www.WesAudio.com

_TITAN

User manual

EN

Thank You for the purchase of _TITAN

_TITAN

Ng500 compatible frame with digital control.

With kind regards

Radoslaw Wesolowski and Michal Weglicki

_TITAN is 500 series compatible (*) rack frame which implements ng500 connector and GCon protocol.

_TITAN is complete recall system designed to provide total integration with your beloved analogue equipment. It extends 500 series connector with additional pins where modules can be designed to support digital recall or any other vendor specific functionalities. This extension is part of new open standard “ng500” – “Next Generation 500 series” which allows other manufacturers** to design and implement digitally controlled analog devices.

We are proud to present _TITAN – Future of analog processors.

(*) Important note about 500 series extension: please check “Instalation and compatibility” chapter.

(**) Please check “GCon Open specification framework”.

Table of Contents

1. Abbreviations and terms

GCon – high speed communication protocol which allows full management and recall of analog devices. Please note that this is just management protocol, audio signal transfer is not in scope of its capabilities.

I.A.C. – Internal Audio Connector, special _TITAN connector which is integrated with internal audio routing, and allows to connect audio signal directly without any additional wires (please check “I.A.C – Internal Audio Connector” chapter).

NG500 – Next generation 500 series.

NG500 connector – special connector which extends standardized 500 series connector with additional pins.

UDP - User Datagram Protocol.

2. Installation and compatibility.

After unpacking your _TITAN frame, please check for any visible damage that may have occurred during transit. If there is any problem, please contact your dealer immediately for advice on what to do.

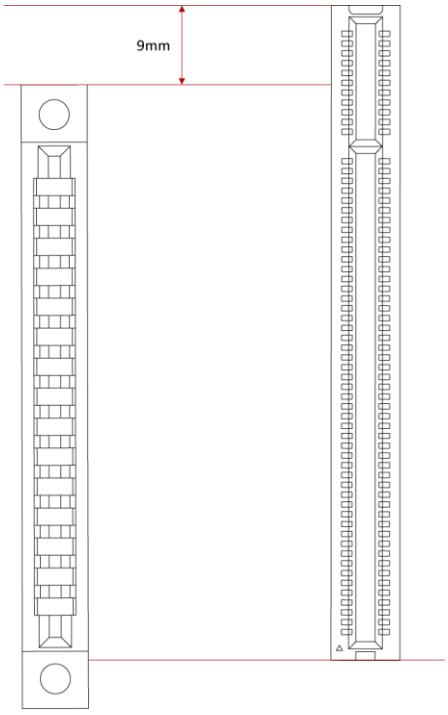
!!!Ensure the rack is completely powered down before attempting modules installation to prevent damage to the frame!!!

Modules installation walkthrough:

Choose the position in the rack to which you will install the module and slide it in so that the edge connector of the module aligns with the matching connector in the rack. A gentle push and the module should slide home into the rack connector. Attach the front panel to the front of the rack with screws supplied by your rack manufacturer. This is important for mechanical rigidity. Do not over tighten these screws to avoid stripping out the threads. Apply power, test that everything is working OK, and most importantly, enjoy!

500 series compatibility note:

_Titan connector was designed to deliver new implementation opportunities, but also to remain compatible with most of 500 series modules. Nevertheless ng500 series connector is higher than 500 series standard plug and some standard 500 series modules won't fit into _TITAN. The reason for that is module's chassis design at the back, which can prevent the module to fit in correctly.

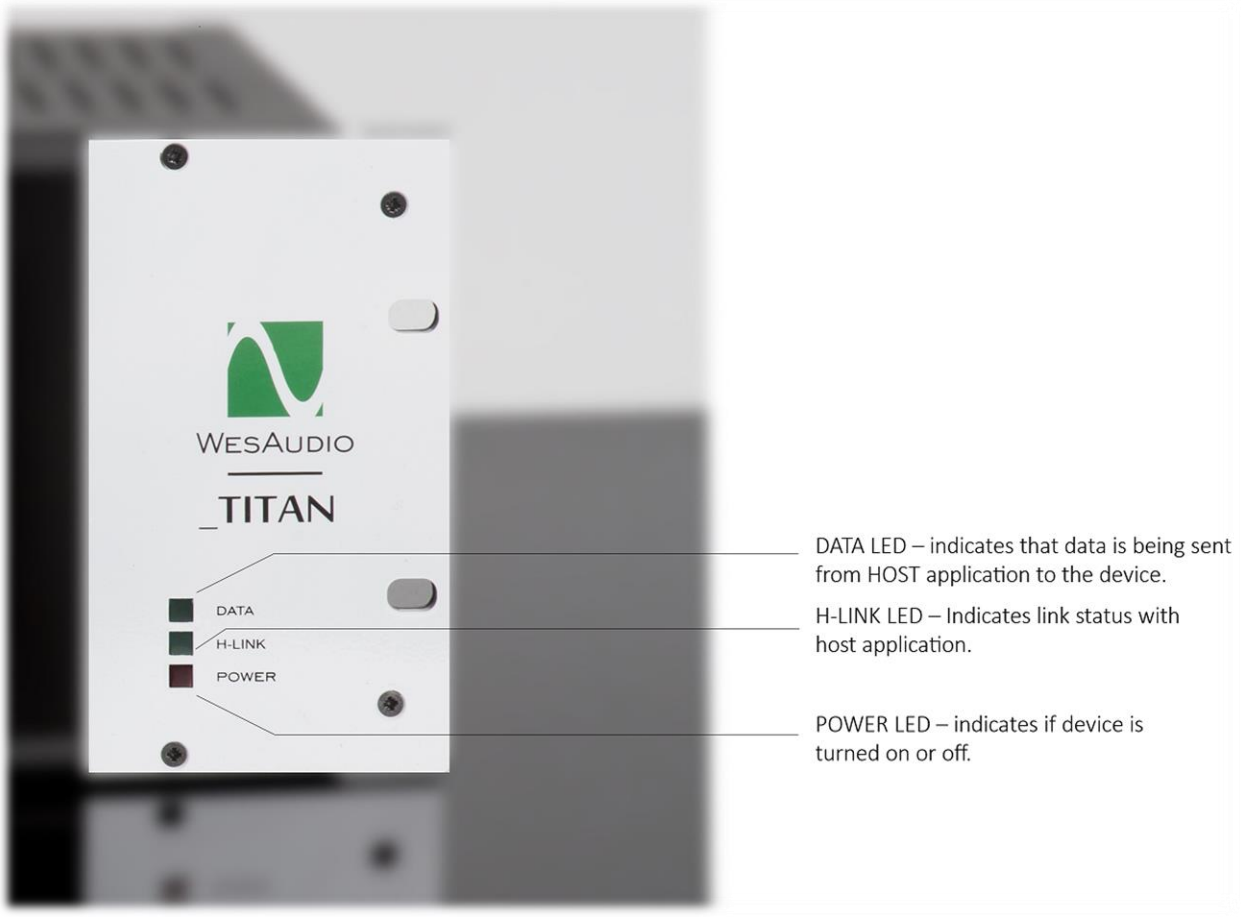


500 series standard connector

ng500 series connector

As you can see on above picture, ng500 series connector is higher 9mm comparing to standard 500 series socket (please note that above sockets are matched to each other based on particular pins). To check if your modules will fit into _TITAN you can send us a query to info@wesaudio.com with description of modules that you would like to use.

3. Front panel



H-LINK note:

If this LED is constantly blinking, that means that _TITAN is in upgrade mode, and firmware upgrade should be triggered through GConManager application.

4. Overview

_Titan main features:

- GCon compatible frame which allows to communicate with modules through single connection.
- USB connection to manage up to 10 modules.
- Ethernet connection (UDP based) to manage up to 10 modules (LAN single subnet).
- GConManager application which allows to manage stereo links.
- Internal audio signals are routed into special connector accessible on 10th slot, which allows integration with “Summing Modules” or “Audio interfaces”.
- Stereo links are fully integrated. Pressing “Link” button on 2 modules which support GCon protocol (e.g. _Mimas) sets stereo link on the _Titan.
- Open Specification – documentation and software framework including communication drivers for any Vendor that would like to adopt to this standard.
- 10 slots with ng500 series connector.
- Remote firmware upgrade – _Titan & all modules inside can be upgraded remotely through USB or Ethernet connection.
- XLR sockets in/out for each slot.
- Internal stereo link switches which can be also managed through GConManager standalone application.
- Linear power supply capable to deliver 5A of power.
- Power mode switch – 115V/230V.
- Warranty: 2 years.

5. Software

Software to manage HW units can be downloaded from http://www.wesaudio.com/download by anyone who purchased related HW unit. To check currently supported plugin types and platforms, please go to download section in our website.

5.1. Installation

To install WesAudio software package, please visit http://www.wesaudio.com/download and download recent version of software.

5.1.1. WINDOWS

Start the installer application, if you will encounter any system warnings about this particular installer, please ignore them*, then select any components which you would like to install**.

- If this is **FIRST** installation, please unplug all WesAudio devices from your machine.
- When USB driver will be installed, application will inform that all devices should be connected – **please do so.**
- If USB driver installation is triggered, user will be asked to restart its computer. We know that this is unwanted activity, but it is necessary step for USB driver to install with success.
- If computer restart is triggered, this Installer will start again during start up. **If for some reason installer won't be started after the restart, please start same installer manually again.**

5.1.2. OSX

Because OSX architecture and USB devices handling is much simpler in concept, the only thing to note is to have all devices **connected** during install procedure.

Start the installer application, if you will encounter any system warnings about this particular installer, please ignore them * (sometimes it is necessary to open context menu with right mouse button and trigger installation once again).

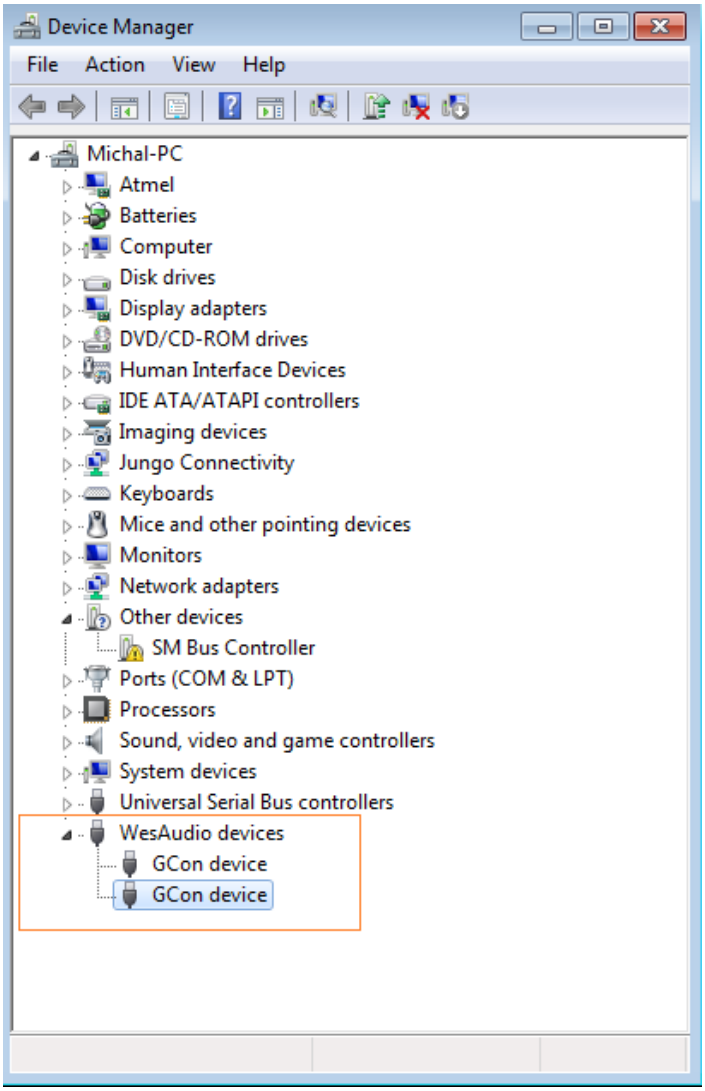
5.1.3. Troubleshooting

If anything would fail during installation procedure please contact our support at support@wesaudio.com. We will get back to you ASAP.

Below you can find some symptoms and description which will help to investigate the issue:

"Can't find my device on plugin drop down menu"

Unfortunately there could be dozens of root causes. On Windows machine it is very important to check if USB device is successfully connected on system level. That can be checked in "Control Panel->System->Device Manager":



*** Please note that for **WINDOWS** it is necessary to install USB driver which is critical to communicate with HW units. It is required step only during first installation, and this option will be automatically disabled during any software upgrades.*

6. Set up GCon Connection.

This chapter goes through possible setups and describes main configuration steps. In general _TITAN implements two connection types:

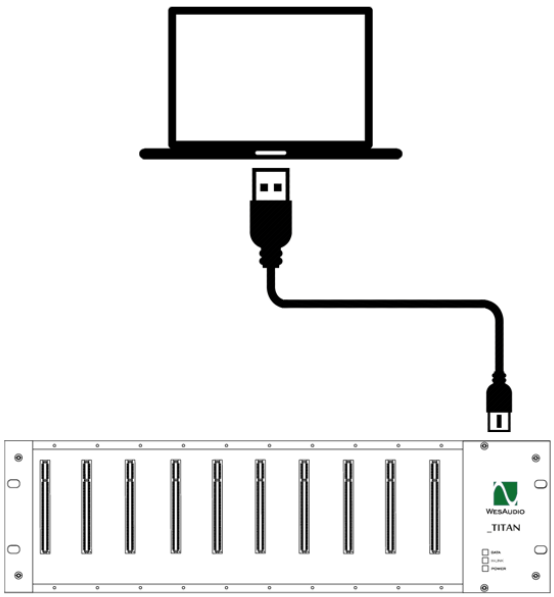
- **USB 2.0+** – which allows to manage up to 10 modules inside.
- **Ethernet 10/100** – based on UDP protocol (LAN single subnet) which allows to manage up to 10 units from 5 GCon applications* at the same time.

(*) GCon application is any process on your workstation which implements GCon connection, like your DAW or GConManager. It also means that such applications can be started on different hosts (workstations) as long as those are located in same LAN subnet.

Please note that this chapter describes how to establish GCon connection to manage your devices and recall settings, how to setup audio signal connection is described in the next chapter.

6.1. USB

To connect your _TITAN frame directly to your workstation, just connect it to any available USB 2.0+ socket via USB cable.



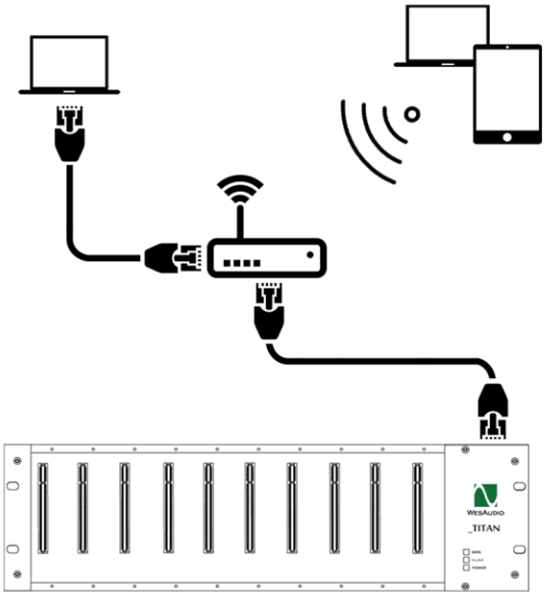
6.2. Ethernet

_Titan as any network device, can be connected to your workstation in following ways:

- By joining your local area network (LAN)
- Or directly connected to your workstation.

In some cases it is mandatory to set IP addresses* for your workstation and _TITAN.

Below you can find possible setup in your local area network, and how different devices can access _TITAN resources:



(*) In case you would like _TITAN to join already existing network, most probably your workstation has IP address already set up through static configuration entry, or through DHCP (by your router).

6.2.1. _TITAN Configuration.

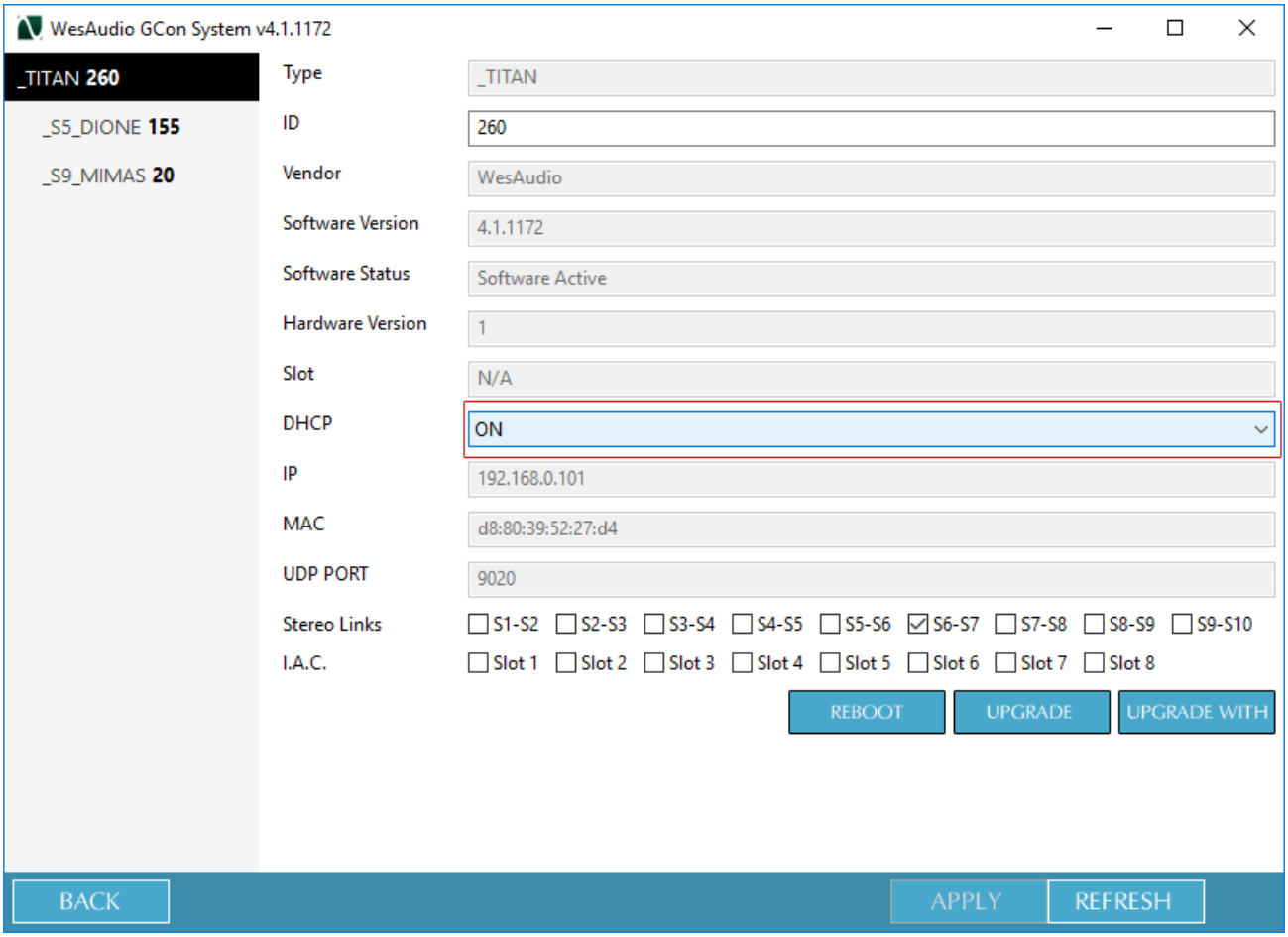
Each _TITAN chassis by default has DHCP enabled. So if you would like to connect your _TITAN to your router, just do it!

…However if you would like to change that configuration, please read description below.

6.2.1.1. DHCP

To change any network specific configuration of your _TITAN chassis:

1) Connect your _TITAN directly to your workstation through USB cable (If connection to _TITAN is already established through Ethernet cable, this step is not necessary),
2) Start GConManager and go to _CONFIG application.
3) Then select your _TITAN unit from the elements tree on the left.
4) Then change DHCP option to "ON". Unit will restart, and your connection to _TITAN will be established again.



Now you can disconnect USB cable, and connect _TITAN using Ethernet cable.

6.2.2. Static IP address.

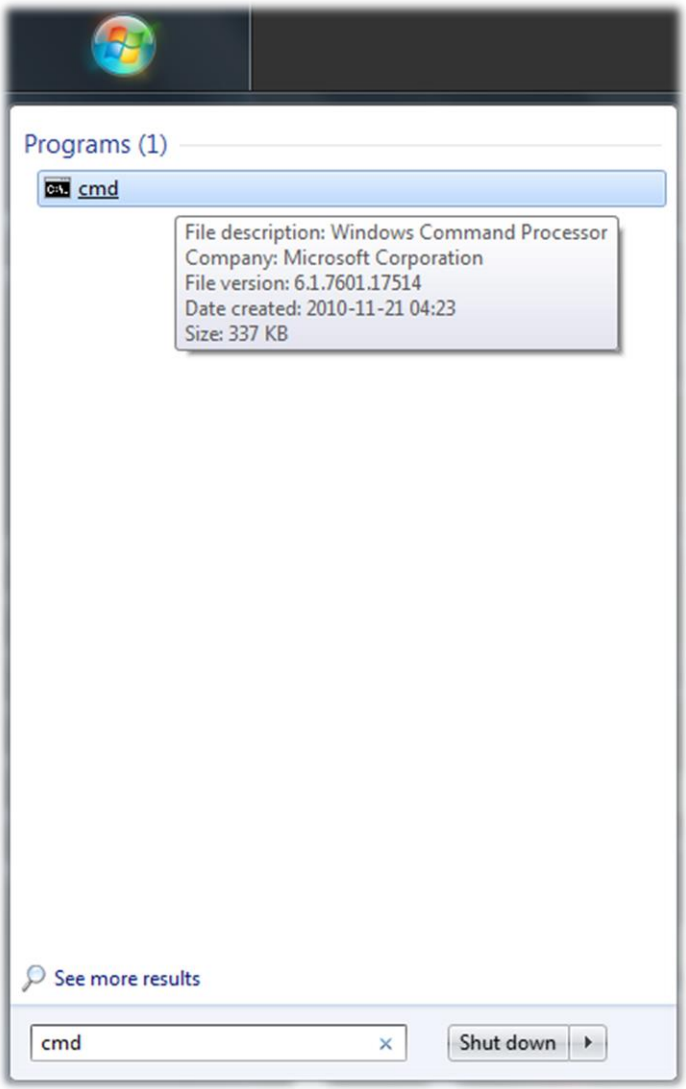
In general there are few use cases when you would like to configure _TITAN IP address manually:

1) When you router doesn't support DHCP
2) When your LAN network is configured manually for example through hardware switch.
3) When you would like to connect your _TITAN directly to your Ethernet socket in your workstation.

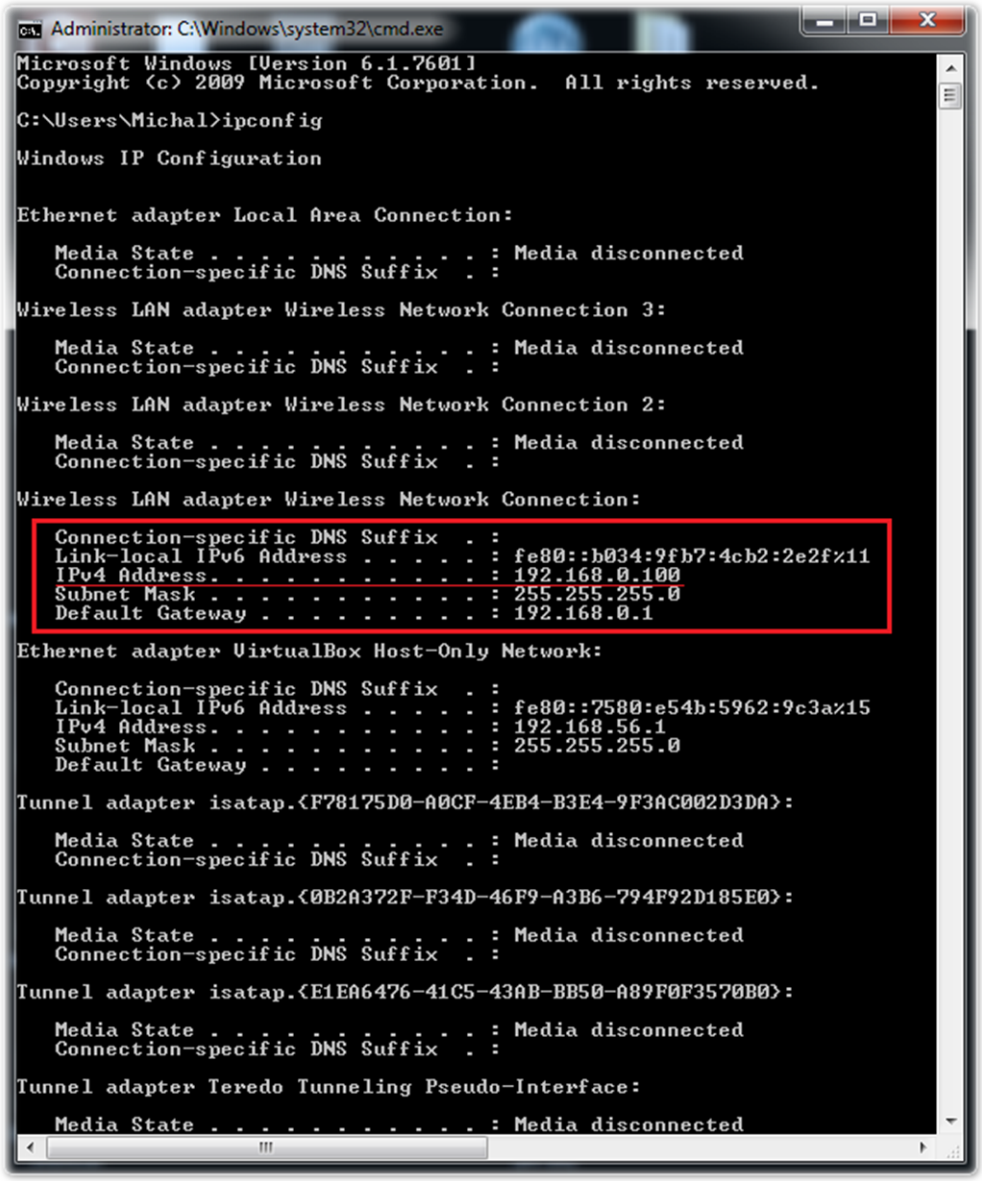
As a first step please check your currently configured IP address.

6.2.2.1. Windows – how to check your IP address.

- Start cmd application (hit Windows "START" button and type "cmd"):



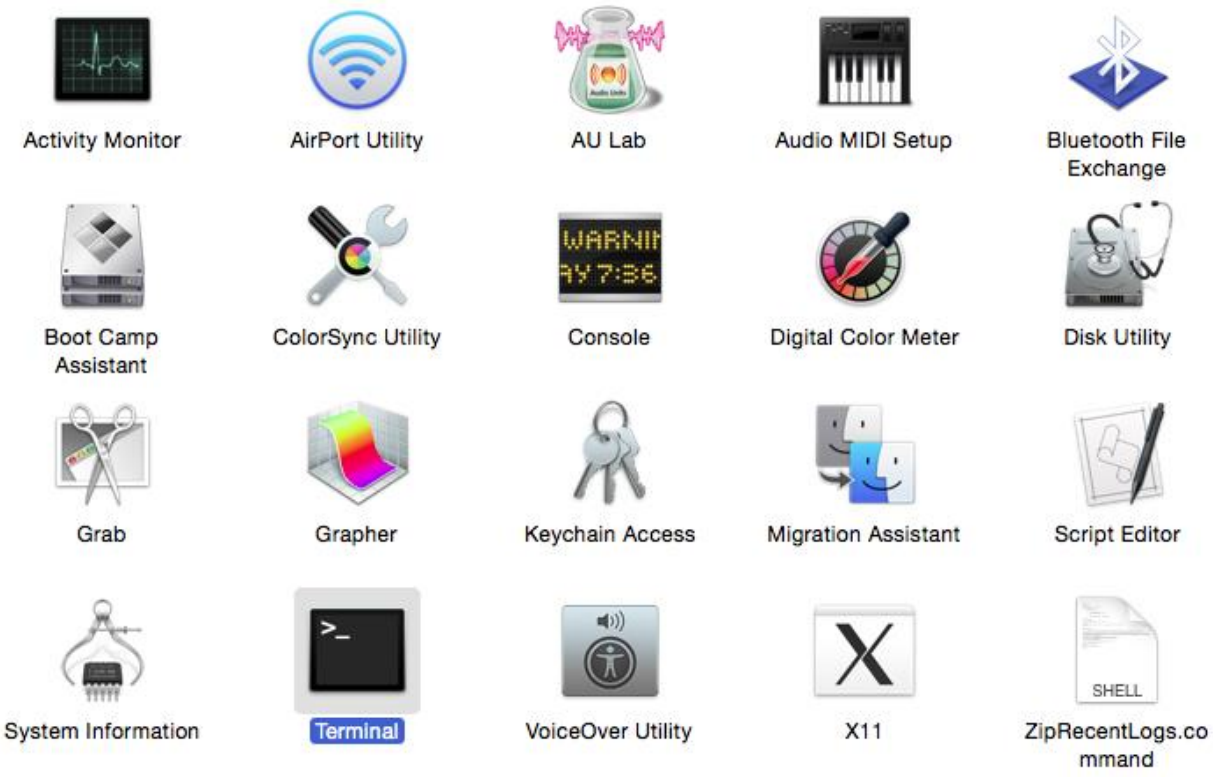
- Type "ipconfig" which will show current network configuration:



- Then you have to find your currently connected network card (Ethernet card or Wi-fi card) and check IP address. In this particular case IP address is **192.168.0.100.** _TITAN IP address has to be in the same subnet, so for above example it would mean any IP address from 192.168.0.2 to 192.168.0.254, excluding currently occupied addresses by any devices connected to your network (like your workstation address, router address, etc.).

6.2.2.2. OSX – how to check your IP address.

- Start “Terminal” (located in Applications/Utilities) application:



- Type “ifconfig” which will show current network configuration:

```
Mac-mini-Michal:~ michal$ ifconfig
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
        options=3<RXCSUM,TXCSUM>
        inet6 ::1 prefixlen 128
        inet 127.0.0.1 netmask 0xff000000
        inet6 fe80::1%lo0 prefixlen 64 scopeid 0x1
        nd6 options=1<PERFORMNUD>
gif0: flags=8010<POINTOPOINT,MULTICAST> mtu 1280
stf0: flags=0<> mtu 1280
en0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
        options=27<RXCSUM,TXCSUM,VLAN_MTU,TSO4>
        ether 00:23:df:7f:b5:28
        inet6 fe80::223:dfff:fe7f:b528%en0 prefixlen 64 scopeid 0x4
        inet 192.168.0.103 netmask 0xffffff00 broadcast 192.168.0.255
        nd6 options=1<PERFORMNUD>
        media: autoselect (1000baseT <full-duplex,flow-control>)
        status: active
en1: flags=8823<UP,BROADCAST,SMART,SIMPLEX,MULTICAST> mtu 1500
        ether 00:24:36:eb:b3:51
        nd6 options=1<PERFORMNUD>
        media: autoselect (<unknown type>)
        status: inactive
fw0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 4078
        lladdr 00:23:df:ff:fe:7f:b5:28
        nd6 options=1<PERFORMNUD>
        media: autoselect <full-duplex>
        status: inactive
Mac-mini-Michal:~ michal$
```

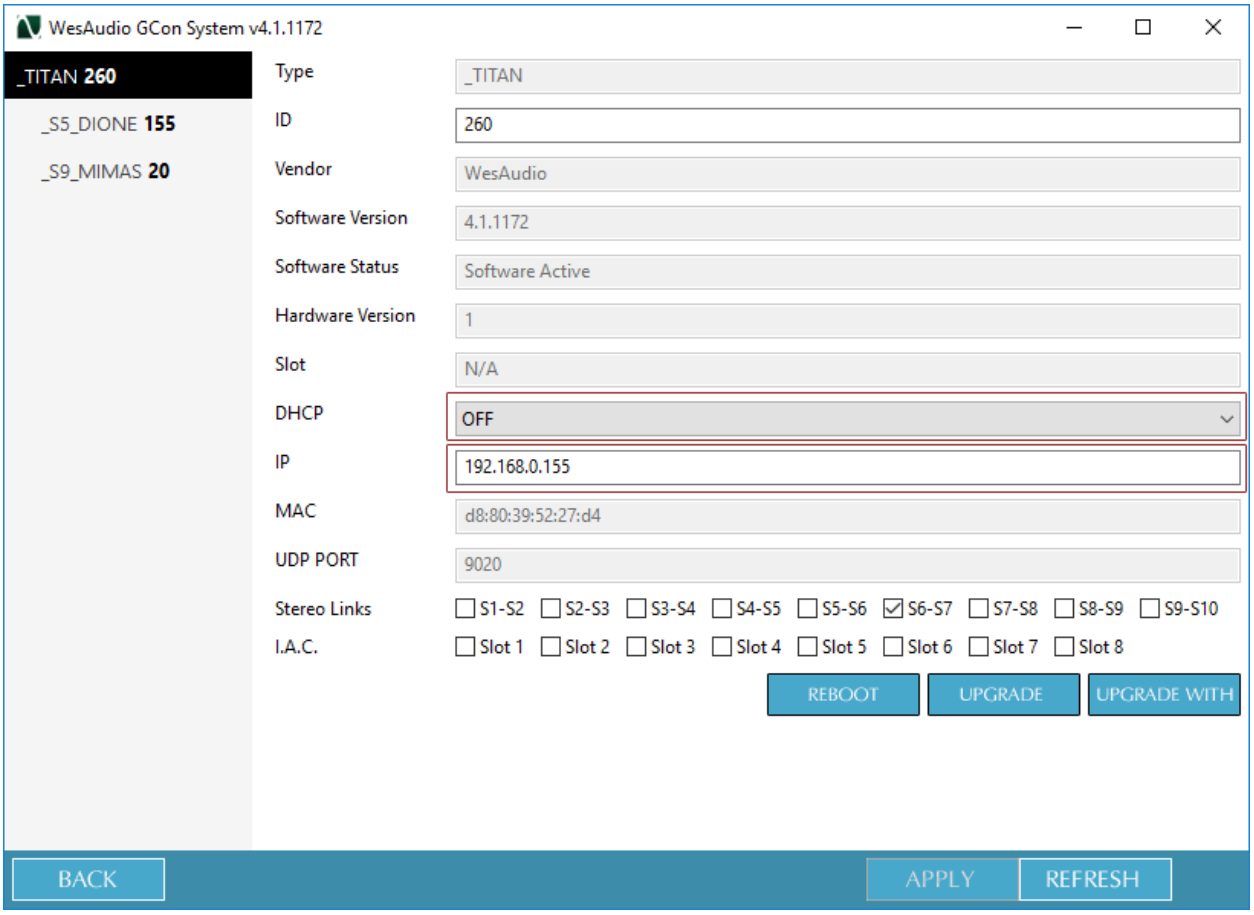
- Then you have to find your currently connected network card (Ethernet card or Wi-fi card) and check IP address. In this particular case IP address is **192.168.0.100.** _TITAN IP address has to be in the same subnet, so for above example it would mean any IP address from 192.168.0.2 to 192.168.0.254 excluding currently occupied addresses by any device connected to your network (like your workstation address, router address, etc.).

6.2.2.3. _TITAN - set up IP address.

To set up IP address for _TITAN, first connect it directly to your workstation using USB cable. Then start GConManager and select “Config” application. Select your _TITAN frame in devices list on the left side, then change IP address:

To change any network specific configuration of your _TITAN chassis:

1) Connect your _TITAN directly to your workstation through USB cable (If connection to _TITAN is already established through Ethernet cable, this step is not necessary),
2) Start GConManaqger and go to _CONFIG application.
3) Then select your _TITAN unit from the left elements tree.
4) Then change DHCP option to “OFF” (if it is currently “ON”). Unit will restart, and your connection will re-establish.
5) Enter IP address that you would like to set, hit Apply button. Unit will restart, and your connection with _TITAN will be established again.



Now you can disconnect USB cable, and connect _TITAN using Ethernet cable.

6.2.3. Direct connection – setting IP address on PC/MAC.

To directly connect _TITAN frame to your workstation via Ethernet cable, first it is mandatory to set up IP address for your network interface (Ethernet network card). This activity is not in scope of this manual, however it can be easily find online, please find below help pages:

Windows: http://www.howtogeek.com/howto/19249/how-to-assign-a-static-ip-address-in-xp-vista-or-windows-7/

OSX: http://www.macinstruct.com/node/550

7. Set up Audio signal.

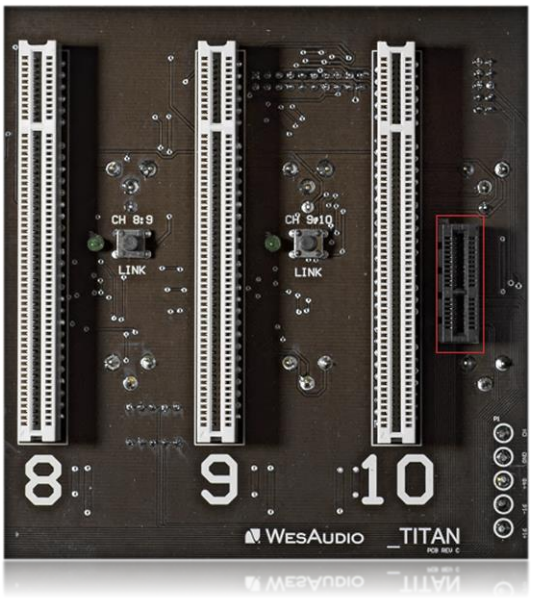
_TITAN as any 500 series rack implements XLR connection to each slot at the back. However this is not the only option to route your audio signal into _TITAN's modules.

7.1. Rear XLR Connections.

Rear panel of _TITAN features standard XLR connections at each slot.

7.2. I.A.C. - Internal Audio Connector.

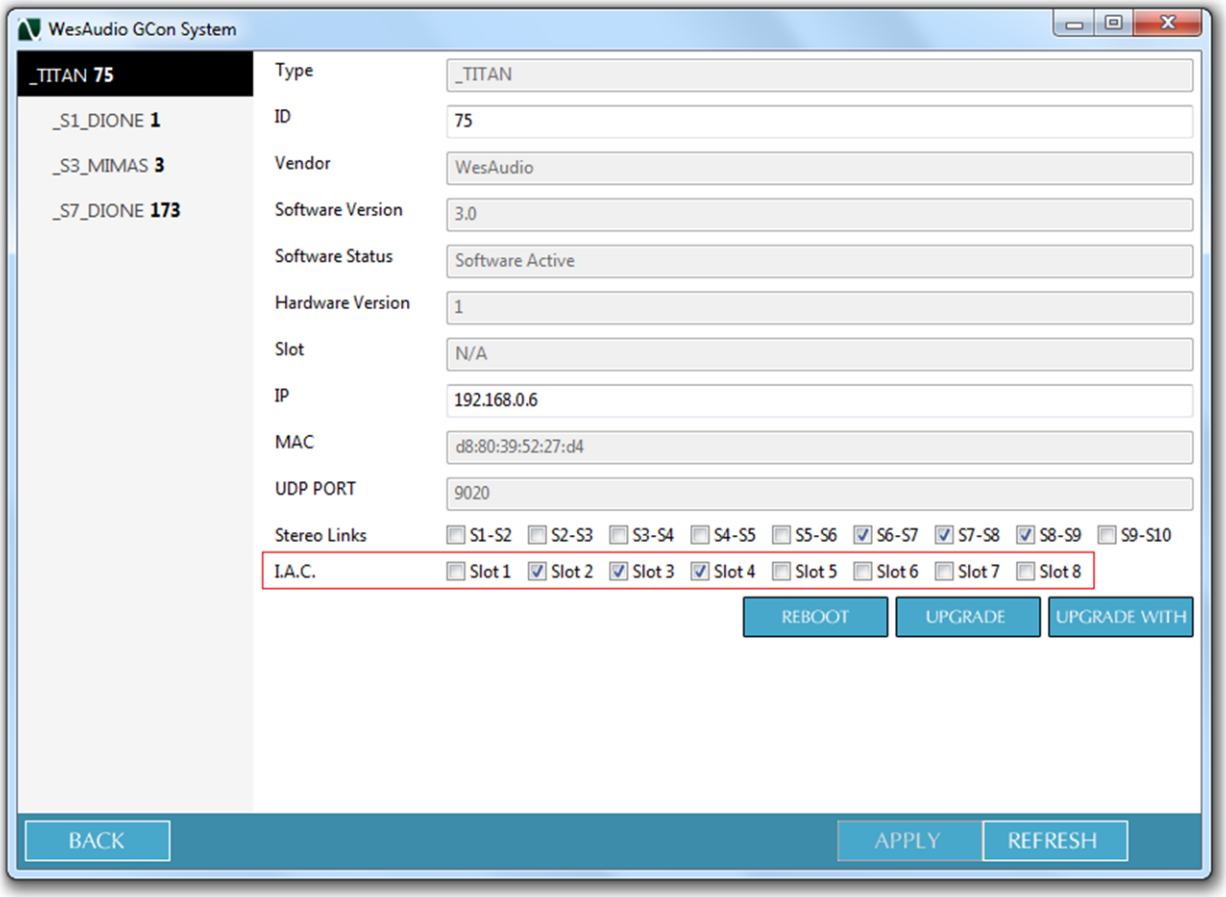
_TITAN also support internal audio routing which can be accessed from slot 10 and can be used to send audio signal from and to slots 1-8 through dedicated module which will support “I.A.C.”.



This allows future integration with dedicated modules such as:

- Digital audio interfaces like ADAT, DANTE etc.
- Analogue summing modules
- Or any other type of multichannel interface, which can transform your _TITAN into the most advanced and complete solution.

This special connector can be activated “per slot” using GConManager “Config” application:



This approach allows you to connect your audio signal through rear XLR connectors and through I.A.C. at the same time, so you can switch between those whenever you like (e.g. you can switch between mixing mode and recording mode).

8. Stereo links.

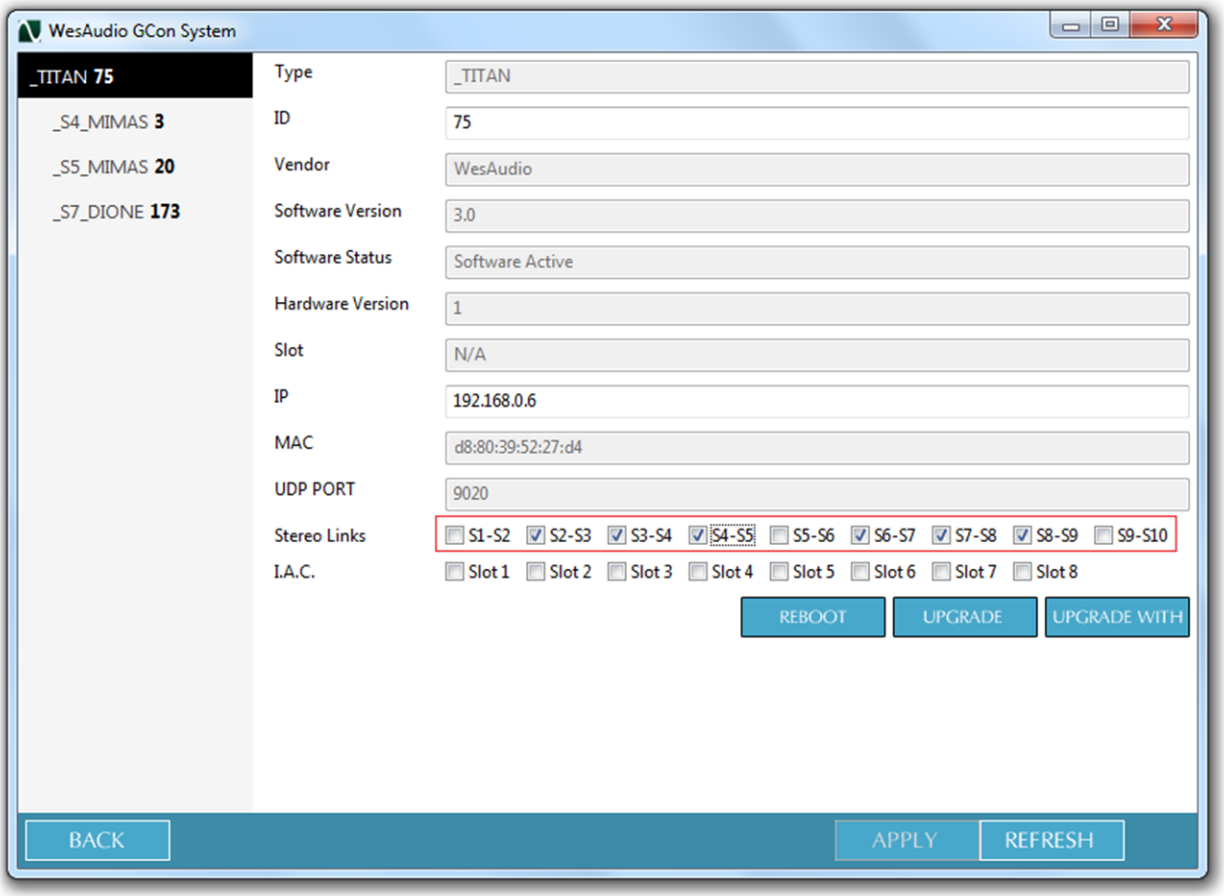
_TITAN's each slot can be stereo linked, and that functionality can be activated in several ways.

8.1. Stereo link buttons.

Each slot features special internal button on the PCB, which is responsible for activating particular stereo link. By pushing the button, stereo link is activated, pushing it again will deactivate it. Next to each button there is located special led which will show current stereo link state.

8.2. Stereo links in GConManager.

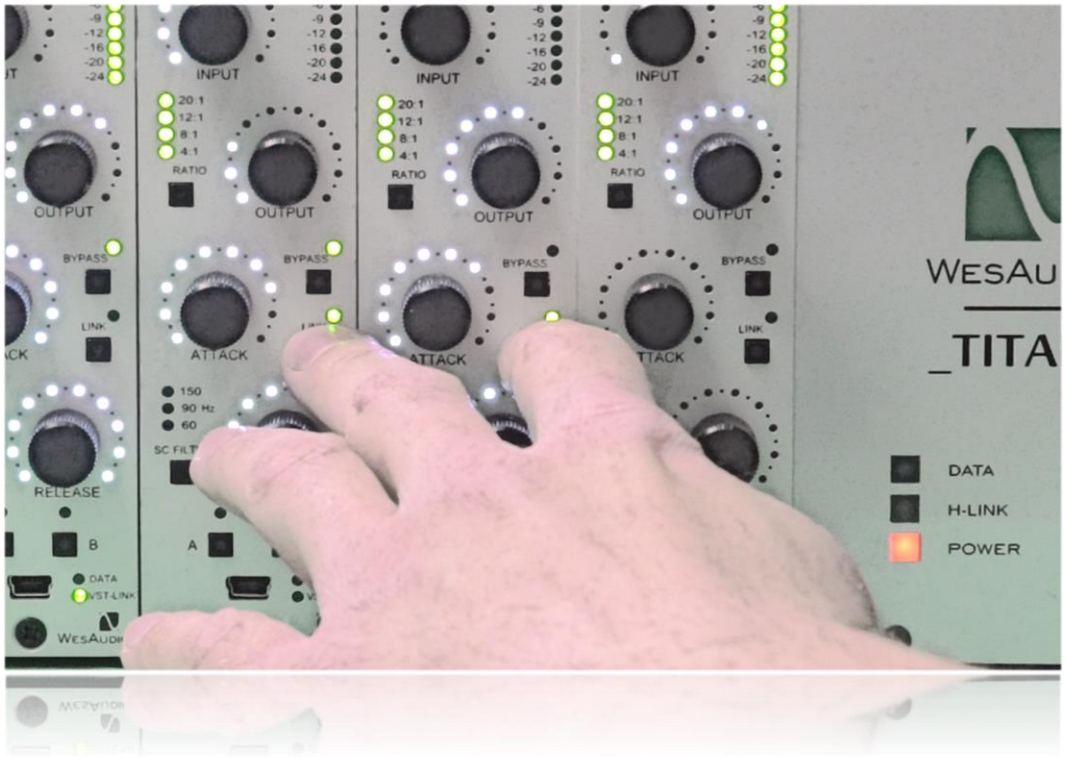
GConManager **"CONFIG"** application can be used to change stereo link states:



Also when stereo link in GConApplication will be engaged, and those two affected slots host GCon compatible devices (with stereo linking capabilities e.g. WesAudio _mimas), link state will be set accordingly for both modules.

8.3. Stereo links integration with GCon compatible modules.

Each GCon compatible module which supports stereo linking (e.g. WesAudio _mimas) communicates with _TITAN, and if front panel link buttons will be pushed at the same time in 2 modules, stereo link in _TITAN frame will be set accordingly to desired state.



Same functionality is implemented inside your DAW application by compatible Plugins. If two modules will be recalled, link states will be also set up in _TITAN frame according to loaded settings.

Note about integrated stereo linking:

During recall or when front panel link buttons are pushed on particular modules, link states in _TITAN will always be engaged in pairs. Please follow below example:

- There are 4 WesAudio _mimas units inserted into _Titan on slot 1,2,3 and 4.
- 4 _Mimas link states are set up through front panel buttons (or through recall system).
- In that particular case _Titan will engage stereo link for slot 1 & 2, and stereo link for slot 3 & 4. Stereo link on slot 2 & 3 won't be activated.

In general it is impossible to distinguish between such situations, and current implementation links everything in pairs. In the future it is also possible that special _Titan plugin will be created, which will allow to enable and recall more complicated linking scenarios.

9. GConManager

GConManager is generic application which implements configuration management over GCon compatible units. It allows to execute operations like firmware upgrade, or change device id, etc.

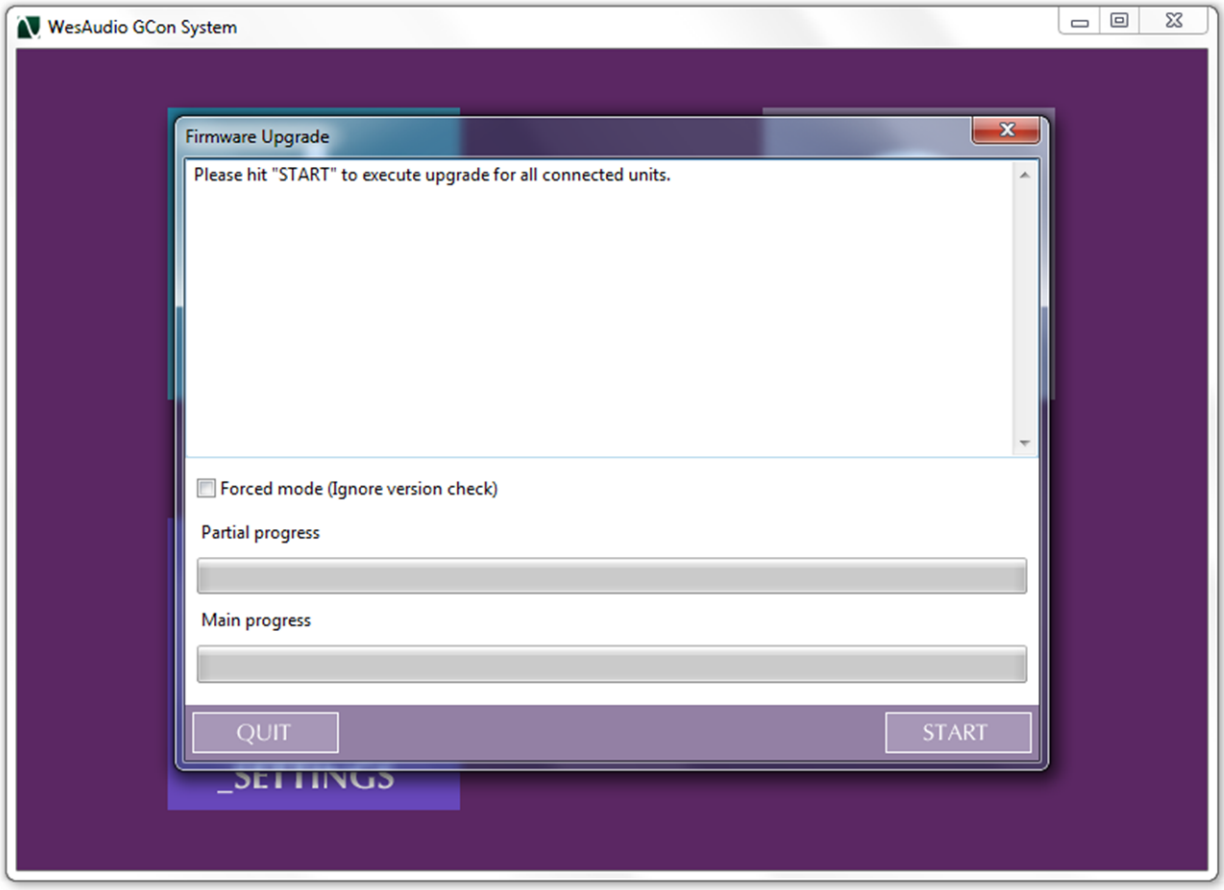
9.1. Where is GConManager?

By default it can be found in Application folder data:

- For OSX: "/Applications/WesAudio/GConManager"
- For WINDOWS: folder specified during installation phase, by default in: "c:/Program Files x86/WesAudio/GConManager.exe".

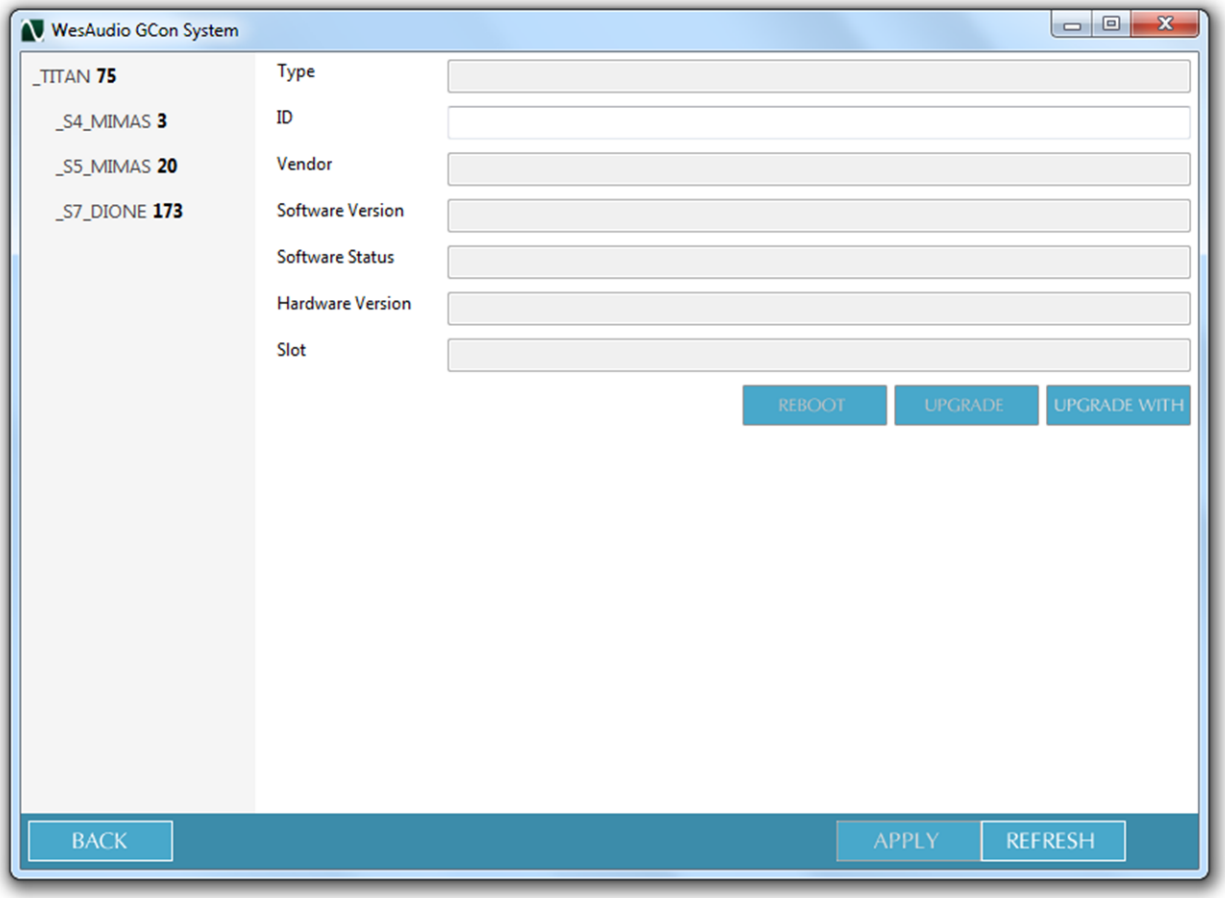
9.2. How to start Firmware Upgrade

To start firmware upgrade simply start GConManager and go to "Upgrade" application, then hit start. All modules where firmware isn't up to date, will be upgraded automatically.



9.3. How to check currently connected devices.

Start GConManager and go to “config”, you should be able to see list of your currently connected modules:



10. GCon open specification framework.

_Titan frame is part of open specification framework which allows other vendors to adopt to GCon protocol, and create recallable modules. In general it doesn't require any specific GCon knowledge because protocol is wrapped in software frameworks, which implements all necessary functionalities on northbound (HOST/DAW <-> _TITAN) and southbound (_TITAN <->ng500 series module) side. There are four main packages which can be shared among other vendors:

- GCon open specification framework documentation.
- GPE – GCon protocol environment – C++ API to already existing dynamic library, which supports all main operations on remote modules, and can be easily integrated into any plugin type.
- GConPeriphery – package of drivers and utilities mandatory to communicate with upper system.
- Software examples.

11. Multi Host Support – USB note.

_TITAN connected through USB cable will be detected in one HOST application at the same time. First HOST application which will start any WesAudio plugin will enable GCon communication engine, and from now on it will serve as a master. Master application opens all available WesAudio units and keeps all device handles for communication purposes. That activity will prevent other HOST applications started at the same time to communicate with WesAudio units using direct USB connection. Such situation may happen in practice when two different hosts are started at the same time and connected through ReWire interface, in that approach only one host can serve as plugin host for WesAudio products. It is also possible to start GConManager and Plugin host application at the same time, which will result in exactly same situation – only one application will connect to WesAudio devices. This is not valid for Ethernet connection where up to 5 applications can communicate with one _Titan frame.

12. Warranty

All WesAudio products are built to the highest standards and should provide reliable performance for many years, subject to reasonable care, use, transportation and storage.

WesAudio warrants all of our products to be free of defective parts and workmanship for a period of two years.

This warranty period begins at the original date of purchase and is transferable to any person who may subsequently purchase the product during this time. This warranty excludes the following conditions: normal wear and tear, misuse, customer negligence, accidental damage, unauthorized repair or modification, cosmetic damage and damage incurred during shipment. During the time of this warranty, WesAudio will repair or replace, at its option, any defective parts or repair defective workmanship without charge, provided the customer has appropriate proof of purchase and that the product has its original factory serial number. In all warranty claims the customer is responsible for shipping costs to the WesAudio facility, and WesAudio pays for return ground shipping.