



Connection guide to web UI of a media player and network configuration recovery

November 2014
Version 002A

Summary

1	Introduction.....	4
2	Prerequisites.....	4
3	Network configuration parameters.....	5
3.1	INNES media players Web UI	5
3.2	Network configuration parameters reminder.....	5
4	Connection to Web UI.....	8
4.1	Windows explorer	8
4.1.1	With IPV4 (default).....	8
4.1.2	With IPV6.....	9
4.2	Web browser.....	9
4.2.1	IPV4 URL	9
4.2.2	IPV6 URL	11
4.3	Media players refresh in windows explorer.....	12
5	Recovery of network configuration (DHCP or static IP) thanks to auto-configuration script.....	13
5.1	Script format and content.....	13
6	Patch by USB (static IP, test card)	13
6.1	Static IP	13
6.2	Test card	14
6.3	Use of documentation.....	14
7	Exhibits	15
7.1	IPV4.....	15

7.1.1	Command « arp -a »	15
7.2	IPV6.....	15
7.2.1	Ipconfig and IPV6 of the local connection.....	15
7.2.2	Installation of IPV6 internet protocol.....	16
7.2.3	Calculate media player IPV6 address	17
7.2.4	Prefix /64	21
7.2.5	Find out which is the prefix in the network	22

1 Introduction

This document describes the technical procedures which allow connecting to the Web UI of an INNES media player, and recover its network configuration (for example, if a media player can't be identified in the network after a bad configuration).

2 Prerequisites

The conditions must be as below:

Technical procedure	Gekkota version
The media player IPV6 address in a web browser	V3.11.10 or more
auto-configuration script (DHCP or static IP)	V3.11.10 or more
Patch (.frm) to recover the default network configuration in static IP (192.168.0.2)	V2.50.75 or more
Patch (.frm) to activate test card on the media player display	V2.50.75 or more

3 Network configuration parameters

3.1 INNES media players Web UI

These network parameters are available on INNES media players:

- through Web UI, for:
 - ✚ the gateway,
 - ✚ the netmask,
 - ✚ the DHCP activation,
 - ✚ the IPV4 address
- on the tag (on the back of media player), for:
 - ✚ MAC address
- On the connected display (when test card is activated), for:
 - ✚ IPV4 address
 - ✚ IPV6 address
 - ✚ MAC address

Note : in the case of a bad configuration, the media player can be « outside » of the network, and its Web UI can't be accessed anymore.

3.2 Network configuration parameters reminder

- **DHCP**: informatic system allows giving a dynamic valid IPV4 address for the devices which request for it.
- **IP address (V4)**: A 4 digits address coded attributed to a device, which allows communicating with the other devices of the network.

Be careful: addresses are not all routable.

http://en.wikipedia.org/wiki/IP_address

By default, a Windows PC supports TCP/IPV4, and the PC can only connect to the visible media players of the network.

- **Netmask**: it allows distinguishing the IP address part used for routing from the part dedicated to give a number to the interfaces (devices)

Example :

netmask	IP address	gateway
255.255.128.0	192.168.47.47	192.168.0.1
255.255.0.0	10.1.1.1	10.1.0.1

- **Gateway**: Bridge to link a network to another (usually from a local network to the Internet).

 Example of a media player LAN interface

- **MAC address:** unique identifier assigned to network interfaces for communications on to the physical network segment; it allows a device to connect itself to an IT network.

Note: a PC or a Windows media player can have several network interfaces, and several MAC addresses.

Note: On INNES media players, the MAC address is situated

- On the tag at the rear of the player

<u>Example</u>
INNES CE
Model : DMB3000-16GB
Input : 12V 1.1A
MAC : 00 :1C :E6 :01 :01 :19
PSN0480-00116 CD9

- On the Web UI, menu Information / version:



⊕ On the display, if the test card is activated

- **IP address (V6):** Address calculated from MAC address, enabling communicating with the other devices.

http://en.wikipedia.org/wiki/IP_address

2 sorts of IPV6 address can be found:

- ⊕ address **IPV6 type local site** (prefix fc00)
- ⊕ address **IPV6 type interface** (prefix fe80)

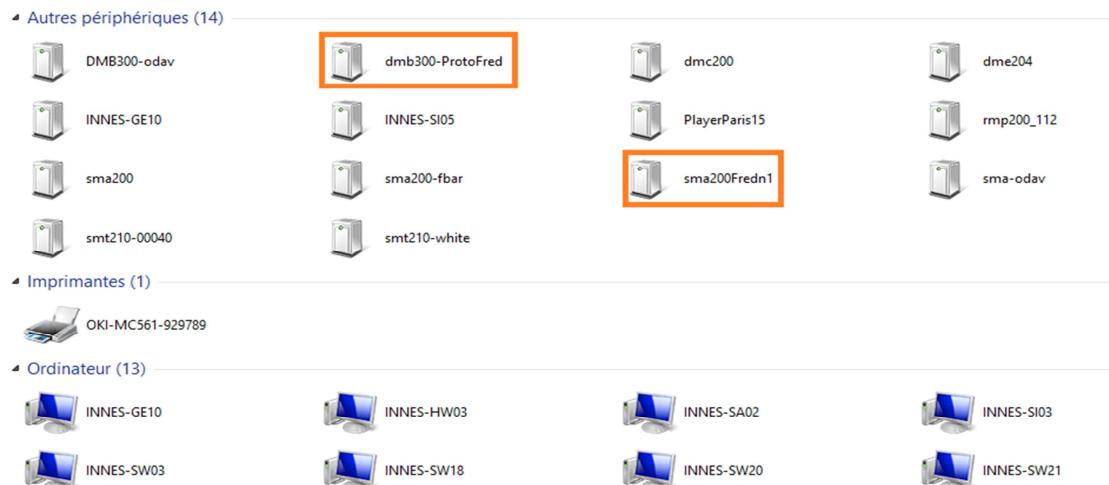
4 Connection to Web UI

4.1 Windows explorer

Double Click on media player shown in the menu « other peripherals » to connect to Web UI.

4.1.1 With IPV4 (default)

If the media player is visible on the network, the explorer loads its Web UI from IPV4:



The screenshot shows the DMB300 Configuration / Administrator web interface. The URL in the browser bar is 192.168.1.66/admin/. The left sidebar has a tree view with nodes like 'Configuration', 'Administrator', 'Lan', 'WLAN', 'WWan', 'Output', 'Servers', 'License', 'Date and time', 'Regional', 'Variables', and 'Extension'. The main right panel is titled 'Configuration / Administrator'. It contains the following fields:

- Hostname:
- Identification method:
- Administrator name:
- Password:
- Confirm Password:

At the bottom right is a 'Validate' button.

4.1.2 With IPV6

If the media player isn't visible on the network, the explorer uses its IPV6:

The screenshot shows a web browser window with the following details:

- URL Bar:** [fc00::21c:e6ff:fe02:109]/.admin/
- Left Sidebar (Configuration):**
 - Administrator
 - Lan
 - WLAN
 - WWAN
 - Output
 - Servers
 - License
 - Date and time
 - Regional
 - Variables
 - Extension
 - Maintenance
 - Information
- Main Panel (Configuration / Administrator):**
 - Hostname: dmb300-ProtoFredchange
 - Identification method: Hostname
 - Administrator name: admin
 - Password: *****
 - Confirm Password: *****
 - Validate button

Note: your Windows PC must support IPV6 protocol. (see exhibit IPV6 « Installation of IPV6 internet protocol »).

4.2 Web browser

You can use a web browser (Google Chrome, Internet Explorer or Firefox) to connect to Gekkota Web UI, by writing:

- media player IP address (IPV4)
- or media player IP address (IPV4) + prefix/64 + network board interface.

4.2.1 IPV4 URL

In the browser url, write:

http://<IPV4>

Ex : <http://192.168.1.66/>

Note : the gekkota loaded sheet will be <http://192.168.1.66/.playout/>

Note : if the media player doesn't respond, double check if it is:

- switched off
- Its network configuration.

You can check the presence of the media player by launching a command shell, type « arp -a » (more details in Exhibit).

4.2.2 IPV6 URL

Please check:

- That the « **IPV6 internet protocol** » is setup on your PC (see exhibit)
- The media player IPV6 is known (if not you can calculate it from the MAC address, (see exhibit))
- The « **prefix/64** » is diffused on your network (ex: **local site type** « fc00 » or **interface type** « fe80 ») (see exhibit)
- If your PC has several network interfaces, you need to know which is your id interface (see exhibit).

In the browser url, write:

- [http://\[<prefix/64><IPV6>\]/](http://[<prefix/64><IPV6>]/), if only 1 network interface on your PC
- [http://\[<prefixe/64><IPV6><id interface réseau>\]/](http://[<prefixe/64><IPV6><id interface réseau>]/), if several network interfaces

Example:

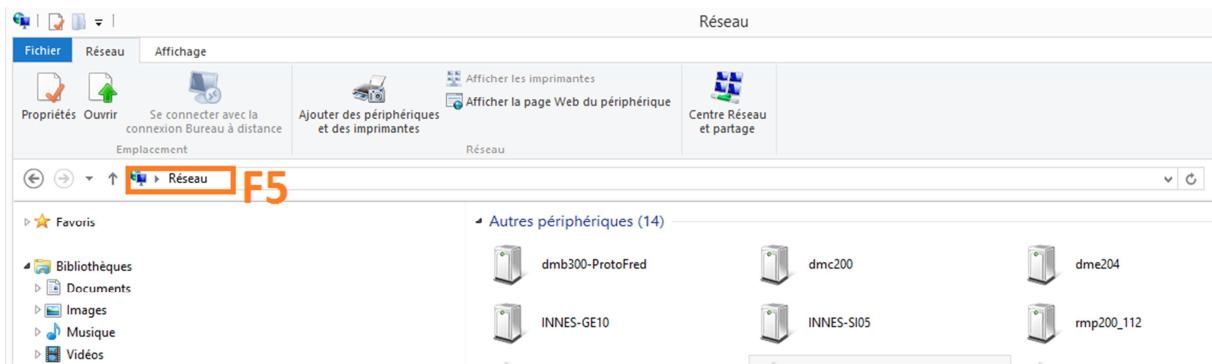
[http://\[fc00::21c:e6ff:fe02:109\]/](http://[fc00::21c:e6ff:fe02:109]/)
[http://\[fe80::21c:e6ff:fe02:109\]/](http://[fe80::21c:e6ff:fe02:109]/)
[http://\[fe80::21c:e6ff:fe02:109%13\]/](http://[fe80::21c:e6ff:fe02:109%13]/)

If it doesn't work with your browser, try another one:

- Internet Explorer
- Firefox
- Google Chrome

4.3 Media players refresh in windows explorer

- Windows explorer keeps in cache the devices IP addresses. If devices have changed address, please close and re-open the explorer.
- The media player is seen when it is operational (network interface OK).
You can consider that a media player is operational when it plays content.
- To see all the media players, refresh the list shown in “other peripherals” by pressing F5:



- The media player can be seen into explorer, but Web UI is not accessible. If so and after some seconds, try to connect to Web UI.

5 Recovery of network configuration (DHCP or static IP) thanks to auto-configuration script

5.1 Script format and content

The auto-configuration script is a JavaScript file, and can include a network recovery configuration.

The file name can be:

- ⊕ **000000000000.js** : the script is general and can be applied to any media player
- ⊕ **<MAC>.js** (ex: **001C1D55EFAB.js**): the script can only be applied to the media player with the MAC address corresponding to the file name.

See below an extract of the script dedicated to network configuration:

```
// ---- Choose static or DHCP for IPV4 : uncomment one of the 2
lines after
//enableDhcpv4(lan); // This one for DHCP
//disableDhcpv4(lan); // This one for static

// ---- Set static IP address, netmask and gateway for LAN adapter :
uncomment the line after
//setIPv4StaticAddress(lan, "192.168.0.2", "255.255.255.0",
"192.168.0.1");
```

For further explanations, please refer to the manual of this feature « **Use of auto-configuration - Vx.xx.xx.zip** », in the CD-ROM.

6 Patch by USB (static IP, test card)

Alternatively to previous solutions, you can apply a patch by USB to:

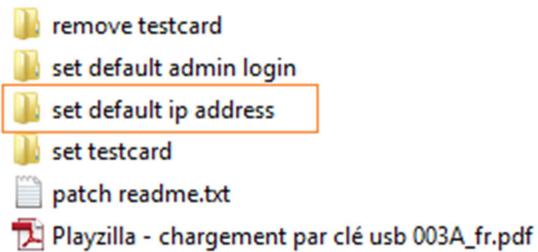
- Recover IP address to static default address:
 - ⊕ « 192.168.0.2 »
- Force to display test card, which shows:
 - ⊕ MAC address
 - ⊕ IPV4 address
 - ⊕ IPV6 address.

These patches can be found in the directory « tools » of the CD-ROM.

6.1 Static IP

The patch to force static IP address is:

- « set default ip address »

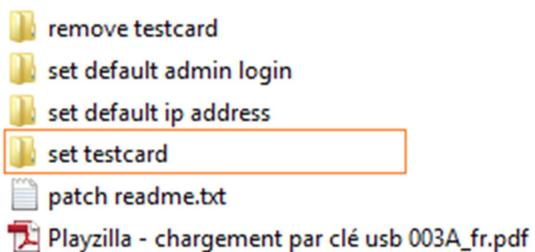


Note : there is one patch by platform

6.2 Test card

The patch to activate test card is:

- « set testcard »



Note : one patch per platform

6.3 Use of documentation

The manual « Gekkota – firmware update by USB dongle » describes how to install a patch into a media player.

7 Exhibits

7.1 IPV4

7.1.1 Command « arp -a »

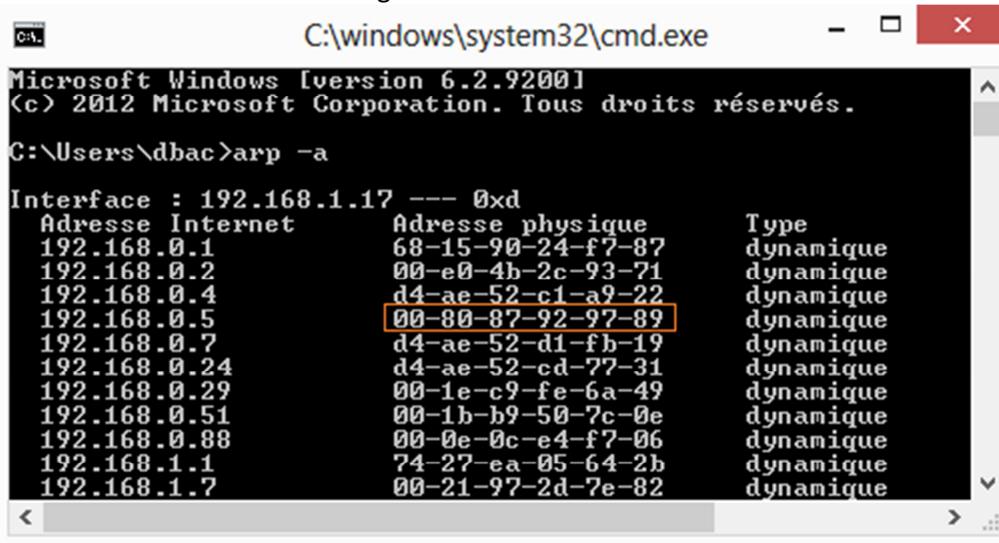
The Windows command « arp -a » can help you to list all devices connected to local network.

Launch a Windows shell, enter the command « arp -a » and check your media player MAC address is in the list. If not your media player isn't visible in your network.

Example: **arp -a**

« ... I lost my player's IP address, which MAC is 00-80-87-92-97-89... »

⇒ I can connect to its Web UI using IP address: 192.168.0.5



```
C:\windows\system32\cmd.exe
Microsoft Windows [version 6.2.9200]
(c) 2012 Microsoft Corporation. Tous droits réservés.

C:\Users\dbac>arp -a

Interface : 192.168.1.17 --- 0xd
    Adresse Internet      Adresse physique      Type
    192.168.0.1          68-15-90-24-f7-87  dynamique
    192.168.0.2          00-e0-4b-2c-93-71  dynamique
    192.168.0.4          d4-ae-52-c1-a9-22  dynamique
    192.168.0.5          00-80-87-92-97-89  dynamique
    192.168.0.7          d4-ae-52-d1-fb-19  dynamique
    192.168.0.24         d4-ae-52-cd-77-31  dynamique
    192.168.0.29         00-1e-c9-fe-6a-49  dynamique
    192.168.0.51         00-1b-b9-50-7c-0e  dynamique
    192.168.0.88         00-0e-0c-e4-f7-06  dynamique
    192.168.1.1          74-27-ea-05-64-2b  dynamique
    192.168.1.7          00-21-97-2d-7e-82  dynamique
```

7.2 IPV6

7.2.1 Ipconfig and IPV6 of the local connection

ON a Windows PC, IPV6 address of the local connection (with its format) is shown with « ipconfig » command.

In the following example, interface id is %13:

```
C:\windows\system32\cmd.exe
Carte Ethernet Ethernet :
Suffixe DNS propre à la connexion . . . . . : innes.intranet
Adresse IPv6 . . . . . : fc00::7dc3:7ff4:b01d:f1df
Adresse IPv6 temporaire . . . . . : fc00::e47a:4741:21c5:7e22
Adresse IPv6 de liaison locale . . . . . : fe80::7dc3:7ff4:b01d:f1df%13
Adresse IPv4 . . . . . : 192.168.1.1?
Masque de sous-réseau . . . . . : 255.255.128.0
Passerelle par défaut . . . . . : 192.168.0.1

Carte réseau sans fil Wi-Fi :
Statut du média . . . . . : Média déconnecté
Suffixe DNS propre à la connexion . . . . . :

Carte Ethernet VirtualBox Host-Only Network :
Suffixe DNS propre à la connexion . . . . . :
Adresse IPv6 de liaison locale . . . . . : fe80::3c58:3095:6935:e562%34
Adresse IPv4 . . . . . : 192.168.56.1
Masque de sous-réseau . . . . . : 255.255.255.0
Passerelle par défaut . . . . . :

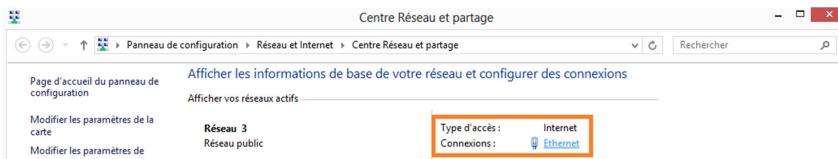
C:\Users\dbac>
```

7.2.2 Installation of IPV6 internet protocol

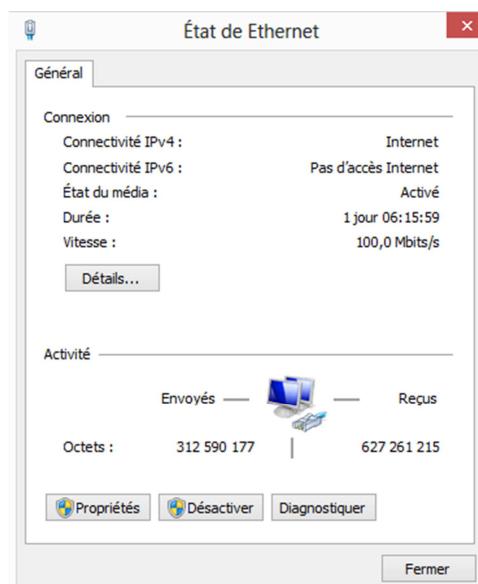
You need to activate IPV6 protocol on your PC, is not activated by default.

To check and/or activate it:

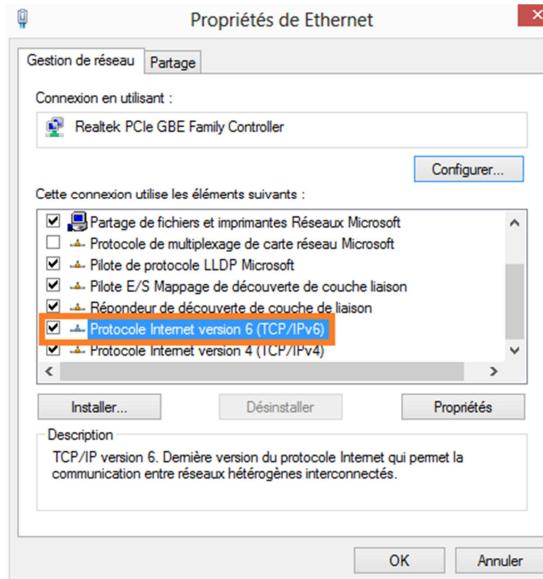
- Open the « network centre »



- Select your network interface (ex: « Ethernet »)



- « properties »



Once the box is selected, your PC can connect to:

- Media players Web UI visible on the network
- Media players Web UI not visible on the network.

7.2.3 Calculate media player IPV6 address

The IPV6 address is a unique value generated from its MAC address, according to the format « *EUI-64 modified* ».

Network configuration is no longer needed when using IPV6 no, like netmask, IPV4 address,

Note: On INNES media players, the MAC address can be found:

- On the tag on the rear of the media player
- In the Information menu / version in theWeb UI
- On the display when the test card deactivated

Step 1 : separation of MAC address on 6 values, from left to right:

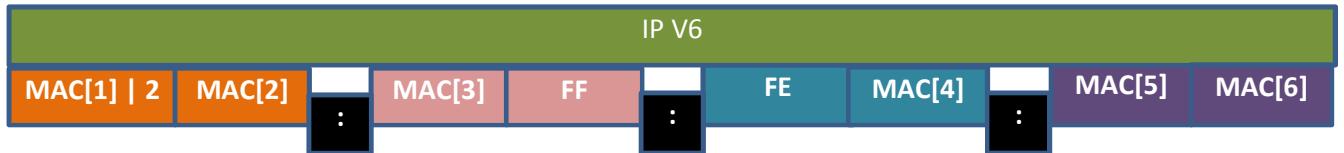
- MAC[1]
- MAC[2]
- MAC[3]
- MAC[4]
- MAC[5]
- MAC[6]

Example:

If MAC = **00-E0-4B-3B-3E-9A**

- MAC[1] = 00
- MAC[2] = E0
- MAC[3] = 4B
- MAC[4] = 3B
- MAC[5] = 3E
- MAC[6] = 9A

Step 2 : formula of IPV6 address



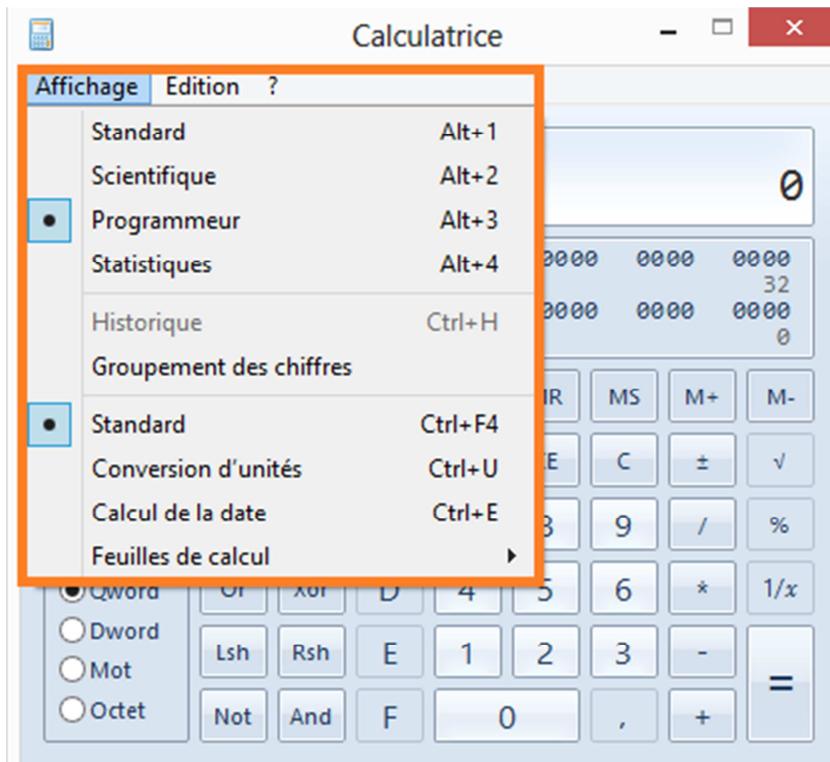
IMPORTANT:

- The first byte is the result of the operation « logical or » between the first byte of MAC address and the value « 2 »
- Each 2 bytes, IPV6 address must contain separator « : »
- Some bytes are constant.

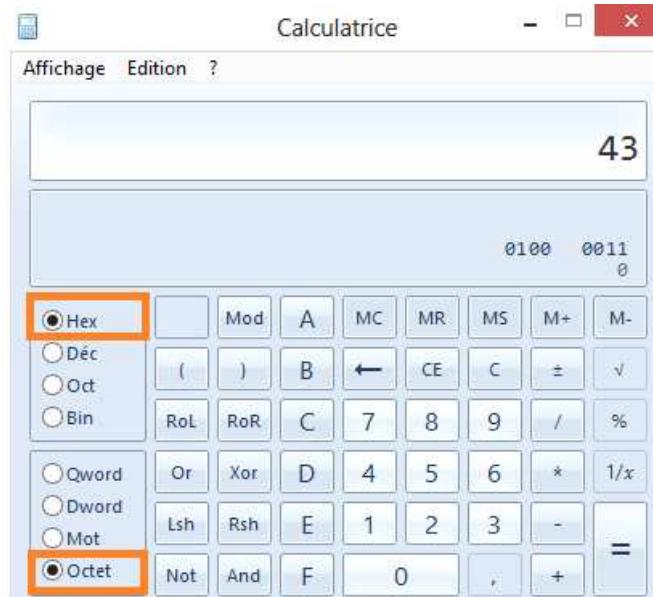
Step 3 : how to calculate the first byte: MAC[1] | 2

You can use the windows scientific calculator for « MAC[1] | 2 »

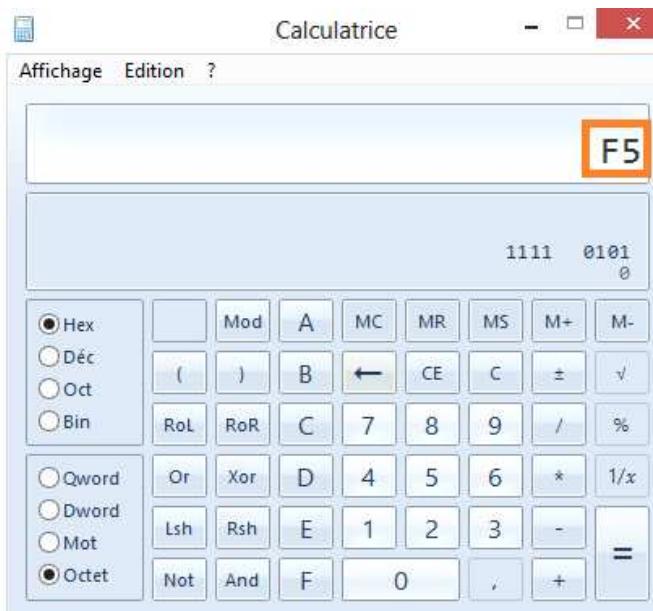
Open the Windows calculator, and select the programmer mode



Select « Hex » and « Byte »



Enter the MAC[1] value (example = « F5 »)



Press « Or »

The screenshot shows a Windows calculator window with the following details:

- Display:** Shows the result **F5**.
- Mode:** Hex (radio button selected).
- Stack:** Shows the binary value **1111 0101 0**.
- Buttons:** The **Or** button in the logic operations section is highlighted with a yellow box.
- Input:** The input field contains the binary value **1111 0101 0**.
- Output:** The output field shows the result of the operation, which is **2**.
- Mode Selection:** Radio buttons for Hex, Déc, Oct, Bin, Qword, Dword, Mot, and Octet. The Octet option is selected.
- Calculator Functions:** Standard calculator functions like Mod, A, MC, MR, MS, M+, M-, and various arithmetic operators (+, -, *, /, =, etc.) are visible.

Enter « 2 » (end of operation « | 2 »)

Press « = » to obtain the result



Example : IPV6

With the MAC address **00-E0-4B-3B-3E-9A**, the formula gives the IPV6 address of local site type:

02e0:4bff:fe3b:3e9a

Note : The « 0 » following the « : » can be suppressed for simplification

$\text{fc00::02e0:4bff:fe3b:3e9a} = \text{fc00::2e0:4bff:fe3b:3e9a}$

Example MAC address	IPV6 local site type	IPV6 local site type (after suppression of « 0 »)
00-1C-E6-02-01-09	021C:e6ff:fe02:0109	21C:e6ff:fe02:109
00-1C-E6-02-01-70	021C:e6ff:fe02:0170	21C:e6ff:fe02:170
00-1C-E6-02-00-BE	021C:e6ff:fe02:00be	21C:e6ff:fe02:be

7.2.4 Prefix /64

The prefix /64 is a 64 bits mask and allows adding a mask to send the IPV6 address to the correct destination.

- ⊕ 2000 ::/3 3 most significant bits
- ⊕ Fc00 ::/7 7 most significant bits
- ⊕ Fe80 ::/10 10 most significant bits

The diffused prefix are often

- Fc00 ::**
- Fe80 ::**

To know which is the prefix used by the network, use command « route print -6 » (refer to next paragraph).

Once defined, add the prefix in front of IPV6 address.

	IPV6 Address	IPV6 Address with prefix /64
Local site type	021C:e6ff:fe02:0109	fc00::21C:e6ff:fe02:109
interface type	021C:e6ff:fe02:0109	fe80::21C:e6ff:fe02:109

Example of a local site type address (prefix/64 « **fc00 ::** »)

MAC address	local site type IPV6
00-1C-E6-02-01-09	fc00::21C:e6ff:fe02:109
00-1C-E6-02-01-70	fc00::21C:e6ff:fe02:170
00-1C-E6-02-00-BE	fc00::21C:e6ff:fe02:be

Example of interface type address (prefix/64 « **fe80 ::** »)

MAC address	Interface type IPV6
00-1C-E6-02-01-09	fe80::021C:e6ff:fe02:109
00-1C-E6-02-01-70	fe80::021C:e6ff:fe02:170
00-1C-E6-02-00-BE	fe80::021C:e6ff:fe02:be

Example of routable interface type address (prefix/64 « **fe00 ::** » + « %id interface) (if several network interfaces)

MAC address	Routable interface type IPV6
00-1C-E6-02-01-09	fe80::21C:e6ff:fe02:109%13
00-1C-E6-02-01-70	fe80::21C:e6ff:fe02:170%13
00-1C-E6-02-00-BE	fe80::21C:e6ff:fe02:be%13

7.2.5 Find out which is the prefix in the network

7.2.5.1 Command « route print -6 »

The shell command « route print -6 » enables to detect the number of network interfaces.

```
C:\windows\system32\cmd.exe
C:\Users\dbac>route print -6

IPv6 Table de routage
=====
Itinéraires actifs :
If Metric Network Destination      Gateway
 1   306 ::1/128                  On-link
13   276 fc00::/64                On-link
13   276 fc00::7dc3:7ff4:b01d:f1df/128
                                On-link
13   276 fc00::948f:93e7:ed2:8614/128
                                On-link
34   276 fe80::/64                On-link
13   276 fe80::/64                On-link
34   276 fe80::3c58:3095:6935:e562/128
                                On-link
13   276 fe80::7dc3:7ff4:b01d:f1df/128
                                On-link
 1   306 ff00::/8                 On-link
34   276 ff00::/8                 On-link
13   276 ff00::/8                 On-link
=====
Itinéraires persistants :
Aucun

C:\Users\dbac>route print -6
```

The example above shows that it is possible to use:

- the prefix /64 fc00, because present in the request with %13 interface
- the prefix /64 fe00, because present in the request
 - with interface 13 (or %13)
 - with interface 34 (or %34)
- The interface id is automatically resolved with prefix/64 fc00, no routing problem.
- To connect to the media player with the prefix/64 fe80, a routing problem has to be solved.
 - **34 276 fe80 ::/64 On-link**
 - **13 276 fe80 ::/64 On-link**

Connect to the media player with IPV6,

- ⇒ you need to add the suffix « **network interface id** » (can be found with “ipconfig” command) to the prefix /64 fe80
- ⇒ On the example above, the network interface used for fe80 is %13, the IPV6 connection address to media player is then as follows:

[http://\[fe80::21c:e6ff:fe02:109%12\]/.admin](http://[fe80::21c:e6ff:fe02:109%12]/.admin)