

PANTHER 2[®]



Getting Started

Rev A-02

Contents

| | |
|--|-----------|
| 1. PACKAGE CONTENT | 3 |
| 2. INTENDED USE | 4 |
| 3. CONNECTIONS | 4 |
| 4. GLOBAL WARNINGS | 5 |
| 5. SUGGESTED COMPUTER - LAPTOP | 6 |
| 6. SUGGESTED COMPUTER - DESKTOP | 7 |
| 7. COMPUTER SETTINGS | 8 |
| 8. ACQUIRE SOFTWARE | 9 |
| 9. ACQUIRE QUICK START | 10 |
| 10. SPECIFICATIONS | 12 |
| 11. CONTACT US | 14 |
| ANNEX - 10-GBIT ULTRA-FAST ETHERNET CONFIGURATION | 15 |

| Registre des versions | | | |
|-----------------------|------------------------------|-----|------------|
| Version | Description | By | Date |
| A-01 | Original version | VFO | 2022-12-10 |
| A-02 | Complete set-up instructions | TCO | 2023-05-31 |

1.PACKAGE CONTENT



PANTHER



Power supplier

USB 3.0 cable
3mMOLEX to LEMO (scanner)
cable adaptorOptic fiber*
30mcable*Ethernet cable*
10mDocuments
(Measurement report, Warranty,
Getting started guide and
Warnings)

* Optional

2.INTENDED USE

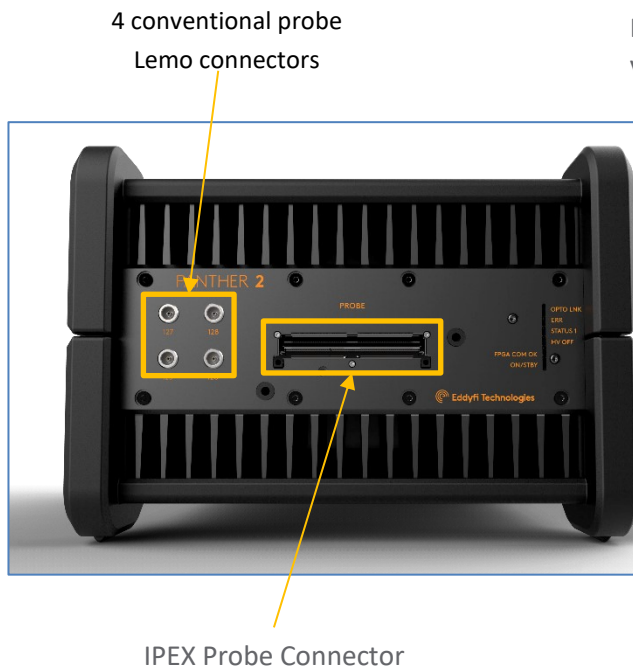
The Panther is designed to perform ultrasonic non-destructive inspections of industrial and commercial materials.

Do not use the Panther for any purpose other than its intended use.

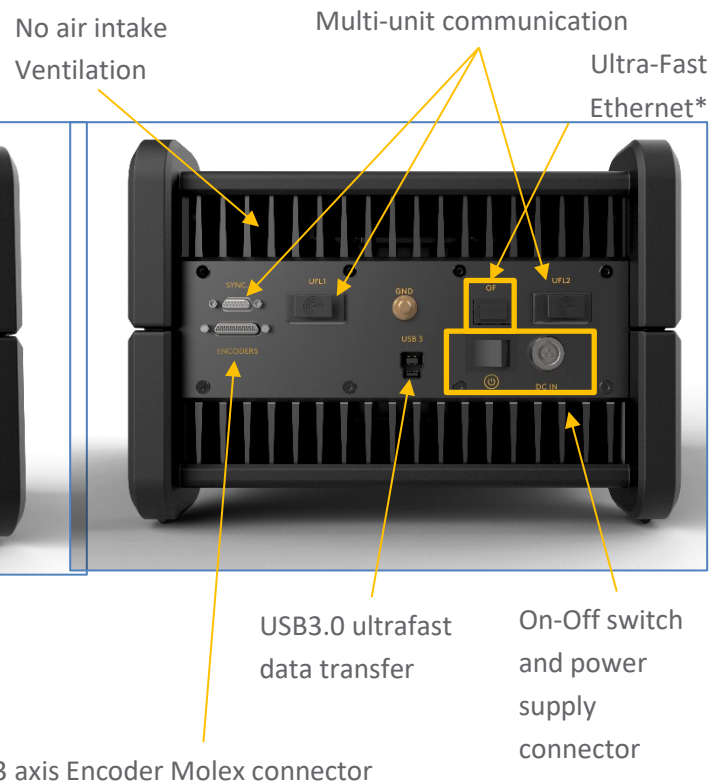
Panther can manage all the conventional, phased array modes and Total Focusing Method (TFM).

3.CONNECTIONS

FRONT PANEL CONNECTORS



REAR PANEL CONNECTORS



* Optional

Connect the Panther to the external DC power supply that is connected to an appropriate AC power source.

To turn ON the Panther, switch the ON-OFF button. The internal fans will turn on.

To turn OFF the Panther, switch the ON-OFF button. The internal fans will turn off.

4. GLOBAL WARNINGS



Do not use the device for purposes other than those for which it was designed.

Do not inspect parts of the human body or animal body with PANTHER systems.

The use of non-compatible devices can cause device failure.

To avoid personal injury or property damage, do not disassemble, modify or attempt to repair the unit.

Carefully read the instructions in the user's manual before turning the unit on.

Obey all safety warnings on the unit and those contained in the User Manual.

Do not install substitute parts or do not make modifications not allowed on the device.

Repair instructions, if any, are for qualified technical staff. To prevent from dangerous electric shock, do not perform any repair unless qualified to do it. For any problems or questions about this product, please contact EDDYFI TECHNOLOGIES or an authorized representative of EDDYFI TECHNOLOGIES.

Before turning on power, connect the ground of the device to the protective conductor of the power cord. The plug must be inserted only into an AC mains socket outlet with ground contact. You should never cancel function protection using an extension cord (power cable) without a protective conductor (grounding).

When the protective grounding seems damaged, you must power down the unit and prevent unintentional operation.

The device must only be connected to a power source of the type described in the Technical document.

Prior to trash PANTHER system, make sure to comply with local laws.

In accordance with European Directive 2002/96 / EC on waste electrical and electronic equipment (WEEE), this symbol indicates that the product should not be disposed with municipal waste but must be part of a separate collection. Please consult your EDDYFI TECHNOLOGIES local representative for instructions on returning the unit or find feasible collection arrangements in your country.

The probes connected to the PANTHER must be equipped with reinforced insulation.

Avoid touching the inner conductor of I-PEX and LEMO connectors to reduce the risk of electric shock. The tension of the inner conductor of UT connectors can reach 160V and the voltage of the inner conductor PA connector can reach 160 V.

To completely disable the system, unplug the AC adaptor.

5. SUGGESTED COMPUTER - LAPTOP

To benefit from the high throughput that the PANTHER can deliver, here are the 2 minimum suggested configurations:

LAPTOP Configuration – for USB use

Intel Core i9-11950H (8 Core, 24MB Cache, 2.60GHz to 5.00GHz, 45W, vPro)

Monitor 17.3" IPS FHD, 1920x1080, 60Hz.

32Go, 2x16Go, DDR4

SSD 512 Go, PCIe x4 NVMe Gen 3

SSD 1 To, PCIe x4 NVMe Gen 3

Battery, 95 Wh

NVIDIA GeForce RTX 3080 (ou RTX A5000) w/16 GB GDDR6

240W Power Adapter

Wireless Intel Wi-Fi 6E AX210 with Bluetooth 5.2

Keyboard & Touch PAD

Software

Windows 10 Professional, 64 bits

To use the PANTHER with Ultra-Fast Ethernet 10 Gbit, add the following Eddyfi items

Ultra-Fast Ethernet USB-C converter = UFastEtherThunderBModule

+ Optic Fiber or RJ45 Copper cable option

Optic Fiber

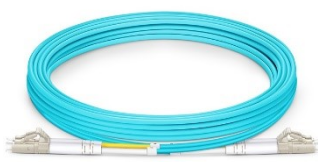
x2 Ultra-Fast Ethernet module Optic fiber = x2 UFastEtherModule-OF

Optic Fiber cable = CAB-UFastEther-OF-10m or CAB-UFastEther-OF-50m or CAB-UFastEther-OF-100m

RJ45 with copper cable

x2 Ultra-Fast Ethernet module = x2 UFastEtherModule-OF

RJ45 copper cable = CAB-UFastEther-RJ45-3m
or CAB-UFastEther-RJ45-7.5m
or CAB-UFastEther-RJ45-20m



Optic fiber cable



RJ45 cable



Ultra-Fast Ethernet – USB-C
Converter



Optic Fiber module



RJ45 module
(2 required)

6. SUGGESTED COMPUTER - DESKTOP

To benefit from the high throughput that the PANTHER can deliver, here are the 2 minimum suggested configurations:

DESKTOP CONFIGURATION – for USB use

Intel® Core™ i9-10900X (19.25 MB cache, 10 cores, 20 threads, 3.70 GHz to 4.70 GHz Turbo, 165)
 Monitor 23" FHD, 1920x1080, 60Hz
 32Go, 2x16Go, DDR4
 SSD 512 GB, PCIe NVMe
 SSD 1 TB, PCIe NVMe
 NVIDIA GeForce RTX 3080
 Tower 950W Chassis, with USB3.0 and Ethernet 1 Gbit
 Keyboard & Mouse

Software

Windows 10 Professional, 64 bits

To use the PANTHER with Ultra-Fast Ethernet 10 Gbit, add the following Eddyfi items

Ultra-Fast Ethernet UPcle board = UFastEtherPCIModule
 + Optic Fiber or RJ45 Copper cable option

Optic Fiber

x2 Ultra-Fast Ethernet module Optic fiber = x2 UFastEtherModule-OF – Quantity = 2
 Optic Fiber cable = CAB-UFastEther-OF-10m or CAB-UFastEther-OF-50m or CAB-UFastEther-OF-100m

RJ45 with copper cable

x2 Ultra-Fast Ethernet module = UFastEtherModule-OF – Quantity = 2
 RJ45 copper cable = CAB-UFastEther-RJ45-3m or CAB-UFastEther-RJ45-7.5m or CAB-UFastEther-RJ45-20m



Optic fiber cable



RJ45 cable



Ultra-Fast Ethernet – USB-C
Converter



Optic Fiber module



RJ45 module
(2 required)

7. COMPUTER SETTINGS

The computer can be used with a USB3 connection.

It can also be used with a 10-Gbit Ethernet connection. To set up your computer, follow the procedure described in the [annex](#) at the end of this document.

8. ACQUIRE SOFTWARE

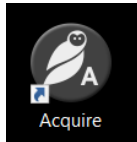
Acquire is the PANTHER operating software dedicated to conventional UT, TOFD, Phased-Array, TFM settings and acquisition.

LAUNCHING ACQUIRE

If a computer has been delivered by Eddyfi with your Panther system, Acquire can be accessed from the Acquire Icon located on the windows desktop icon or by double clicking on the C:/Acquire/Go_Acquire_US.bat

INSTALLING ACQUIRE

If no computer has been delivered with your Panther system, please download Acquire from the support



section (see <https://www.eddyfi.com/en>). Please check the installation guide for Eddyfi Panther in the documentation section.

LAUNCHING ACQUIRE IN SIMULATION MODE

Acquire software can be launched in simulation mode (i.e. without the Panther hardware connected) by double-clicking on C:/Acquire/Go_Acquire_Simulation.bat

9. ACQUIRE QUICK START

HOME PANEL

Advanced settings (license management, data export, hardware, remote controls)_____

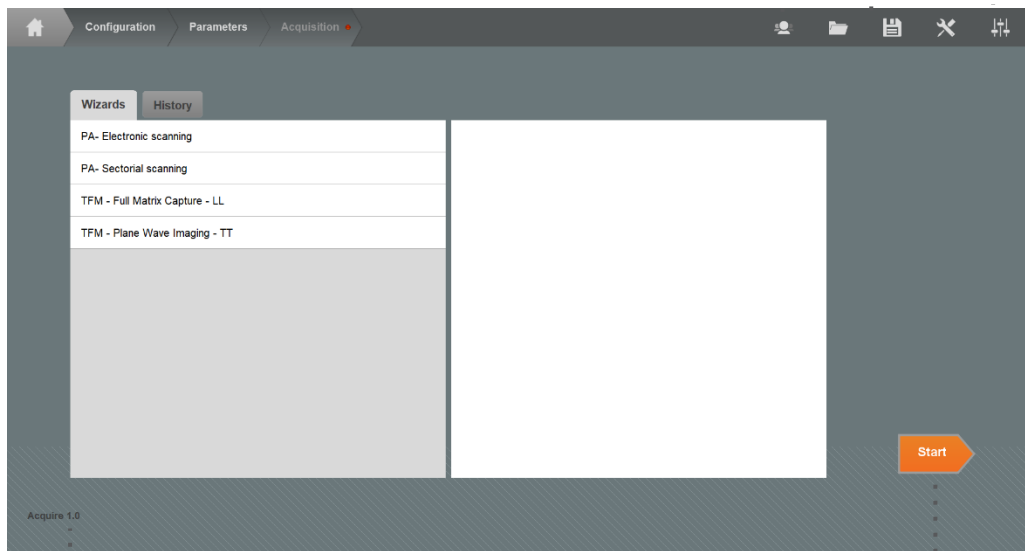
Tools (screen copy, bug report generation)_____

Save a configuration file_____

Load a configuration file_____

Operator/Administrator account management _____

Wizards,
History tabs
(see below
details)



Release number

Start button _____

WIZARDS

Wizards are files containing basic configuration allowing to create easily and inspection setup.

HISTORY

History contains the list of the last files previously used within Acquire.

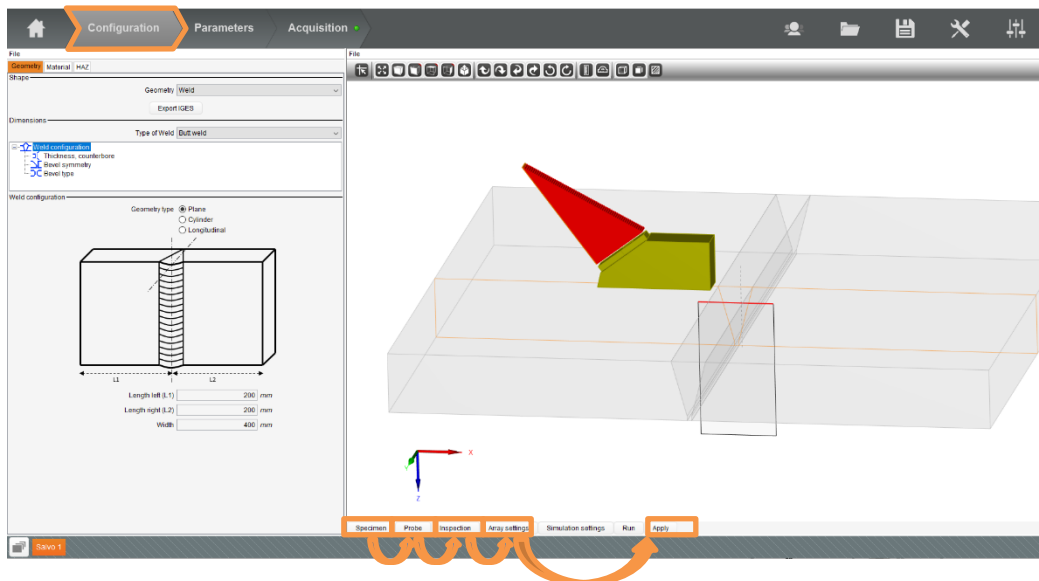
CONFIGURATION PANEL

CONFIGURATION PANEL

The configuration panel allows to setup a configuration (conventional PE, TOFD, Phased Array, TFM...).

It is based on the CIVA simulation software, the full CIVA manual can be accessed by **pressing F1**.

The configuration should be entered as carefully as possible as most of the imaging system of Acquire is using the CIVA configuration.



Basically, a CIVA configuration is setup by clicking successively on the Specimen, Probe, Inspection, Array Settings panels. The phased array or TFM modes (Linear Scanning, Sector Scan, Pitch-Catch, FMC/TFM, PWI/TFM....) are defined in the Array settings panel.

Once the configuration is managed, the phased array modes are applied by clicking on the Apply button.

Beam simulation can be carried out and visualised thanks to the Simulation settings and Run buttons.

10. SPECIFICATIONS

| ENVIRONMENT | |
|---------------------------|---|
| Size (L x W x H) | 298mm x 220mm x 159mm (11.73 in x 8.66 in x 6.25 in) |
| Weight | 6,6 Kg (14,5 lbs) |
| Power supply | External AC/DC power supply: 240V/50Hz - 110V/60Hz 0.75A - 1.5A Instrument: 24 VDC 3.75 A |
| IP rating | IP20 (IP54 with accessory) |
| Operating temperature | 0 to 45°C (32 to 113°F) |
| Storage temperature | -20 to 70°C (-4 to 158°F) |
| Max altitude | 2000 m |
| Indoor/Outdoor use | Indoor only |
| Maximum relative humidity | 90% condensing |
| Pollution degree | 2 |

| CONNECTIVITY | |
|-----------------------|--|
| Phased-Array | IPEX (x1) – up to 128 channels |
| UT-TOFD | LEMO-00 (x4) |
| Encoder Input* | MicroD25 connector Up to 3 Quadrature or clock/dir 5MHz max |
| Synchro Input/Output* | Internal use only |
| USB3 | Up to 3 Gbits/sec |
| Ethernet/Optic fiber* | Up to 10 Gbits/Sec |

* Depending on the configuration and options

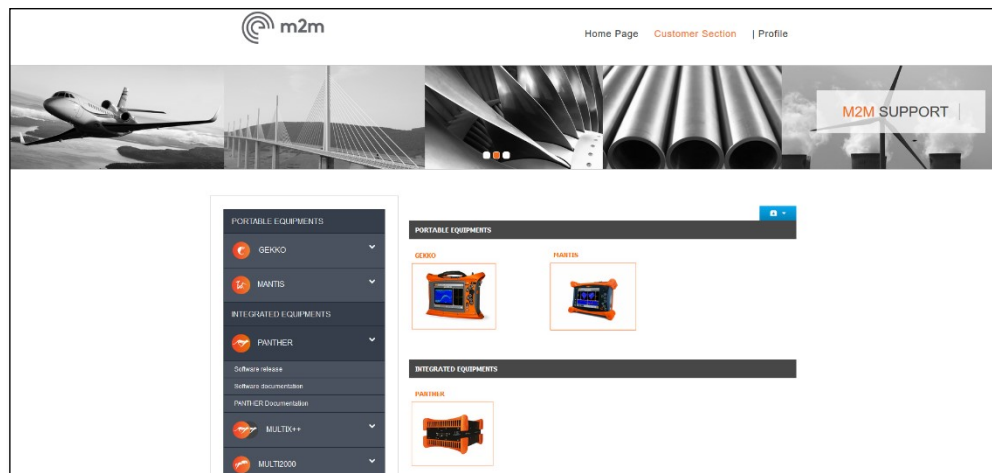
| AVAILABLE CONFIGURATIONS | |
|--------------------------|--|
| 1 PANTHER | 32:128PR 64:64PR 64:128PR 128:128PR |
| 2 PANTHER | 64:256PR 128:256PR 256:256PR |

| Phased - Array | |
|-------------------------------|---|
| P u l s e r | |
| Number of channels | Up to 128 |
| Pulse type | Bipolar square pulse |
| Amplitude | From 20 to 100V |
| Pulse width | Pulse width from 20 to 2000 ns False time < 6 ns |
| R e c e i v e r | |
| Number of channels | Up to 128 |
| Input impedance | 50Ω |
| Frequency range | Frequency range 0.3 to 20MHz |
| Max. input signal | 2 Vpp |
| Gain | 0 to 120 dB – 0.1dB step |
| Active aperture | Up to 128 elements |
| Compliant with EN ISO 18563-1 | |

11. CONTACT US

DOWNLOAD PLATFORM

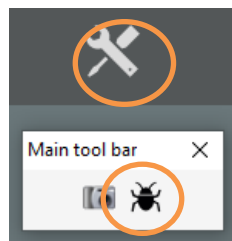
The Eddyfi Technologies support website gives access to the last software versions of ACQUIRE, documentation, procedures. Customers registered on this platform receive a notification by email when a new software version is available. Please create an account on the website Support@eddyfi.com to get access to every file, new releases, and documentation.



SUPPORT

To share feedback, remarks or problems, do not hesitate to contact us at support@eddyfi.com.

In case of ACQUIRE crashes, please report us as many details as possible such as application files, inspection files, screenshot and bug reports generated with the following bug report tool:



Eddyfi Technologies
21 avenue du Québec
91140 Villebon-sur-Yvette
FRANCE
<https://eddyfi.com/en>

Any questions:
Support@eddyfi.com
Hardware problems with your unit:
MaintenanceEddyfiEurope@eddyfi.com

ANNEX - 10-Gbit Ultra-Fast Ethernet CONFIGURATION

This procedure is intended to provide instructions to configure a computer and use the PANTHER 2 with a 10-Gbit Ethernet connection.

This procedure is an example with a specific PC configuration, as described below.

Computer configuration.

- Computer:

| Nom | Modèle | Distributeur |
|---------------|---|--------------|
| Laptop Qwerty | DELL Mobile Precision Workstation 7760 CTO - Qwerty | DELL |
| Laptop Azerty | DELL Mobile Precision Workstation 7760 CTO - Azerty | DELL |
| Desktop | Tour Dell Precision 5820 XCTO | DELL |

- Accessories:

| Nom | Modèle | Distributeur |
|---|-----------------|--------------|
| Adaptateur Ethernet 10 Gb SFP+ Solo10G Thunderbolt (SFP+ SR inclus) | SOLO10G-SFP-TB3 | SONNET |
| Carte PCIe Presto SFP+ 10Gb Ethernet à 2 ports (SFP+ non inclus) | G10E-SFP-2XA-E2 | SONNET |

- Connector:

| Nom | Modèle | Distributeur |
|---|-------------|--------------|
| Transmetteur SFP+ 10GBASE-T - RJ45 Cuivre (30m) | G10E-SFP-T | SONNET |
| Transmetteur SFP+ 10GBASE-SR Short Range (300m) | G10E-SFP-SR | SONNET |

Settings

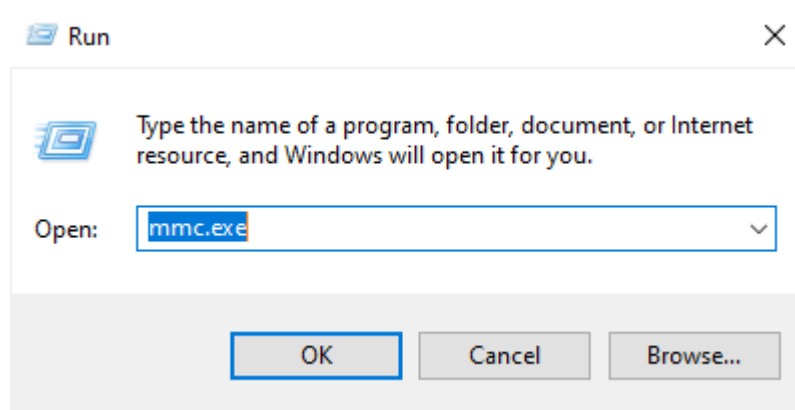
The following instructions here below describe the minimum parameters that must be set up to properly configure the computer.

Please follow these instructions.

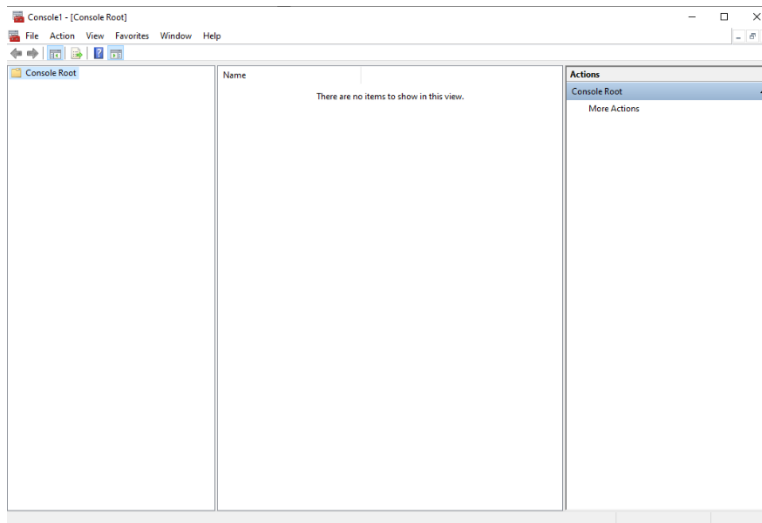
1. Authorization to enable UDP ports with PANTHER_EVO

Launch the Run window (Win + R).

Execute the mmcc.exe into it.

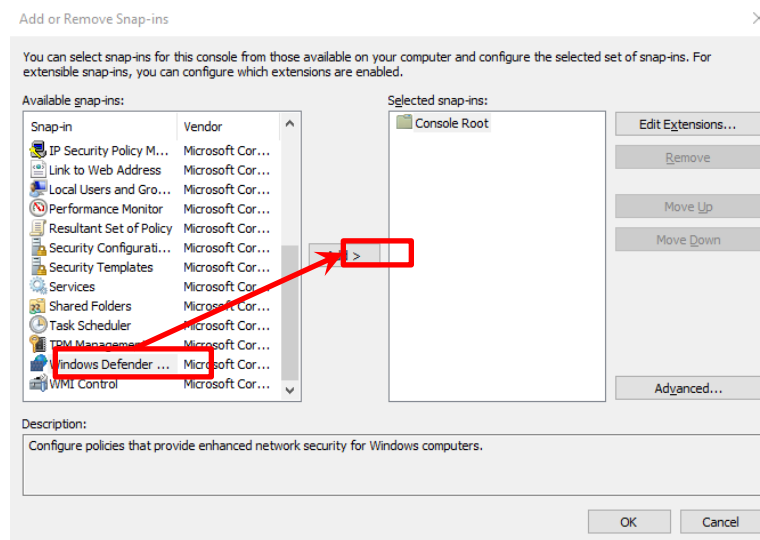


This window appears.

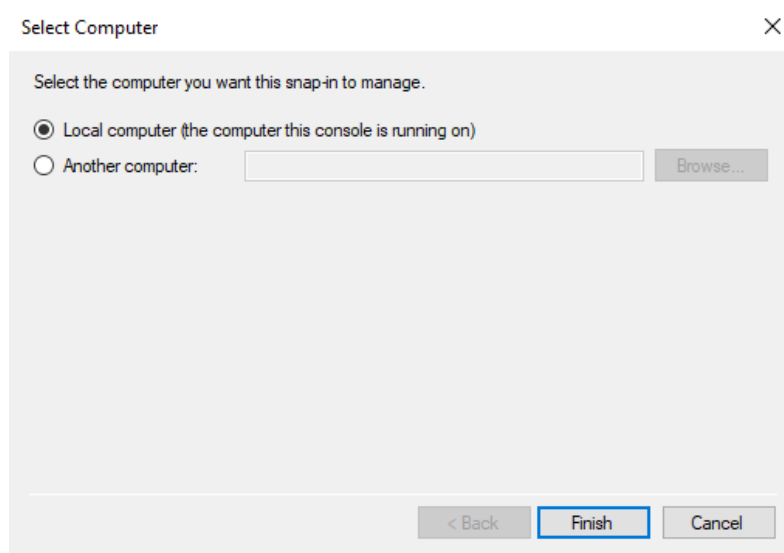


Please click on the Ctrl + M button on your keyboard.

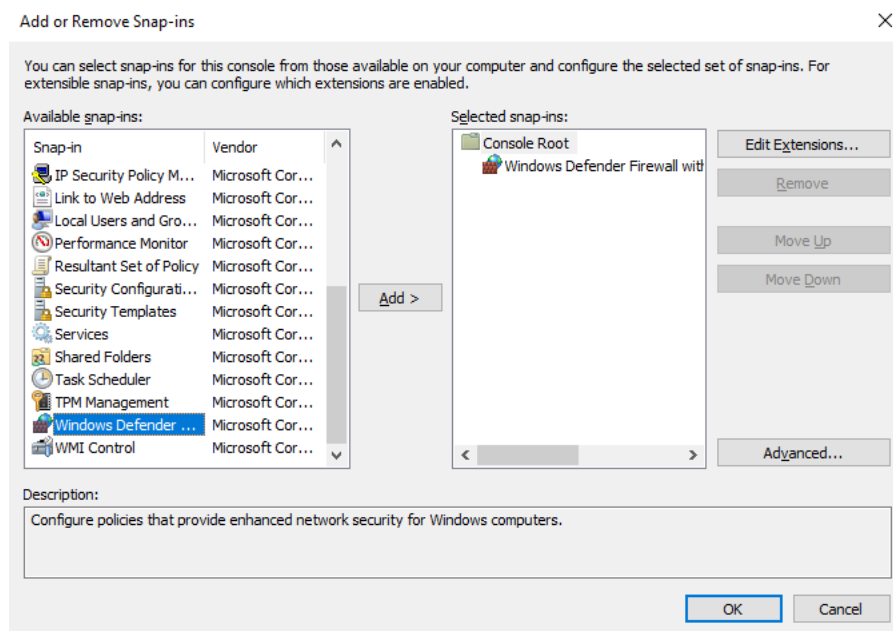
Select “Windows Defender...”, click on the “Add” button.



This window appears, click on the “Finish” button.

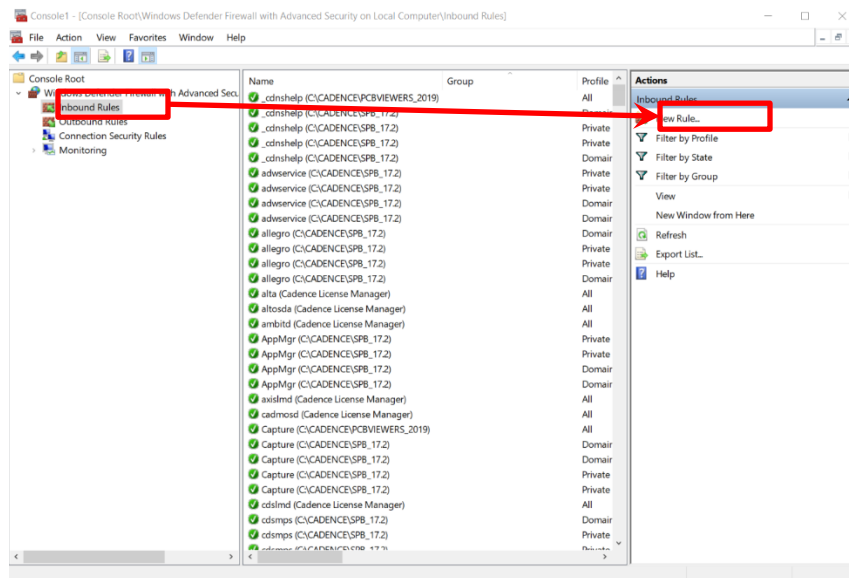


Then, click on the “Ok” button.

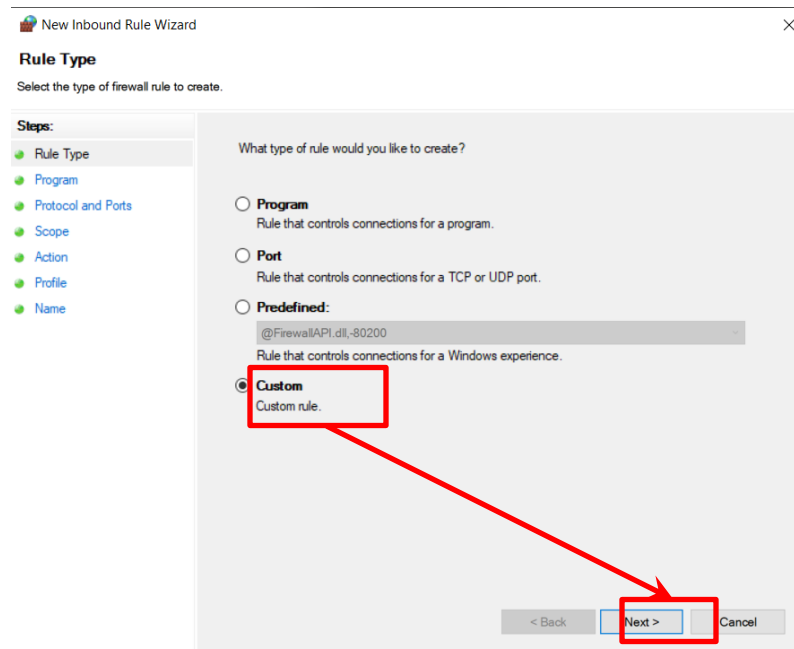


Open the tab “Windows Defender firewall...”

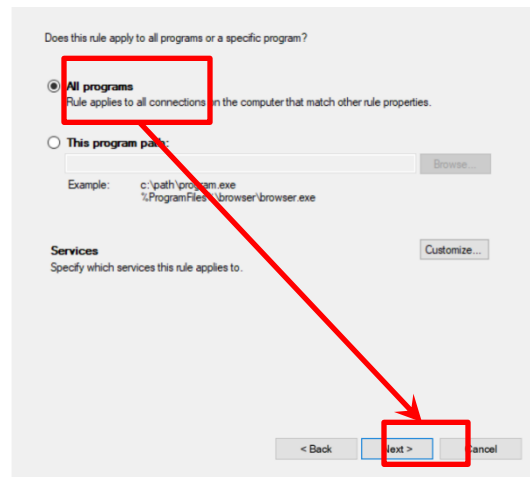
Click on “Inbound Rules” and select “New Rules”.



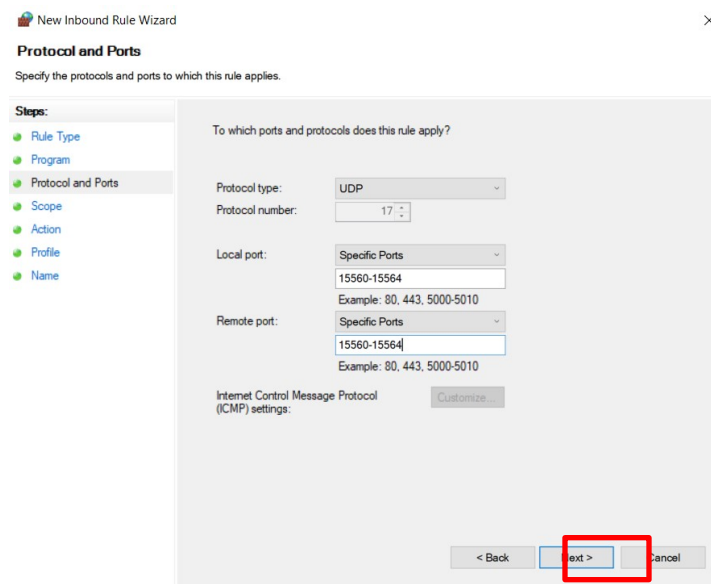
Choose the “Custom” option.



Select “All programs”.

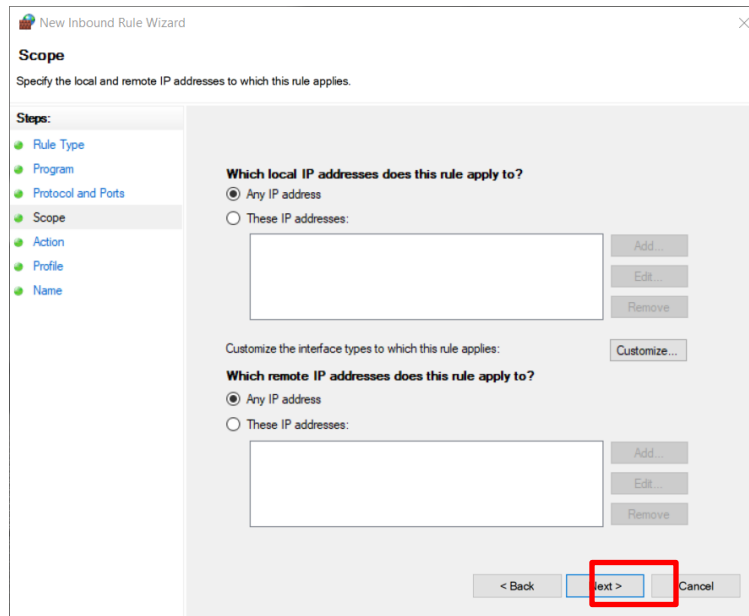


Fill in the parameters as shown in the picture below:



Click on “Next” button.

Click on “Next” button.



New Inbound Rule Wizard

Scope

Specify the local and remote IP addresses to which this rule applies.

Steps:

- Rule Type
- Program
- Protocol and Ports
- Scope**
- Action
- Profile
- Name

Which local IP addresses does this rule apply to?

☒ Any IP address

☐ These IP addresses:

Add... Edit... Remove

Customize the interface types to which this rule applies:

Which remote IP addresses does this rule apply to?

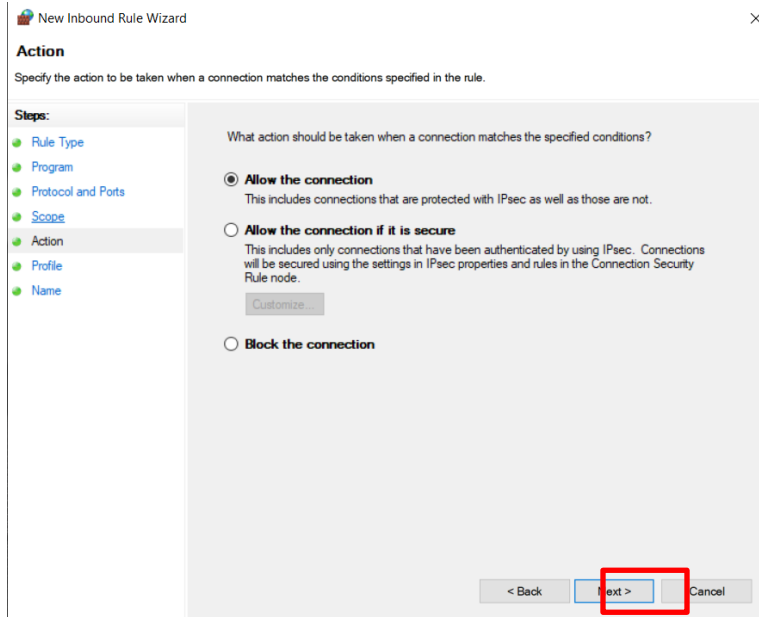
☒ Any IP address

☐ These IP addresses:

Add... Edit... Remove

< Back **Next >** Cancel

Click on “Next” button.



New Inbound Rule Wizard

Action

Specify the action to be taken when a connection matches the conditions specified in the rule.

Steps:

- Rule Type
- Program
- Protocol and Ports
- Scope
- Action**
- Profile
- Name

What action should be taken when a connection matches the specified conditions?

☒ **Allow the connection**

This includes connections that are protected with IPsec as well as those are not.

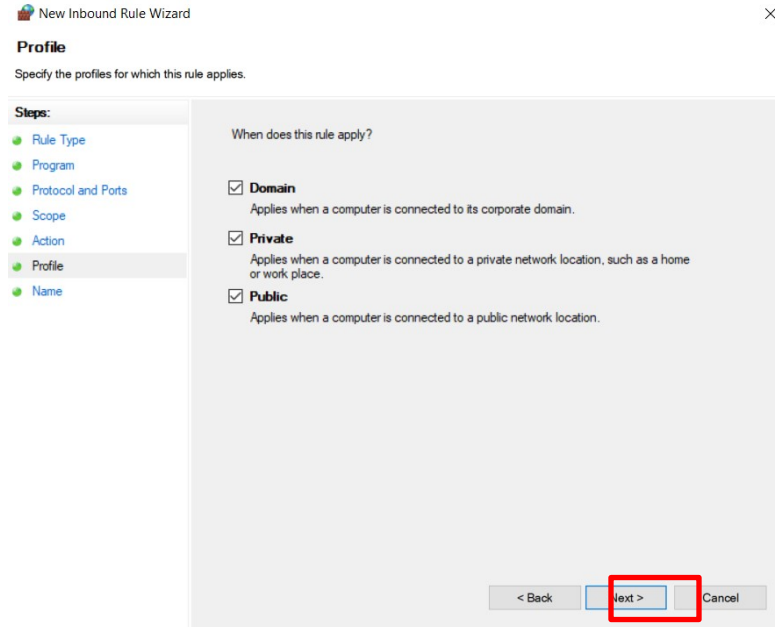
☐ **Allow the connection if it is secure**

This includes only connections that have been authenticated by using IPsec. Connections will be secured using the settings in IPsec properties and rules in the Connection Security Rule node.

☐ **Block the connection**

< Back **Next >** Cancel

Click on “Next” button.



New Inbound Rule Wizard

Profile

Specify the profiles for which this rule applies.

Steps:

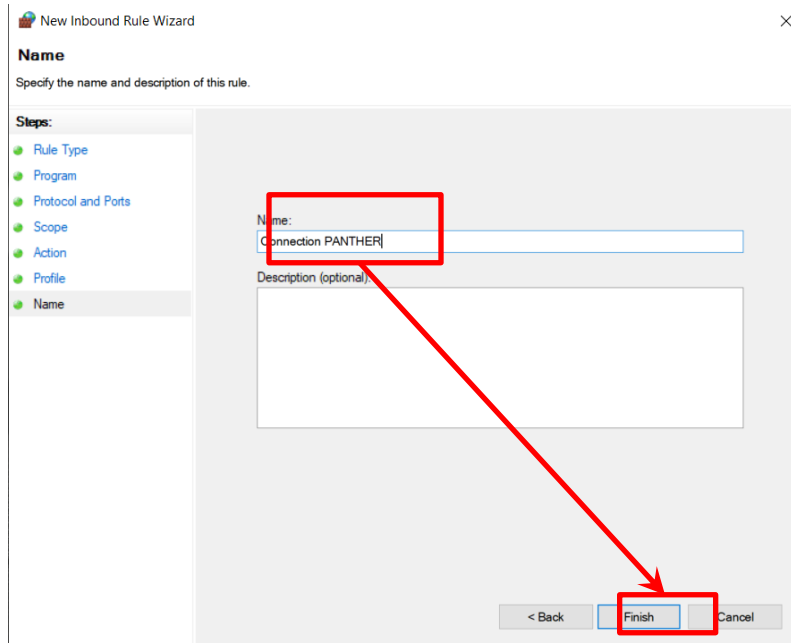
- Rule Type
- Program
- Protocol and Ports
- Scope
- Action
- Profile
- Name

When does this rule apply?

- ☒ **Domain**
Applies when a computer is connected to its corporate domain.
- ☒ **Private**
Applies when a computer is connected to a private network location, such as a home or work place.
- ☒ **Public**
Applies when a computer is connected to a public network location.

< Back Next > Cancel

Give a name to the new rules; example: “Connection PANTHER” and click on “Finish” button.



New Inbound Rule Wizard

Name

Specify the name and description of this rule.

Steps:

- Rule Type
- Program
- Protocol and Ports
- Scope
- Action
- Profile
- Name

Name:

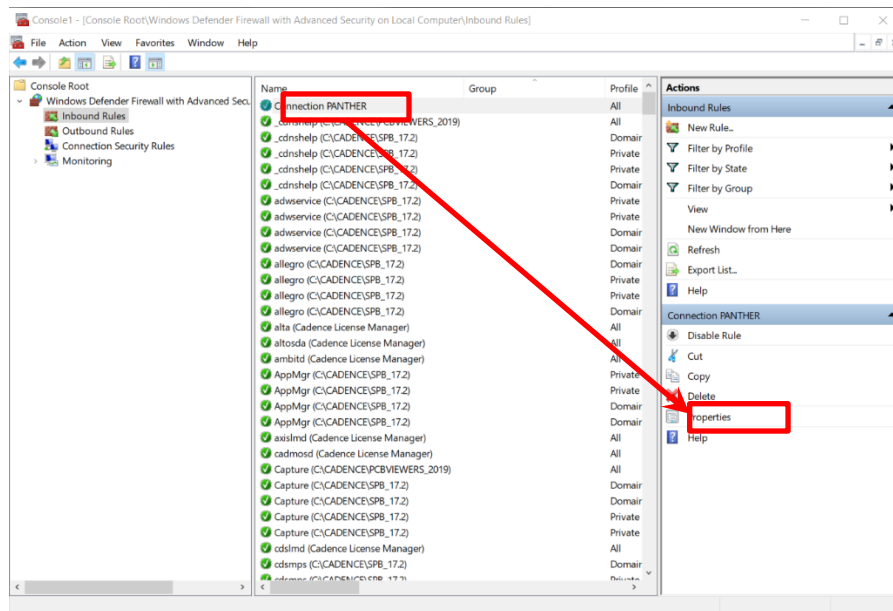
Connection PANTHER

Description (optional):

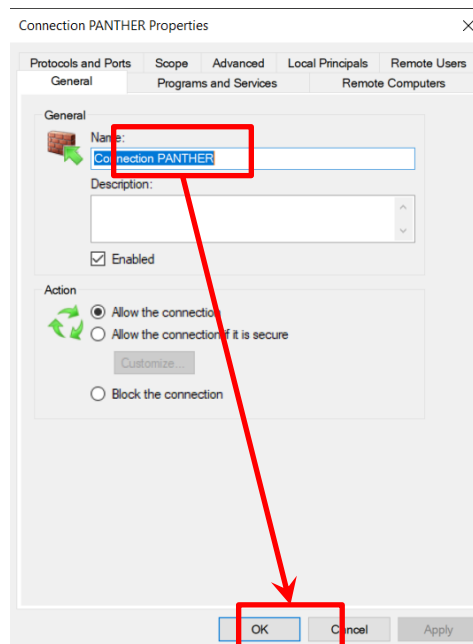
< Back Finish Cancel

Option:

If you want to change the name of the rules, you can click on the properties button of the rules.



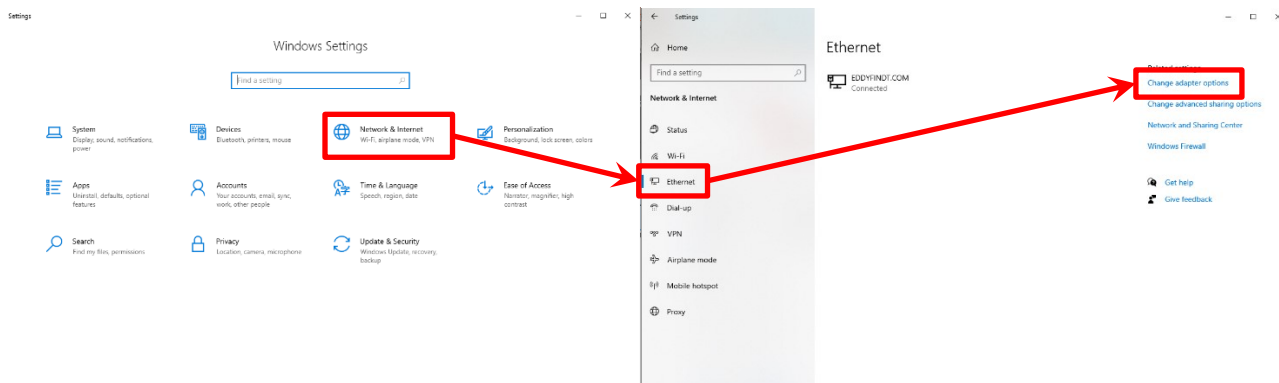
Change the name in the “General” tab, then click on the “Ok”.



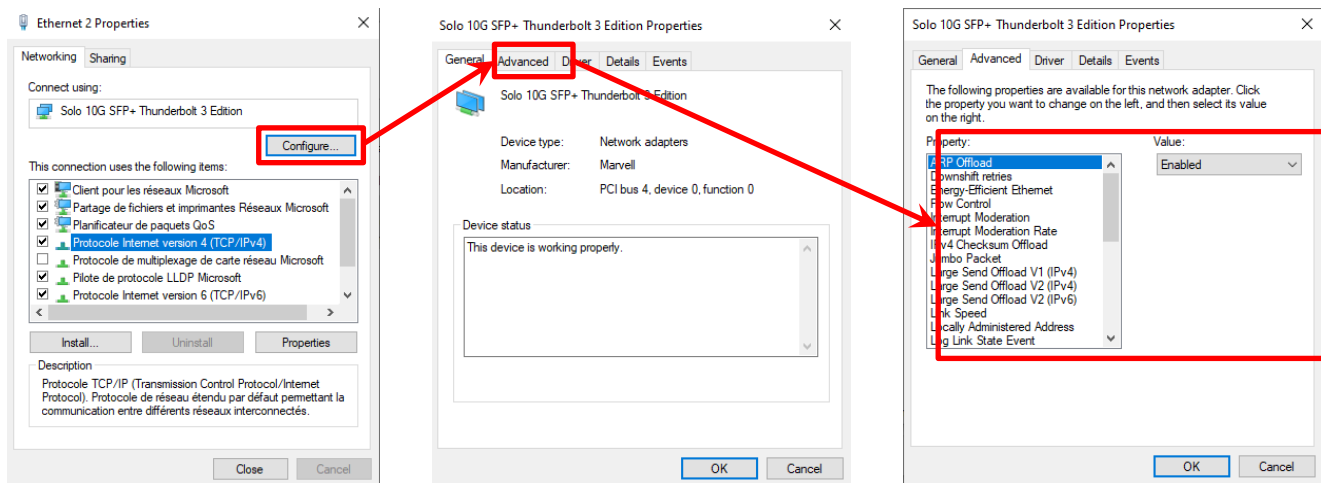
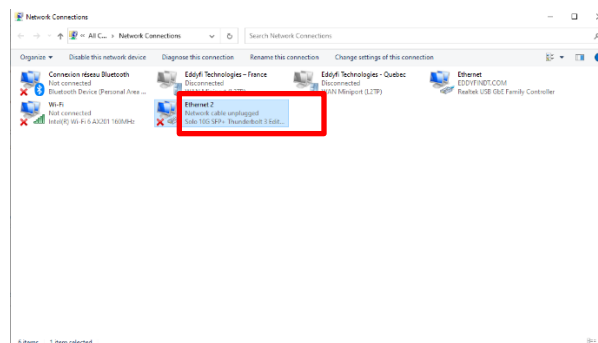
2. Configuration

Click on the Windows startup icon, then on the settings button (gear wheel).

Please follow the instructions below:



Right click on “Solo 10G SFP+ Thunderbolt Edition” and select “Properties”.



Please find below a tab with all the parameters:

Directly on the computer, set only the following items.

| Property | Value |
|------------------------------|------------------------------------|
| Flow Control | Rx & Tx Enabled |
| Interrupt Moderation | Enabled |
| Interrupt Moderation Rate | Adaptive |
| IPsec Offload | Auth Header & ESP Enabled |
| IPv4 Checksum Offload | Rx & Tx Enabled |
| Jumbo Packet | 9014 Bytes |
| Large Send Offload V2 (IPv4) | Enabled |
| Large Send Offload V2 (IPv6) | Enabled |
| Locally Administered Address | Not Present |
| Log Link State Event | Enabled |
| Maximum Number of RSS Queues | 8 Queues |
| Priority & VLAN | Packet Priority Enabled |
| Receive Buffers | 4096 |
| Receive Side Scaling | Enabled |
| Speed & Duplex | 10 Gbit/s Full Duplex |
| TCP Checksum Offload (IPv4) | Disabled |
| TCP Checksum Offload (IPv6) | Disabled |
| Transmit Buffers | Max value (4096, 8184, 16384, ...) |
| UDP Checksum Offload (IPv4) | Rx & Tx Enabled |
| UDP Checksum Offload (IPv6) | Rx & Tx Enabled |

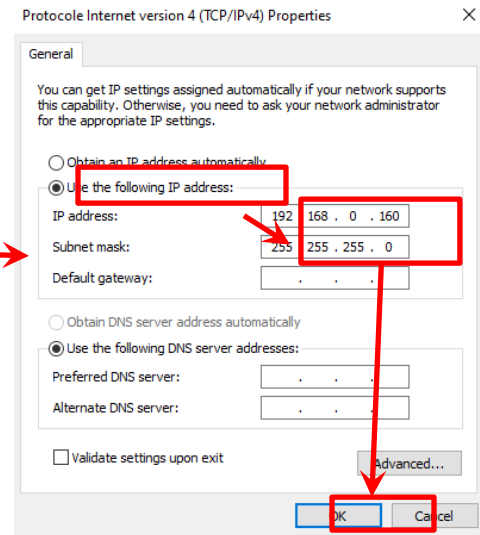
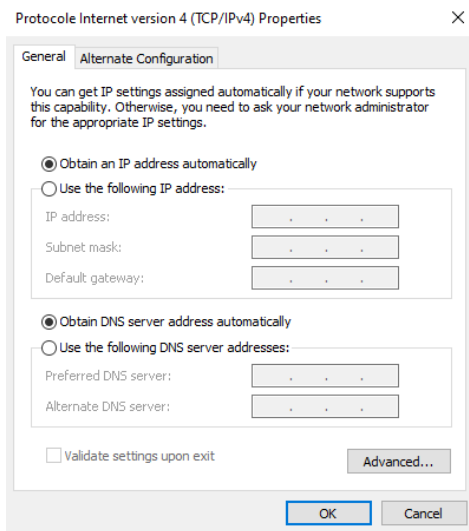
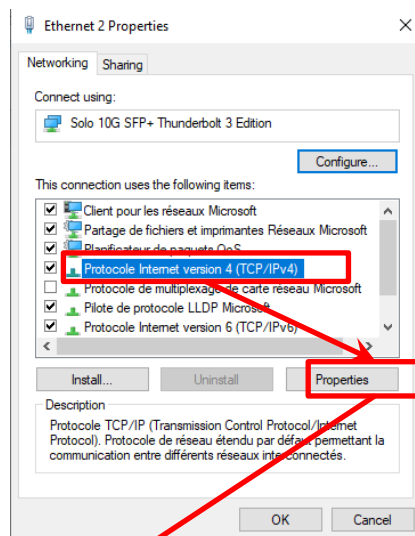
Computer with Adaptor SFP/USBC, set only the following items.

| Property | Value |
|---------------------------------|------------------------------------|
| Flow Control | Rx & Tx Enabled |
| Interrupt Moderation | Enabled |
| Interrupt Moderation Rate | Adaptive |
| IPv4 Checksum Offload | Rx & Tx Enabled |
| Jumbo Packet | 9014 Bytes |
| Large Send Offload V2 (IPv4) | Enabled |
| Large Send Offload V2 (IPv6) | Enabled |
| Link Speed | 10G |
| Locally Administered Address | Not Present |
| Log Link State Event | Enabled |
| Maximum Number of RSS Queues | 8 Queues |
| Priority & VLAN | Packet Priority Enabled |
| Receive Buffers | 4096 |
| Receive Side Scaling | Enabled |
| TCP/UDP Checksum Offload (IPv4) | Rx & Tx Enabled |
| TCP/UDP Checksum Offload (IPv6) | Rx & Tx Enabled |
| Transmit Buffers | Max Value (4096, 8184, 16384, ...) |

3. Parameters for the Ethernet IP address

You need to set an address IP on the port SFP 10G.

Please follow the instruction below (you must set the address IP : 192.168.0.160):



If you have several ports on your computer, please repeat the procedure (from point 2) for each port.

Set the IP addresses as follow:

- 192.168.0.161
- 192.168.0.162
- 192.168.0.163
- 192.168.0.164