

Application Note

Unistream USC Series USB Actions

This application note only applies to the USC Series of Unistream controllers, that is the series without an HMI display.

Model used: USC-B10-B1
Default IP address: 192.168.1.4
Default Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1

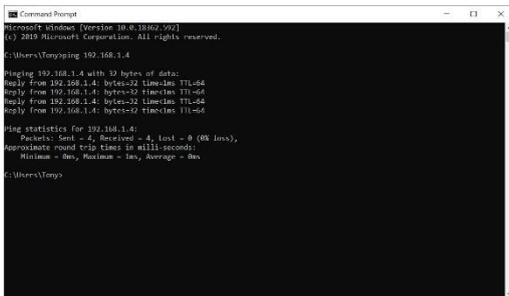
If you are using a Unitronics USL display (USL-050-B10 or USL-070-B10) then the following addresses are also used.

Default IP address: 192.168.1.5
Default Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1

You may also use the Unistream USP, US5 or US7 Series as a display for the USC PLC.

*Note that most laptops will have two IP addresses, one for the WiFi connection and one for the cable connection. Make sure that your computer has the same subnet settings as the USC for whichever physical method of connection you are using. eg 192.168.1.xxx. The following application note is based on Windows 10 settings, there may be some variation in the images depending on which version of Windows you are using. **Make sure that the above default addresses DO NOT clash with existing network addresses***

Remove the battery insulating tag from the battery compartment and insert an SD card (if required, **it IS recommended**) into the card socket to the left hand side of the PLC. Power up the PLC, the Run light should be solid orange then within approximately one minute it should turn solid green.



```
Microsoft Windows [Version 10.0.18362.592]
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C:\Users\Tom\ping 192.168.1.4

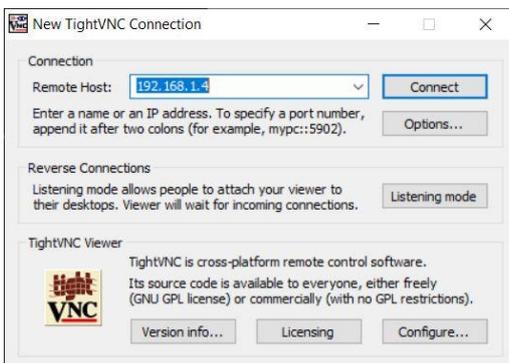
Pinging 192.168.1.4 with 32 bytes of data:
Reply from 192.168.1.4: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milliseconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\Tom>
```

Connect the PC to the PLC with an Ethernet cable or connect the PLC to a wireless access point. Check the PC-PLC connection by opening a Command Box (type 'cmd' into the Taskbar Search box) and pinging the default IP address. You should see a reply similar to the one to the left indicating that there is a device with that IP address. Disconnect the PLC and run the test again, if there is no reply then this confirms that the PLC has been assigned that address.

If there is a reply this may indicate that the PLC default addresses are already in use by some other device.



Open your chosen VNC viewer app and connect to IP address 192.168.1.4. TightVNC is an example of a VNC Viewer and images from this app are used where needed in this application note.

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The factory default program loaded into the PLC will produce an image like this.

We are now ready to program the PLC and use USB Actions.

Unilogic programming software

Please note that the USB Actions function was not available before May 2019 and first appeared in Unilogic ver 1.26.90

In the Help menu select the Search tab and type in 'Action Files' then go to 'Read more' which appears just above VFD.

With other Unistream Series it is possible to manually set the IP addresses, update the application and OS along with various other parameters. As there is no display on a USC Series these manual actions are accomplished using a USB stick (sometimes referred to as a DOK, disk on key) plugged into the PLC and actioned by pressing the black 'Confirm' button on the front of the PLC.

A USB Action File requires that each of the following three stages are implemented.

- 1 Set permissions in Unilogic program and download to PLC
- 2 Create required USB action file from within Unilogic
- 3 Insert USB stick in PLC and press 'Confirm'

Note that if you forget the IP address of the PLC it will not be possible to communicate with it. A USB Action File can be run to change the PLC IP address, however, permission to implement this action MUST be enabled in the PLC in advance.

The factory default program has ALL of these permissions set and in a new Unilogic project ALL of these permissions are set as default. Care should therefore be exercised as to which, if any, of these permissions are disabled for security purposes.

Set permissions

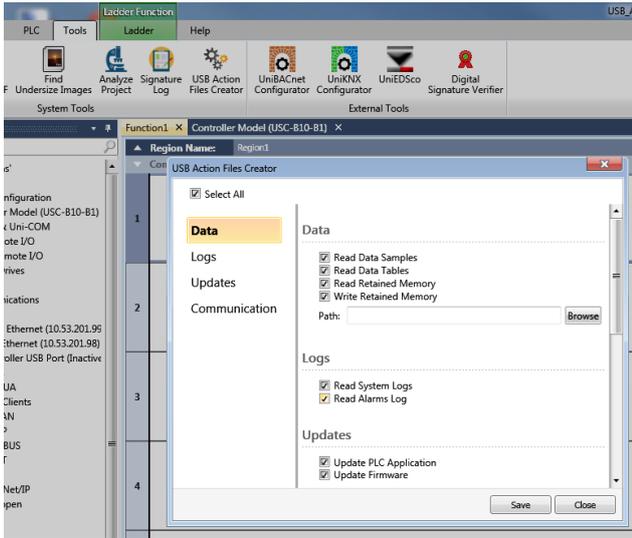
Click on Hardware Configuration > Controller model and select 'Define allowed USB actions'



Download the program to the PLC

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Create the new USB Actions File

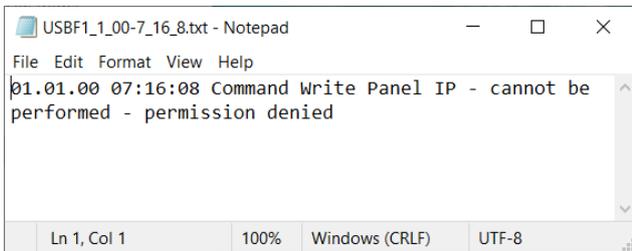


In Unilogic select Tools > USB Action Files Creator and **deselect** the options you do not want. For example, to only update the application program uncheck all of the boxes except for 'Update PLC Application'.

Insert a USB stick into your PC and **SAVE** the file to the root directory of the USB stick. Note that the file dialog box only asks for a FOLDER not a file name, the folder will be something like USBDRIVE (E:).

Remove the USB stick from the PC and insert into the PLC. If the PLC recognises the USB Action file then the USB led will go solid green. Press the 'Confirm' button briefly (press & release), the USB led will blink green and then go solid green BUT you need to decide if the action completed successfully or not.

If the action is NOT successful the PLC will write a .txt file to the USB stick. If the action was successful then there will not be a file.



The filename is USBF followed by a time stamp and the extension .txt

Here an attempt to change the IP address failed because the Update IP address box was not checked.

Note that when you plug the USB stick into the PLC and press the confirm button the RUN LED may start blinking, this indicates that a PLC reset will be required. You need to press the Confirm button to acknowledge this before the USB action executes.

The following extract from the Help file adds some additional information.

You can create Action files that are limited to run on a specific PLC, by renaming the USBF.xml file to include the PLC's serial number, found on a sticker on the PLC's side. If the PLC has the serial number **U4RF0A00012** then renaming a USBF.xml file as **USBF_U4RF0A00012.xml** will limit the file to run only on this PLC.

Executing USB Actions

Open the PLC's top door, and plug the USB drive into the PLC's USB port. The PLC detects the USB drive, and checks the file; if the file is validated, the USB light turns a steady green.

Press the Confirm button on the front of the PLC to run the file and execute the Actions.

When the file starts running, the USB LED begins to blink, and blinks while the Actions are in progress.

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Monitor the LED indications:

If the Actions were executed successfully, the USB LED will be steady green. If the Actions require PLC reset, the RUN LED will blink green; press the Confirm button to restart the system. Note that after restart, the PLC will be in Run mode.

If the Actions did not execute successfully, the Error LED will also blink red; disconnect the USB drive to dismiss the error.

USB Actions LED Indications			
LED Colour & State			
RUN	ERROR	USB	Indication
		Green On	This LED turns steady green: <ul style="list-style-type: none"> when a USB drive is detected with valid Action file(s), indicating that you can press CONFIRM to begin running them. when the files on the USB ran successfully.
		Green blink	USB Action in progress.
Green blink		Green On	USB Action requires reset; press CONFIRM to restart system
	Red blink	Off	USB drive detected, but contains corrupt Action file(s)
	Red blink	Green ON	USB Action ran with error – disconnect the USB drive to dismiss the error.

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LED Indications				
I/O LEDs	Colour	Indication		
Digital Input	Green	Input state		
Analog Input	Red	On: Input value is in Overflow		
Relay and Transistor Output	Green	Output state		
Status LEDs	Color & State		Indication	
RUN	Green	On	Run mode	
		Blink	This indication is in conjunction with the USB LED. See table below, USB Actions Indications, for details	
	Orange	On	Start-up mode	
		Blink	Stop mode	
ERROR	Red	On/Blink	The Error LED can give indications in conjunction with the RUN and/or USB LED. See the next tables Error Indications and USB Actions Indications for details	
USB	Green	On	A USB drive is detected that contains valid action file(s).	
		Blink	USB Action in progress	
BATT. LOW	Red	On	Battery is low or missing	
FORCE	Red	On	I/O Force on	
Error Indications	LED, Color & State			
	RUN	ERROR	USB	Indication
		Red blink	Off	One or more of the Actions in the USBF.xml file is corrupt – disconnect the USB drive to dismiss the error
		Red blink	On	One or more of the Actions in the USBF.xml Action has failed – disconnect the USB drive to dismiss the error
		Red blink	On	HW Configuration Mismatch – the HWC in the UniLogic application does not match the Uni-I/O modules physically connected to the PLC
	Orange blink	Red blink		Application Invalid or Version Mismatch (UniLogic version is not supported by device firmware)
		Red On		Uni-I/O Error (check wiring connections)
	Orange blink	Red On		OS/Application error