningskablar) ska dras och placeras på så sätt att risk för snubblingsolyckor och andra olyckor kan undvikas.

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