

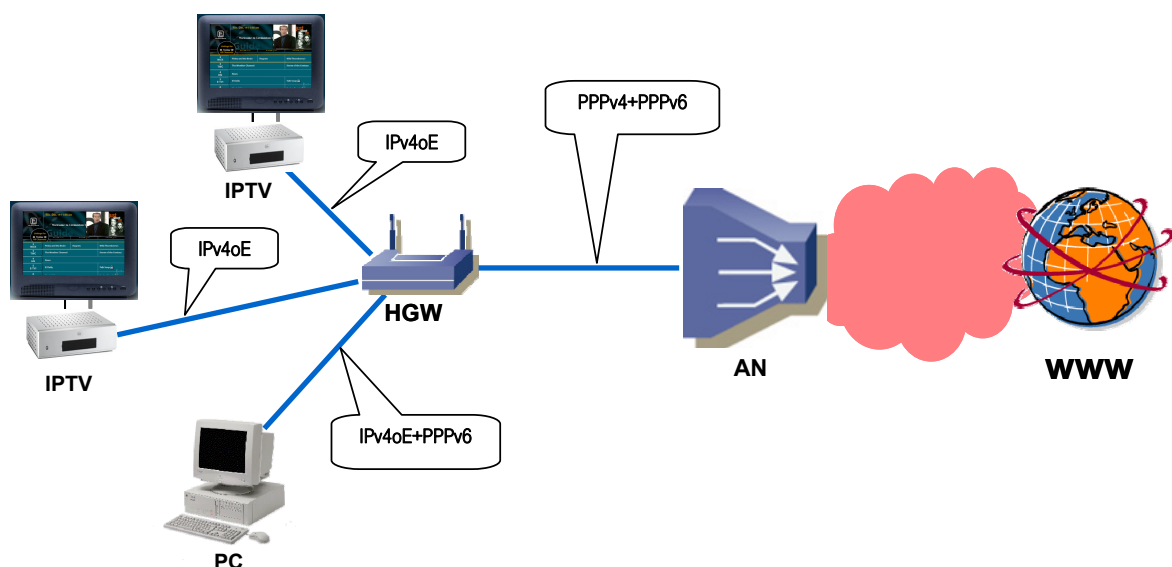
Operating system settings for the computer starting the IPv6 network connection, in case of using a home networking device (e.g. Magyar Telekom owned HGW or own DSL router)

The IPv6 connection in each case is placed by initiating another IPv6 based PPPoE session. The login name initiating the IPv6 connection is derived from the login for the traditional internet (IPv4) access, by adding @ipv6.t-online.hu instead of @t-online.hu suffix. The related password remains unchanged, identical to the one used to log on to the traditional internet service.

For example, if your username for traditional internet access is username@t-online.hu, then upon setting up your new IPv6 connection, your login will be username@ipv6.t-online.hu. The password does not change, but since you have to enter this again when making IPv6 settings, you have to remember your own password in order to make such settings.

To access the IPv6 test service, within the operating system you are using you have to set up a new network connection which would start the new IPv6 based PPPoE connection.

The following figure describes how the devices and how they are connected to each other:

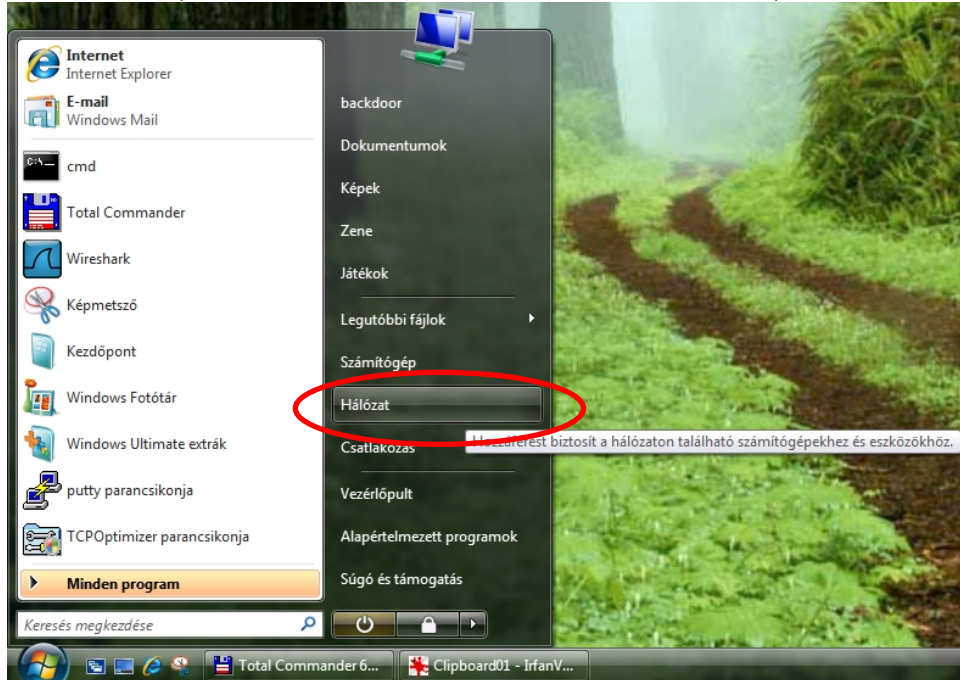


- The Microsoft Windows XP operating system currently cannot be used to establish an IPv6 PPPoE connection during the pilot.
- In case of Microsoft Windows Vista operating system you do not need to install a separate application, the configuration steps are described in the “1. Microsoft Windows Vista” chapter.
- In case of Microsoft Windows 7 operating system the steps to make the appropriate settings are identical to those described for Windows Vista.
- The Unix/Linux systems also support network connections. In case of Ubuntu Linux please follow the settings described in the “2. Ubuntu Linux” chapter. In “3. Other Unix/Linux distributions” chapter general information can be found, based on which the configuration steps required for various distributions can be identified.

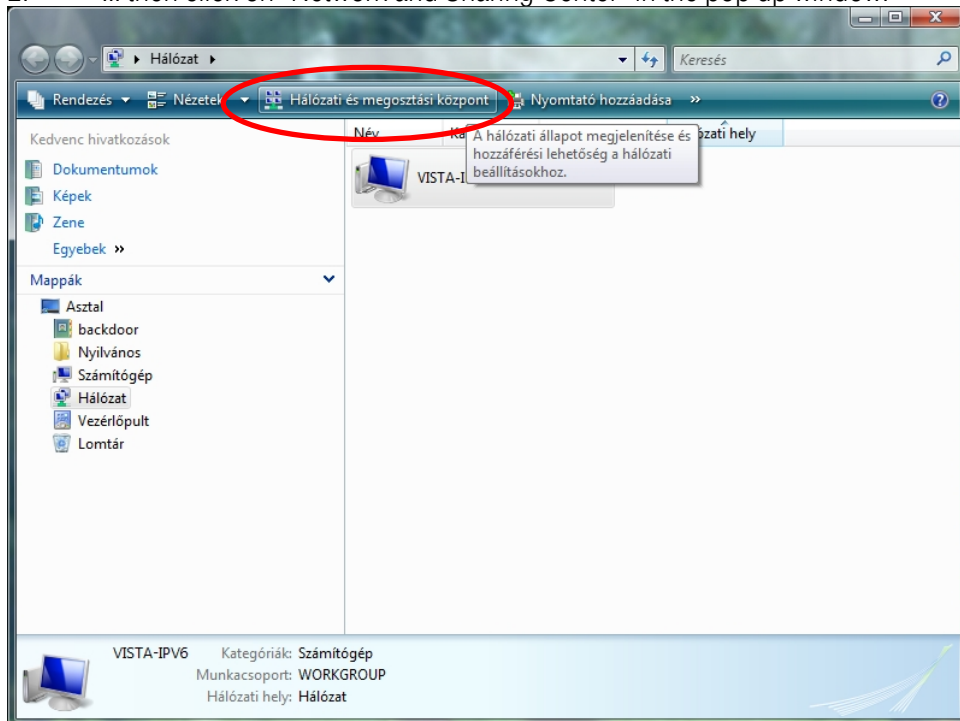
1. Microsoft Windows Vista

In case of Microsoft Windows Vista operating system, you have to go through the following steps to set up an IPv6 PPPoE connection:

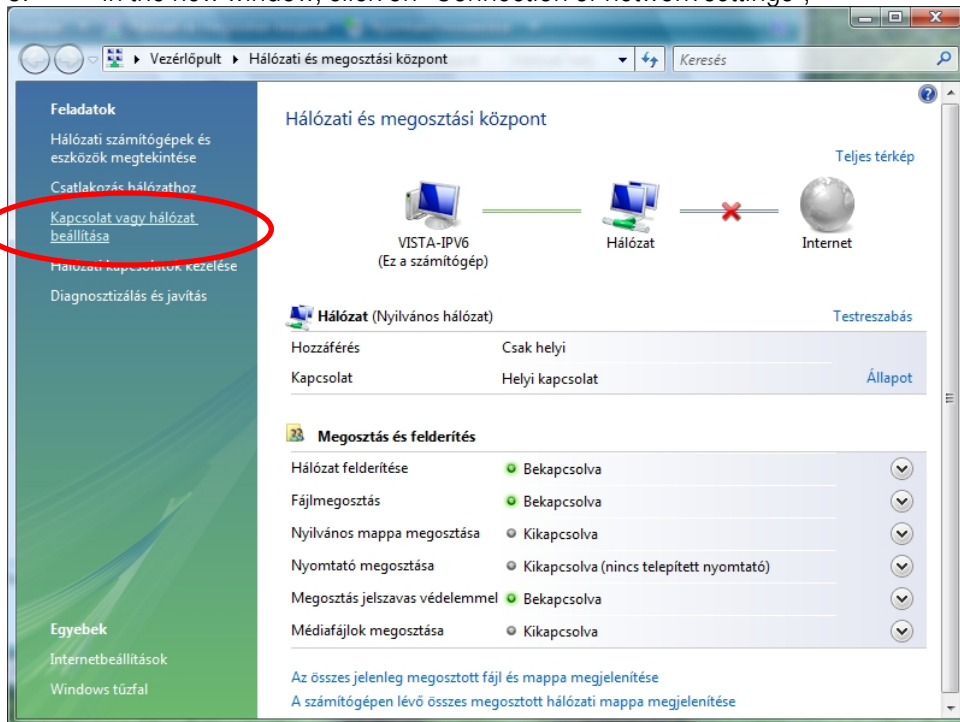
1. Please, click on the “Network” icon within the “Start menu”,



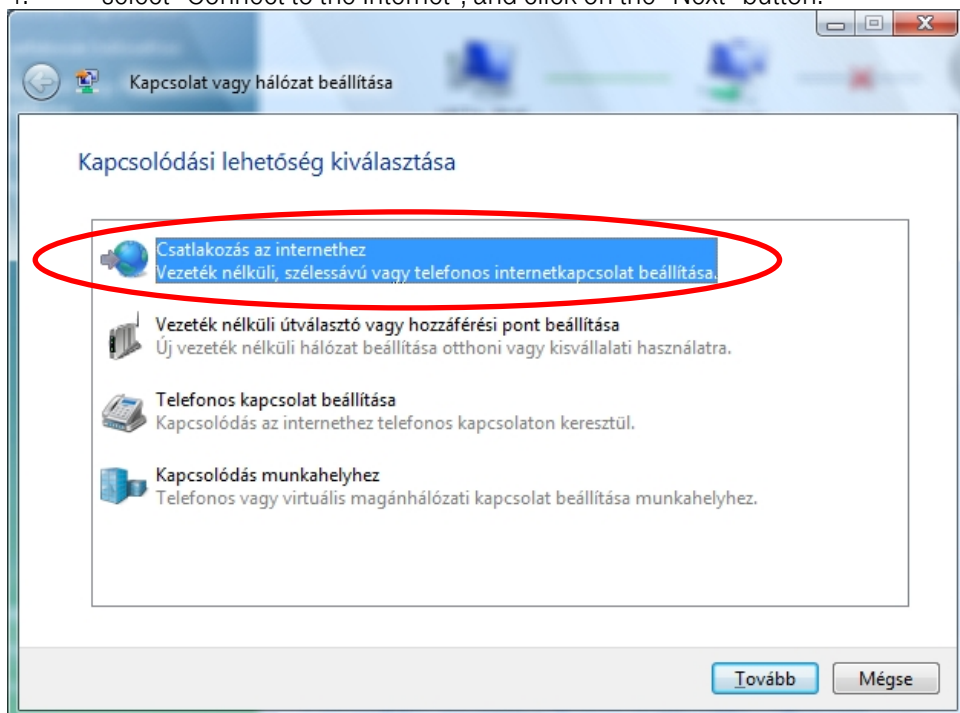
2. ... then click on “Network and Sharing Center” in the pop-up window.



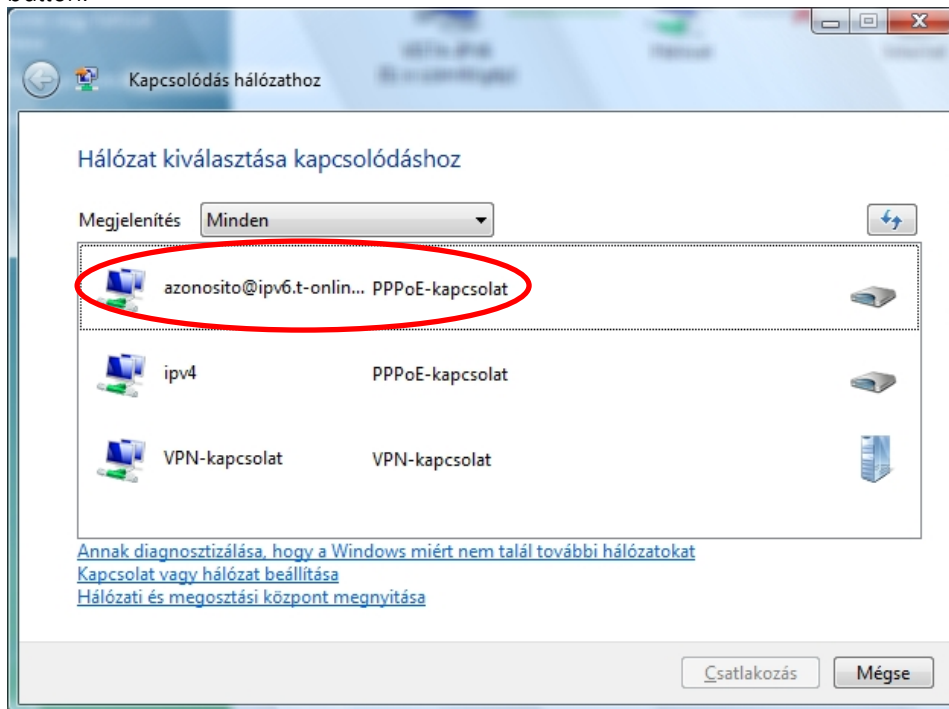
3. In the new window, click on “Connection or network settings”,



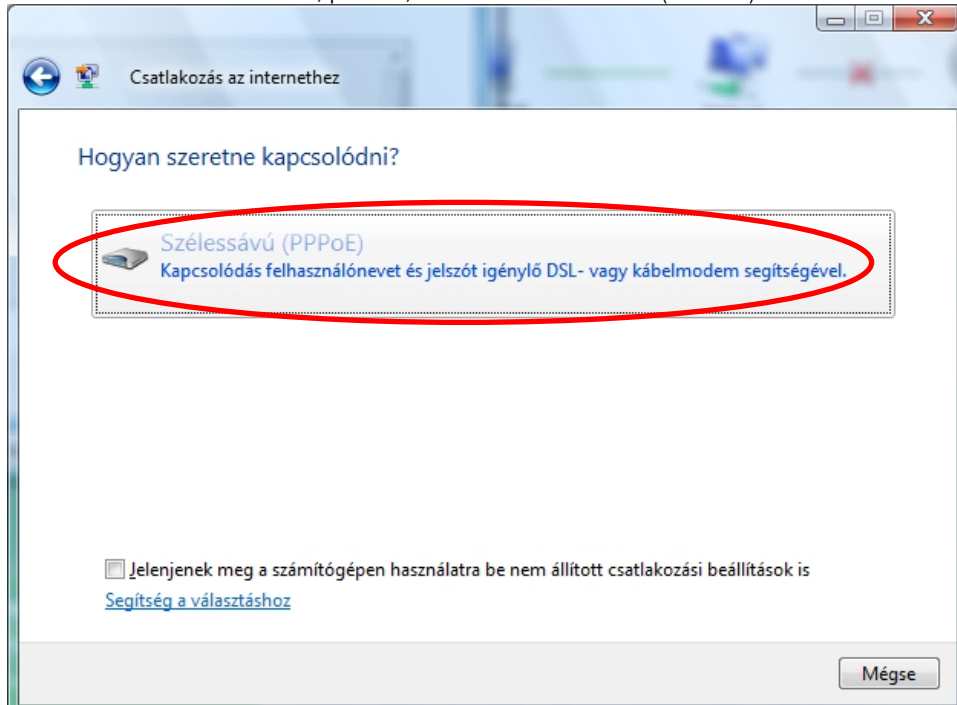
4. select “Connect to the Internet”, and click on the “Next” button.



4.b If your computer already has a connection established earlier, the following extra window should appear. Please, select the “No, I would like to set up a new connection” item, then click on the “Next” button.

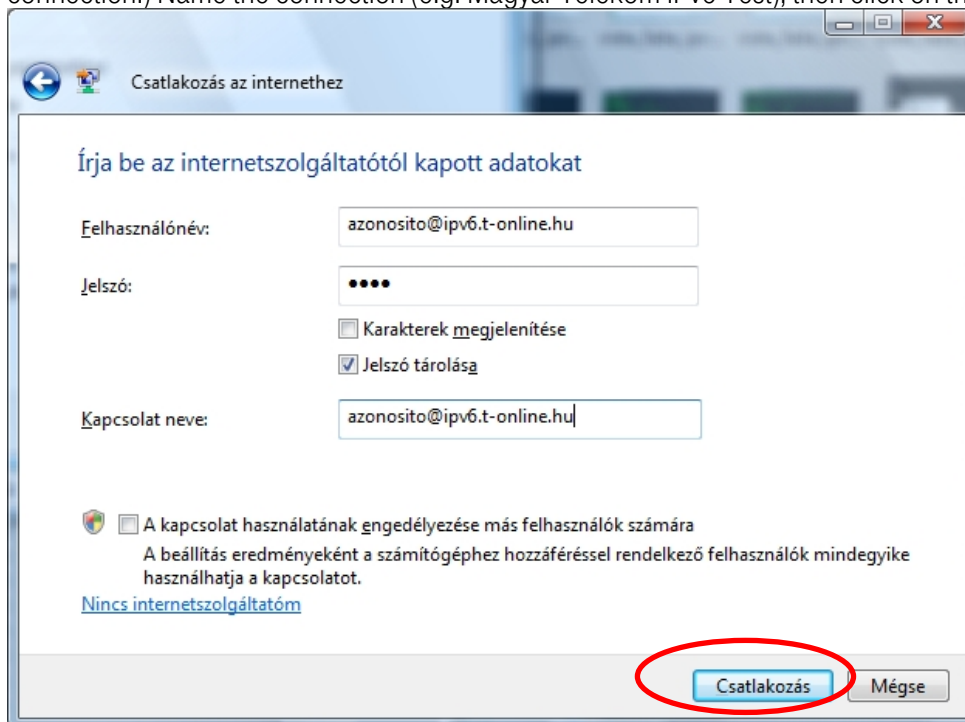


5. In the next window, please, click on “Broadband (PPPoE)”.

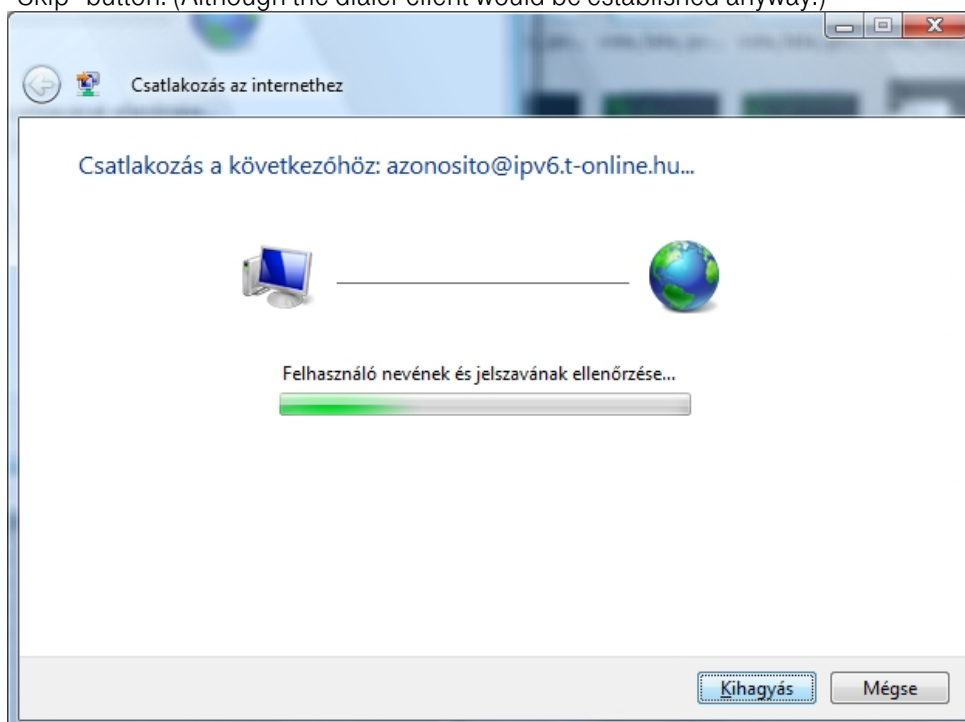


6. In the pop-up window, type the username given by your provider (username@ipv6.t-online.hu) and your password in the appropriate lines. If you would like to see/check the password typed in then tick the “Show characters” box. This screen can also remember your password, so that next time you do not

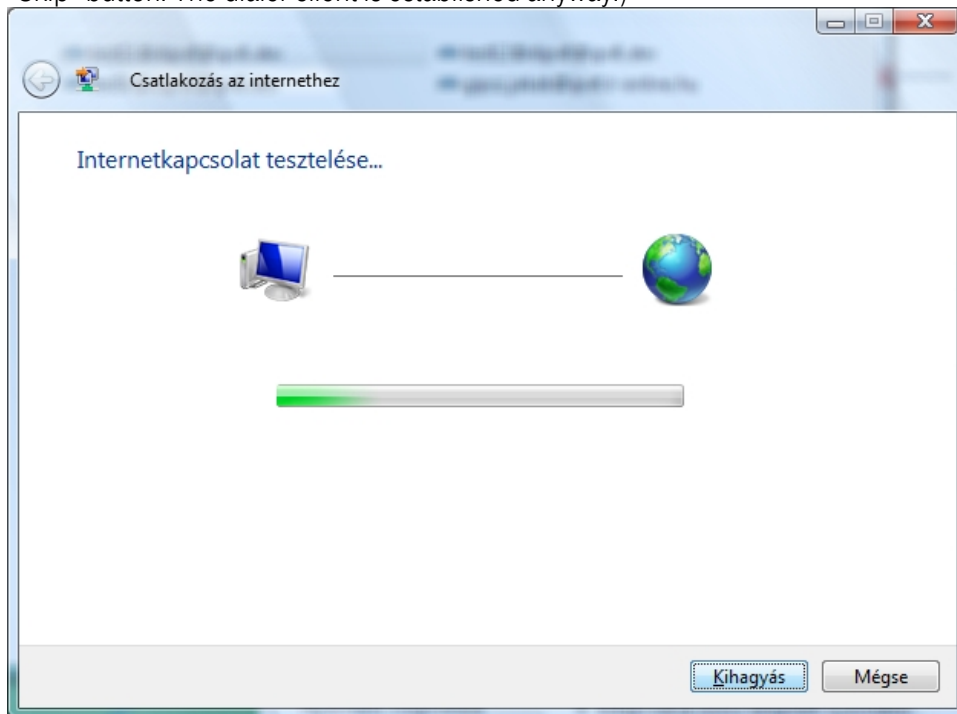
have to type it in again. (Note: the system can remember the password, at any time you start the connection.) Name the connection (e.g. Magyar Telekom IPv6 Test), then click on the “Connect” button.



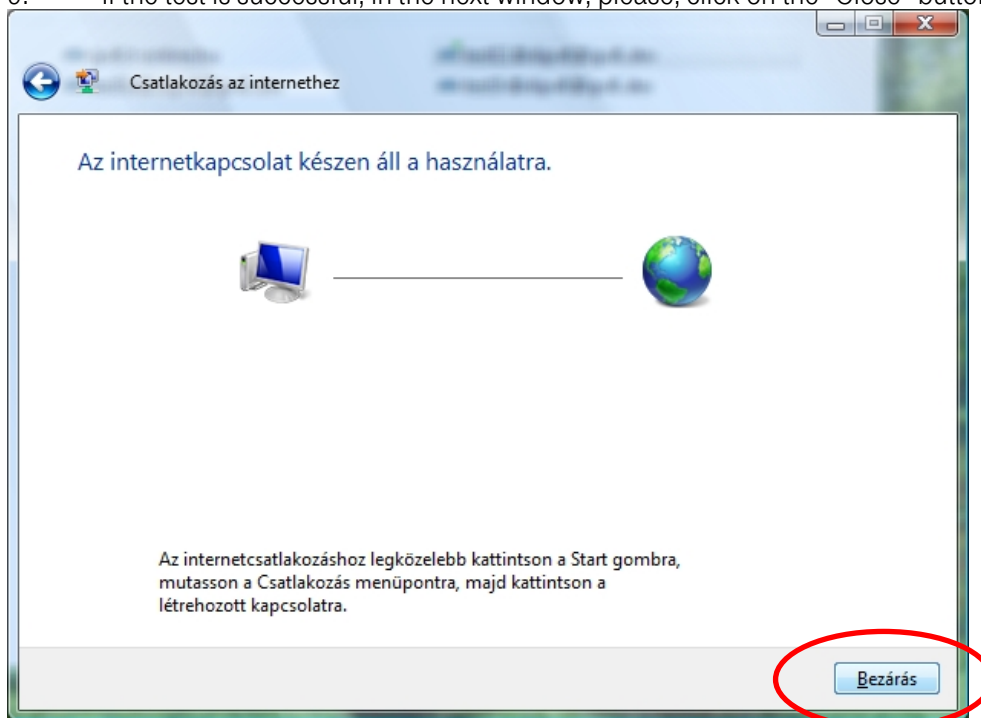
7. After this the computer attempts to connect to the server, using the specified data, as described in the following figure. Note: to check the entered data, please, run the check function, do not click on the “Skip” button. (Although the dialer client would be established anyway.)



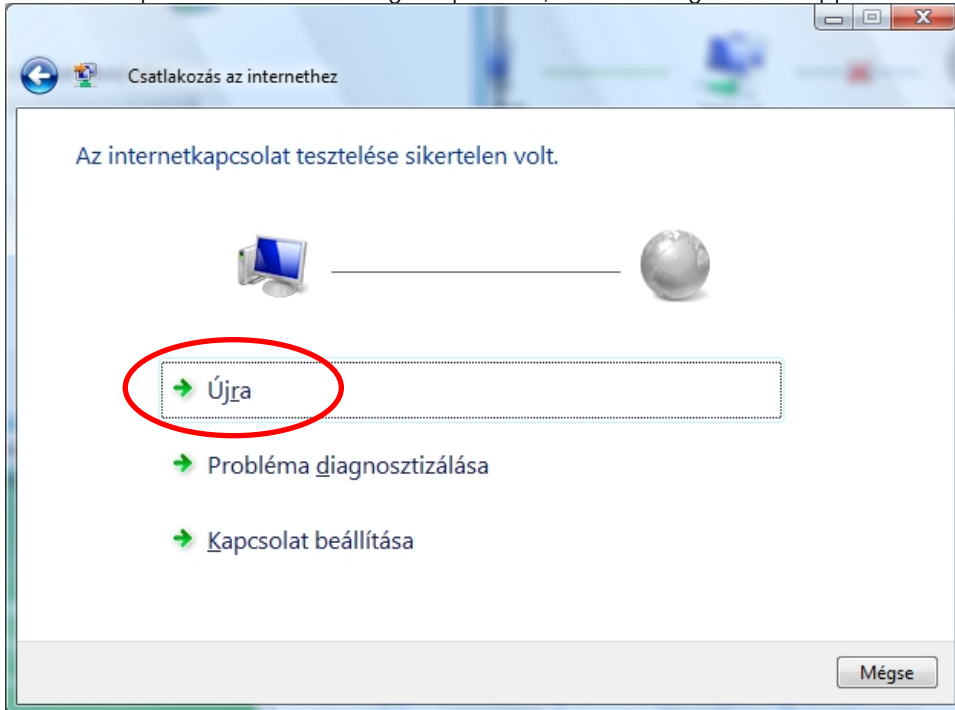
8. If user authentication is successful, the next step - testing the internet connection - is automatically started by the system. (Note: if you do not wish to wait until the test is over, click on the "Skip" button. The dialer client is established anyway.)



9. If the test is successful, in the next window, please, click on the "Close" button.



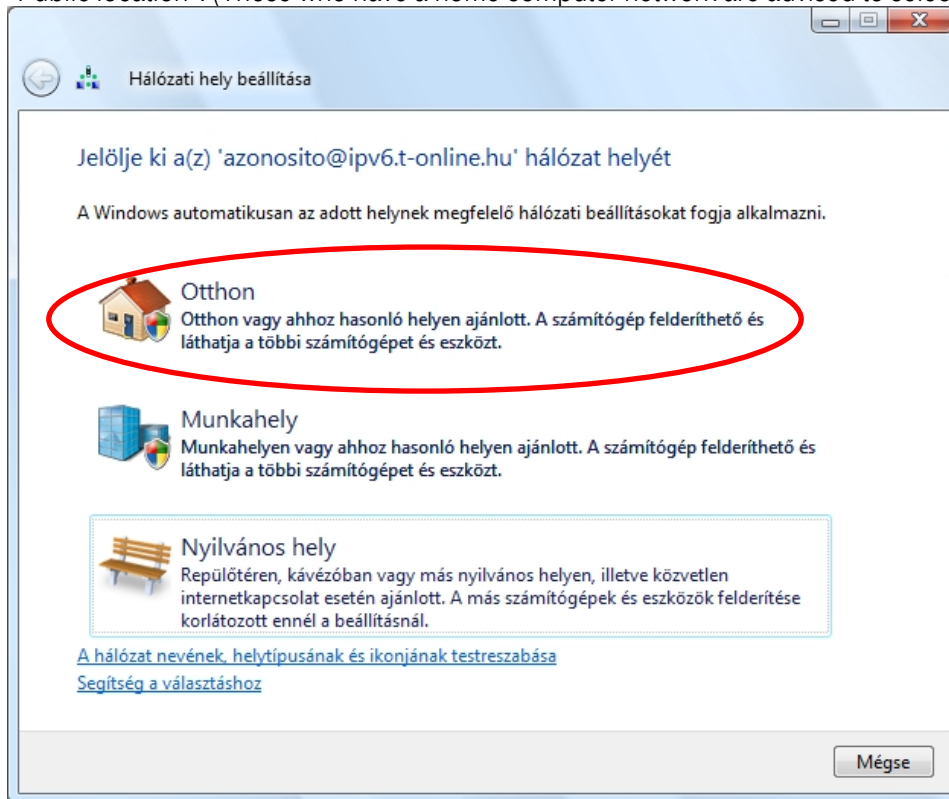
9.b If a problem occurs during the process, the following window appears:



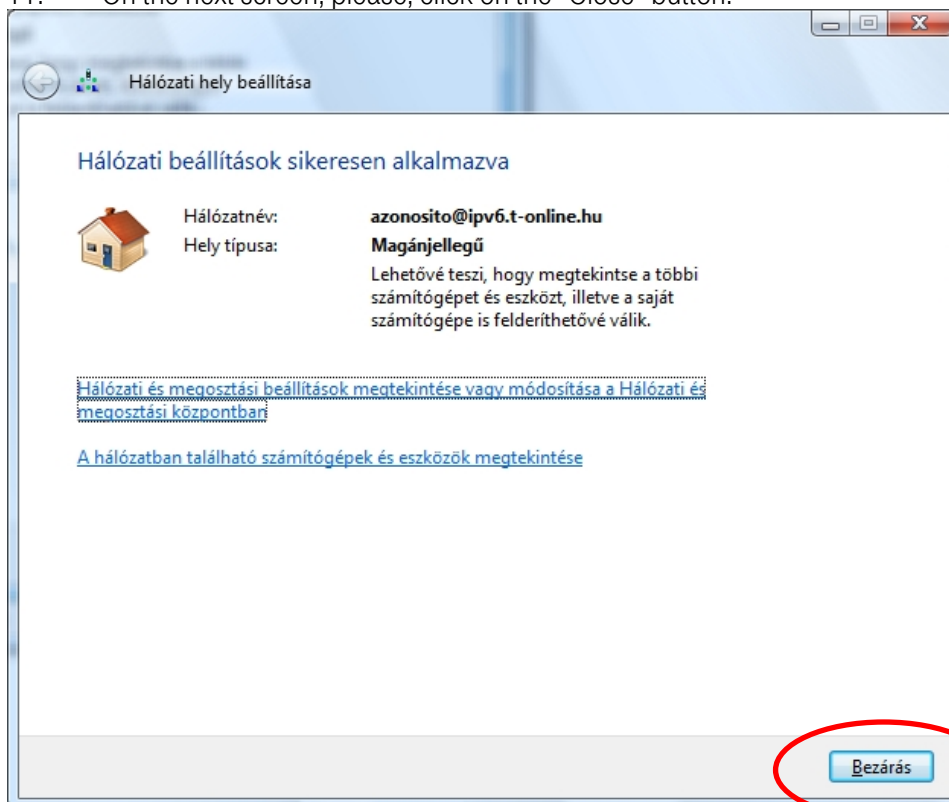
In this case, you have multiple options:

- By clicking on the "Try again" button, you can run the setting steps again starting from point 4,
- By clicking the "Troubleshooting" button, you can identify, which step failed,
- Or by clicking on the "Connection settings" button, you ignore the failure and can create the dialer.

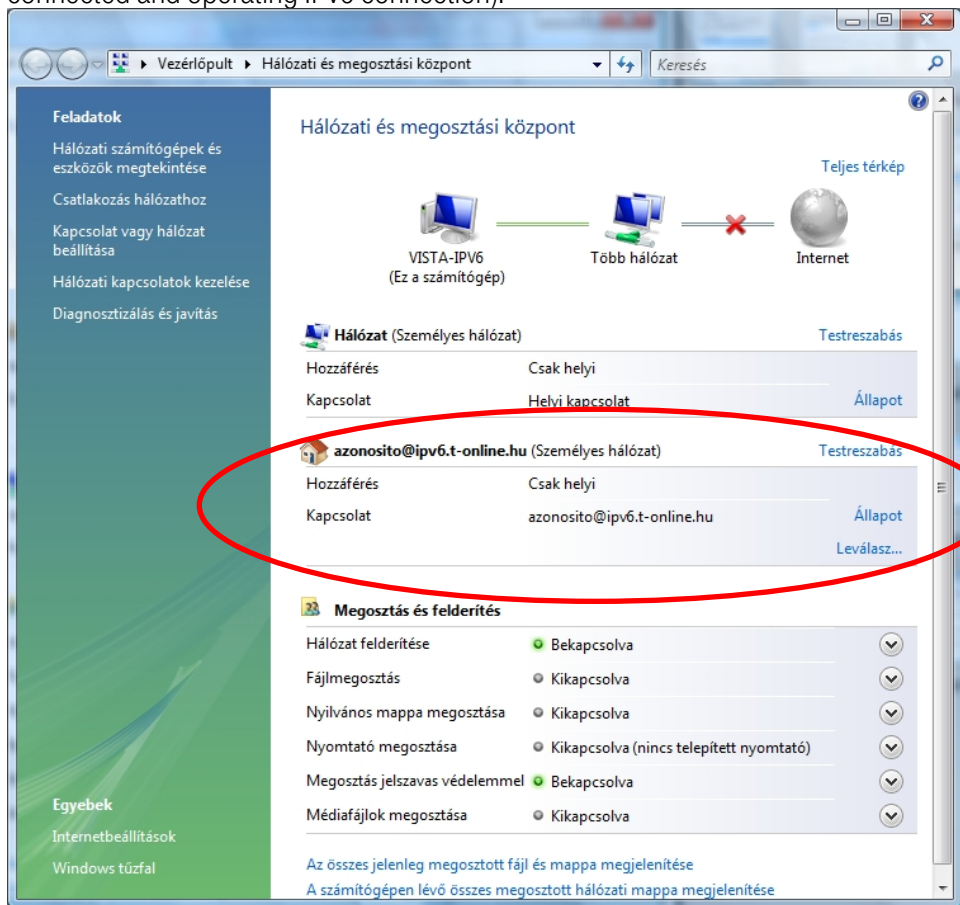
10. If step 9 is successful (or you selected 9.b “Connection settings”), on the next screen the system offers to set up the client, in order to assign the dialer to a predefined network group. If you are uncertain in making the selection or if you have only one computer in your home, you are definitely advised to select “Public location”! (Those who have a home computer network are advised to select “Home”.)



11. On the next screen, please, click on the “Close” button.

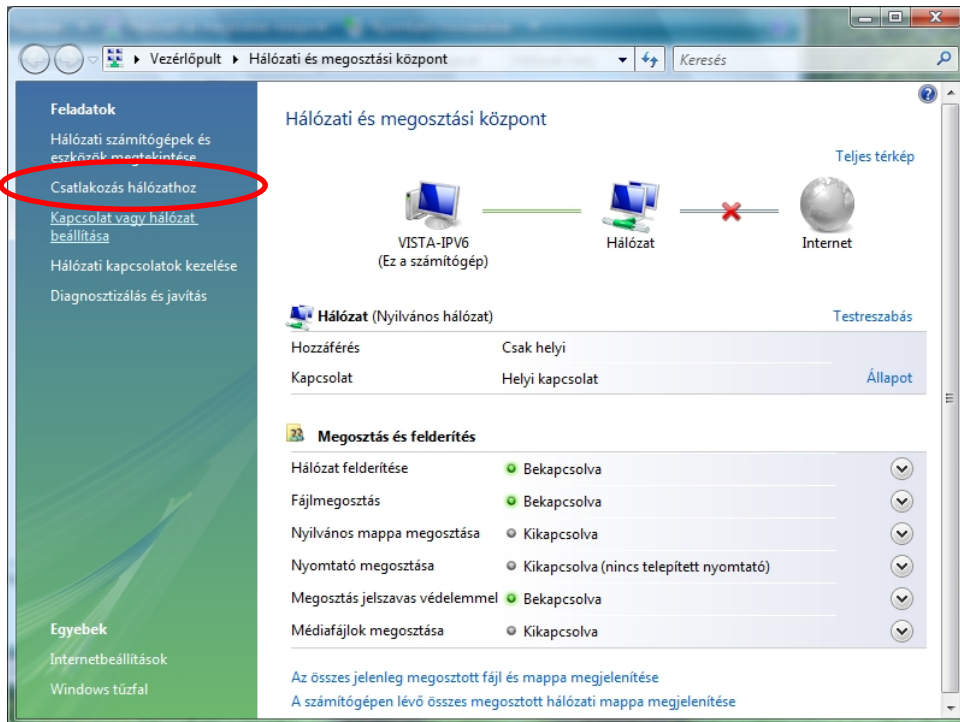


12. If the steps so far have been successfully completed, the following window appears (circled is the connected and operating IPv6 connection):

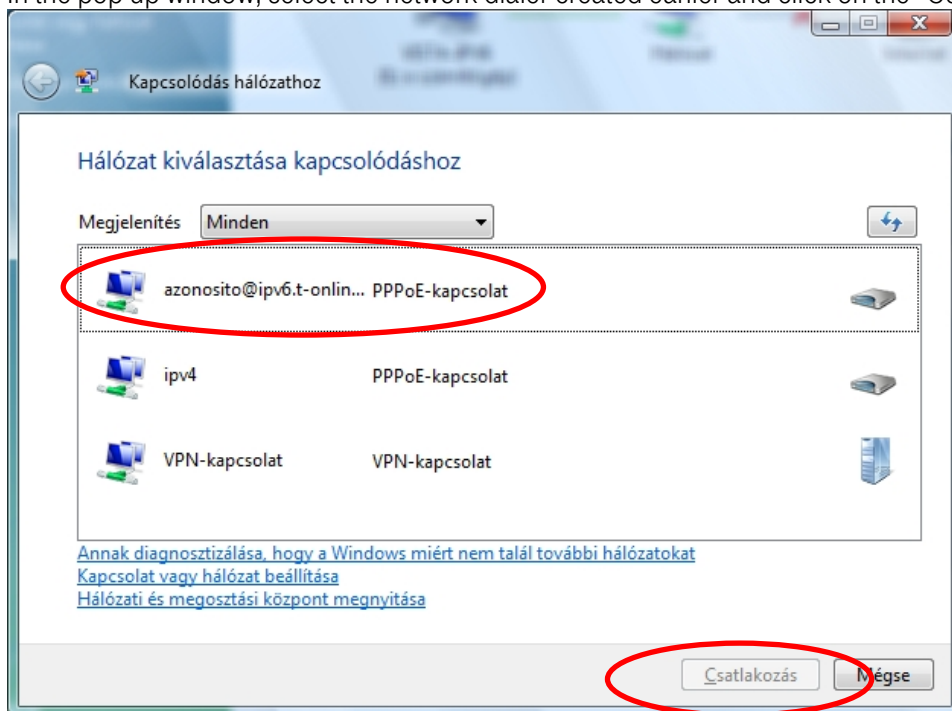


This way the dialer is created, which you will have to relaunch upon each computer startup or after breaking the network connection, to connect to the IPv6 network.

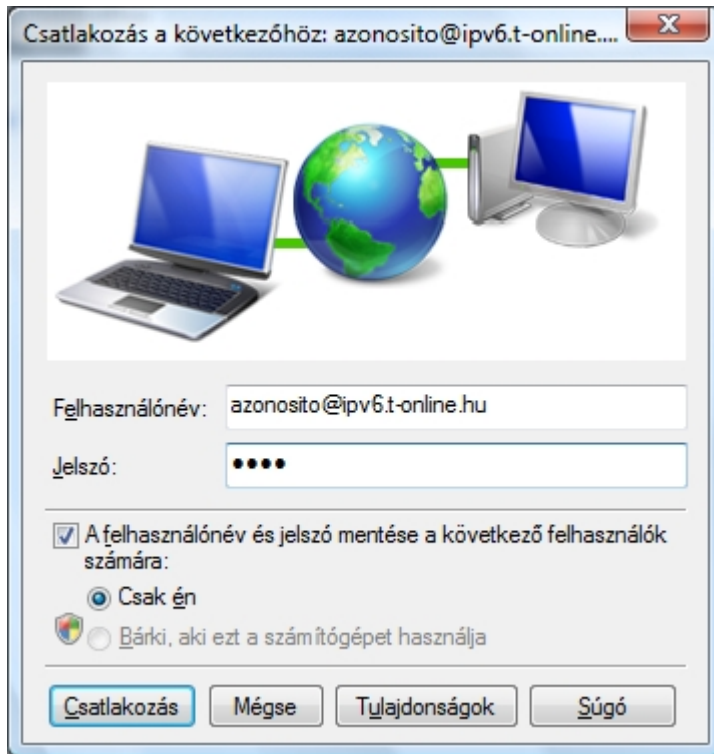
The steps to reconnect are identical to the first steps to set up (1-2.), except in step 3 it is enough to click on "Connect to network". (To simplify the process, you can also create a startup icon on your Desktop, which immediately launches the dialer window, when clicked.)



In the pop-up window, select the network dialer created earlier and click on the “Connect” button.



The dialer window appears, where you can start the connection by clicking on the “Connect” button.



You can disconnect from the network on the screen described before (Control Panel/Network and sharing center– see step 12.) or using the connection icon appearing on the “Notification area” of the “Tray”.

Now your computer is ready for IPv6 based browsing.

You can check the established IPv6 internet connection on the following webpage:
http://www.ipv6forum.com/test_ipv6.php

To double check, please type *ipconfig /all* in the command line window, as a result of which, the line(s) circled on the screen below should appear as part of the PPP adapter information (naturally, your “IPv6–address” will be somewhat different):

```

C:\Windows\system32>ipconfig /all

Windows IP konfiguráció

Állomásnév. . . . . : PCA
Elsődleges DNS-utótag . . . . . : 
Csomóponttípus. . . . . : Hibrid
IP-útválasztás engedélyezve . . . . . : Nem
WINS-proxy engedélyezve . . . . . : Nem

PPP-adapter azonosito@ipv6.t-online.hu:

Kapcsolatspecifikus DNS-utótag. . . . . : 
Leírás. . . . . : azonosito@ipv6.t-online.hu
Fizikai cím . . . . . : 
DHCP engedélyezve . . . . . : Nem
Automatikus konfiguráció engedélyezve . . . . . : Igen
IPv6-cím. . . . . : 2001:4c48:100:164:4fa:c9f9:d80f:6b85<Kívánt>
Kapcsolati szintű IPv6-cím . . . . . : fe80::4fa:c9f9:d80f:6b85%18<Kívánt>
Alapértelmezett átjáró . . . . . : fe80::zwe-aorr-reb7:d81b%18
DHCPv6 IAID . . . . . : 311360544
DHCPv6-ügyfél DUID azonosítója . . . . . : 00-01-00-01-11-FA-2F-54-00-12-3F-8C-77-66
DNS-kiszolgálók . . . . . : 2001:4c48:2::1
NetBIOS a TCP/IP felett. . . . . : Letiltva

Ethernet-adapter Helyi kapcsolat:

Kapcsolatspecifikus DNS-utótag. . . . . : 
Leírás. . . . . : Broadcom NetXtreme 57xx Gigabit vezérlő
Fizikai cím . . . . . : 00-12-3F-8C-77-66
DHCP engedélyezve . . . . . : Igen
Automatikus konfiguráció engedélyezve . . . . . : Igen
Kapcsolati szintű IPv6-cím . . . . . : fe80::48ad:56b1:1ae9:b751%10<Kívánt>
IPv4-cím. . . . . : 192.168.1.64<Kívánt>
Alhálózati maszk . . . . . : 255.255.255.0
Bérleti jog kezdete . . . . . : 2009. október 22. 10:36:22
Bérleti jog vége . . . . . : 2009. október 22. 11:36:22
Alapértelmezett átjáró . . . . . : 192.168.1.254
DHCPv6 IAID . . . . . : 251662911
DHCPv6-ügyfél DUID azonosítója . . . . . : 00-01-00-01-11-FA-2F-54-00-12-3F-8C-77-66
DNS-kiszolgálók . . . . . : 192.168.1.254
NetBIOS a TCP/IP felett. . . . . : Engedélyezve

Protokollbűjtő adapter Helyi kapcsolat*:

Adathordozó állapota. . . . . : Adathordozó leválasztva
Kapcsolatspecifikus DNS-utótag. . . . . : 
Leírás. . . . . : isatap.{65DFA2E1-F95E-4233-AB7C-3C24536CED4D}
Fizikai cím . . . . . : 00-00-00-00-00-00-E0
DHCP engedélyezve . . . . . : Nem
Automatikus konfiguráció engedélyezve . . . . . : Igen

Protokollbűjtő adapter Helyi kapcsolat* 6:

Kapcsolatspecifikus DNS-utótag. . . . . : 
Leírás. . . . . : Teredo Tunneling Pseudo-Interface
Fizikai cím . . . . . : 02-00-54-55-4E-01
DHCP engedélyezve . . . . . : Nem
Automatikus konfiguráció engedélyezve . . . . . : Igen
IPv6-cím. . . . . : 2001:0:d5c7:a2d6:308b:1bbc:3f57:febf<Kívánt>
Kapcsolati szintű IPv6-cím . . . . . : fe80::308b:1bbc:3f57:febf%11<Kívánt>
Alapértelmezett átjáró . . . . . : 
NetBIOS a TCP/IP felett. . . . . : Letiltva

Protokollbűjtő adapter Helyi kapcsolat* 7:

Adathordozó állapota. . . . . : Adathordozó leválasztva
Kapcsolatspecifikus DNS-utótag. . . . . : 
Leírás. . . . . : 6T04 Adapter
Fizikai cím . . . . . : 00-00-00-00-00-00-E0
DHCP engedélyezve . . . . . : Nem
Automatikus konfiguráció engedélyezve . . . . . : Igen

C:\Windows\system32>

```

2. Ubuntu Linux

In case of Ubuntu Linux operating system, please go through the following steps in order to set up the IPv6 PPPoE dialer.

1. For the dialer to be working properly, certain lines of the `/etc/ppp/options` file should be modified by deleting or inserting the comment sign (`#`) at the appropriate positions.

Please, open a Terminal window (Menu>Applications>Accessories>Terminal) and type in the following command:

```
ubuntu@ubuntu: ~$ sudo gedit /etc/ppp/options
```

Now the editor opens the file in a new window. The lines to be modified are as follows: (IMPORTANT: this screen only shows the modified and not the unchanged lines! Those must NOT be deleted!):

```
# /etc/ppp/options

ipv6 ,

# Disables the default behaviour when no local IP address is specified,
# which is to determine (if possible) the local IP address from the
# hostname. with this option, the peer will have to supply the local IP
# address during IPCP negotiation (unless it specified explicitly on the
# command line or in an options file).
noipdefault

# Enables the "passive" option in the LCP. with this option, pppd will
# attempt to initiate a connection; if no reply is received from the
# peer, pppd will then just wait passively for a valid LCP packet from
# the peer (instead of exiting, as it does without this option).
#passive

# with this option, pppd will not transmit LCP packets to initiate a
# connection until a valid LCP packet is received from the peer (as for
# the "passive" option with old versions of pppd).
#silent

# Don't request or allow negotiation of any options for LCP and IPCP
# (use default values).
#-all

# Disable Address/Control compression negotiation (use default, i.e.
# address/control field disabled).
#-ac

# Disable IP address negotiation (with this option, the remote IP
# address must be specified with an option on the command line or in
# an options file).
-ip

# Disable IPCP negotiation and IP communication. This option should
# only be required if the peer is buggy and gets confused by requests
# from pppd for IPCP negotiation.
noip

# If this option is given, pppd will send an LCP echo-request frame to the
# peer every n seconds. Normally the peer should respond to the echo-request
# by sending an echo-reply. This option can be used with the
# lcp-echo-failure option to detect that the peer is no longer connected.
lcp-echo-interval 30

# If this option is given, pppd will presume the peer to be dead if n
# LCP echo-requests are sent without receiving a valid LCP echo-reply.
# If this happens, pppd will terminate the connection. Use of this
# option requires a non-zero value for the lcp-echo-interval parameter.
# This option can be used to enable pppd to terminate after the physical
# connection has been broken (e.g., the modem has hung up) in
# situations where no hardware modem control lines are available.
```

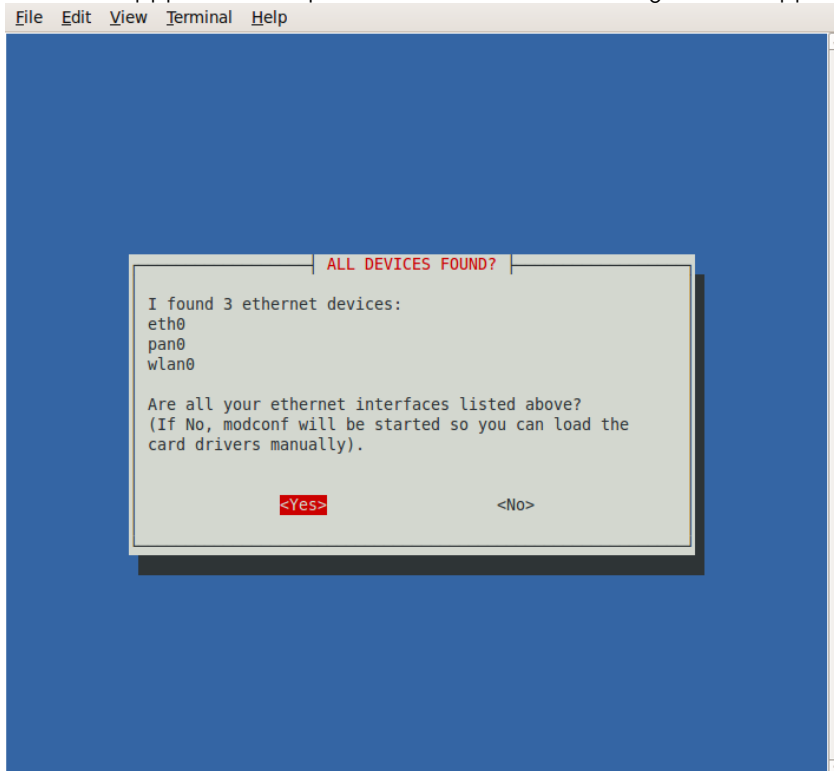
tcp-echo-failure 4

After making the modifications, please save the file under the same name and close gedit program.

2. After saving, returning to the Terminal window, please type in the following command: „*sudo pppoeconf*”

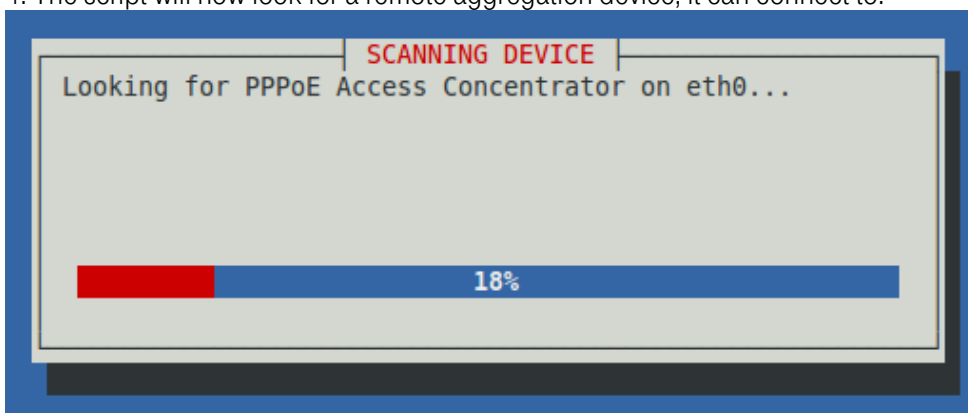
ubuntu@ubuntu: ~\$ sudo pppoeconf

3. Now the pppoeconf script will launch and the following window appears:

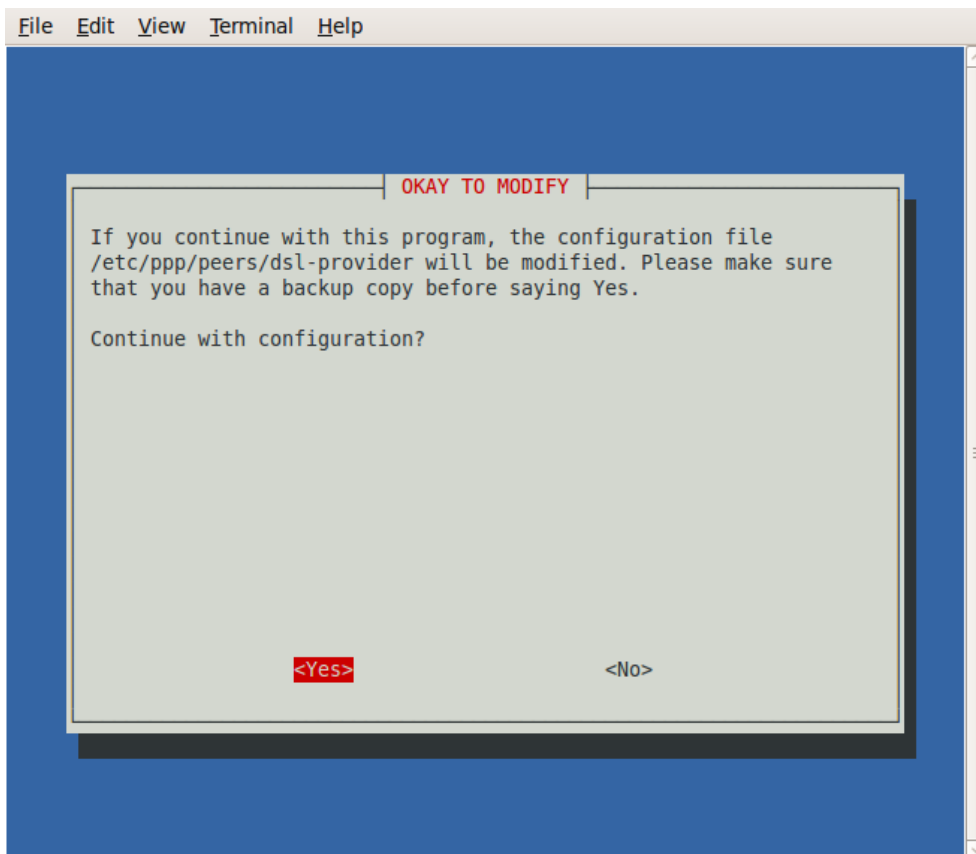


If the required device is on the list (in case of fixed connection this would be one of the lines starting with „eth”), please, select „<Yes>” and press Enter.

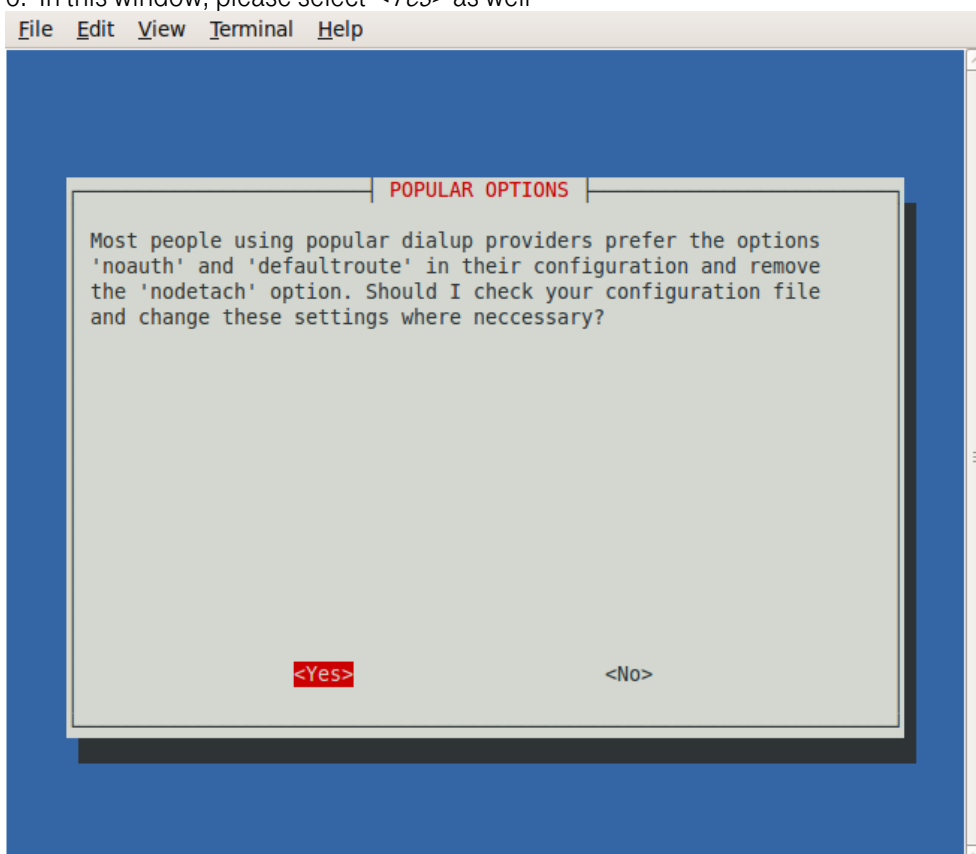
4. The script will now look for a remote aggregation device, it can connect to:



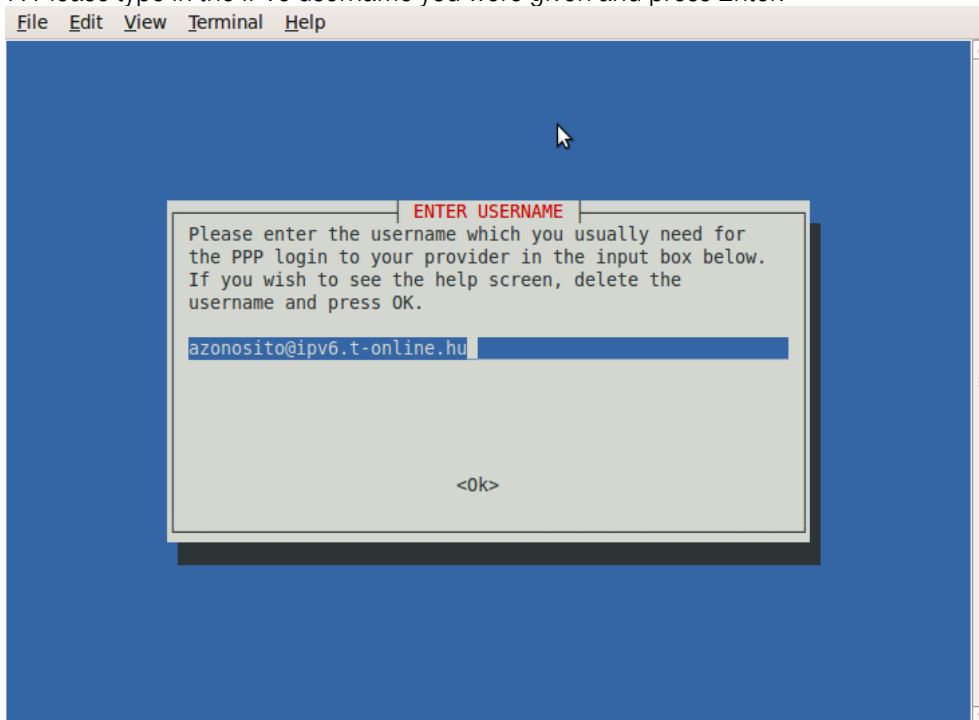
5. After finding the device, the script offers setting options. Please, select *<Yes>* again.



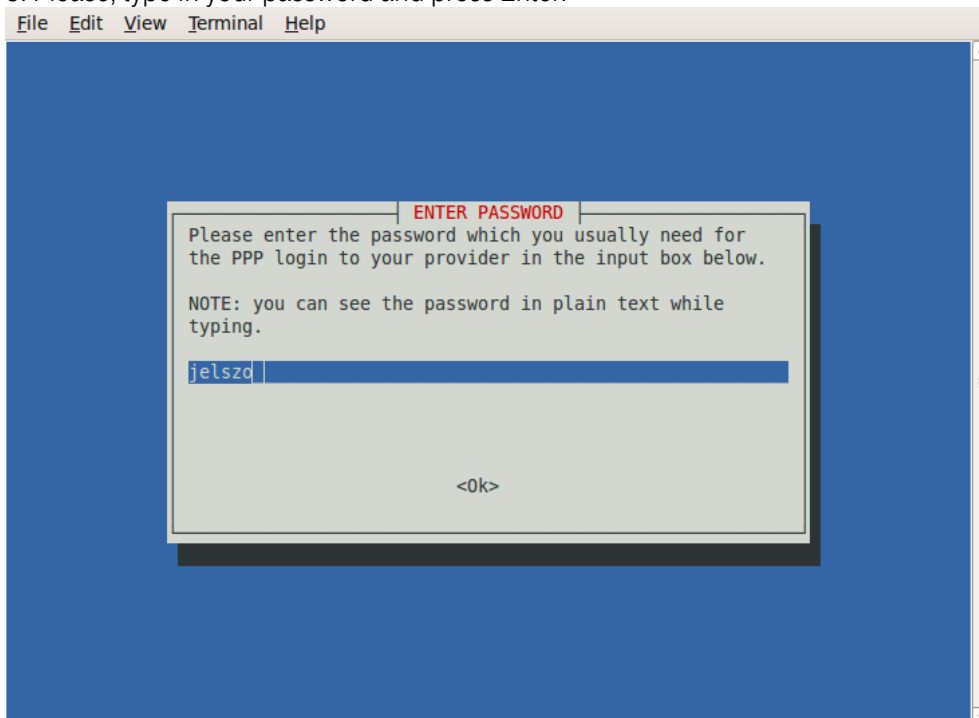
6. In this window, please select *<Yes>* as well



7. Please type in the IPv6 username you were given and press Enter.



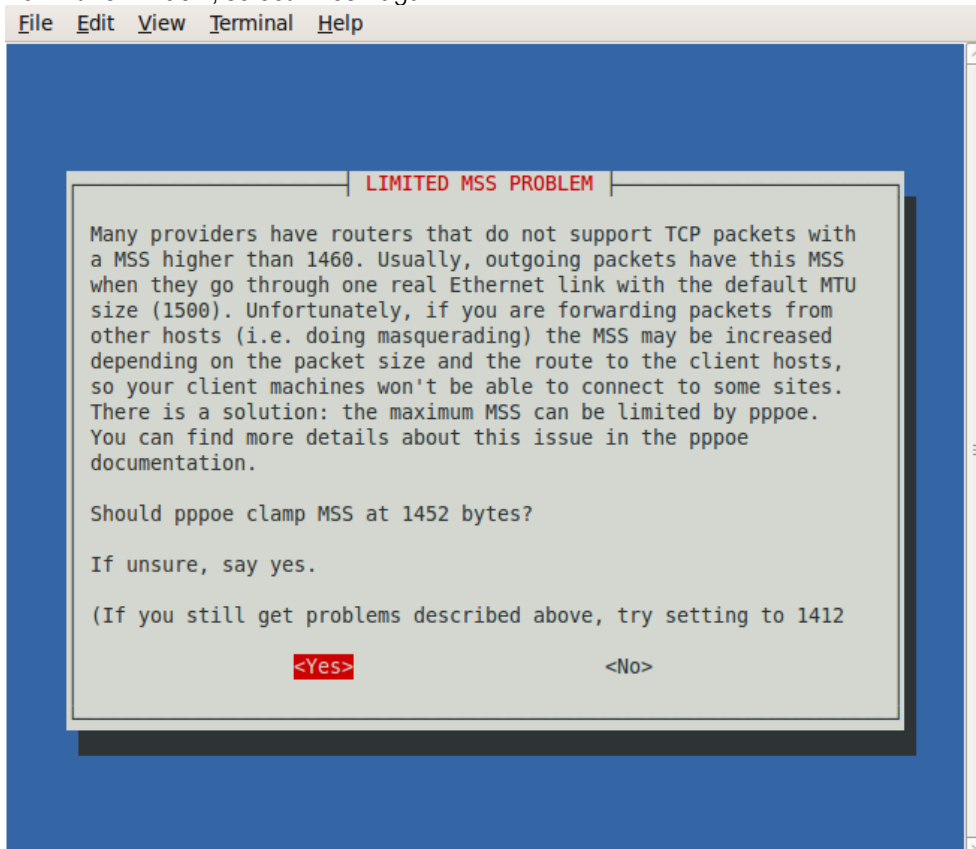
8. Please, type in your password and press Enter.



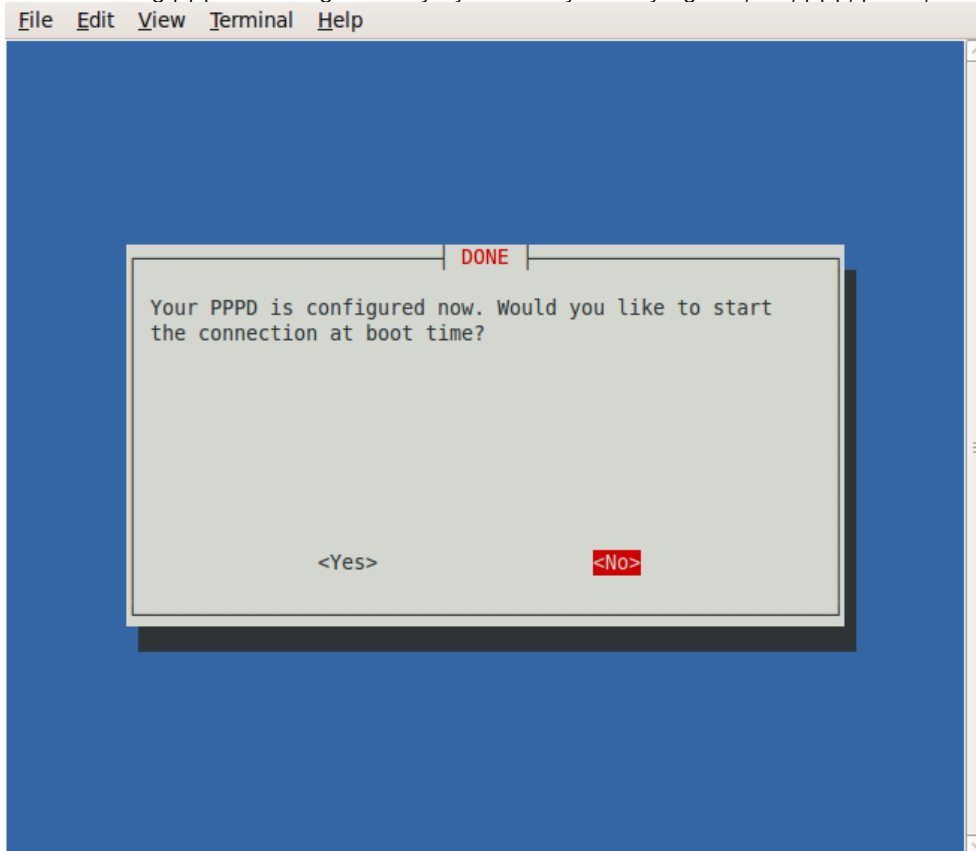
9. In this window, select *<Yes>* again.



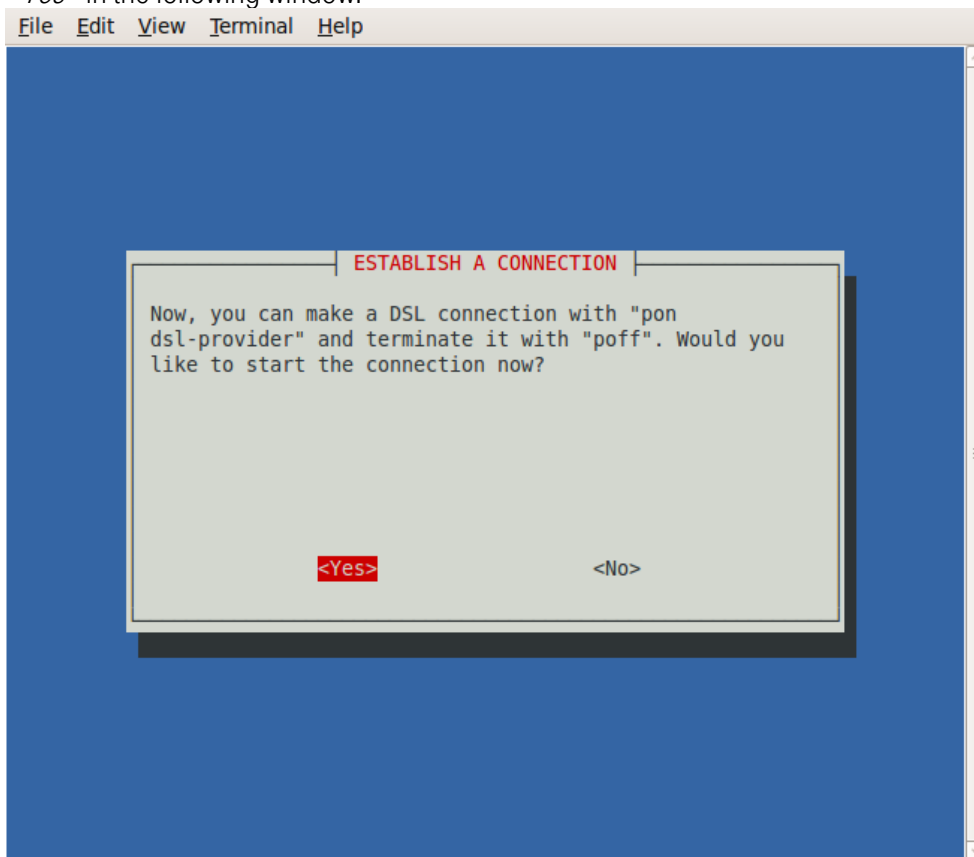
10. In this window, select *<Yes>* again.



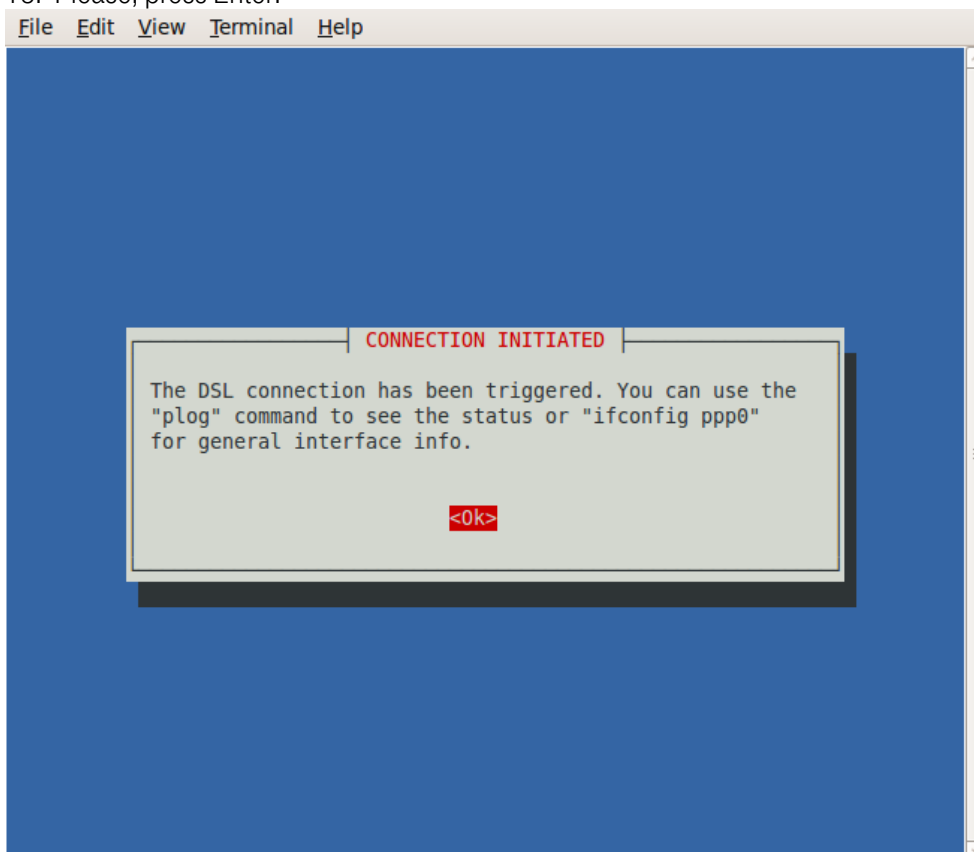
11. In this window you can freely decide about the following question: Would you like the computer to automatically start the IPv6 connection each time it boots? If yes, select *<Yes>*, if no, select *<No>*. You are advised to select the latter for greater controllability. (Naturally settings can be modified at any time, by either running `pppoeconf` again or by manually modifying the `/etc/ppp/peers/dsl-provider` file.)



12. Now the PPP dialer settings are complete. If you would like to start the connection, please, select **<Yes>** in the following window.



13. Please, press Enter.



You can check the connection status with the “*sudo plog*” or “*sudo ifconfig ppp0*” command.

```

File Edit View Terminal Help
root@kassait-HP-laptop:~#
root@kassait-HP-laptop:~# plog
Oct 22 16:22:25 kassait-HP-laptop pppd[4163]: RP-PPPoE plugin version 3.8p compiled against pppd 2.4.5
Oct 22 16:22:25 kassait-HP-laptop pppd[4165]: pppd 2.4.5 started by root, uid 0
Oct 22 16:22:25 kassait-HP-laptop pppd[4165]: PPP session is 59391
Oct 22 16:22:25 kassait-HP-laptop pppd[4165]: Connected to 00:14:f1:77:6c:1a via interface eth0
Oct 22 16:22:25 kassait-HP-laptop pppd[4165]: Using interface ppp0
Oct 22 16:22:25 kassait-HP-laptop pppd[4165]: Connect: ppp0 <--> eth0
Oct 22 16:22:28 kassait-HP-laptop pppd[4165]: PAP authentication succeeded
Oct 22 16:22:28 kassait-HP-laptop pppd[4165]: peer from calling number 00:14:F1:77:6C:1A authorized
Oct 22 16:22:28 kassait-HP-laptop pppd[4165]: local LL address fe80::9c3a:b206:c4e0:9e86
Oct 22 16:22:28 kassait-HP-laptop pppd[4165]: remote LL address fe80::020e:d6ff:feb9:d81b
root@kassait-HP-laptop:~#
root@kassait-HP-laptop:~# ifconfig ppp0
ppp0      Link encap:Point-to-Point Protocol
          inet6 addr: 2001:4c48:100:164:9c3a:b206:c4e0:9e86/64 Scope:Global
          inet6 addr: fe80::9c3a:b206:c4e0:9e86/10 Scope:Link
          UP POINTOPOINT RUNNING NOARP MULTICAST MTU:1492 Metric:1
          RX packets:11 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:3
          RX bytes:740 (740.0 B)  TX bytes:76 (76.0 B)

root@kassait-HP-laptop:~#
root@kassait-HP-laptop:~# █

```

Should you want to start the connection again (if you selected <No> in step 10, or the connection was broken for some reason), you can do it by running the “*sudo pon dsl-provider*” command. If you would like to break the connection, run the “*sudo poff*” command.

IMPORTANT!

After establishing the IPv6 connection, a precondition to the automatic request for IPv6 addresses of the DNS servers is the existence of an installed and operational DHCPv6 client. In lack of this, DNS resolution only works on IPv4 basis. For this, you need to follow the steps below.

Installation of and settings for the required packages

The packages required for IPv6 DHCPv6 operation can be installed by typing the following command in the Terminal window:

```
ubuntu@ubuntu:~$ sudo apt-get install wide-dhcpv6-client
```

This is the DHCPv6 client which allows for prefix delegation and host configuration via IPv6 protocol.

The proper operation of the DHCPv6 client requires the following settings:

```
ubuntu@ubuntu:~$ sudo gedit /etc/wide-dhcpv6/dhcp6c.conf
```

After opening the editor please modify the file as follows, then save it.


```
# Default dhcp6c configuration: it assumes the address is autoconfigured using
# router advertisements.

interface ppp0{
    send ia-pd 0;
    request domain-name-servers, domain-name;
    send domain-name-servers, domain-name;
};

id-assoc pd {
    prefix-interface eth0{
        #az sla-id értéke 0-255-ig tetszőleges decimális szám lehet
        #a PD-nél kapott hexadecimális /56 címet ezzel egészítjük ki 64 bitre
        #jelen esetben ez 4
        sla-id 4;
        sla-len 8;
    };
};
```

ubuntu@ubuntu: ~\$ sudo dhcp6c -d -D -f ppp0

This command, which starts the dhcp6 client, should be entered at each boot time.

(The *-d -D -f* command-parameters should only be typed in if you would like to see what happens as a result of the command, however, the program runs even without these. In case of proper operation the state=REQUEST expression is shown. Upon longer operation the DHCP request is renewed from time to time, indicated by the expression RENEW. If you launched the command with command-parameters, please, open another Terminal window for further work.)

In case of proper operation a Global address appears on the eth0 device. Type in the following command:

ubuntu@ubuntu: ~\$ sudo ifconfig eth0

Now you should see something like this (the important part is highlighted):

```
eth0      Link encap:Ethernet  Hwaddr 00:17:31:e6:77:99
          inet6 addr: 2001:4c48:100:164:9c3a:b206:c4e0:9e86/64 Scope:Global
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Interrupt:20 Base address:0xdc00
```

Testing IPv6 operation

With the following commands you can check if the IPv6 protocol files really exist:

ubuntu@ubuntu: ~\$ sudo test -f /proc/net/if_inet6 && echo "Running kernel is IPv6 ready"

Upon successful command run, the output is:

Running kernel is IPv6 ready

ubuntu@ubuntu: ~\$ sudo /sbin/ifconfig -? 2>& 1 | grep -qw 'inet6' && echo "utility 'ifconfig' is IPv6-ready"

Upon successful command run, the output is:

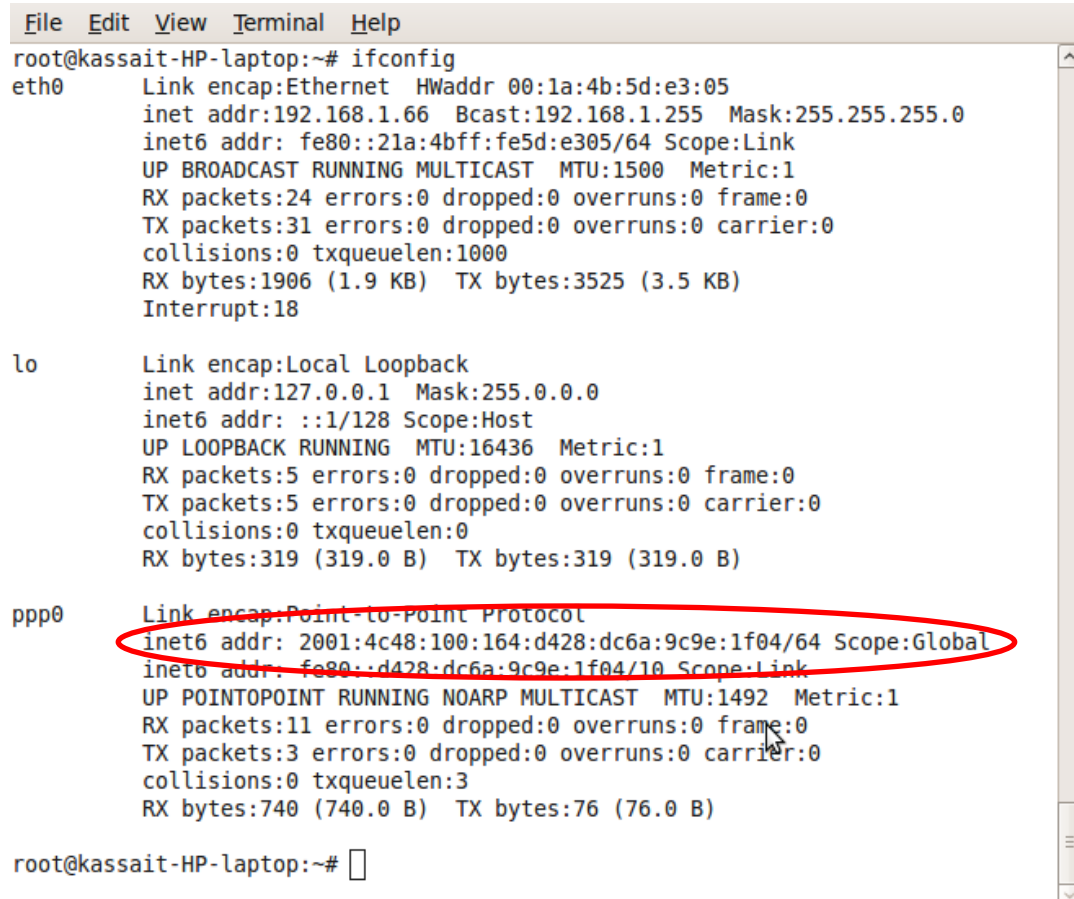
utility 'ifconfig' is IPv6-ready

Routing Table settings

Although Linux generally makes the right routing table settings, for safety's sake, please, run the following command (each time you restart our computer):

```
ubuntu@ubuntu: ~$ sudo route add -A inet6 default dev ppp0
```

The existence of a successfully established connection can be checked with the *"sudo ifconfig"* command.



```

root@kassait-HP-laptop:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:1a:4b:5d:e3:05
          inet addr:192.168.1.66  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::21a:4bff:fe5d:e305/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:24 errors:0 dropped:0 overruns:0 frame:0
          TX packets:31 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1906 (1.9 KB)  TX bytes:3525 (3.5 KB)
          Interrupt:18

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:5 errors:0 dropped:0 overruns:0 frame:0
          TX packets:5 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:319 (319.0 B)  TX bytes:319 (319.0 B)

ppp0      Link encap:Point-to-Point Protocol
          inet6 addr: 2001:4c48:100:164:d428:dc6a:9c9e:1f04/64 Scope:Global
          inet6 addr: fe80::d428:dc6a:9c9e:1f04/10 Scope:Link
          UP POINTOPOINT RUNNING NOARP MULTICAST  MTU:1492  Metric:1
          RX packets:11 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:3
          RX bytes:740 (740.0 B)  TX bytes:76 (76.0 B)

root@kassait-HP-laptop:~#

```

Automation of commands

If you do not want to type in all required commands at each boot time, you have to complete the following steps.

Please, enter the following command:

```
ubuntu@ubuntu: ~$ sudo gedit /etc/init.d/script3.sh
```

This command creates a script called script3.sh, into which you have to copy the following commands:

```

#!/bin/bash
echo -e "\n A Létező ppp kapcsolatok bontása!\n"
poff -a
sleep 3

echo -e "\n Az IPv6-os ppp kapcsolat létrehozása\n"
pon dsl-provider
sleep 8
ifconfig ppp0

echo -e "\n A routing tábla beállítása!\n"
route add -A inet6 default dev ppp0

```

```
sleep 2
echo -e "\n Ha a dhcp6c fut, újraindítjuk azt!\n"
kill `cat /var/run/dhcp6c.pid`
dhcp6c ppp0
sleep 2
ifconfig eth0
sleep 2
echo "A script lefutott"
```

You have to give the right authorization for the file to run:

```
ubuntu@ubuntu: ~$ chmod +x script3.sh
```

If subsequently you want to start the script only manually, then at each boot time, please type in the following line:

```
ubuntu@ubuntu: ~$ sudo ./etc/init.d/script3.sh
```

If you want to automatically run the command at system boot time, please, enter the following command:

```
ubuntu@ubuntu: ~$ sudo update-rc.d script3.sh defaults 91
```

This function can be switched off at any time, if you do not need it:

```
ubuntu@ubuntu: ~$ sudo update-rc.d -f script3.sh remove
```

You can check the settings with the following command:

```
ubuntu@ubuntu: ~$ ls -l /etc/rc?.d/*script3.sh
```

3. Other Unix/Linux distributions

In case of other Unix/Linux distributions the required steps are almost identical to the ones for Ubuntu settings. The *pppoeconf* script is available for any version but you can also use another ppp dialer. For example, the ppp.conf used in FreeBSD looks like this:

```
# $FreeBSD: src/etc/ppp/ppp.conf,v 1.10 2004/11/19 17:12:56 obrien Exp $
#####

default:
    set log Phase Chat LCP IPCP CCP tun command
    ident user-ppp VERSION (built COMPILATIONDATE)

# Ensure that "device" references the correct serial port
# for your modem. (cuad0 = COM1, cuad1 = COM2)
#
set device /dev/cuad1

set speed 115200
set dial "ABORT BUSY ABORT NO\\SCARRIER TIMEOUT 5 \
        \\\" AT OK-AT-OK ATE1Q0 OK \\dATDT\\T TIMEOUT 40 CONNECT"
set timeout 180 # 3 minute idle timer (the default)
enable dns # request DNS info (for resolv.conf)

#ipv6cp disable
papchap:
#
# edit the next three lines and replace the items in caps with
# the values which have been assigned by your ISP.
#

set phone PHONE_NUM
set authname USERNAME
set authkey PASSWORD

set ifaddr 10.0.0.1/0 10.0.0.2/0 255.255.255.0 0.0.0.0
add default HISADDR # Add a (sticky) default route

pppoe_serv:
    set device PPPoE:em0:pppoe_serv # replace x11 with your Ethernet device
    set authname azonosito@ipv6.t-online.hu
    set authkey jelszo
    set dial
# ipv6cp disable
    set login
#add default HISADDR
```

In case of the above configuration you can start the IPv4 PPP connection by entering the *ppp -background pppoe_serv* command into the terminal window.

IMPORTANT!

After establishing the IPv6 connection, a precondition to the automatic request for the IPv6 addresses of the DNS servers is the existence of an installed and operational DHCPv6 client. In lack of this, DNS resolution only works on IPv4 basis. For this, you need to follow the steps below.

Installation and settings of the required packages

Please, install the package required for IPv6 operation with its dependencies on your computer:

wide-dhcpv6-client

This is the DHCPv6 client that allows for prefix delegation and host configuration via IPv6 protocol.

The proper operation of the DHCPv6 client requires the following settings to be made on the */etc/wide-dhcpv6/dhcp6c.conf* file.

After opening the editor, please, modify the file as follows, then save it.

```
# Default dhcp6c configuration: it assumes the address is autoconfigured using
# router advertisements.

interface ppp0{
    send ia-pd 0;
    request domain-name-servers, domain-name;
    send domain-name-servers, domain-name;
};

id-assoc pd {
    prefix-interface eth0{
        #az sla-id értéke 0-255-ig tetszőleges decimális szám lehet
        #a PD-nél kapott hexadecimális /56 címet ezzel egészítjük ki 64 bitre
        #jelen esetben ez 4
        sla-id 4;
        sla-len 8;
    };
};
```

This command, which starts the dhcp6 client, should be typed in at each boot time:

```
dhcp6c -d -D -f ppp0
```

(The `-d -D -f` command-parameters should only be typed in if you would like to see what happens as a result of the command, however, the program runs even without these. In case of proper operation the state=REQUEST expression is shown. Upon longer operation the DHCP request is renewed from time to time, indicated by the expression RENEW. If you launched the command with command-parameters, please, open another Terminal window for further work.)

In case of proper operation a Global address appears on the eth0 device. Type in the following command:

```
ifconfig eth0
```

Now you should see something like this (the important part is highlighted):

```
eth0      Link encap:Ethernet  HWaddr 00:17:31:e6:77:99
          inet6 addr: 2001:4c48:100:164:9c3a:b206:c4e0:9e86/64 Scope:Global
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Interrupt:20 Base address:0xdc00
```

Now the Unix/Linux computer settings are complete, the operating system is IPv6 capable.

If you do not want to type in all required commands at each boot time, their analogue automation is possible as with Ubuntu Linux. For this, please, scroll back to the end of the previous chapter, to the "Automation of commands" section.