Interfacing the RASCAL GLX to Voice REPEATER via Echolink

To interface the **BUX COMM**, *RASCAL GLX* Interface via Echolink to our repeater, I performed the following three (3) steps; (It is which is working very well here in our area.)

1^{st step;} I set up a home station with a spare computer. It happens to be a Pentium II 350 MHz with 256 mb ram and a 10 gb hard drive. A SoundBlaster sound card. This is much more computer than needed but it is what I had setting around here.

2^{nd step;} I attached my radio using the **BUX COMM**, *RASCAL GLX* interface to the above computer system. I will mention here that I have a high speed internet connection using my cable modem and a router that I was already running here. The need for high-speed internet access keeps the Echolink program running fast enough so there is little lag time. You can read about that on the Echolink website where they explain completely how to set that program up.

Much thanks to Jonathan Taylor (K1RFD)for this great program that keeps improving with each update .

3^{rd step;} Once the program is up and running and you are *REGISTERED* for operation of it you can set it up in system operator mode or sysop. Register the program for repeater operation with the (-R) on the call sign. Example wq22xxx-R could be your callsign for this link. I use a 450 MHz link frequency for my echolink setup. That is the control frequency of the repeater system and allows me full control of my setup directly. If there is any problem which there have been NONE I can shut down echolink or the repeater if necessary directly at anytime. Also my assistant control operators can do the same. This keeps the system monitored at all times as is required. The repeater is located about 5 miles from my home so I send the echolink signal to the repeater via the 450 link and then to the 2 meter repeater via the controller. It returns on the same pathway. I use Echolink's ability to ID the system. If I were to shut down echolink I activate the normal ID of the repeater on 2 meters and the link system with the controller. This stops unwanted ID's on the Echolink which is a desirable feature.

This system has worked for the last year and a half without any problems. It is reliable and I have talked all over the world on *RASCAL* / echolink system. This also allows us to use echolink to connect outside our area for emergencies if needed and to link our club repeater system to this 3rd repeater system for full coverage as we are in a mountainous area and 2 meter coverage is limited due to terrain.

If you have internet access at your repeater site there is no reason you cannot set this system up at the repeater site. You would not need the radio link, BUT you would have to bring it in on the link radio used for control of the repeater system to satisfy control requirements of the system.

I hope you enjoy the **BUX COMM**, *RASCAL GLX* interface and Echolink and have as much fun as I have had in doing this to provide worldwide amateur radio communications. I started this project when I read about echolink in QST magazine. As in other parts of the country where antenna restrictions exist and even a simple vhf antenna is a no no. Thanks to the **BUX COMM**, *RASCAL GLX and EchoLink* amateurs who otherwise cannot get on the air, can now QSO the world. If they have a mobile or an hand held and can get to the repeater they can once again have access to the *world* via amateur radio. For RASCAL GLX info, go to: **www.BUXCOMM.com** *and click on the RASCAL GLX link button.*

PARAMETER setup for N2FEP _EchoLink_, RASCAL and Repeater, ARE SET AS FOLLOWS:

On the RX Ctrl Tab:

Carrier Detect select VOX
In the sysop mode undr sysop setup
Vox delay (ms) 1200
Anti-Thump (ms) 600
ClrFreq Delay (ms) 3000
Select Squelch Crash Anti-Trip
Duration (ms) 125

On the TX Ctrl Tab:

PTT Activation
Select RTS
Select the comport your computer uses I use COM1

On the DTMF Tab:

Select Min Iterdigit Time (ms) 200
DTMF Decoder
Select internal
 Also select log all commands;   **Disable During PTT;   Enable Remote Pad**
I also set a linkdown and a link up code for control here.
I have limited connects to the following:
01 – random link is allowed
00 – random node is allowed
03 – random user is allowed
09 – reconnect is allowed
08 – status is allowed
- disconnects the echolink from the repeater;   also select an access code if you prefer so if someone is on using the autopatch system they cannot inadvertently access *ECHOLINK*. I use a couple of numbers like 22, or 33, to connect to echolink, via a radio you would put in 22, or 33 and the node number to connect.

Then select the advance tab and these are my setting at my station. They may vary due to radio setup at your location so experiment with these. This will lessen the program from converting voice to DTMF tones and connecting to things not wanted.

Advanced DTMF settings:

Fine Tuning (+-%)   1
Freq. Tolerance (%)   5
S/N Ratio (Db)   8
Twist (Db)   7

On the Ident tab:

I use the spoken voice place your repeater ID here wq2xxx-R
Identify: While active every 10 mins.
                   While not active every 45 mins.
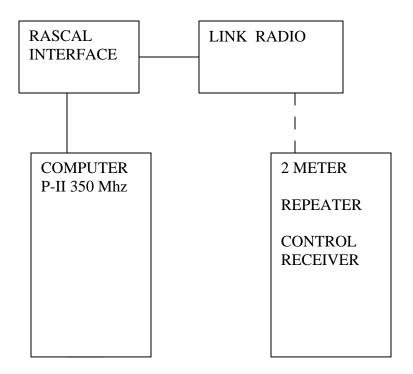   Wait for clear frequency

Options:

I announce all connects , disconnects, and I play a courtesy tone
(I like to know when someone is connected and disconnected)

Announcement pre-delay (ms) at 500

This completes the sysop settings for our system. All other settings are _default_. System flow-diagram is on the following page.

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┌──────────────┐      ┌──────────────┐
│ RASCAL       │      │ LINK  RADIO  │
│ INTERFACE    │──────│              │
│              │      │              │
└──────┬───────┘      └──────┬───────┘
       │                     ┊
       │                     ┊
┌──────┴───────┐      ┌──────┴───────┐
│ COMPUTER     │      │ 2 METER      │
│ P-II 350 Mhz │      │              │
│              │      │ REPEATER     │
│              │      │              │
│              │      │ CONTROL      │
│              │      │ RECEIVER     │
│              │      │              │
└──────────────┘      └──────────────┘
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Thanks to Dave N2FEP for his help developing this document

For RASCAL GLX info, go to: **www.BUXCOMM.com** *and click on the RASCAL GLX link button.*

The direct link to the RASCAL GLX page is: http://www.packetradio.com/rascalmkv.htm