

# Spirit<sup>IT</sup> Flow-X

## OS update utility

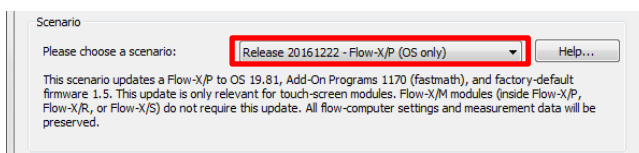
First time ?

Download and install the Visual C++ Redistributable for Visual Studio 2012 Update 4 (x86)  
(<https://www.microsoft.com/en-us/download/details.aspx?id=30679>)  
Unpack the Flow-X OS Update Utility archive to a location of your choice.

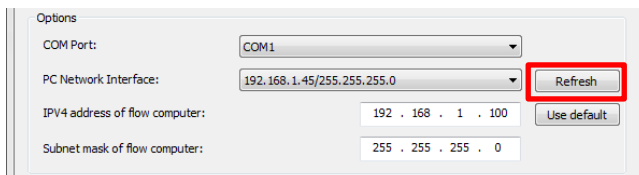
## Update procedure

The Flow-X OS Update Utility may erase the entire memory of the flow computer depending on the chosen scenario. Make sure to **back up** the Flow-X application by first reading the application from the Flow-X and saving it to disk. Any reports or historical data that you want to keep must be backed up separately.

1. (optional) Back up the Flow-X application and any other data on the device.
2. Start the Flow-X OS Update Utility.
3. Connect your device. A serial connection to COM1 and a network connection are required. Press the help button in the Flow-X OS Update Utility for details, or see the section on 'Connecting devices' below.
4. Select a suitable scenario for your device from the drop-down list of available scenarios. Different devices (e.g. Flow-X/P, Flow-X/M) may require a different update scenario.



5. Power on the device. Once the device has booted, refresh the network list.



6. Select the network connection to which your device is connected.

7. Choose the target or existing IP address and subnet mask for the device in the range of your selected network connection. In case of “OS only” scenario the existing IP address and subnet mask of the device **MUST** be used. After selecting a network, you may customize the IP address and subnet mask values. These fields can be restored to their default values by pressing the “Use default” button.

8. Press the start button to start the update procedure, and follow the instructions on the screen. The scenario may instruct you to power on the device, in which case you should power cycle the device if it is still turned on from step 5.
9. (Optional) After the update procedure has completed, use Flow-Xpress to write the application you backed up in step 1 to the Flow-X.

## Connecting devices

When connecting COM ports, it has the preference to use a physical COM port on the PC side. While USB-to-serial adapters generally work, they may sometimes introduce timing/caching problems.

For the Ethernet connection it is advised to use a standalone connection without any other devices as they sometimes cause the update process to fail. I.e. please connect the Flow-X directly to a network port on your computer, without any hubs, switches or other network devices.

### Connecting to a Flow-X/S

For a flow module that resides in a Flow-X/S backplane your computer needs to have an Ethernet connection and an RS-232 connection to COM1 of the flow module as shown in Figure 1.

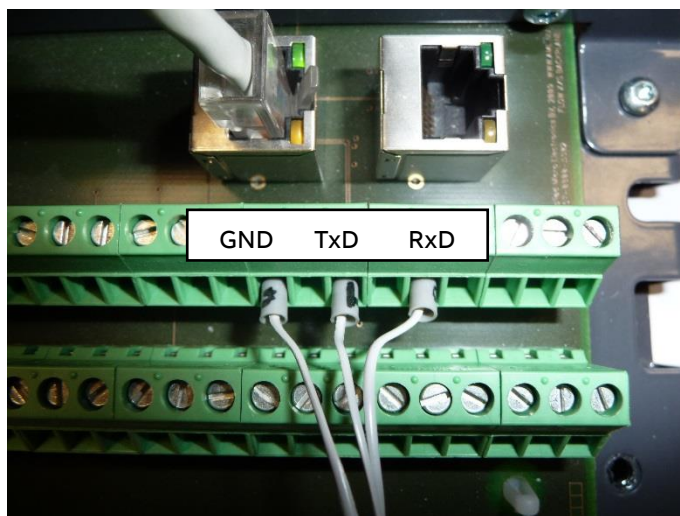


Figure 1 Connecting to a flow module in a Flow-X/S enclosure

For RS-232 connect to following pins on connector block B:

- Pin 31: Ground / Common
- Pin 33: TxD (shall be RxD on your computer side)
- Pin 35: RxD (shall be TxD on your computer side)

## Connecting to a Flow-X/P

To upgrade the OS on a Flow-X/P your computer needs to have an Ethernet connection and an RS-232 connection to COM1 of the Flow-X/P as shown in Figure 2.



Figure 2 Connecting to a Flow-X/P

**Note:** A standard RS-232 cable requires an additional null-modem adapter to be used.

## Troubleshooting

### Network connection not appearing

When starting or refreshing, only those network connections that are actually active are listed. When using a direct connection to the device this means that if the device is down the connection will be down as well, and thus not listed.

**Solution:** Power on the device, and allow for the network connection to become active, then press the “refresh” button. Alternatively, to avoid this issue you could put a hub or switch in-between the PC and the flow computer, so that the connection will always appear to be active. However, make sure **not** to connect any other device to the hub or switch.

## First upload failing

If the first upload fails then there is a problem with the network connection. Most likely in the combination of the selected network and the IP address or netmask given for the flow computer.

**Solution:** Ensure that the IP address and netmask that is configured are valid for the selected network, and that there is only one network that accepts the given IP address. If there are multiple networks available with the same IP range, disable all networks that are not connected to the flow computer. Check to make sure that the Ethernet cable is plugged in securely at both ends.

## First upload failing (2)

Alternatively, it may be that the configured IP address cannot be resolved at all. I.e. the network interface has a 192.168.0.0/24 address, while you configure a 10.0.0.0/16 address for the flow computer.

**Solution:** Configure an IP address on the network or flow computer matching the search range of the other.

## OS or Bootloader upload failing

Crosstalk, for example an ARP packet, from other devices might have disrupted the upload.

**Solution:** Ensure the system is connected on a dedicated network connection and try again.

## ARP error

This sometimes happens when you run the Flow-X OS Update Utility more than once with the same IP-address setting (i.e. the "IPV4 address of flow computer" setting).

**Solution:** Disable and enable the network connection, choose a different target IP address or change the IP address of the PC Network Interface and try again. If this does not work, reboot the PC

## Unable to break Bootloader when using USB-to-serial Converter

If sometimes USB-to-serial converter fails and sometimes it works, there might be a solution available.

**Solution 1:** Make sure you use a switch to power-cycle the device, and make sure that switch only interrupts the +24V line (i.e. don't unplug the power connector itself).

**Solution 2:** If you're using a laptop, make sure you have just the network and serial cables to the device, and unplug everything else from the computer (including the power supply). This will cause the computer to ground potential to become free-floating, which may help enough to not lock up the converter.

**Solution 3:** Put the 24V power supply in a (110V) power strip with switches, and use that switch to power cycle the module. This may also work, due to the power supply's output ground very likely being connected to the earth pin on the wall plug, which will remain connected also when the switch is off.

In any case, be sure to unplug and re-plug the USB converter between tries.

## DHCP requests Time out

If the OS Update utility shows DHCP time out errors, this may be caused by the strict IT policy of organization. Alternative reason could be firewall rules configured to disallow any DHCP requests that are rejected by the PC or network.

**Solution:** Exceptions must be made in the configured firewall to allow incoming DHCP requests from device and outgoing DHCP responses to device. Use Wireshark to debug the reasons behind DHCP timeouts.