# **DUCX USB Driver Installation**

20161028 v1.0

### Scope

This document describes the process for driver installation on a clean, patched, installation of Windows Vista, Windows 7, Windows 8, Windows 8.1 and Windows 10 both 32 and 64-bit versions.

## Overview

From Windows Vista onwards Windows includes USB class device drivers<sup>1</sup> for standard USB functions including the CDC serial port function used by DUCX. There is therefore no need any longer to include a modified ST Microelectronics VCP driver we simply provide an INF file describing the two CDC device endpoints and use the standard Windows driver usbser.sys to service the ports.

The bespoke INF file is signed by LeoTel Software Systems Limited so that it can be used on both 32 and 64 bit platforms directly.

# USB Composite and USB CDC Serial Drivers

#### Windows 10

On first connecting the Mega Link USB interface to a clean, patched, installation of Windows 10 Windows will recognise the Mega Link USB interface as a USB composite device (Hardware IDs VID 0483 and PID 5740) with two USB class 02 CDC functions/devices:

🛃 Device Manager	-	×
File Action View Help		
> 👝 Disk drives		^
> 🏣 Display adapters		
> 🔐 DVD/CD-ROM drives		
> 🐺 Human Interface Devices		
> 📹 IDE ATA/ATAPI controllers		
> 🔤 Keyboards		
> II Mice and other pointing devices		
> 🛄 Monitors		
> 🚽 Network adapters		
✓  ↓ Other devices		
🙀 Base System Device		
> 🔜 Portable Devices		
🗸 🛱 Ports (COM & LPT)		
💭 USB Serial Device (COM3)		
💭 USB Serial Device (COM4)		
> 🚍 Print queues		
> D Processors		
> 📱 Software devices		
> 🕡 Sound, video and game controllers		
> 🍰 Storage controllers		
> 🏣 System devices		
✓ ψ Universal Serial Bus controllers		
Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)		
USB Composite Device		
USB Mass Storage Device		
IUSB Root Hub (vHCI)		¥

The two Mega Link Virtual COM Ports appear above as standard USB Serial Devices (COM3 & COM4). You can identify which ports are the Mega Link ports by looking at the device 'Hardware Ids' and confirming they have VID 0483 and PID 5740.

<sup>1</sup> https://msdn.microsoft.com/en-us/library/windows/hardware/ff538820(v=vs.85).aspx

In order to enumerate these two devices as working Mega Link serial ports the following process should be followed:

Select one of the 'USB Serial Device' devices, right click on the mouse and select 'Update Driver Software...'

Select 'Browse my computer for driver software'

Select 'Let me pick from a list of device drivers on my computer'

Browse to the 'Churchill Controls\Drivers\DUCX CDC driver' installation directory:

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	Device Manage		_	^
Fil	e Action Vie	ew Help		
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~	🖁 CCMGI		×	
	> 🛯 Auc			
	> 🧽 Bat 🔶	Update Driver Software - USB Serial Device (COM3)		
	> Disl	Browse for driver software on your computer		
		browse for driver software on your computer		
		Search for driver software in this location:		
	Key	C:\Churchill Controls\Drivers\DUCX CDC driver		
	> M Mic			
	> Mo	✓ Include subfolders		
	> 💭 Net			
	🗸 🚺 Oth			
	🗸 🛱 Por			
	<b></b>	$\rightarrow$ Let me pick from a list of device drivers on my computer		
	<b></b>	This list will show installed driver software compatible with the device, and all driver		
	> 🚍 Prir	software in the same category as the device.		
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	> Sof			
	> iii Sou			
	> 💥 Sto			
	> 🚛 Sys	Next Can	cel	
	> y uni			

Press 'Next' and Windows should locate the file 'cdc-ducx.inf' in the indicated directory and confirm that you wish to install that device driver:

₫ 0	evice Ma	nager	- 0	×
File	Action	View	Help	
<hr/>	🖬		🛿 🗊   🖳   💺 🗙 🕑	
>	CCMGI Auc Batt Cor Disl Disl Auc Batt Cor Cor Disl Cor Cor Cor Cor Cor Cor Cor Cor	← ]	Update Driver Software - USB Serial Device (COM3)	
>	Hur IDE Key Mic Mo Net		Would you like to install this device software? Name: Churchill Controls Ports (COM & LPT) Publisher: LeoTel Software Systems Limited	
Ý	Oth		Always trust software from "LeoTel Software Install Don't Install Systems Limited".	
~	Por Por		You should only install driver software from publishers you trust. <u>How can I decide which device</u> software is safe to install?	
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>	Pro Pro			
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>	ų Uni			

Confirm the install and Windows will install one of the two 'Mega Link Virtual COM Port' instances:

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File	e A	Action	View	/ Help			
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~	<u>a</u> c	ССМС			×	1	
	> 1	Auc		_	~		
	> 4	💡 Bat	←	Update Driver Software - Mega Link Virtual COM Port #2 (COM3)			
	2 4	- Cor					
	2	Disi		Windows has successfully updated your driver software			
	52	🔍 DVI					
	> 🕅	Hu Hu		Windows has finished installing the driver software for this device			
	> =	📷 IDE		windows has missied installing the driver software for this device.			
	> 🔤	Key					
	> U			Mega Link Virtual COM Port #2			
	27	- Net					
	Ú 🖥	Oth					
	-	R					
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	5 Ē	δοι					
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	> 🖡	Sys			Close		
	> 4	l Uni					

Repeat the process for the other 'USB Serial Device' device.

Your final 'Drivers' window should look something like this:



#### Windows 7, 8 and Windows 8.1

#### Scenario #1

On first connecting the Mega Link USB interface to a clean, patched, installation of Windows 8.1 without Internet access Windows will recognise the Mega Link USB interface as a USB composite device (Hardware IDs VID 0483 and PID 5740) with two USB class 02 CDC functions/devices:

🚔 Device Manager – 🗖	×
File Action View Help	
▶ 🐺 Computer	^
b isk drives	
b See Display adapters	
DVD/CD-ROM drives	
▷ 🕼 Human Interface Devices	
▷ circle DE ATA/ATAPI controllers	
> — Keyboards	
B Mice and other pointing devices	
Monitors	
▲	
🕵 Intel(R) PRO/1000 MT Desktop Adapter	
a 🗓 Other devices	
Base System Device	
🔚 Mega Link Virtual COM Port	
hega Link Virtual COM Port	
▷	
> 🖶 Print queues	
Processors	
▷ 💐 Sound, video and game controllers	
Storage controllers	
b I System devices	
a 🏺 Universal Serial Bus controllers	
Intel(R) USB 3.0 eXtensible Host Controller - 0100 (Microsoft)	
🏺 USB Composite Device	
🏺 USB Mass Storage Device	
着 USB Root Hub (vHCl)	~

The two Mega Link Virtual COM Ports appear above as unrecognised devices (yellow explanation mark) named 'Mega Link Virtual COM Port'.

In order to enumerate these two devices as working Mega Link serial ports the following process should be followed:

Select one of the 'Mega Link Virtual COM Port' devices, right click on the mouse and select 'Update Driver Software...'

Select 'Browse my computer for driver software'

Select 'Let me pick from a list of device drivers on my computer'

Browse to the 'Churchill Controls\Drivers\DUCX CDC driver' installation directory:

4	Device Manager -	
File Action	View Help	
⊳ 👰 C¢	×	^
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→ 🖓 D\		
⊳ 🕅 Hi		
	Browse for driver software on your computer	
⊳ 8 M		
⊳ 💽 M	Search for driver software in this location:	
⊿ 👱 N	C:\Churchill Controls\Drivers\DUCX CDC driver V Browse	
⊿ 🔓 🗖	✓ Include subfolders	
D ■ Pc D ■ Pr D ■ Pr D ■ Pr D ■ St D ■ Sy A ■ Ur A ■ Ur	Let me pick from a list of device drivers on my computer This list will show installed driver software compatible with the device and all driver software in the same category as the device.	
	Next Cancel	v

Press 'Next' and Windows should locate the file 'cdc-ducx.inf' in the indicated directory and confirm that you wish to install that device driver:

4	Device Manager –	
File Action	View Help	
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⊳ 📷 ID ⊳ 🥅 Ke	In 📼 Windows Security	
⊳ 🦉 M ⊳ 💭 M ⊳ 👰 N; ⊿ 🕞 Ot	Would you like to install this device software? Name: Churchill Controls Ports (COM & LPT) Publisher: LeoTel Software Systems Limited	
⊳ ■ Pc ⊳ ₩ Pr ⊳ ■ Pr ⊳ ■ Pr	Always trust software from "LeoTel Software Install Don't Install     Systems Limited".      You should only install driver software from publishers you trust. How can I decide which device software is safe to install?	
N ■ Sc St N ■ Sy N ■ Ur N ■ Ur N ■ Ur		· · · · · · · · · · · · · · · · · · ·

Confirm the install and Windows will install one of the two 'Mega Link Virtual COM Port' instances:



Repeat the process for the other Mega Link Virtual COM Port.

Your final 'Drivers' window should look something like this:



#### Scenario #2

On first connecting the Mega Link USB interface to a clean, patched, installation of Windows 8.1 with Internet access and drivers set to automatically download and install Windows will recognise the Mega Link USB interface as a single 'STMicroelectronics Virtual COM Port' instance (Hardware IDs VID 0483 and PID 5740) having downloaded that driver from the Microsoft update site:

🚔 Device Manager	 ×
File Action View Help	
▲ 🐣 CCMGLDEV-4-Win81x32	^
Audio inputs and outputs	
> 😼 Batteries	
> 🕵 Computer	
Disk drives	
Display adapters	
DVD/CD-ROM drives	
b 場面 Human Interface Devices	
D IDE ATA/ATAPI controllers	
> Seyboards	
B Mice and other pointing devices	
Monitors	
Network adapters	
▲ D Other devices	
has System Device	
D I Portable Devices	
Ports (COM & LPT)	
STMicroelectronics Virtual COM Port (COM3)	
> 🖶 Print queues	
Processors	
▷ 121 Sensors	
▷ <u>□</u> Software devices	
Sound, video and game controllers	
Storage controllers	
Figure System devices	
N 🗮 Universal Serial Rus controllers	•

In order to enumerate the device as a USB composite device the following process should be followed.

Select the 'STMicroelectronics Virtual COM Port' devices, right click on the mouse and select 'Update Driver Software...'

Select 'Browse my computer for driver software'

Select 'Let me pick from a list of device drivers on my computer'

Select 'USB Composite Device':

4		Device Manager –	×
File	Action	View Help	
(*)	•		
		I Update Driver Software - STMicroelectronics Virtual COM Port (COM3) Select the device driver you want to install for this hardware. Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver that you want to install, click Have Disk. Show compatible hardware Model Show compatible hardware Model Storelectronics Virtual COM Port Use Composite Device This driver is digitally signed. Have Disk	
	⊳ <u>u</u> sc ⊳ u Sc	Tell me why driver signing is important	
	⊳ Ç÷ St		
	i 📮 Ur	Next Cancel	

Press 'Next' and Windows should change drivers to use the USB composite device driver. From this point on continue as per Scenario #1.