OC4BAv4 rksoftware @2018

1. Introduction

OC4BAv4 lets you use Opencockpits hardware modules to control your PMDG's B737NGX, B747v3 and B777, QUALITYWINGS B787 and AEROSOFT's Airbus A318-321 for a much more realistic and immersive flight experience.

By combining PMDGs highly realistic airplane flight systems and Opencockpits proven and reliable hardware you can build a top realistic home cockpit solution with OC4BAv4 for any of the PMDG airplanes.

OC4BAv4 will work with all complete Opencockpits Modules(see list below), Expansion/Master Cards, Servo Cards and other Opencockpits IOCARDs to interface and control the following airplanes in FSX, FSX-SE and Prepar3D(v3/v4):

1. PMDG B737NGX with OCP4NGX
2. PMDG B747v3 with OCP4747X
3. PMDG B777 with OCP4777X
4. QUALITYWINGS B787 with OCP4787
5. AEROSOFT Airbus 318-321 with OCP4ABX

OC4BAv4 comes with the OCP4NGX driver for the PMDG B737NGX included in the package. The other airplane drivers can be purchased separately and added to OC4BAv4.

OVH-AFT
OVH-FWD
SINGLE / DUAL MIP
CHRONO-Captain
EFIS-Captain
MCP
EFIS-FO
CHRONO-FO
FMC-Captain
FMC-FO
COM1 COM2 NAV1 NAV2 ADF1 ATC AUDIO1 AUDIO2
PEDESTAL

2. How to install OC4BAv4

Before you install OC4BAv4, verify that you have the latest version of the PMDG airplanes with the PMDG Operation Center program. You also need SIOC version 6.0 or newer. Check at www.opencockpits.com

Verify that Microsoft's Visual C++ Redistributable for Visual Studio 2015 (x86 versions) and latest .NET Framework are installed. If you do not have them already on your PC, download and install them.

To avoid any Windows security problems and other troubles, I recommend to **NOT** have your flightsim(s) (FSX, FSX-SE, P3D) or SIOC installed in the **C:\Program Files or C:\Program Files(x86) folders**. This is recommended also by the big flightsim companies, i.e. PMDG.

rksoftware uses the following folder paths and has no problems:
FSX is located in D:\FSX **P3D is located in D:\P3D** **SIOC is located in D:\SIOC**

Verify that you have enabled DataBroadcast output from your PMDG B737NGX,
Go to your flightsim's main folder and open **\PMDG\PMDG 737 NGX\737NGX_Options.ini**
If not already enabled, add the following two lines to the bottom of the file and save:

```
[SDK]
EnableDataBroadcast=1
```

Unzip the OC4BAv4 zip file you downloaded to your folder of choice.

- Run OC4BAv4 Setup and install programs and files to the SIOC folder.
- In the Setup select the flightsim(s) (FSX, FSX-SE, P3D) you use.

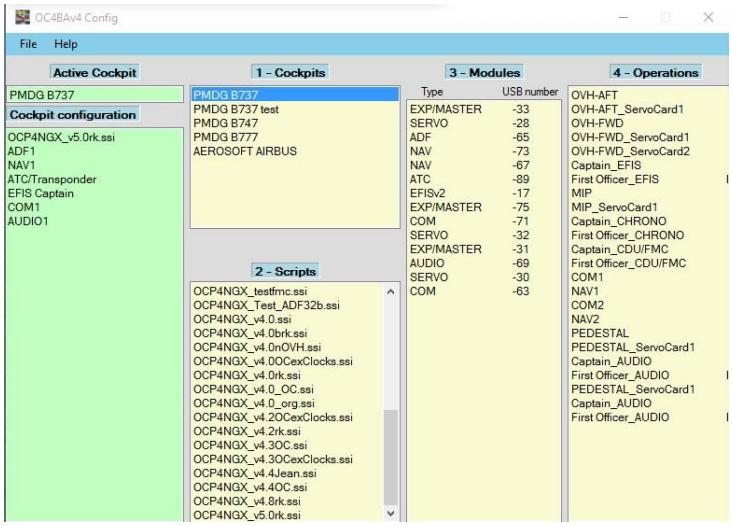
3. How to configure Opencockpits modules

Make sure your Opencockpits hardware modules are connected to your PC and continue with next step.

Start OC4BAv4 from the SIOC folder or from the Add-ons menu in FSX, FSX-SE or P3D.

Click Config in OC4BAv4 to start configuration

The OC4BAv4 Config is an automatic configurator for all Opencockpits P&P modules in addition to an easy manual configurator for other Opencockpits modules and your own built modules based on Opencockpits IOCARDs.



Active Cockpit and **Cockpit Configuration** list active cockpit name and it's configuration.

In **Cockpits**, select the airplane cockpit you want to configure and under **Scripts** select the script file to use.

In **Modules** all Opencockpits hardware that are connected to your PC will show up

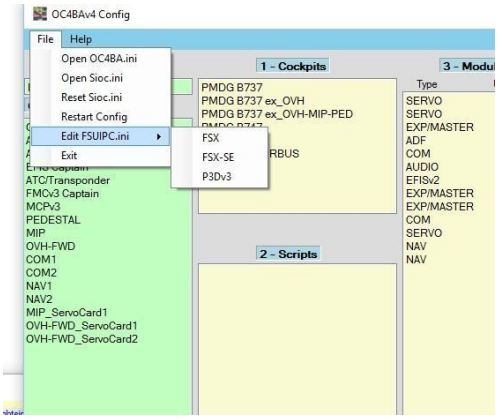
When selecting an item in the **Cockpits** and **Scripts**, all **P&P Modules** will automatically be configured and updated in the **Active Cockpit** and **Cockpit Configuration**.

If you have only P&P Modules and not more than 1 unit of each **Module** type, you are now ready with the configuration and can EXIT **OC4BAv4 Config**. You can now forget **OC4BAv4 Config** until you add new modules, airplanes or scripts.

If you have 2 or more units of same type or an Opencockpits module based on IOCARD hardware, you need to link these **Modules** with the correct function under **Operation**s.

1. Click any P&P modules you have 2 of in **Cockpit configuration** to delete them. ***For EFIS modules:***
2. Click EFIS in Modules and identify module by connecting to module with the same USB number in the opened SiocMonitor subwindow and move a knob. ***For all other module types:***
3. Click a type in **Modules** to identify it by flashing LEDS or a moving servo.
4. Click the correct function in **Operations.**

Only for Airbus drivers



The FSUIPC.ini submenus are for easy access to FSUIPC.ini when configuring the Airbus driver. Details are in driver's MUST READ file.

4. How to fly with Opencockpits modules

1. First load up your PMDG airplane to fly in your FSX, FSX-SE or P3D.
2. If OC4BA_Starter plugin is activated in P3D, correct driver will start up automatically in the flightsimulator.
3. If OC4BA_Starter plugin is NOT ACTIVE in P3D or you are using FSX/FSX-Steam continue with steps 4 and 5.
4. Select OC4BAv4 in FSX, FSX-SE or P3D's Add-ons menu. Or start up OC4BAv4 from your SIOC folder.
5. Select the airplane you want to use in OC4BAv4 by clicking the airplane image.

5. OVH-AFT, OVH-FWD, SINGLE / DUAL MIP and PEDESTAL

OC4BAv4 now comes with only ONE script, the OCP4NGX_v4.6.ssi, for the PMDG B737NGX.

The script works with Opencockpits' ready built P&P modules CHRONO-Captain, EFISCaptain, MCP, EFIS-FO, CHRONO-FO, FMC-Captain, FMC-FO, COM1, COM2, NAV1, NAV2, ADF1, ATC, AUDIO1, AUDIO2 , OVH-FWD, OVH-AFT, and MIP without any need for modification.

The script should be used if no modification is needed or serve as a base if modification is needed.

When is script modification needed?

1. If you have built any of the above listed modules based on Opencockpits IOCARDs and the connection numbering scheme is different than the default numbering scheme that is used in Opencockpits built modules.

2. If you have any of the modules listed below, either Opencockpits built modules or own built modules based on Opencockpits IOCARDs.

COM1, COM2, NAV1, NAV2, ADF1, ATC, AUDIO1, AUDIO2 modules using the IDC interface.

The needed modifications are easy to do with OC4BAv4's Script Edit function. You only need to change the input, output and display connection numbers. In case 3 above, you also need to modify the script so it uses Device 32 for any IDC connected modules.

If your own built modules are not complete, there can be issues like “jumping” switches or modules that do not work correctly.

You must then make modifications to the script to get rid of these issues. Disable noneused inputs by inserting a "//" at the beginning of the script line of the input causing an issue. This is done to the script .txt file and followed with a compilation to a script .ssi file.

PEDESTAL*

- Engine and Cargo Firepanels inputs and outputs connection numbers need to be changed to default Pedestal or your own numbering scheme. If IDC interface is used and not P&P modules for the COM, NAV etc., Device 32 must be used and inputs and outputs connection numbers changed to default PEDESTAL or your own numbering scheme.

All Servos needs to be calibrated and if needed the script must be modified.

Scripts for the B747 and B777 come with their drivers when purchased from the SHOP.

6. Modules built with Opencockpits IOCARDs

If you have built your modules based on IOCARDs, you should have a look at the site http://www.lekseecon.nl/howto.html to learn about SIOC software and writing scripts. The OC4BAv4 scripts use the Device Index (IDX) scheme seen in table below. If you need to enter new additional modules in the OC4BAv4.ini file you should use this scheme. The green IDX numbers used to identify the module are already in the OC4BAv4.ini file

	MCP	*EFIS*	*FMC*	*COM*	*NAV*	*ADF*	*ATC*	*CHRONO*	*AUDIO*
CAPTAIN	15	7	13	8	9	10	11	16	21
FIRST OFFICER	-	17	23	18	19	20	-	26	22

	EXSPANSION	*SERVO*	*DCMOTOR*	*STEPPER*	*DCMOTOR PLUS*	*DIMCONTROL*	*OUTPUT*
1st CARD	30 (OVH-FWD)	36 (MIP)	42	45	14	27	6
2nd CARD	31 (MIP)	37 (OVH-FWD)	43	46	24	28	54
3rd CARD	32 (PEDESTAL)	38 (OVH-FWD)	44	47	25	29	55
4th CARD	33 (OVH_AFT)	39 (OVH-AFT)	-	-	-	-	-
5th CARD	34	40	-	-	-	-	-
6th CARD	35	41	-	-	-	-	-

Up to 4 Master Cards can be connected to the same Expansion Card.

What is Device Index (IDX)?

Every input, output and display of every Opencockpits modules and IOCARD are addressed in the script by a Device index (IDX) and input/output/display connection number.

Let us look at this MCP script line as an example.

Var 0345, name DISENGAGE_SW, Link IOCARD_SW, **Device 15**, Input 15, Type I

Device 15 in the line tells that this MCP script has **Device Index 15 (IDX15)**.

In the Sioc.ini we will have a line: MASTER=**15**,15,1,44 if it is configured correctly. The first number (15) tells this module uses Device Index 15 (IDX15). The second number (also 15) tells us that this is a MCP. All module types have its unique number given by Opencockpits.

If you make your own scripts, always use the Device Index scheme listed above and you will be saved for many conflicts and errors.

As soon as you have linked a Detected **Module** to an **Operation**, it will appear in the **Cockpit** and **Configuration** boxes and are ready to be used.

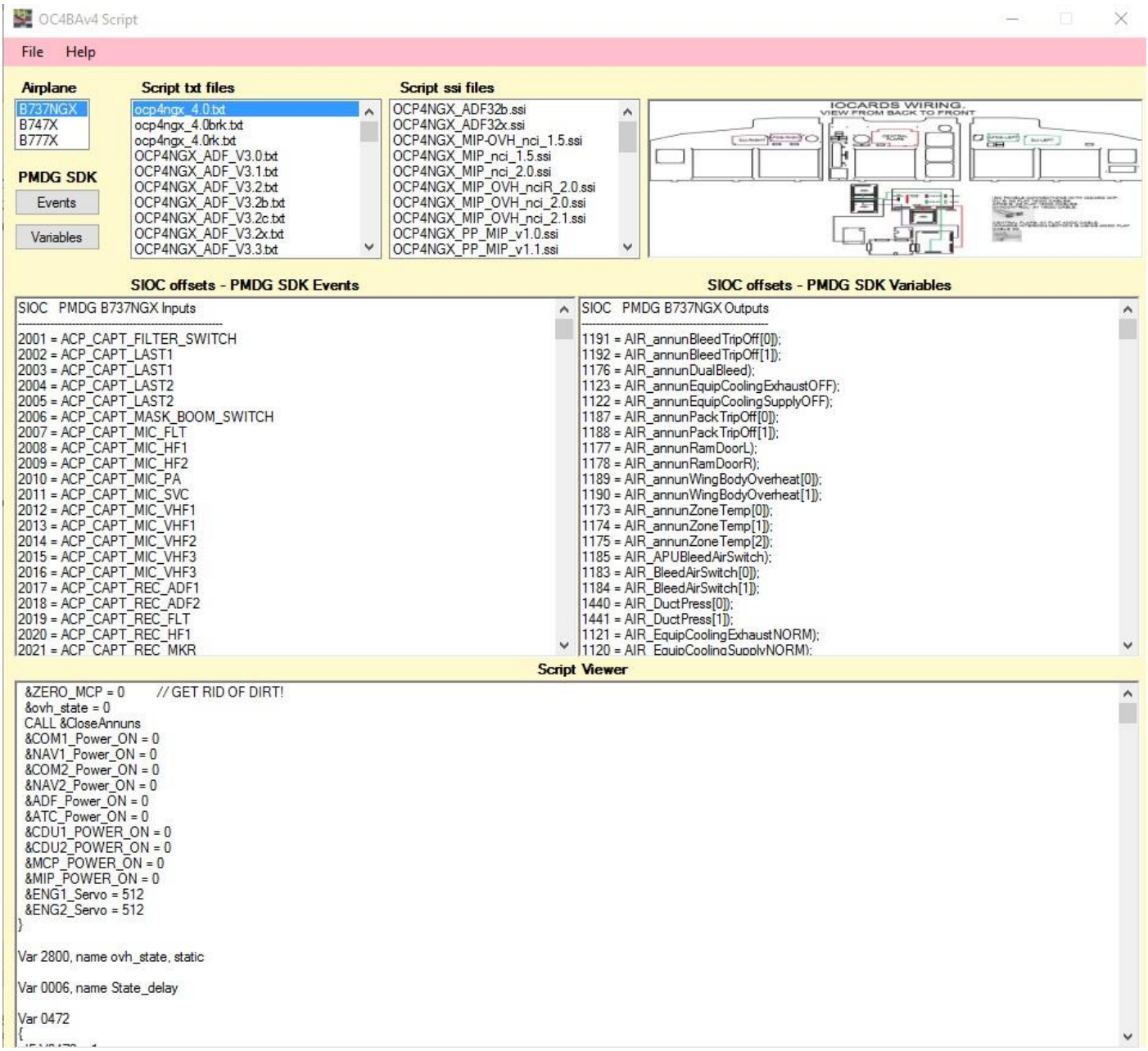
If you re-select **Cockpit** and/or **Script** your **Cockpit Configuration** will revert back to only P&P Modules and you need to link the other modules back in again.

You can modify the OC4BAv4.ini file to make your own Operations if you have own built modules. Remember to write in mx, where x is the number of MASTER Cards that are connected to the Expansion Card.

The OC4BAv4.ini can be modified to define your own cockpits, operations and Device Index (IDX)

The OCP4NGX_ scripts from rksoftware will always use the defined Device Index(IDX) in the OC4BAv4.ini you got when you installed OC4BAv4.

7. OC4BAv4 Script



The OC4BAv4 Script gives you a good overview of all OC4BAv4 scripts in your SIOC folder together with info about the SIOC offsets to use if you write your own script code. Try it out and you soon find what it can offer.

There are some videos on www.flightsim4fun.com that show how you can modify the existing OC4BAv4 scripts to fit your own build solutions

You can export ssi scripts to txt scripts by using the embedded SIOC config_sioc.exe program.

The exported txt file can be used as a template for the modification you want to do.

To open the script txt file in the editor, you should download Notepad++ from Internet.

To make your own scripts and edit them, you should use the available programs from Opencockpits that are installed in the SIOC folder.

8. How to set up FMCv3 screen

1. Connect FMC V3 to any USB port on PC
2. Connect Power line to FMC V3
3. Connect video cable to a free VGA port on PC

4. Verify or set up the VGA screen in the NVIDIA Control Panel by a right click on the desktop screen.
5. Choose VGA screen in Control Panel and set to display to 1024x768

6. Restart PC
7. Turn on Power to the FMC V3
8. You should know see part of the desktop screen on the FMC V3 display

9. Edit panel.cfg for your airplane

For the PMDG B737NGX go to:
FSX/P3D\SimObjects\Airplanes\PMDG 737-800 NGX and open panel folder
and paste in the text below over the original text after you have taken a backup
gauge00=PMDG_737NGX!CDU, -90,-120,570,1645,L #0

For the PMDG B777 go to:
FSX/P3D\SimObjects\Airplanes\PMDG 777-200LR and open panel folder
and paste in the text below over the original text after you have taken a backup
gauge00=PMDG_777X!CDU, -93,-100,570,1544,L #0

For the PMDG B747v3 go to:
FSX/P3D\SimObjects\Airplanes\PMDG 747-400 and open panel folder and paste in the text below over the original text after you have taken a backup
gauge00=PMDG_747QOTSII!CDU, -80,-80,570,1580,L #0

You can make small changes to these values if you need to make some minor adjustments to fit your setup.

10. Save

11. Start FSX/P3D and choose the PMDG airplane
12. Right click Captain's CDU screen and drag it to the FMC V3 screen
13. Make adjustment by means of the buttons on the back of the FMC V3 if needed (I use AutoConfig from the FMC V3 setup and turn Brightness to 60 and Contrast to 80 to get a dark screen)
14. Use OC4BAv4 as described in doc

15. Verify that the buttons and display on the FMC V3 are lined up as good as possible and that it works OK.

For FSX and FSX-SE:

Use **Panel Store and Panel Restore** to make sure the window keeps coming up to same position on screen every time It is freeware program available on the Internet.

For P3D:
Save flight in the scenario menu. If you now open this the FMC screen will be correct

Throubleshooting

Install Microsoft's Visual C++ Redistributable for Visual Studio 2015 (x86 versions) and latest.NET Framework if they are not already installed on your computer.

FSX and FSX-SE users

If you have problems running OC4BAv4 from FSX/FSX-SE Add-ons menu:

Check the file %USERPROFILE%\Documents\OC4BAv4_path.ini and verify that the SIOC path is correct

Make sure you have enabled viewing of hidden files and folders in your OS's settings, and then look in this file:

%USERPROFILE%\AppData\Roaming\Microsoft Games\FSX\exe.xml

Check that you have the correct path to your OC4BAv4_Menu.exe in the following section of the exe.xml file

```
<Launch.Addon>
<Disabled>False</Disabled>
<ManualLoad>False</ManualLoad>
<Name>OC4BAv4</Name>
<Path>C:\SIOC\OC4BAv4_Menu.exe</Path>
</Launch.Addon>
```

!! The <Path>C:\SIOC\OC4BAv4_Menu.exe</Path> list rksoftware's SIOC path, your path can be different.

Prepar3D v3/v4 users

If you have problems running OC4BAv4 from Prepar3D v3/v4 Add-ons menu:

Check the file %USERPROFILE%\Documents\OC4BAv4_path.ini and verify that the SIOC path is correct

Check that you have the correct path to SIOC folder in

%USERPROFILE%\Documents\Prepar3D v3 Add-ons\rksoftware OC4BAv4\add-on.xml
%USERPROFILE%\Documents\Prepar3D v4 Add-ons\rksoftware OC4BAv4\add-on.xml

```
<?xml version="1.0" encoding="Windows-1252"?>
<SimBase.Document Type="AddOnXml" version="4,0" id="add-on">
<AddOn.Name>OC4BAv4</AddOn.Name>
```

<AddOn.Description>Opencockpits hardware module interface to PMDG airplanes</AddOn.Description>
<AddOn.Component><Category>EXE</Category>
<Path>g:\sioc\OC4BAv4_Menu.exe</Path>
</AddOn.Component>
</SimBase.Document>

The line <Path>g:\sioc\OC4BAv4_Menu.exe</Path> is rksoftware's SIOC path, your path can be different.

If you do not have any outputs to your Opencockpits modules

Check that you have enabled DataBroadcast for the PMDG airplanes, by opening the file:

737NGX_Options.ini in <FSX/FSX-SE/P3D main folder>\PMDG\PMDG 737 NGX
777X_Options.ini in <FSX/FSX-SE/P3D main folder>\PMDG\PMDG 777X
747QOTSII_Options.ini in <FSX/FSX-SE/P3D main folder>\PMDG\PMDG QOTS II
if not already enabled, add the following two lines to the bottom of the file:
[SDK]
EnableDataBroadcast=1

<u>If your driver crash</u>

Some users have encounter problems when using the default IOCP port number 8092, due to port conflict with other programs running on their PC.

If you have problems running your OC4BAv4 drivers with the default IOCP port 8092, you can change the IOCP port to i.e. 8094 or 8096 (other port numbers can also be used). You change the port number from the OC4BAv4's Config/File menu. You also have to delete all "cockpit".ini files (PMDG B737.ini, PMDG B747.ini PMDG B777.ini) in SIOC folder before restarting OC4BAv4.

You can always run OC4BAv4 programs directly from SIOC folder if you prefer that.

You can also start up drivers directly from OC4BAv4's Config window by clicking on the Active Cockpit name.

By adding more Cockpits in OC4BA.ini and configuring them, you can have many different hardware/software combinations configured. This is ideal for testing purpose.

Cockpit names must start with either PMDG B737, PMDG B777, PMDG 747 or AEROSOFT AIRBUS. e.g. PMDG B737_PP MCP, PMDG B737_MyCockpit ...

In OC4BAv4 main window you can only start the default PMDG B737, PMDG B777, PMDG B747 or AEROSOFT AIRBUS cockpits.

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doc rev 4.5.0.0