

To: N3FJP Contest Users

Date: 4/9/2020

From: Ken Bell – K4EES

Re: Using N3FJP Remotely

Our club was interested in entering the Florida QSO party in a couple of weeks. We had decided to do this as a 'remote' club effort in the single transmitter category, even before the Social Distancing was forced by the on-going pandemic. We had used the network feature at Winter Field Day with great success and wanted to incorporate it's use with Scott's Out-of-state FL QSO Party software in our effort. We have tested 2 methods and have had some success, but there are gotchas to both.

Central Shared Database Method:

One of our members suggested using 'Dropbox' for sharing the database. Dropbox keeps a local copy of a shared file synced with everyone who is in the share group. Many of us have used this with good success with our work and other projects. All of our members would point at the shared local copy of the file by changing the file location in the N3FJP software.

Having been a network engineer, DB administrator, and software engineer in my career, warning flags were going off. N3FJP uses a version of MS Access to store the contact records and MS Access is a 'single users' database. MS strongly warns against multiple users accessing the same Access DB. There are warnings from Dropbox as well. But, MS wants to sell more expensive products and Dropbox wants to cover themselves in the event expensive data is lost. Of course, we tested this method anyway... with mixed results.

Three of us got on-line and entered 10 records at the same time. We found that ***if more than one person enters records at the same time, there will be data corruption.*** Records will be overwritten. On the plus side, ***multiple users can view the data at the same time,*** so long as they are just viewing. We found out while testing another method (below) that sorting the data by clicking on the field names at the top of the screen also caused problems.

Dropbox Setup:

1. Go to <http://dropbox.com> and setup an account. There are free ones, and I suspect that the free one will work fine, although there is a limit to the number of users/systems that can access the shared folder on a free account. Everyone who will participate needs an account.
2. ONE USER ONLY creates a folder ('N3FJP_shared', perhaps).
3. Put that folder in your Dropbox folder.
4. Open the N3FJP package you will use, then File->Start a New Database.... In that folder.
5. Share that folder with all users you expect to participate.
6. Put a text file (Test.txt) in the folder as well for testing.

On the PCs that will share the N3FJP DB:

1. Accept the share from the user above and obtain access to the shared folder.
2. Make sure you can make changes to the Test.txt file.
3. Open your copy of N3FJP and point it to the shared DB file in the Dropbox folder. (Files->Open)

4. To test, take turns entering contacts. Allow plenty of time between changing users. The Settings->Refresh Rate is default to 60 seconds, so I would allow at least double that before allowing another user to start entering data. OR, verify that the last record is the same.

You can all watch your progress real-time and keep up with your score, but you will need to coordinate between users to enter contacts, and no tinkering while records are being entered. Watch only if you aren't the single user 'On Duty' to be adding Contact Records.

Recommendations:

- Reasonably fast Internet speed with little latency is required.
- Only ONE person entering contacts at a time.
- Use some method to alert other users at shift change to allow other users to enter contacts. We used MS Teams
- Multiple users can view the data and watch progress.
- No messing about in the data grid.
- At shift change, make sure the last record reads the same to ensure the data has been synced before the next operator starts data entry.

N3FJP Network Feature used over the Internet

While I was replying to a message about the method above, I had an idea to try the Network feature we had used at WFD over the Internet. All that would be required would be a minor change in the router in front of the N3FJP SERVER system. Please read the stern warning at the end!

I had an email from another user (special thanks to Jay, N1AV) who said he had done this with his club and encouraged me to go on. One of our club members had a spare laptop, so I did some preliminary tests and found that we were able to use the Network function across the internet. We setup a test with the other club members. The change that makes this work is on the home ROUTER that sits in front of the SERVER system. The rest is straight forward.

On the SERVER PC system:

1. Decide where the SERVER will be located. Preferably on a simple, single router network such as at a home.
2. Start the SERVER up on the local network. Obtain the SERVER IP address and write it down for later
3. In N3FJP go to Settings->Network (Some of Scott's software have Network as a top level menu). Make sure 'This Station Name' and 'Server Name or IP' are exactly the same (required on the SERVER only). I would leave them as they were set by default on the SERVER.
4. Click 'Server and Clients Connected' and choose 'TCP'. Click 'Enable Status / Chat Functions'

On the ROUTER:

1. Find the manufacturers instructions for the ROUTER that is between the Internet and the SERVER PC. Google can be helpful.
2. Log into the ROUTER, most likely using a web browser, and obtain the IP address supplied by your Internet provider. Write it down for later.
3. While logged in to the ROUTER, setup 'port forwarding' to send traffic from the Internet on port 1000 to the local IP address of the SERVER you wrote down above. Note that this might be

called 'Single Port Forwarding', or if your router is very old, may be called setting up an Enclave or something else. My setup had a way to change it from port 1000 to another port. If you have this option, put port 1000 in both places. Read your ROUTER instructions!

4. If your ROUTER allows it, create a static IP address for your SERVER, so it won't change. Do this while logged into the ROUTER. Older routers may just take the IP address out of the address pool, while newer routers will reserve the address and give it to that system only when it comes on-line. Read your Router Instructions.

On remote N3FJP systems:

1. Open N3FJP and go to Settings->Network and enter the Outside IP address of the ROUTER (obtained above) in the 'Server Name or IP' field.
2. Click Network Method 'TCP' and 'Enable Status / Chat Functions'.

You should all be sharing the data on the SERVER system.

As promised, there are some gotchas.

First, there are network vulnerabilities in using this method. Read the warning below and share the IP address of the server with ONLY the people you trust. Second, we found that we could simultaneously enter data, but, if someone sorted the records by clicking on the field headings, the record ids would stop being sequential and we THINK we lost a couple of record. Don't mess about with the records grid window.

We have determined that we can all enter data simultaneously, and we can view the records! The Chat feature works beautifully as well.

Recommendations:

- Read the Warning Section below. Only open the hole in your Router to test and for the contest. Do NOT leave it open.
- Only share the outside IP address to responsible parties that are participating.
- Reasonably fast Internet access with low latency is required for all parties. It would be interesting to see how this works for someone with Hughes Net, since it uses a satellite link.
- No messing about with the data fields at the top of the screen. This MAY cause issues. Further testing required.
- If you decide to do this, you should be familiar with the Network feature and play with it on a local network before you try across the Internet. It's easy to use, but you can eliminate some questions before you start working with someone remotely.
- Even if you are familiar with N3FJP Networking, please test access across the Internet before the contest. Make sure everyone on your team knows how to setup their system.
- The 'chat' feature in Networking works GREAT!!! We used it for testing and will use it for FL QSO party (and perhaps other contests) to hand over the 'Duty' to other operators.
- We found it was OK for a user to modify his own records, but do NOT delete any records while the contest is in progress. Write down the ID# and call sign and delete it afterwards. We found this to be true whether on a local network or over the Internet.
- Setup up and use a backup. For Winter FD, we used a thumb drive on the server system and dumped a backup to the thumb drive every 15 minutes. Didn't need it, and proud we didn't.

- We recommend having the SERVER on a separate box, although Jay said his club has just used one of the user's systems for the server. Note that if you have a separate system for the server, a user on the same network needs to just enter the outside address of your ROUTER, just like everyone else.
- I wouldn't recommend buying a new router, but My Netgear Velop has a phone app that makes all of this setup extremely easy. If you own an Velop, use the app.
- If you start having problems, check to make sure that your Internet provider hasn't changed your IP address of your ROUTER. Also, check to make sure that the SERVER's IP address hasn't changed.
- And lastly, it works (so far) for us. I'm an ex-IT/Security guy. I know the risks we are taking. I cannot be responsible for any problems YOU might have.

WARNINGS from an ex-Fortune 500 IT Security Manager:

Your Router is being scanned regularly from the Internet looking for vulnerabilities to exploit. Normally, your router drops these attempted connections and you never see them. What we are doing here is opening a TEMPORARY (please put it back afterwards) hole on TCP port 1000 from the Internet to your router to a specific system, which is your SERVER. **Don't open this up and leave it open!** Over time, a nefarious individual (probably from Russia or S.Korea) WILL find it and WILL attempt an exploit. There may be a port 1000 vulnerability that Windows 10 is not protected against. AND, this could make a mess of your DB. Chances are small if you open it for a short time, do your testing and close it, open it for the contest and the close it. But don't just leave it open.

N3FJP has no authentication for the Network feature. It was intended to be used by friends behind a router that no one can access except those friends. If you change your router with the network feature as described above to be used over the Internet, anyone who has this info and your router outside IP address can hop into your Server's log DB with you. Any and all who are on-line with the Network feature can add, change, and delete records.... even your whole log. **The IP Address is the key: Be careful of who you share it.**