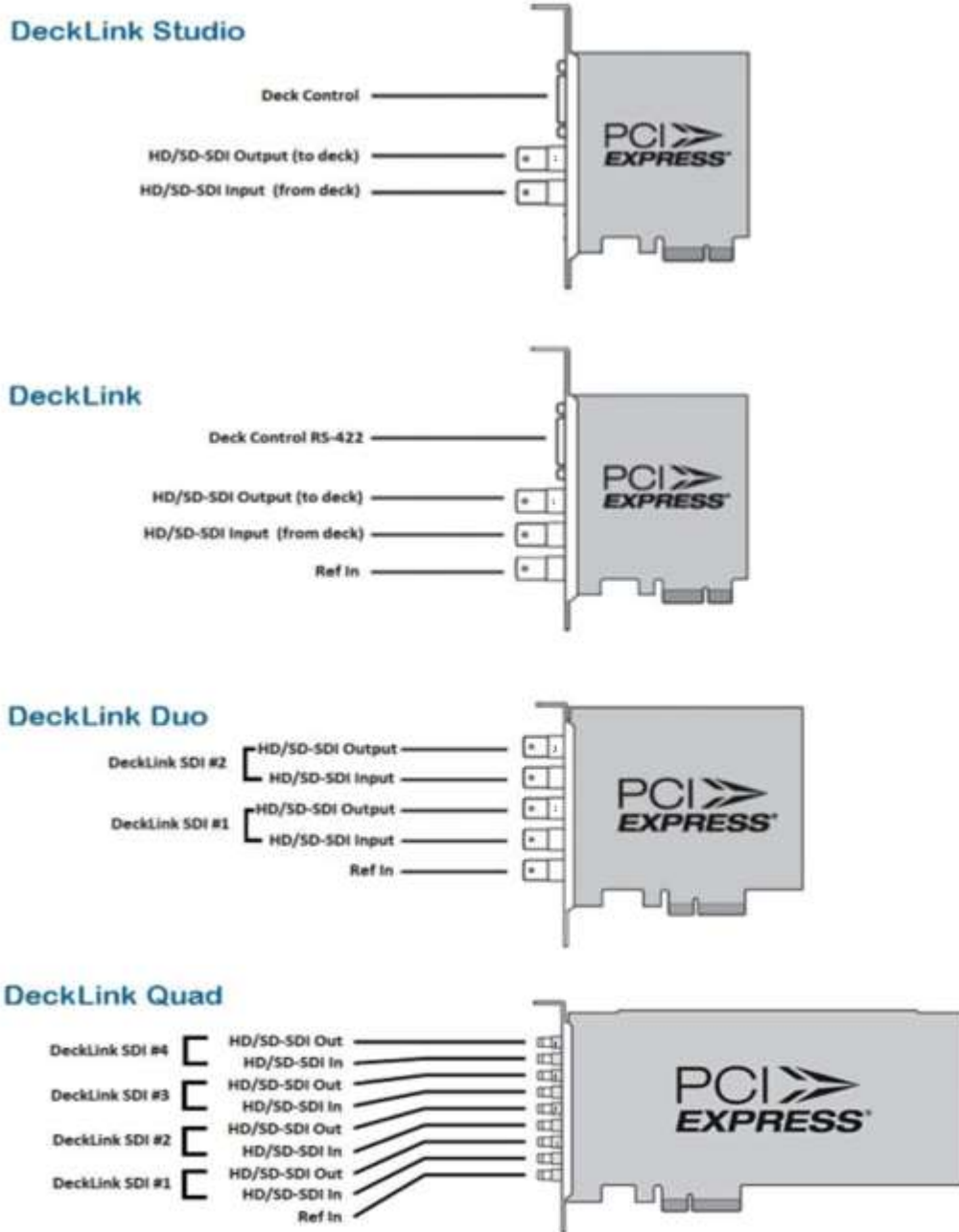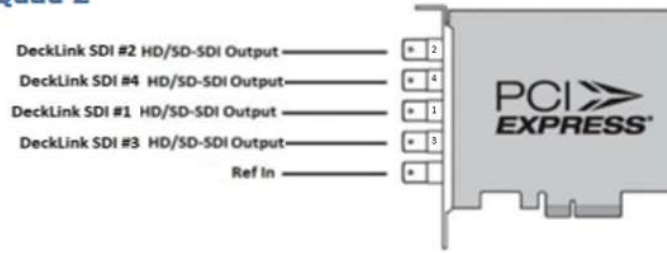# LU2000 Server Installation Guide

Hardware Installation

This card will support 2 separate video input channels that should be connected as per the below photo:

Decklink Quad 2

Network Setup

| Protocol	Ports	Src / Dest	Required / Optional	Comments
Inbound UDP	8601-8606	Anywhere	Required	Incoming video and audio from any LiveU device. **Note**: If these ports are not available, LiveU support can work with you to use others
Inbound TCP	8601-8606	Anywhere	Optional	Used for session initialization when using the LiveU & Panasonic solution where select camera models can stream directly to your LU2000. If you plan to trial or use the Panasonic solution, these ports are required
Inbound UDP	8609-8615	Anywhere	Optional	Used with the IFB feature available on LiveU units
Inbound UDP	8620-8667	Anywhere	Optional	Used for video and audio delivery from a Panasonic camera that supports direct LiveU streaming. If you plan to trial or use the Panasonic solution, these ports are required
Inbound TCP	1935, 18255	Anywhere (see purpose)	Optional (but recommended)	1935 is used for RTMP to see the video preview in LiveU Central. 18255 is used for http delivery of shared files from your LU2000 to your computer. Both are highly recommended. **Note**: if these ports are not available, LiveU Support can work with you to use other ports
Inbound UDP	Special: Any UDP flood or attack protection	Anywhere	Required	If your firewall offers any form of UDP flood or attack prevention, the IP address of your LU2000 needs to be whitelisted to disable this feature for this IP. The video and audio stream is a long-running, high bandwidth stream of UDP packets, and such features will interfere with receiving that stream
Outbound TCP	873,1873, & 22222	rsync.liveu.tv	Required (for updates)	Allows remote update of MMH servers through LiveU Central
Outbound TCP	80, 443 & 8543	lu-central.liveu.tv (54.83.195.191) (18.208.108.178)	Required	Used by the LU2000 server to communicate configuration details to LUC. Required to allow for 6.0+ features to be recognized and available
Outbound DNS		Your organization's DNS server (or 4.2.2.2)	Required	The LU2000 must be able to reach a DNS server. Any DNS, either internal or external to your network, is acceptable
Outbound TCP	80, 443 & 10020, 10021	hub1.liveu.tv (23.21.58.175) hub2.liveu.tv (46.137.77.107)	Required	Command and Control protocol. **Note**: if your firewall already allows all outbound sessions, you will not need to open any explicit ports
Outbound TCP	8400-8600	medic.liveu.tv (54.247.127.242) medic2.liveu.tv (54.83.47.114)	Optional (but recommended)	LiveU's support tool that allows for remote upgrade of the LU2000 as well as diagnosis and debug when necessary. While optional, without this access, LiveU cannot offer the same level of support on your LU2000. **Note**: if your firewall already allows all outbound sessions, you will not need to open any explicit ports
Outbound UDP	9000-9099	Anywhere	Optional (but recommended)	Used only if your LU2000 will be a LiveU Multipoint distributor
Outbound TCP	80, 443 & 5938	Anywhere	Optional NOT recommended	Used by TeamViewer . LiveU Support also uses the TeamViewer remote desktop tool for complete access when required & when initiated by the customer. **Note**: if your firewall already allows all outbound sessions, you will not need to open any explicit ports
Outbound UDP	9000-9010	*.cloud.liveu.tv	Required (for LiveU Matrix)	For LiveU Matrix to initiate transmissions to the cloud service, outbound UDP must be permitted. **Note**: if your firewall already allows all outbound sessions, you will not need to open any explicit ports

Software Installation

Turn the server on and login using:
Username: liveu
Password: 123123

By launching the **"liveu-config"** you will be brought to the LiveU Server Setup Utility. Press "**Enter**" to continue with the setup.
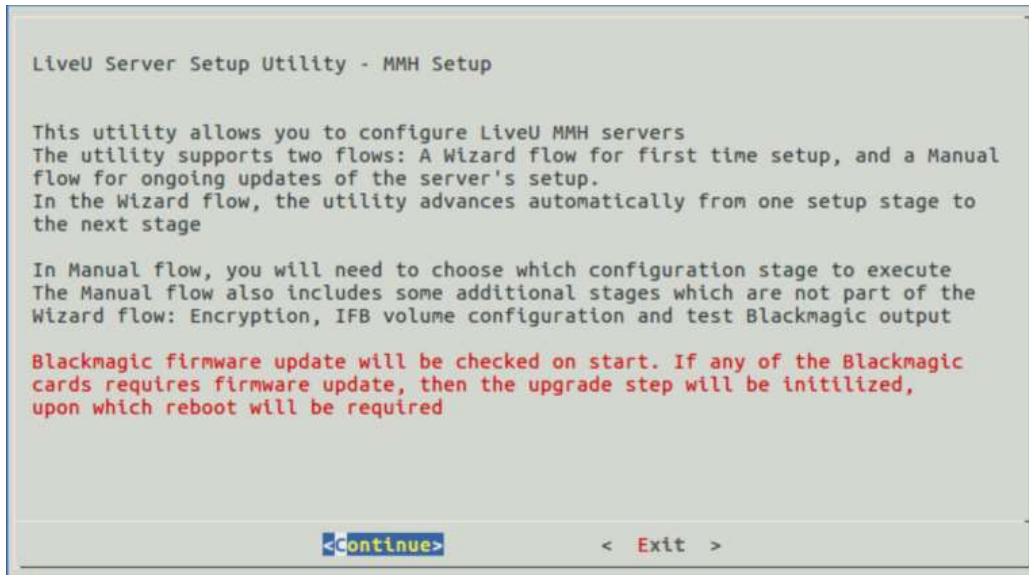

You are given the option for a Wizard setup or a Manual Setup. For the initial setup we recommend doing the **"Wizard Flow"** option. All the steps on pages 15-22 of the document follow the **"Wizard Flow"** option
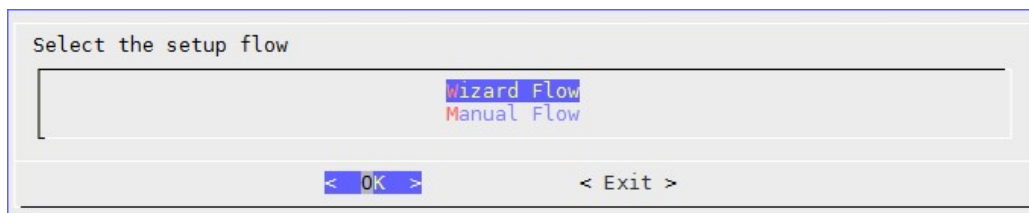

The next screen will let you know what the Wizard Setup will go through. The steps are very, very similar to the current MMH Configuration. Press "**Enter**" to proceed.
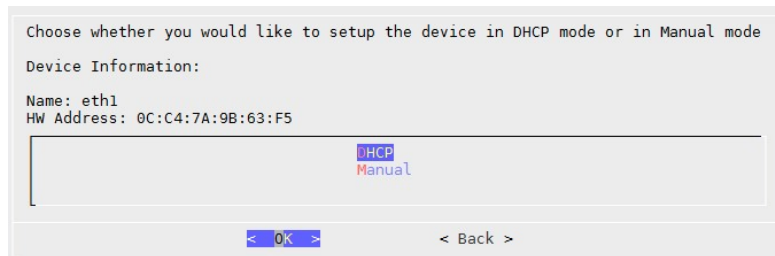
First you will be asked to configure the network of the server. Hover over "**Yes**" and Press "**Enter**" to proceed.
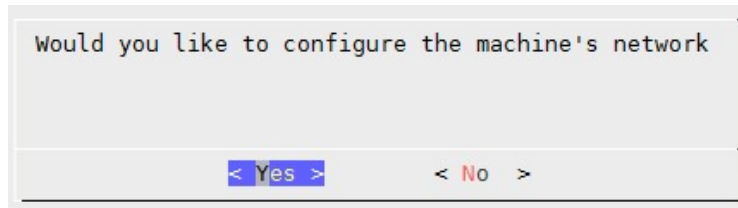
Select the ethernet port that you will want to setup. The wizard install will let you know what ethernet port you are currently connected too. Select the one you want to configure and press "**Enter**"
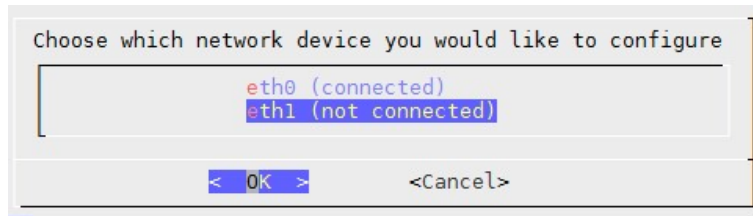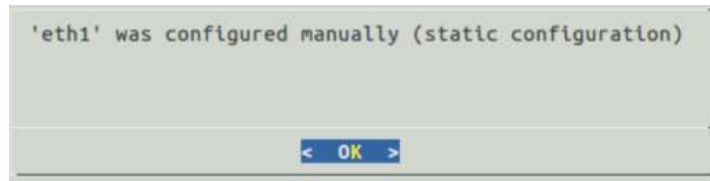

You will then be asked if you want to setup the connection for DHCP or Manual. We always recommend setting up a static connection. The steps below will show you setting up a static IP.

Please fill in the network information and hit "**Enter**" to continue.
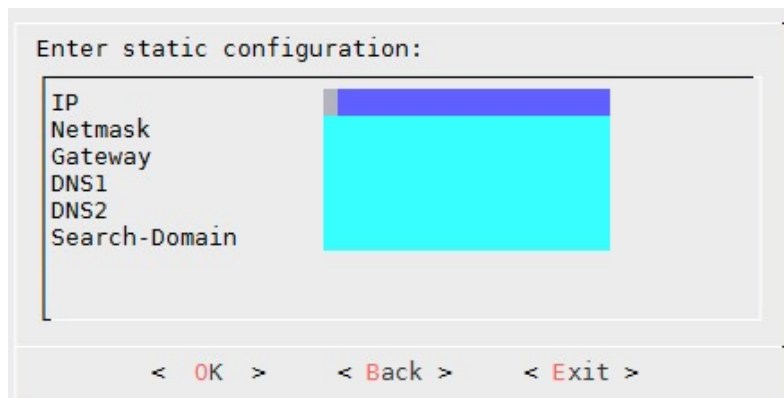
If done successfully you should get the following message

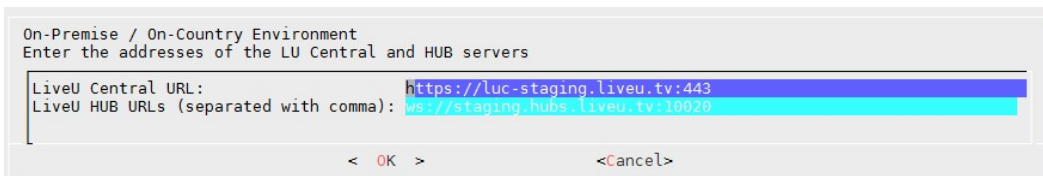'eth1' was configured manually (static configuration)

< OK >

If you would also like to configure the other ethernet port you will select "**Yes**" on this screen. If you do not need to setup the other ethernet port select "**No**" and press "**Enter**" to continue.
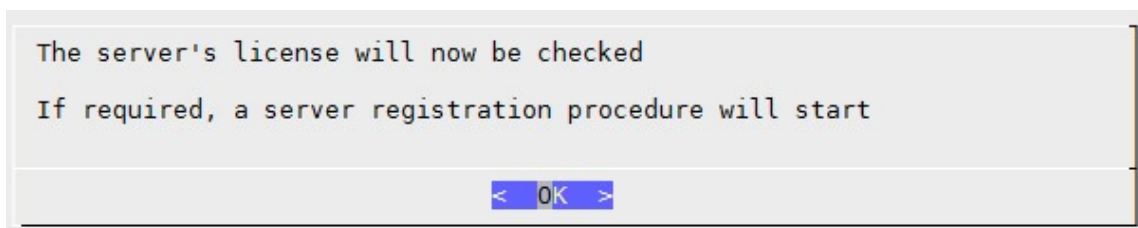
Would you like to configure another device?

< Yes >   < No >

Since you are connecting to the default LiveU-Central and HUB you will want to select "**Yes**"

Would you like to configure addresses of on-premise LU-Central and HUB?

< Yes >   < No >

This information is filled in for default. You can just hit "**Enter**"

On-Premise / On-Country Environment
Enter the addresses of the LU Central and HUB servers

LiveU Central URL: https://luc-staging.liveu.tv:443
LiveU HUB URLs (separated with comma): ws://staging.hubs.liveu.tv:10020

< OK >   <Cancel>
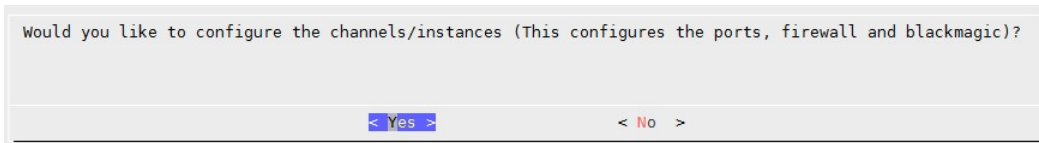
With 7.0 each server will have its own unique license. The server you configure should already have a license by default. Press "**Enter**" to proceed. **IF IT ASKS FOR A LICENSE SELECT MANUAL AND THEN ENTER THE SERIAL NUMBER OF THE SERVER. IT IS LOCATED ON THE SERVER ITSELF.**

The server's license will now be checked

If required, a server registration procedure will start

< OK >

This is the message you should be receiving as our servers are already registered.
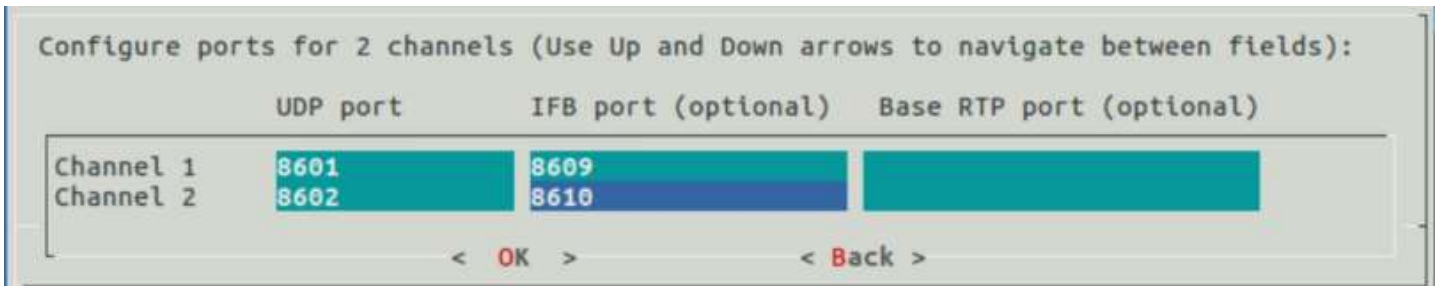
Server is already registered

< OK >
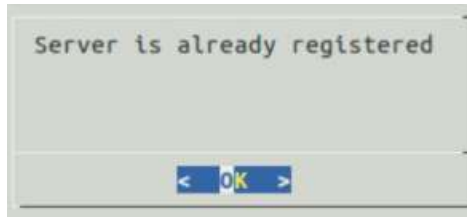
The next step is configuring the channels. This step is similar to "**Step 3 MMH Configuration**" that we currently use on servers running 6.5.0 and below. You can select "**Yes**" and hit "**Enter**"

Would you like to configure the channels/instances (This configures the ports, firewall and blackmagic)?

< Yes >   < No >

Select the number of channels that you want to configure. If it's a single server you can type 1 or more depending on how many preview channels you want. If it is a duo server select at least 2. If it is a quad select at least 4. In my image example I have a single server, but I want 1 preview channel so I wrote "2".

Select the number of instances (channels)

2

< OK >   <Cancel>
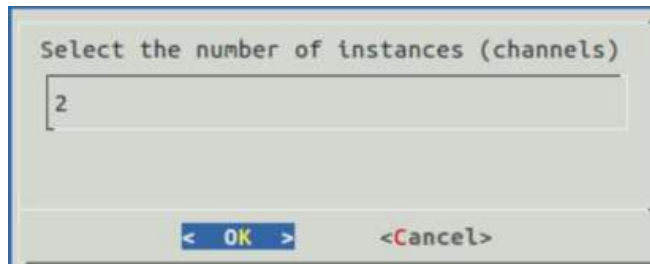
Here is the chart that you will want to configure the ports that the server will use to receive video. **By default our network requirements document recommends 8601-8608 for the first column. The second column we recommend 8609-8612. The last column we recommend 8620-8648**. **IF YOU ARE SETTING UP A SECOND LIVEU SERVER PLEASE USE A DIFFERENT RANGE OF PORTS LIKE 8701-8750**

Configure ports for 2 channels (Use Up and Down arrows to navigate between fields):

	UDP port	IFB port (optional)	Base RTP port (optional)
Channel 1	8601	8609	
Channel 2	8602	8610	

< OK >   < Back >

The next ports you are configuring are our Preview and Store and Forward Ports. **By Default our network requirement recommends Preview port be 1935 and the File Server port is 18255.**
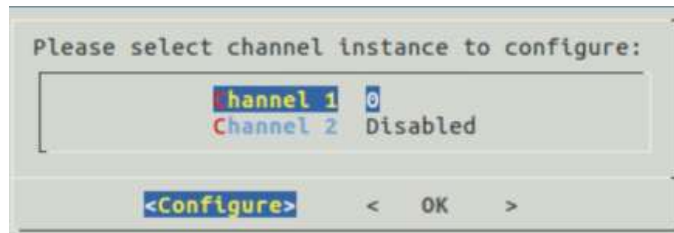
```
Configure external ports:

These TCP ports need to be forwarded in NAPT and are forwarded as follows:
Video Preview to 1935
File Server (and MJPEG Preview) to 18255

    External Video Preview TCP port      1935
    External File Server and M-Jpeg port 18255


              <  OK  >            <  Back  >
```
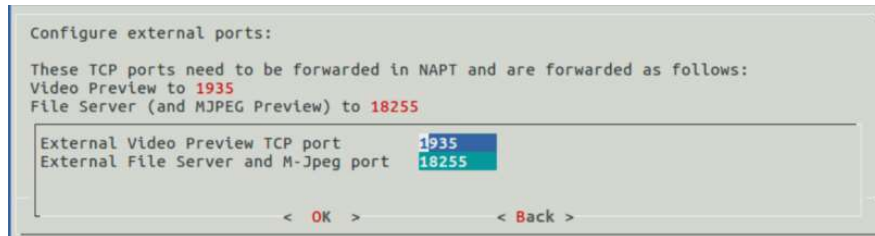
You are now going to configure the SDI outputs. Select "**Yes**" and press "**Enter**"

```
Would you like to configure SDI output per channel



         < Yes >         < No  >
```

Below is an example of configuring a server with 1 output channel and 1 preview channel. Select Channel 1 and hit "**Enter**" to configure.
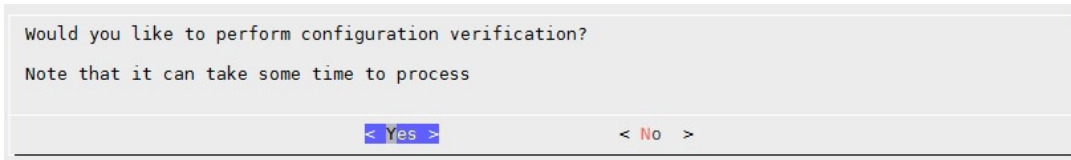
```
Please select channel instance to configure:

              Channel 1  0
              Channel 2  Disabled

          <Configure>      <   OK   >
```

Since this server only has 1 Blackmagic output you will only see Card 0. Select Card 0 for instance 1 and hit "**Enter**".

```
Assign output card to instance 1

     Disable SDI Output
     Card 0


       < Set   >      < Back >
```
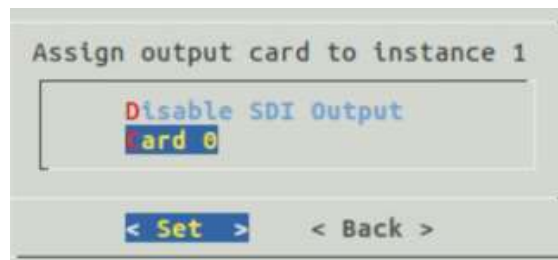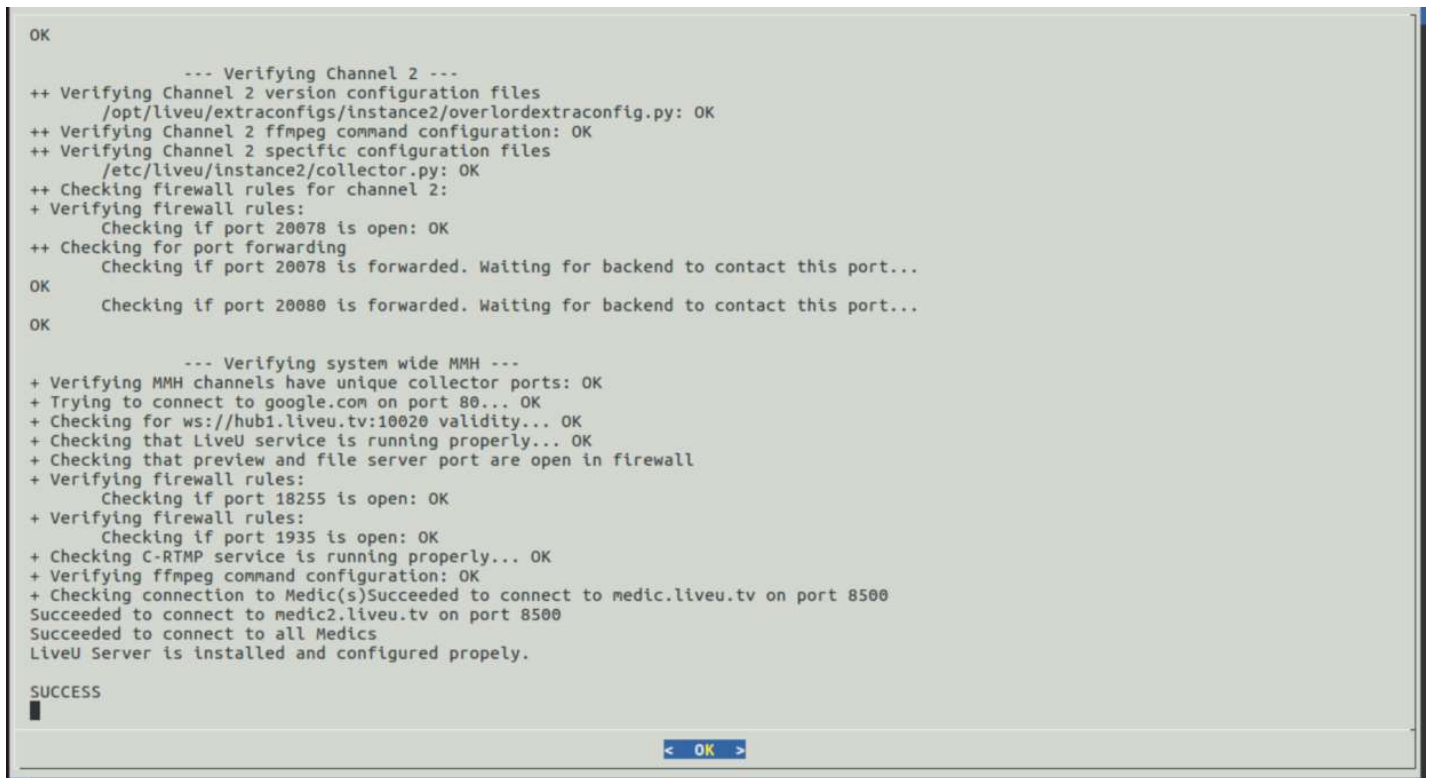
This will take you back to the screen you saw earlier. Channel 1 is now set to card 0. Channel 2 will be disabled as it is my preview channel. Move over to "**OK**" with the arrow keys on the keyboard and hit "**Enter**".

```
Please select channel instance to configure:

              Channel 1  0
              Channel 2  Disabled

          <Configure>      <  OK  >
```
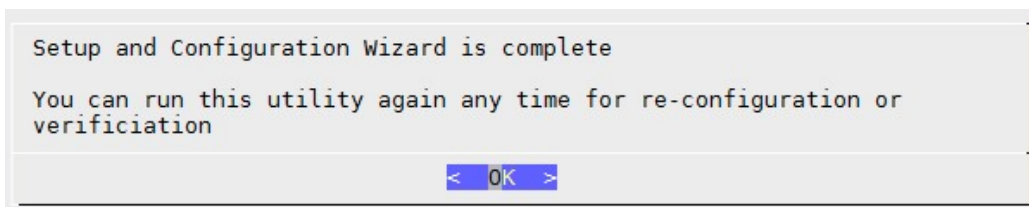
The last step is to perform the verification setup. This is "**Step 5 Verify Setup**" in our configuration folder on servers running software 6.5.0 or below. Press "**Enter**" while hovering over "Yes"

```
Would you like to perform configuration verification?

Note that it can take some time to process


          < Yes >                    < No  >
```

This will check if the server can reach google, our hubs, LUC, check the S&F port, Preview Port, Medic, and lastly the UDP ports for each instance setup in the chart earlier. You should see a "**SUCCESS**" at the bottom and get an "**All tests passed**" message.

```
OK

             --- Verifying Channel 2 ---
++ Verifying Channel 2 version configuration files
        /opt/liveu/extraconfigs/instance2/overlordextraconfig.py: OK
++ Verifying Channel 2 ffmpeg command configuration: OK
++ Verifying Channel 2 specific configuration files
        /etc/liveu/instance2/collector.py: OK
++ Checking firewall rules for channel 2:
+ Verifying firewall rules:
        Checking if port 20078 is open: OK
++ Checking for port forwarding
        Checking if port 20078 is forwarded. Waiting for backend to contact this port...
OK
        Checking if port 20080 is forwarded. Waiting for backend to contact this port...
OK

             --- Verifying system wide MMH ---
+ Verifying MMH channels have unique collector ports: OK
+ Trying to connect to google.com on port 80... OK
+ Checking for ws://hub1.liveu.tv:10020 validity... OK
+ Checking that LiveU service is running properly... OK
+ Checking that preview and file server port are open in firewall
+ Verifying firewall rules:
        Checking if port 18255 is open: OK
+ Verifying firewall rules:
        Checking if port 1935 is open: OK
+ Checking C-RTMP service is running properly... OK
+ Verifying ffmpeg command configuration: OK
+ Checking connection to Medic(s)Succeeded to connect to medic.liveu.tv on port 8500
Succeeded to connect to medic2.liveu.tv on port 8500
Succeeded to connect to all Medics
LiveU Server is installed and configured propely.

SUCCESS


                        < OK >
```

You will then receive a wizard complete message. To finish the installation press "**Enter**" on your keyboard.

```
Setup and Configuration Wizard is complete

You can run this utility again any time for re-configuration or
verificiation

                        < OK >
```
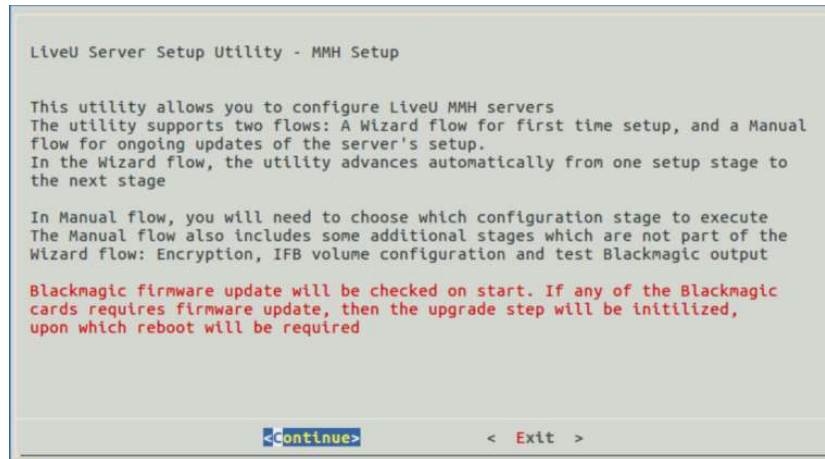
The basic configuration for the server is complete. If you made a mistake or want to configure a few additional settings please see the next page for the "Advanced Configuration" Setup.

Advanced Configuration

By launching the **"liveu-config"** again you will be brought to the LiveU Server Setup Utility. Press **"Enter"** to continue with the setup.

You are given the option for a Wizard setup or a Manual Setup. For the Advanced setup you will want to select Manual Flow. **Hover over "Manual Flow" and press "Enter" on your keyboard to proceed.**

 You will now see the select menu. To select what you want to configure hover over the option you want and press the spacebar. This will put an * in the [ ]. This confirms what you have selected. Once you have everything checked that you want to configure press "Enter".
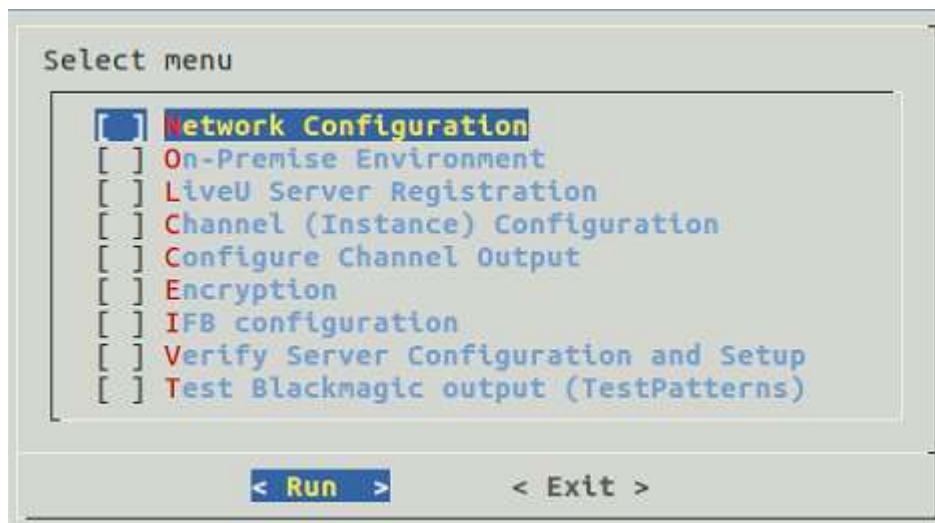
Encryption

If you would like to setup an encryption password enter the password in the given field. Note if you accidently selected this option or you would like to disable the feature leave the box blank and hit **"Enter"** on your keyboard.

Once you enter your encryption password you will get a message stating that **"Encryption password set successfully"**
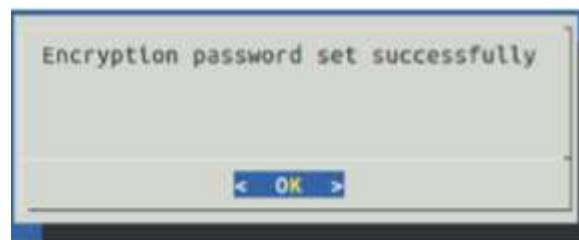
IFB Configuration

To setup IFB you will need the device plugged in beforehand. These are the devices that we support on 7.0

>   **Komplete Audio 6 – 4 ports audio device (not recommended for new deployments)**
>   **Presonus AudioBox 22VSL - 2 port XLR audio interface**
>   **Presonus AudioBox 1818VSL – 8 port XLR audio interface**

The first thing you will be asked is if you would like to configure the IFB Volume. Select "**Yes**" and press "**Enter**".
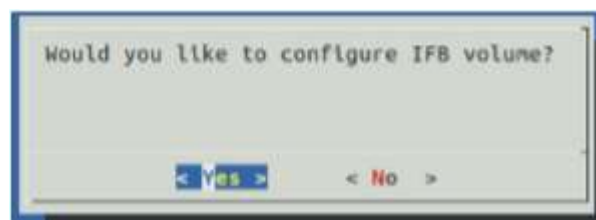
You will then be asked to configure the volume for each channel. You can go as low as 0 and as high as 127. Use your keyboard to enter the figure for each channel. **Use the tab key to filter through Channels, OK, Reset, and Back. Once your values are correct press "Enter" to proceed.**
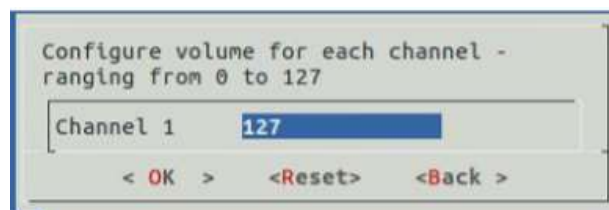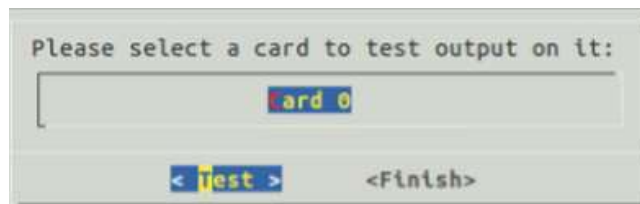
Test Blackmagic Output

This option is to test the Blackmagic Output. **This will send Bars and Tone out of each individual SDI outputs and the server will appear offline in LiveU Central**. Please select "Yes" to proceed with the test.

You will now need to select a card to test the output. In my case I have a single server and I will only see Card 0.

If you do choose to test your card you will be given the option of various resolutions. **Select the resolution you want selected using the up and down arrow keys and then to select it Press "Enter".**
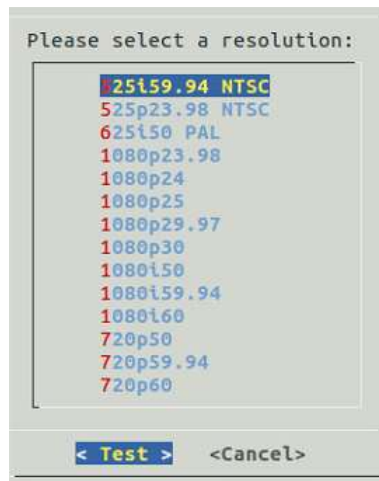
Once you select the resolution you should be receiving Bars and Tone. **To stop the test hit "Enter" once again.**

If you would like to test any other cards select them and hit **"Test". If you are finished use the arrow keys to select "Finish" and hit "Enter" to finish.**

Installing Teamviewer

LiveU Support will use the TeamViewer remote desktop tool for complete access when required and when initiated by the customer. This will also allow for remote upgrades of the LU2000 as well as diagnosis and debug when necessary.

The necessary ports for Teamviewer to run on the server are the following:

PROTOCOL	PORT	DESTINATION / SOURCE
Outbound TCP	80	Anywhere
Outbound TCP	443	Anywhere
Outbound TCP	5938	Anywhere

To install Teamviewer first you will need to bring up the terminal which is done by pressing **CTRL + ALT + T.**
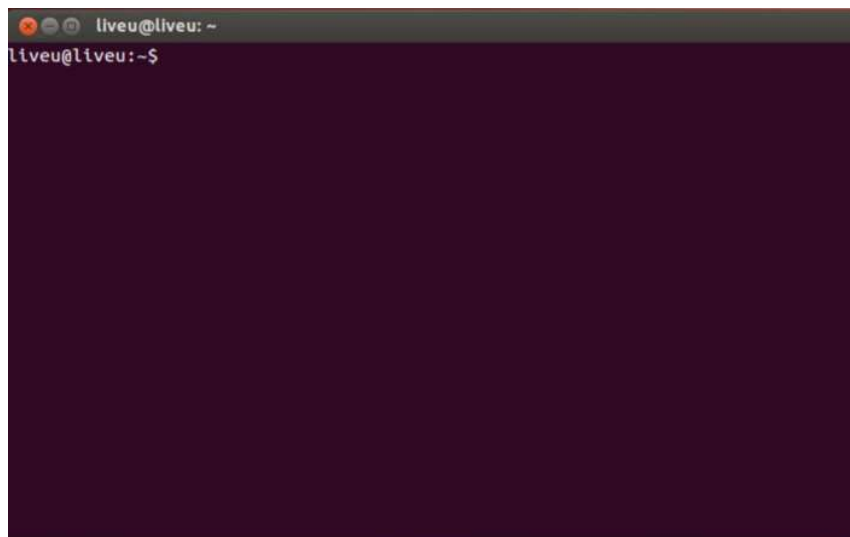
Please type and run the following command **"sudo apt-get update"** which installs newer versions of the packages you already have.

Once you let the latest updates install the next command you will run is **"sudo apt-get install gdebi"**

```
liveu@liveu:~$ sudo apt-get install gdebi
Reading package lists... Done
Building dependency tree
Reading state information... Done
gdebi is already the newest version.
```

Now that you have gdebi installed you will want to download the teamviewer deb. We will use Teamviewer 32 bit to avoid package conflicts.

Run the following command:
wget http://download.teamviewer.com/download/version_12x/teamviewer_i386.deb

```
liveu@liveu:~$ wget http://download.teamviewer.com/download/version_12x/teamview
er_i386.deb
--2018-08-06 20:58:44--  http://download.teamviewer.com/download/version_12x/tea
mviewer_i386.deb
Resolving download.teamviewer.com (download.teamviewer.com)... 40.121.221.211
Connecting to download.teamviewer.com (download.teamviewer.com)|40.121.221.211|:
80... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://dl.tvcdn.de/download/version_12x/teamviewer_12.0.93330_i386.de
b [following]
--2018-08-06 20:58:44--  https://dl.tvcdn.de/download/version_12x/teamviewer_12.
0.93330_i386.deb
Reveu@liv dl.tvcdn.de (dl.tvcdn.de)... 143.204.146.10, 2600:9000:201c:5000:c:b82
f:7ac7:2cc1, 2600:9000:201c:9c00:c:b82f:7ac7:2cc1, ...
Connecting to dl.tvcdn.de (dl.tvcdn.de)|143.204.146.10|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 46842856 (45M) [application/octet-stream]
Saving to: `teamviewer_i386.deb'

100%[====================================>] 46,842,856  28.0M/s   in 1.6s

2018-08-06 20:58:46 (28.0 MB/s) - `teamviewer_i386.deb' saved [46842856/46842856
```

Lastly you will need to install the package by running the **sudo gdebi teamviewer_i386.deb command**

```
liveu@liveu:~$
liveu@liveu:~$
liveu@liveu:~$ sudo gdebi teamviewer_i386.deb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Building data structures... Done
Building data structures... Done
```

Now that you have successfully installed teamviewer you can accept the license. You should see your ID and password populate. This is what LiveU uses to connect remotely. You will also get a green indicator in the bottom left. If none of these appear it could be that you are blocking Teamviewer on your network.