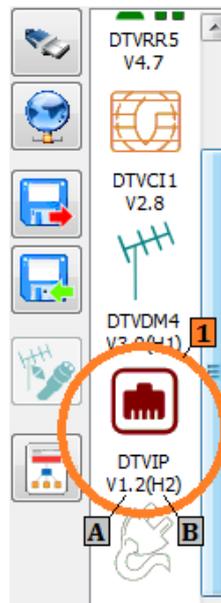


1) Purpose

The dtvIP module purpose is to create from the DVB stream present on the dtvRack backplane a new DVB transport stream and to stream it on its ethernet port in unicast or multicast mode. It's generally used together with a router that deals with streams distribution between multiple IP clients.

2) dtvIP module connection with DTViface

Streaming parameters setting on the dtvIP module is done using the DTViface software. In order to do this, connect the rack using the USB port (or via the web through, for instance, a DTVRR5 module), run the DTViface software on your PC and then click on the module to be configured in the highlight bar : **1**



Right under the module icon, you'll find the software **A** and hardware **B** release numbers. Those numbers will change according to future upgrades that will be automatically done by the dtviface software when required.

Once the module selected, a setting window will appear on the right of the bar allowing you to set its operating parameters as well as the list of the services to be streamed. Note that the setting windows of the input module (dttvr5 or else) is displayed at the same time as the setting windows of the dtvIP module allowing an easier selection of the services.

Whenever a parameter changes, it is automatically saved on the module. No action is required to save it. The various communications between the DTViface software and the module are signaled on the bottom left of the highlight bar using two little boxes. The  signals a read/control from the module and the  signals a write/save of the changed parameter.



3) Parameter settings

a) Ethernet settings

The screenshot shows the Ethernet configuration interface. Key elements include:

- Mac Address:** 00 11 22 33 44 55
- IP Address:** 192 168 1 23
- Mask:** 255 255 255 0
- Gateway:** 192 168 1 1
- DHCP:**
- Protocol:** UDP
- QoS:** VIDEO HIGH
- TTL:** 128
- SAP:**
- Table:**

A	192.168.1.20	1234
B	225.0.0.1	5012
C	225.0.0.1	5014
D	225.0.0.1	5016
E	225.0.0.1	5018
F	225.0.0.1	5020
G	225.0.0.1	5022
H	225.0.0.1	5024
- Bandwidth:** 0 kb/s

On the right top of the setting window, you'll find all the parameters related to the ethernet configuration of the module.

- 1** The MAC address of the module is only displayed for information purpose and is only modifiable by the manufacturer.
- 2** The IP configuration of the module is either done in an automatic way or is manually modified. In the case where the dtvIP is connected to the network using a router, it is preferable that the router tells to the module the IP address that it has allocated to it as well as the network mask and the gateway address to be used. In this case, the DHCP box has to be checked. If a manual setting is required, uncheck the DHCP box and set the IP parameters described below with a correct value.
- 3** IP parameters that have to be set when DHCP (Dynamic Host Configuration Protocol) is not used. Click on the boxes to set the IP address you want the module uses to send and receive datas to/from the network and to set the subnet mask as well as the gateway address the module will use to send streams not addressed to the local subnet (for instance unicast or multicast packets with a masked address which does not correspond to the local network).
- 4** You can define here the encapsulation protocol knowing that UDP takes less bandwidth than RTP and although it is not connection oriented, it is still particularly useful for streaming.
- 5** QoS for « Quality of Service ». The higher value (MAX being the maximal value) the more the router will give priority to the packets coming from the module at the expense of others peripherals using the router to send datas.
- 6** TTL for « Time To Live ». This is a mechanism that limits the lifetime of the data in the network. You can let it to 128 if you don't know the value that better suits your installation.
- 7** SAP for « Session Announcement Protocol ». If this box is checked, the module will use SDP (Service Description Protocol) to advise the network of multicast sessions that the module will feed (services name, used multicast IP address and port number).

- A** Communication channel settings. See next chapter.
- B** Inform on used bandwidth of all the transmissions done by the module on the network.

b) Communication channel settings

A	192.168.1.20	1234
B	225.0.0.1	5012
C	225.0.0.1	5014
D	225.0.0.1	5016
E	225.0.0.1	5018
F	225.0.0.1	5020
G	225.0.0.1	5022
H	225.0.0.1	5024

A
 1
 2

The dtvIP module is able to deal with 16 communications channels each corresponding to an IP address/port number couple (either unicast or multicast). Each channel is therefore set by a destination IP address and port number as well as by the list of the services it carries (see next chapter for services selection). The line corresponding to the channel is grayed as long as there is no selected service on the channel. IP addresses and port numbers still however can be edited.

- A** Channel name (from A to P).
- 1** Destination IP address to which all selected services for the channel from the same line will be streamed. Double-click on the address to edit the address of the destination PC or peripheral. This address can be an unicast address (the address of a single PC : 192.168.1.11 for example), or a multicast address (a logical identifier for a group of destination devices in a network). In this last case, the multicast address range should be between 224.0.1.0 to 238.255.255.255 because range 224.0.0.0 through 224.0.0.255 is reserved for local purposes and range 239.0.0.0 through 239.255.255.255 is reserved for administrative scoping. When using multicast address, ensure that a capable IGMP router is used.
- 2** Destination UDP port number. Double-click on the number to edit the UDP port on which the stream will be carried. In case RTP over UDP protocol was selected, use an even number for this port.

Be careful not to use two channels with the same address/port couple due to channel definition

c) List of services to be streamed

S.I.D.		Service name	UNCRYPT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	10352	CBBC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	10353	BBC One South	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	10354	BBC One S West	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	10356	BBC One Oxford	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	10358	BBC NEWS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	10361	BBC One NI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	10362	BBC Two NI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	10371	ETV6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>										

- A** Information on services available on the rack backplane got from others modules before the dtvIP module (Service number, name and type..)
- B** Tells if the service has been asked for decryption by a previous module like a dtvCI one.
- C** Bar indicating the used bandwidth for each service by the global bandwidth. Just click on a specific service and its used bandwidth will be highlighted.
- 1** Services multiplexing table. This table indicates, for each service, if it has to be present in a channel or not. To add or delete a service to/from a channel, click in the box located at the intersection of the line corresponding to the service to add/delete and the column of the channel in which the service should be added/deleted. In the following example, services streaming will be done as :
 Channel A : only one service : *CBBC*
 Channel B : 4 services : *BBC One south, BBC One S West, BBC One Oxford and BBC One NI.*
 Channel C : *BBC News* only
 Channel D : *BBC Two NI*
 Channel E : *ETV 6*

4) **Technical characteristics**

Input	Parallel T.S.	Up to 166 Mb/s
Output	Standard Protocols Capacity	IEEE 802.3 10/100 Base-T Unicast/multicast IP over UDP/RTP Up to 16 simultaneous SPTS and/or MPTS channels (up to 64 services)
Connector	Ethernet	RJ45