Radio Mobile in favour of 2m ARDF reflection simulation.

INSTRUCTION MANUAL
(by ON4CHE)

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1. Installation and initialization

A. Installation of the program

Radio Mobile is freeware VE2DBE and can be downloaded:
http://www.cplus.org/rmw/download/download.html
Follow the instruction for installation.

For more information, a Yahoo group, dedicated to Radio Mobile, exists:
http://groups.yahoo.com/group/Radio_Mobile_Deluxe/

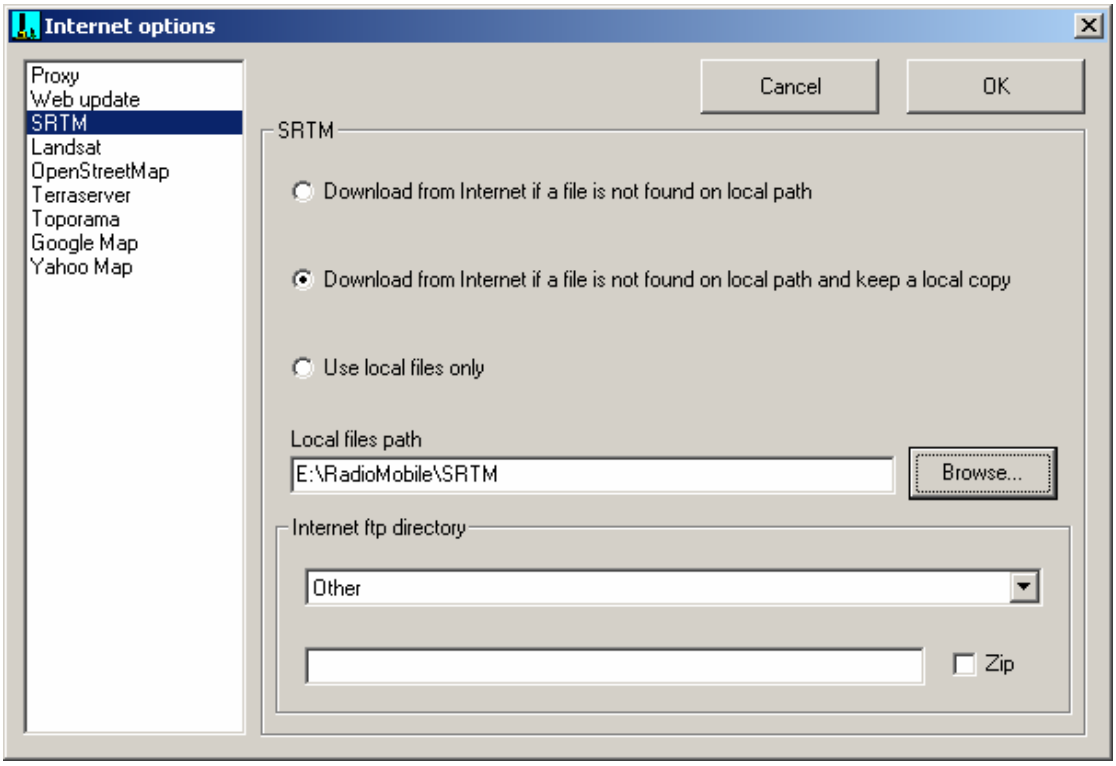
B. Modification of Map_link.txt

Modify Map_Link.txt with Notepad, remove the accents in front of the different URLs:

'www.expedia.com
'virtualearth.net
'map.access.mapquest.com
'google.com
'us.maps3.yimg.com/aerial.maps.yimg.com

C. Initialization

Start the program: rmweng.exe.
Go to " Options – Internet " and fill in the path where the different maps can be stored locally. Do this for all internet sources.



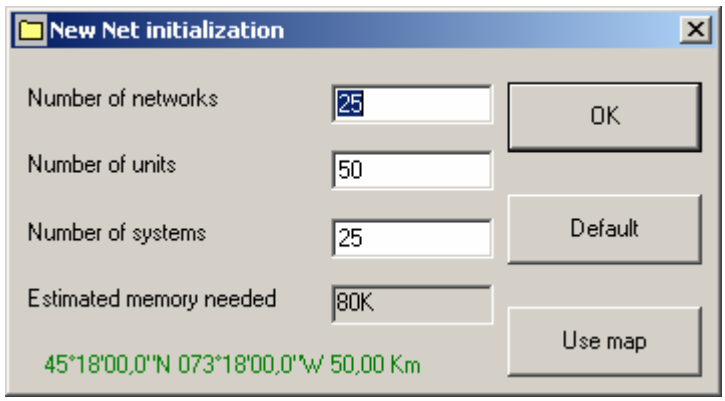
Be sure that your firewall doesn't block these sides and ports used by these sides!

2. Setup of trainings/competition area.

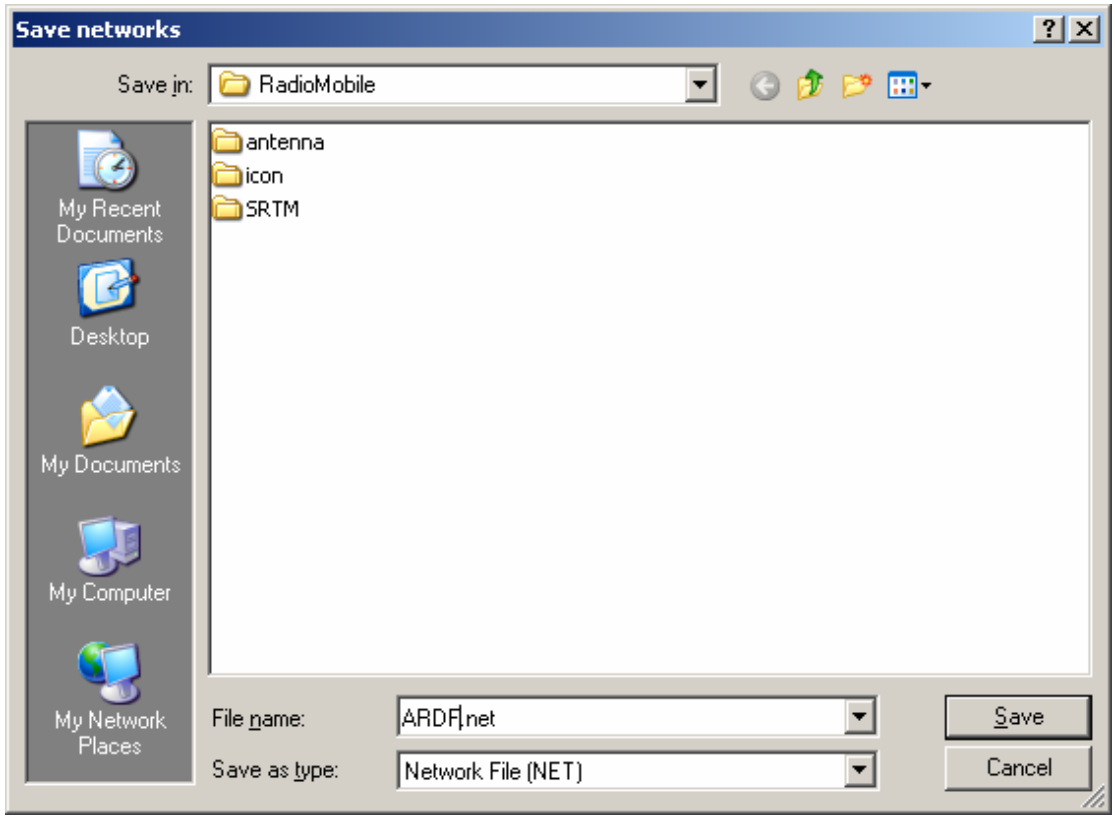
Next step is the creation of the simulation area, beacons and receiver. As Radio Mobile is originally created for the coverage calculation of a network, we have to create a network and define the units (receivers/transmitters) in it. After that, we will define the area where we want to do the simulation.

D. Network creation

For every different area you want to simulate, we have to define a network. For every fox (beacon) and every receiver, we need a unit.
The default values are ok to start our first simulation:

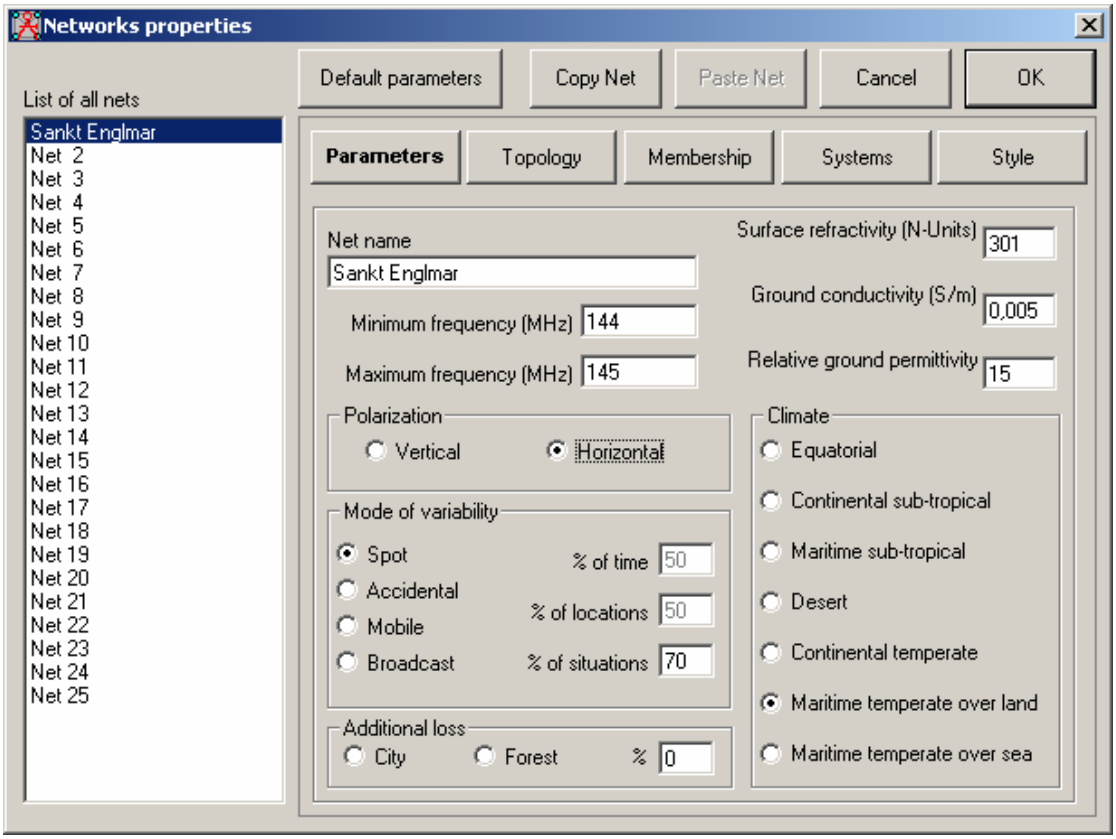


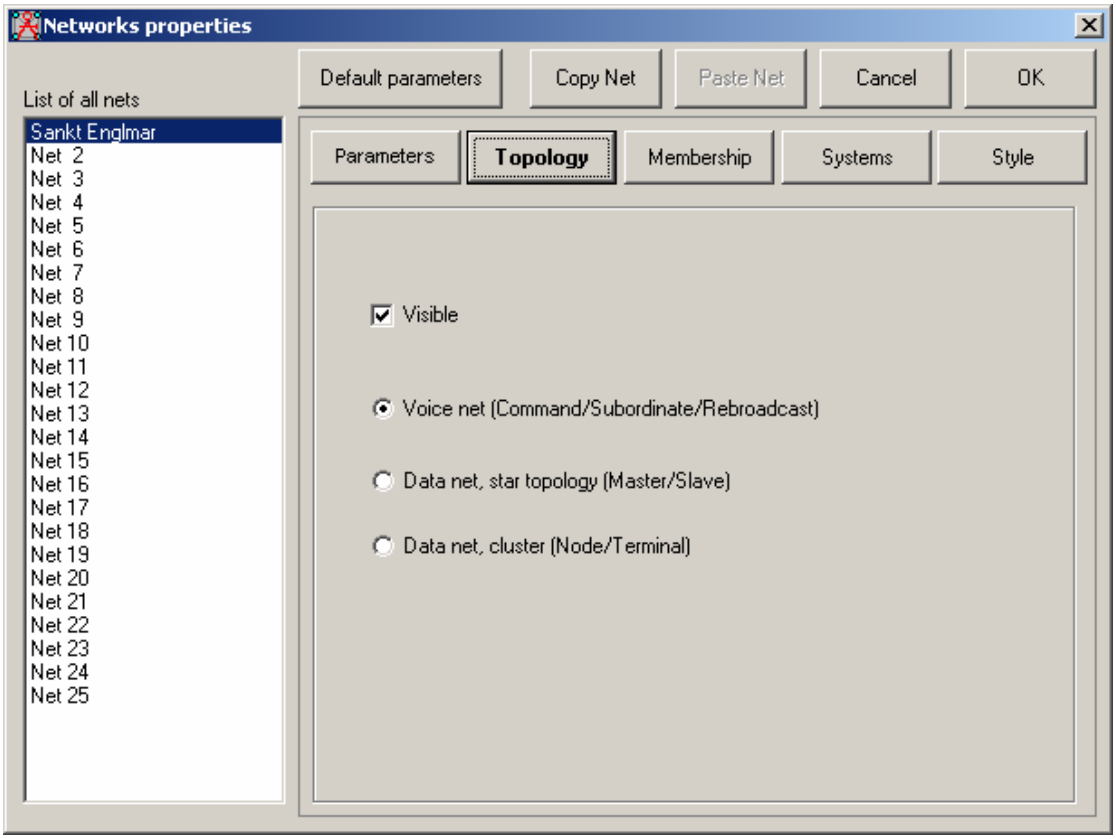
Save your net with a new name e.g. ARDF:



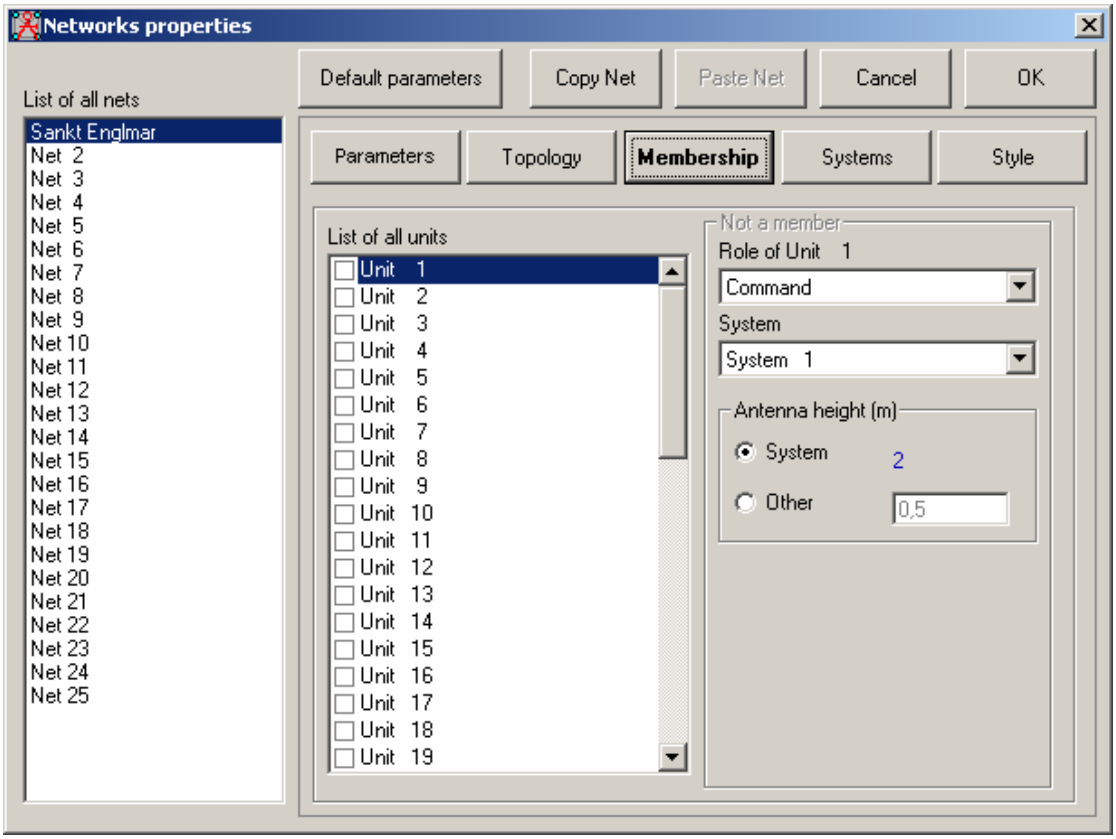
Fill in the network properties:

- Net name.
- Band: 144MHz – 145 MHz
- Polarization: Horizontal
- Climate: Maritime temperature over land.





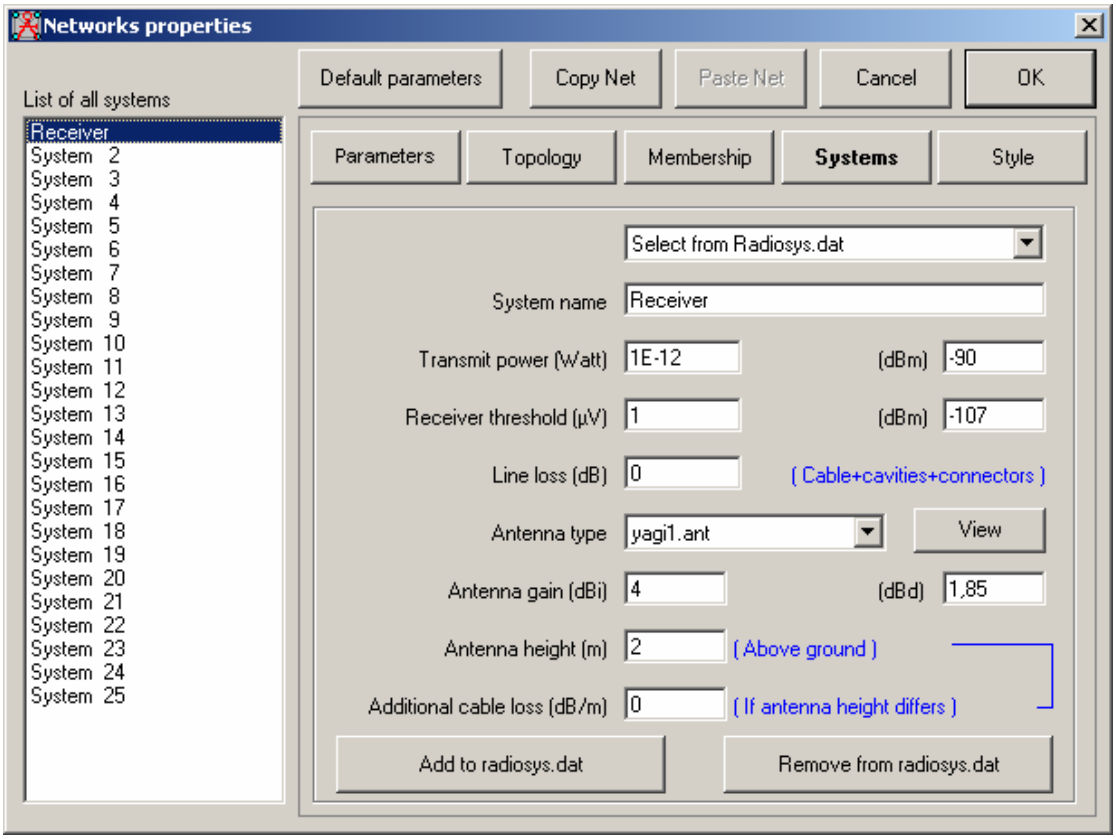
Membership will be defined later. It defines which Rx and Tx is active.

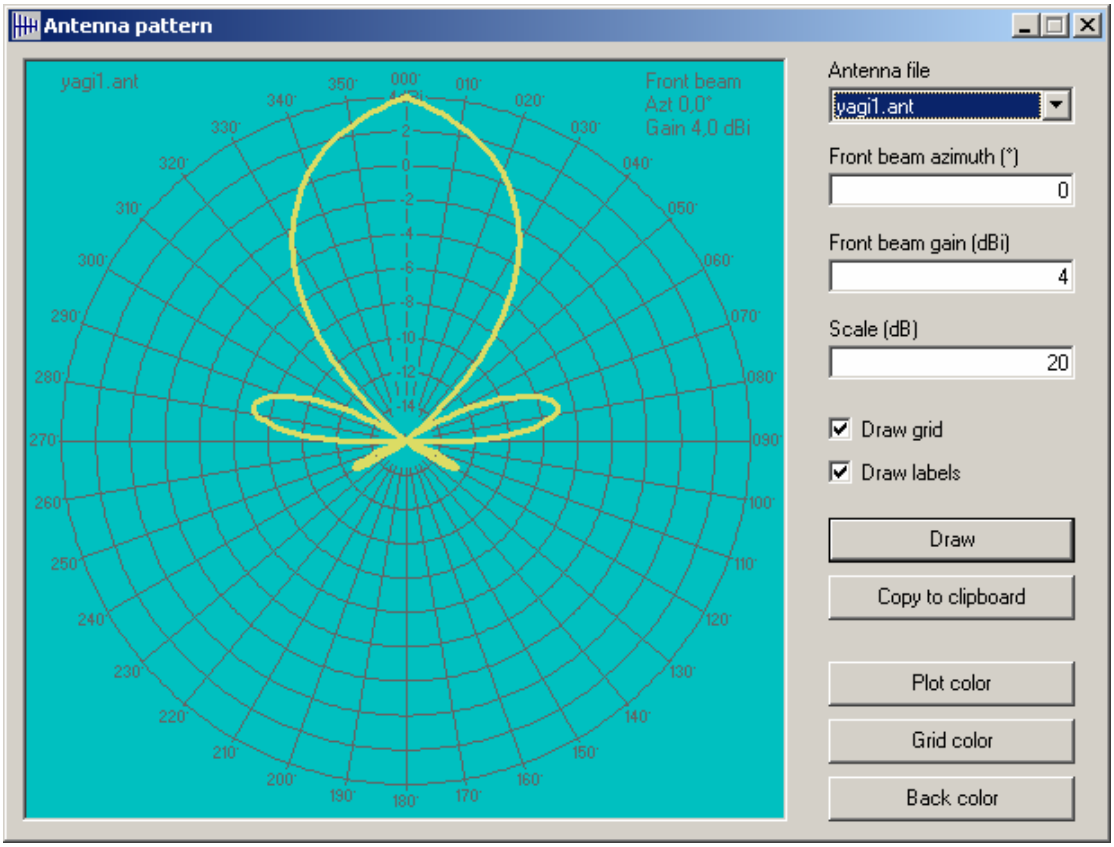


We will define 2 different systems: a receiver and a transmitter:

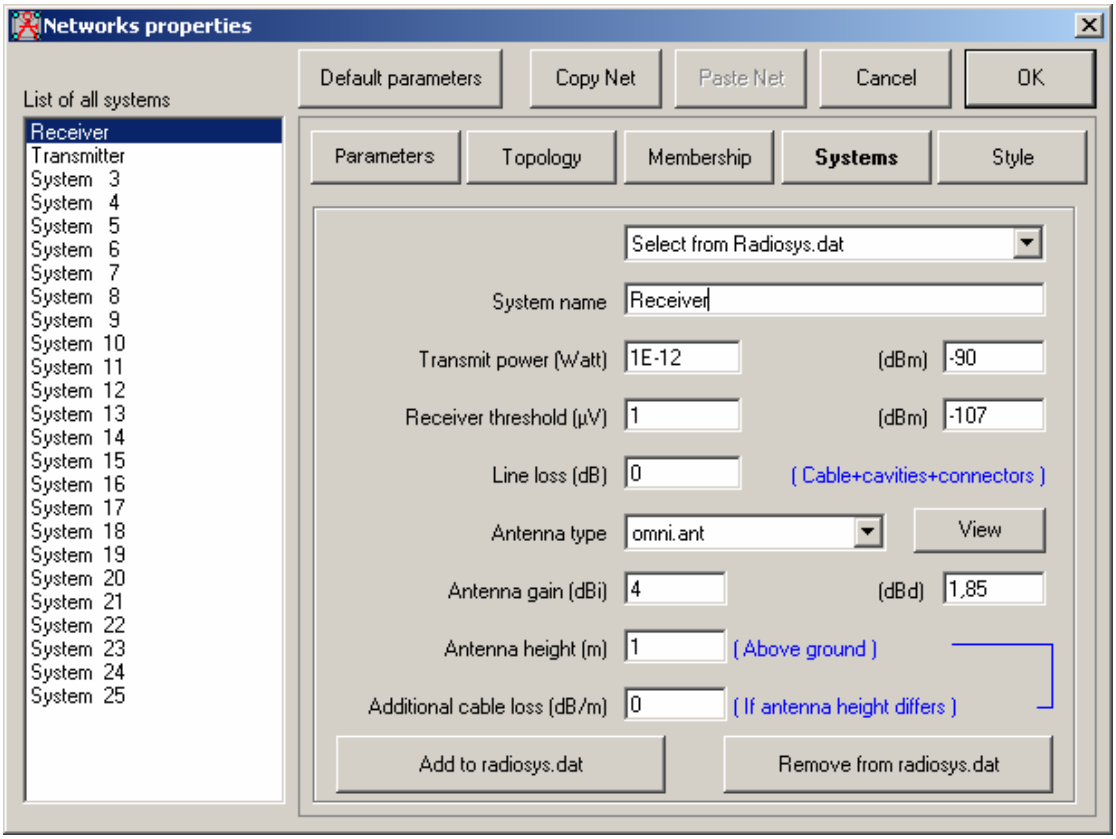
You can define the receiver with a yagi antenna, but for our purpose, we will use a omni directional antenna to avoid the work to changing always the direction of the antenna.

This is the example with yagi:

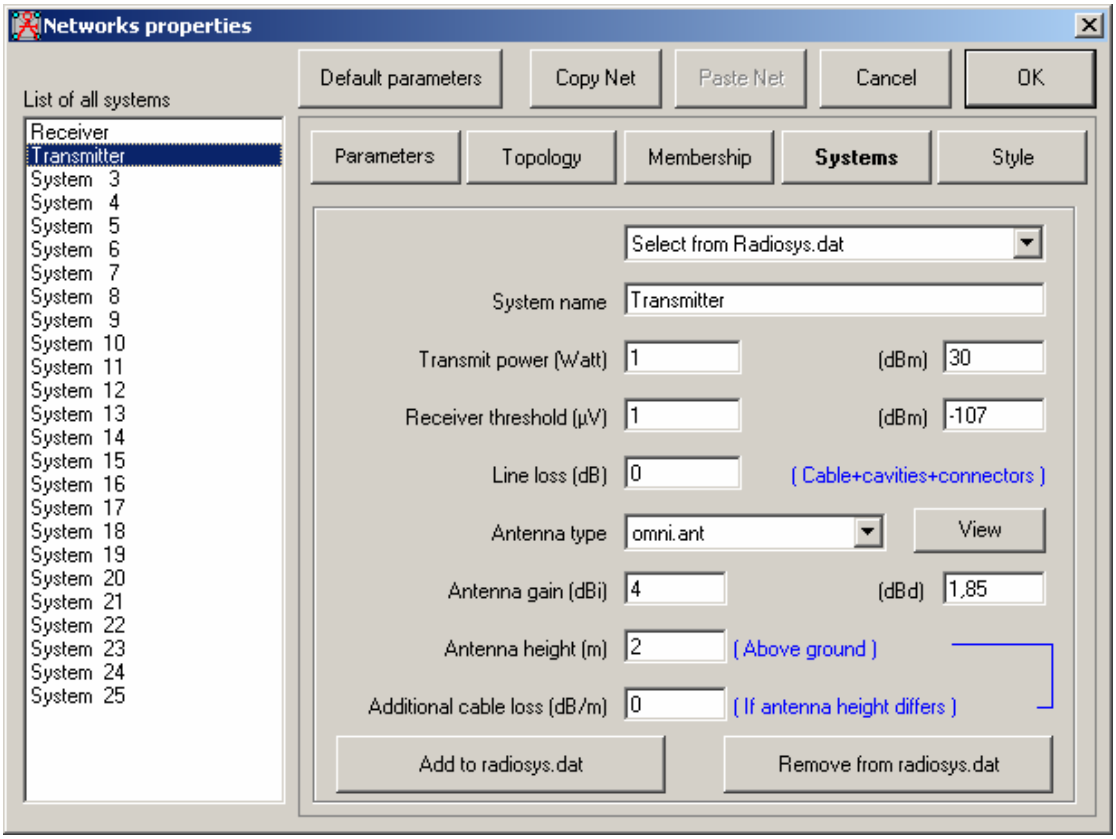




This without yagi:

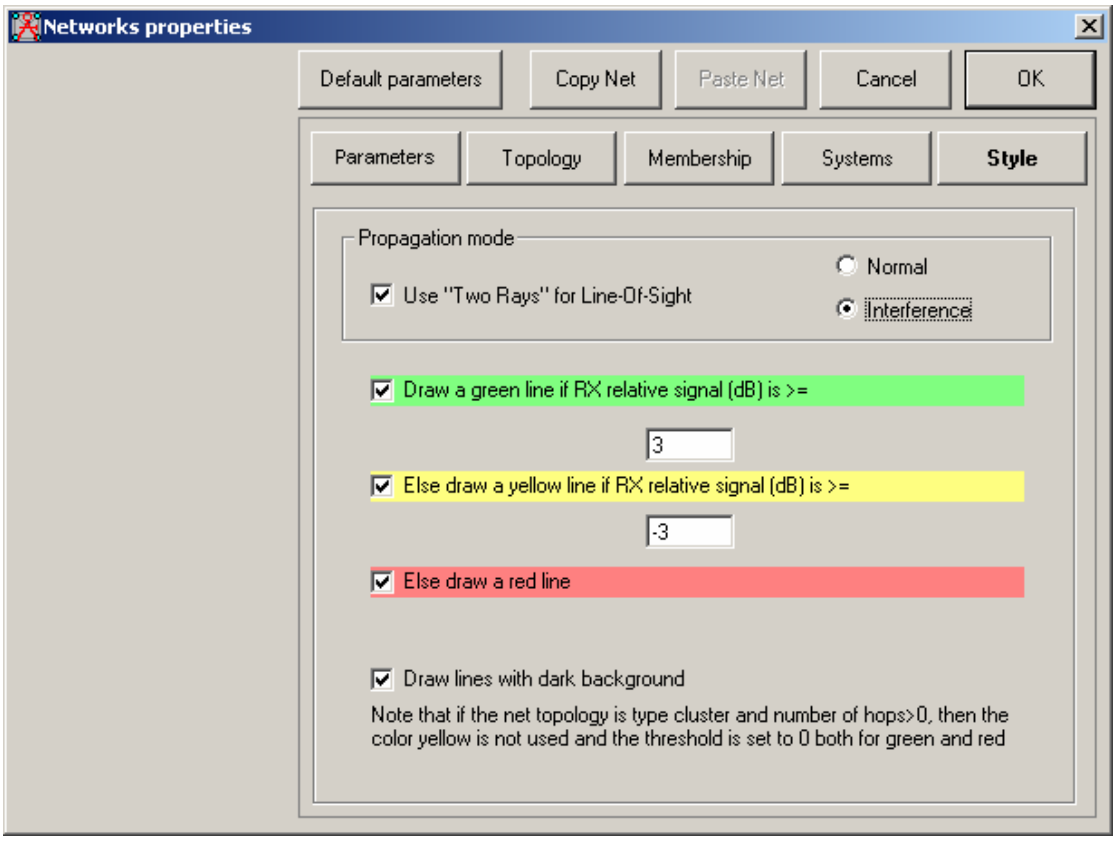


And the transmitter:



Style:

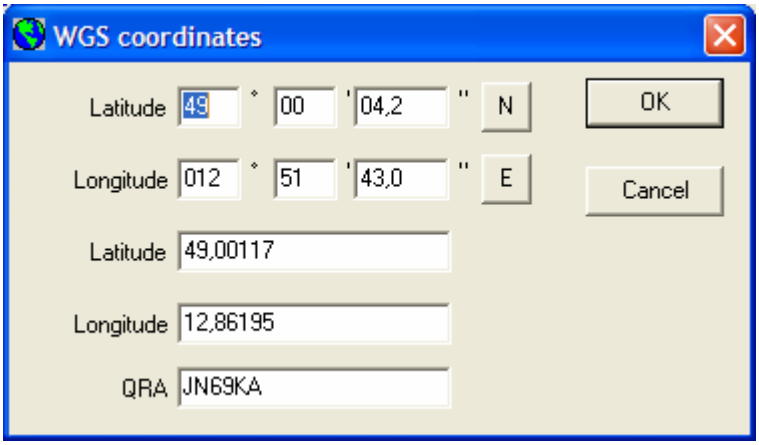
- Propagation mode: Use “Two Rays” for Line-Of-Sight with interference.

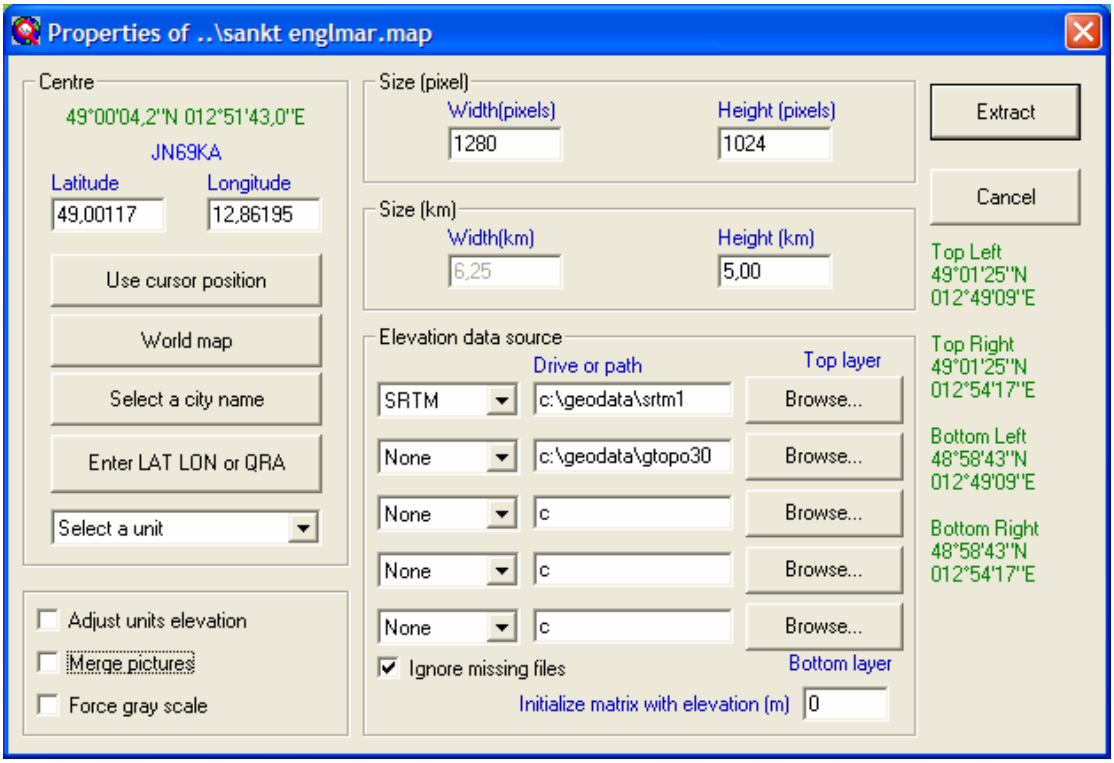


Save everything by pushing “OK” button.

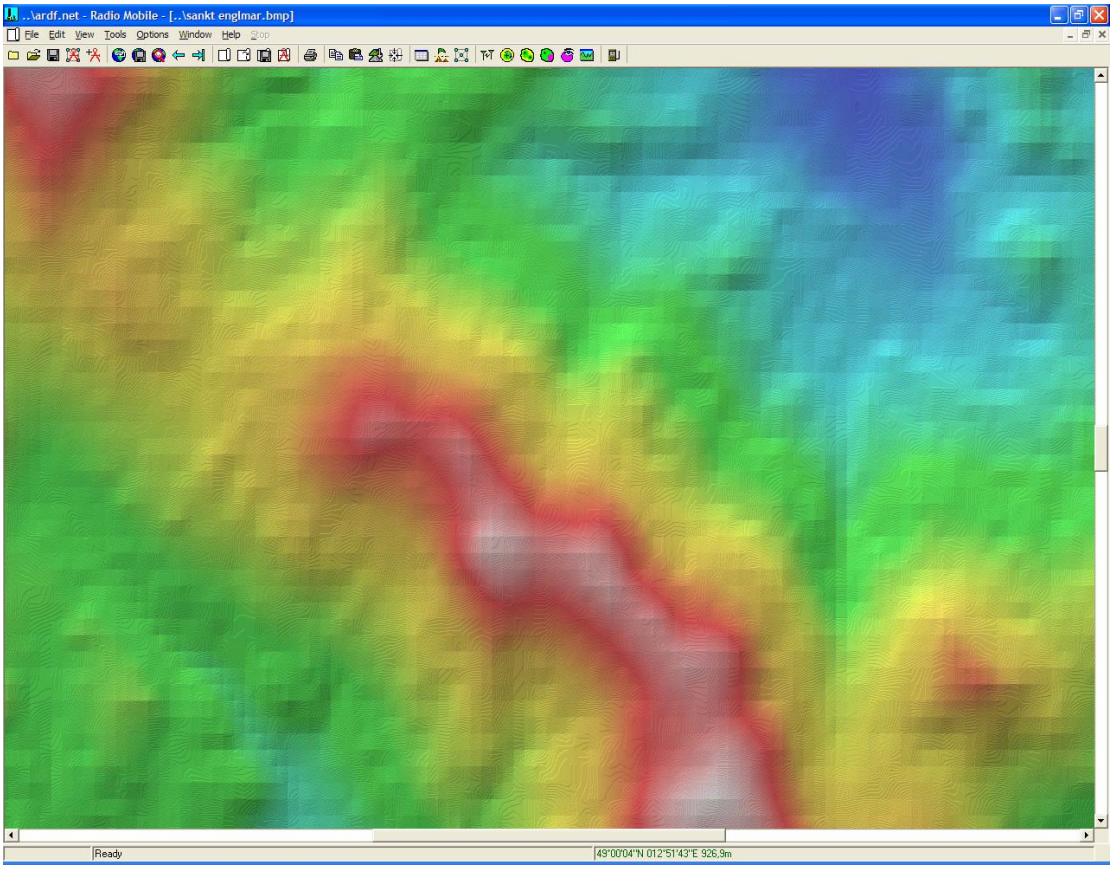
E. Area selection

Choose the right area in the map properties: file – map properties.

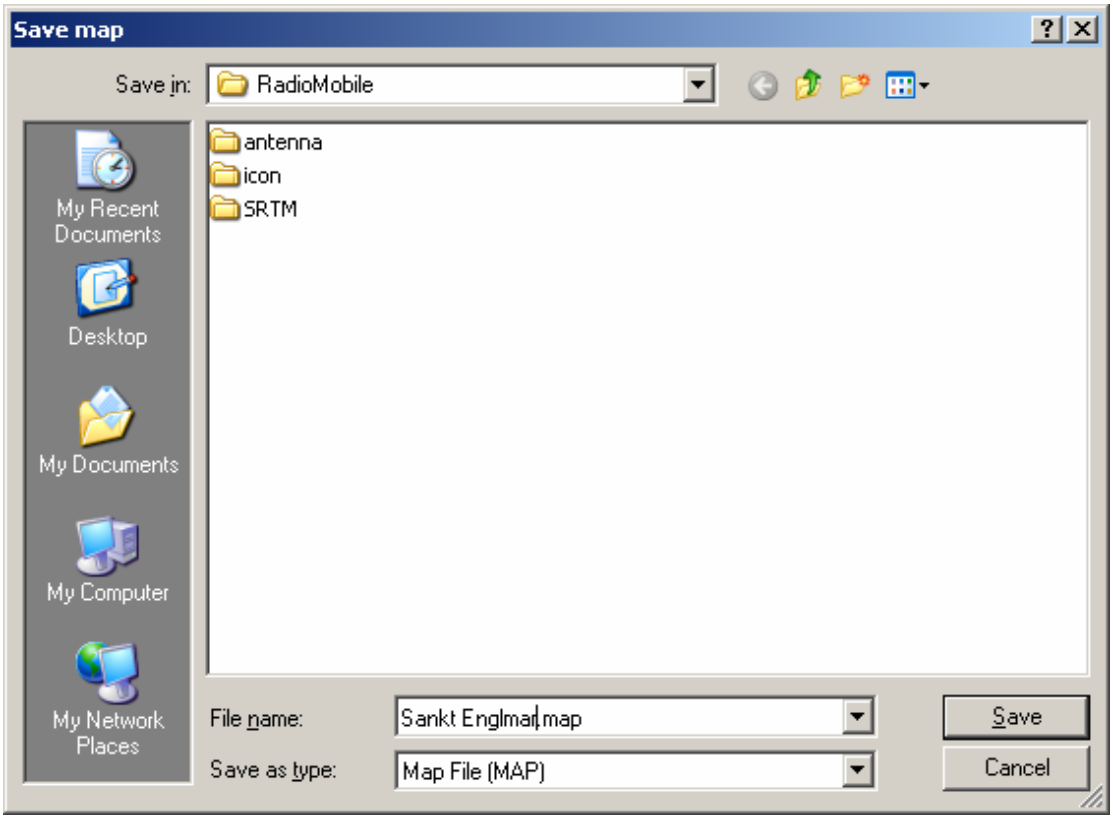




Pushing the Extract button, we become the elevation data:

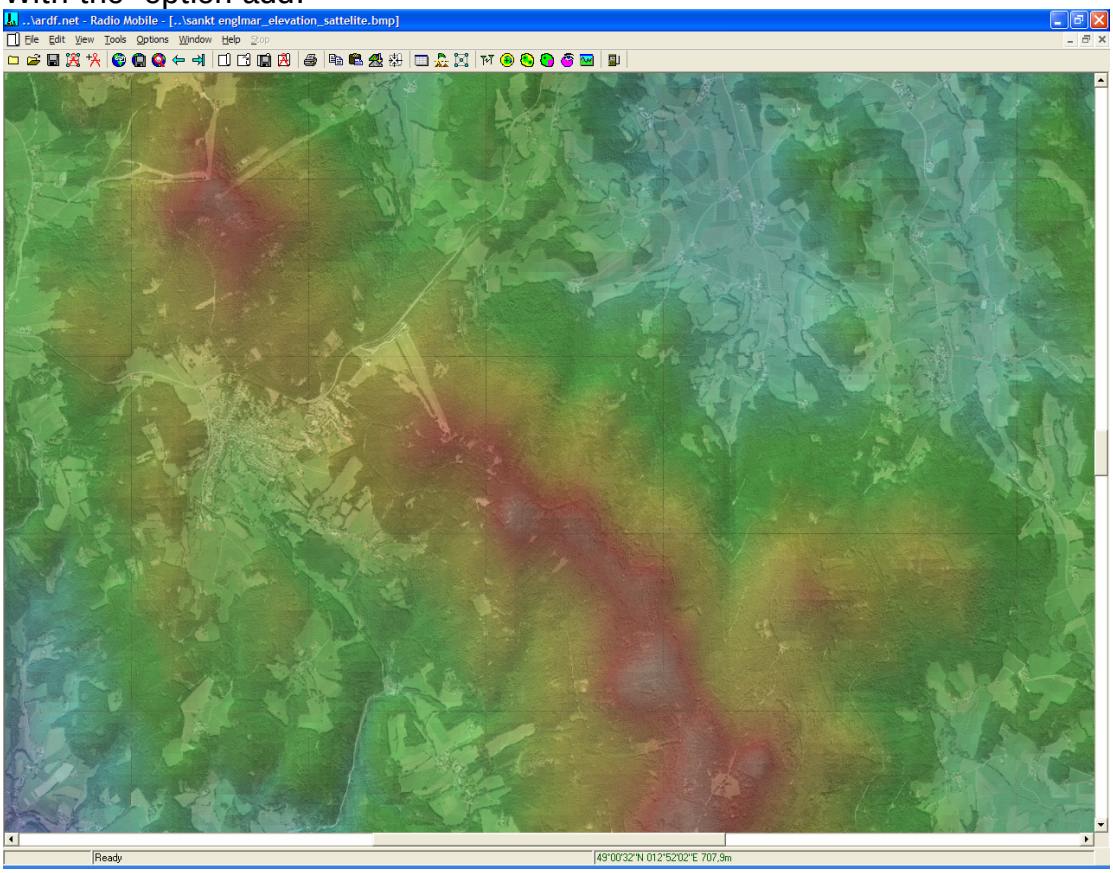


And save the new map information:



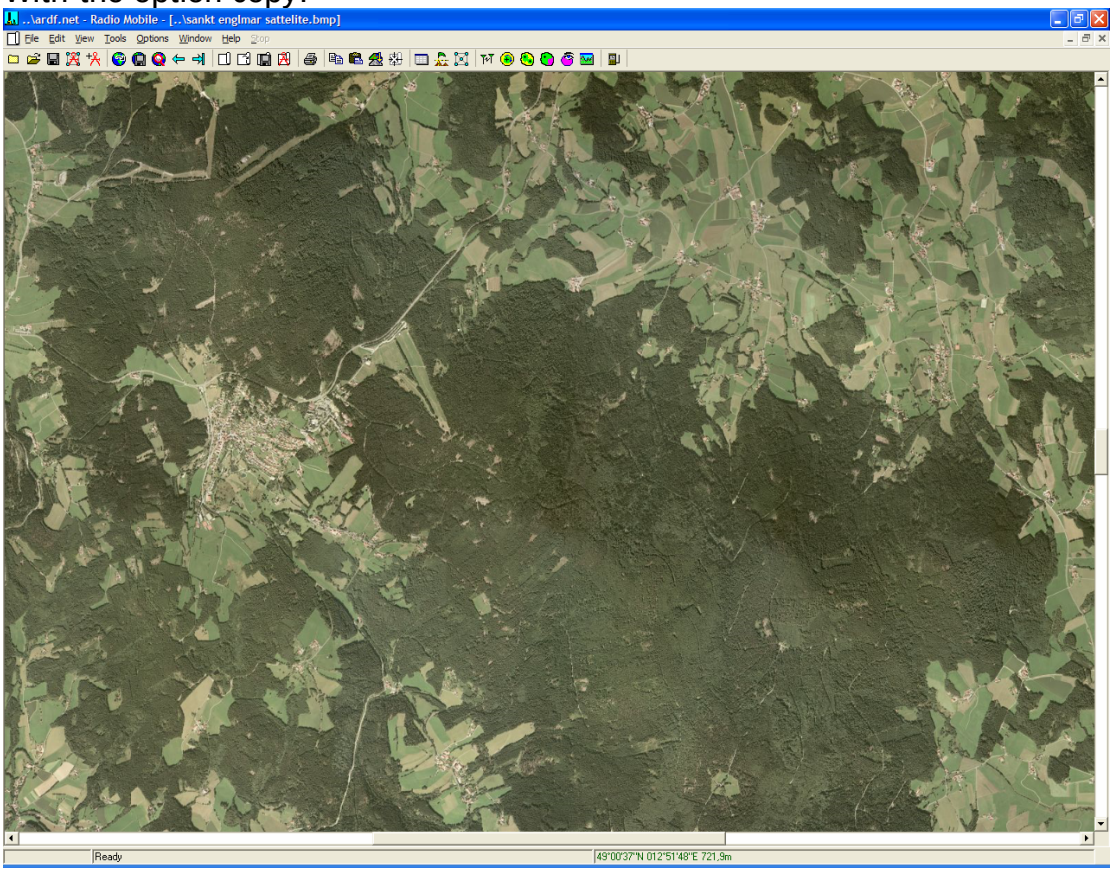
To get the satellite photo from the same area, switch on the “Merge picture” flag. Adjust the scale to get the satellite photo from one of the sources (in this case VirtualEarth).

With the option add:



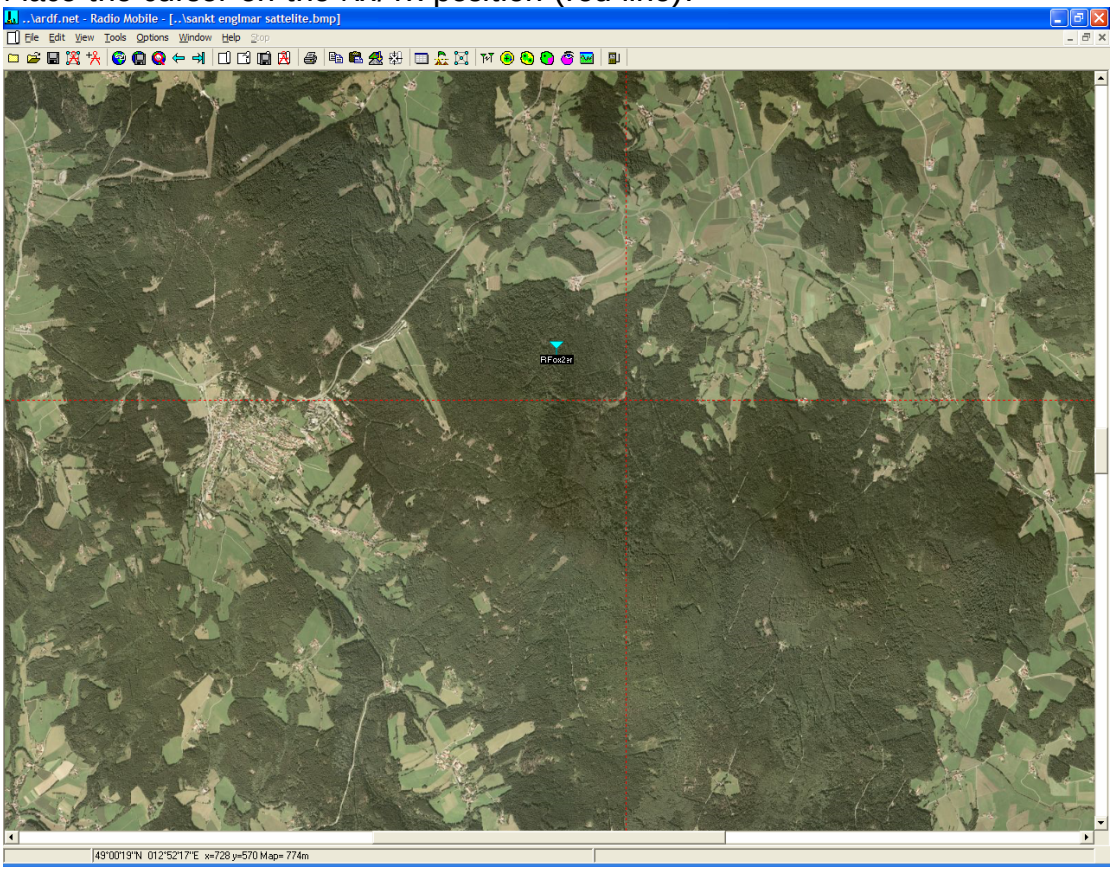
(save the new picture)

With the option copy:

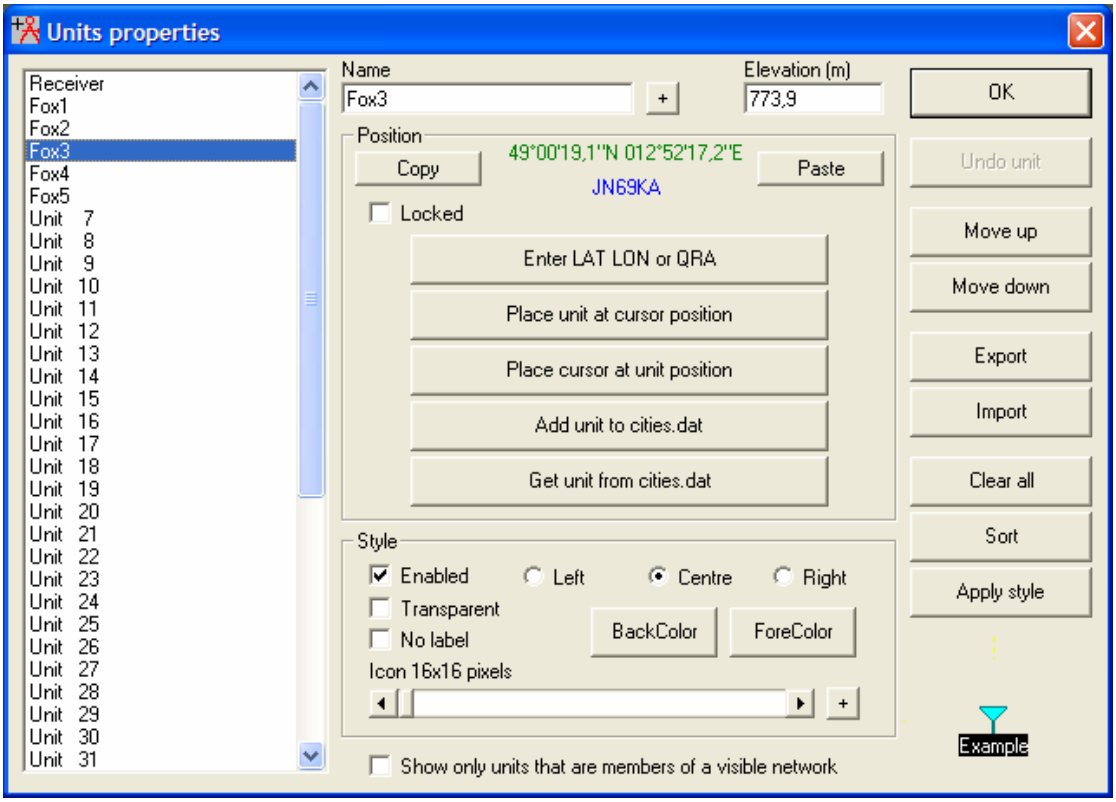


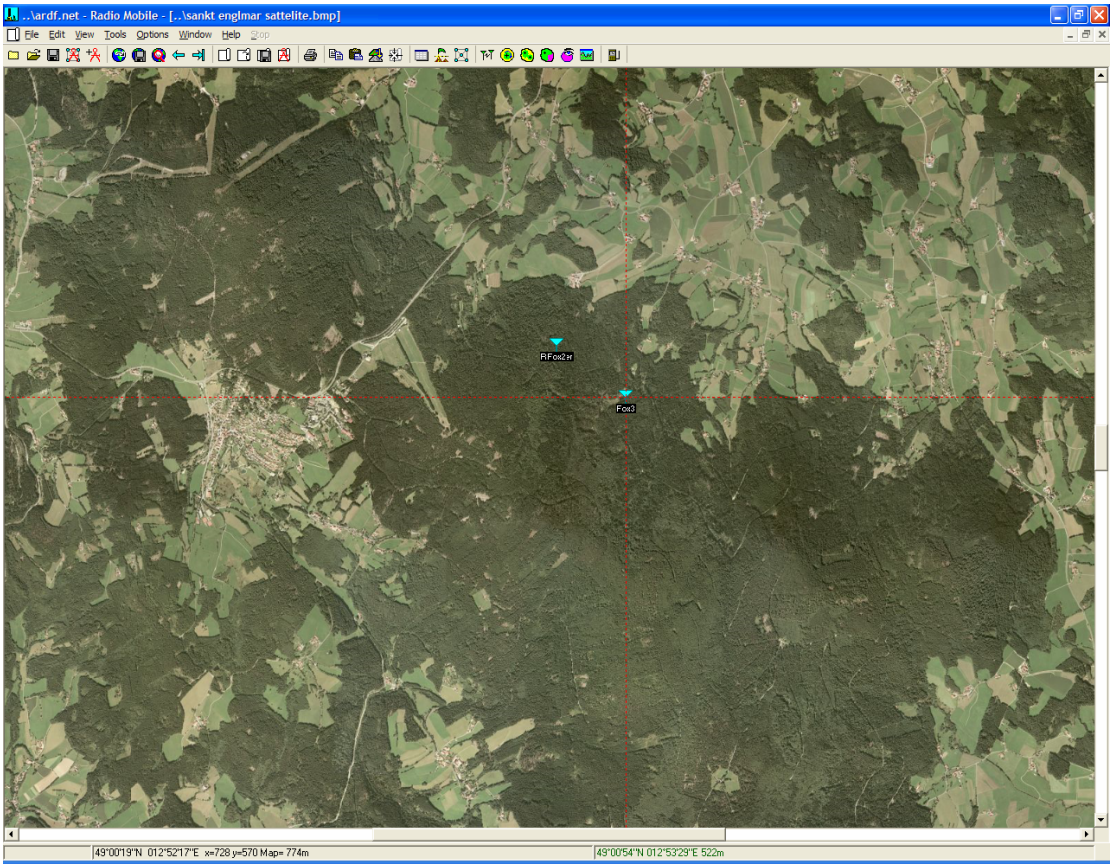
F. Define Rx/Tx position

Place the cursor on the Rx/Tx position (red line):

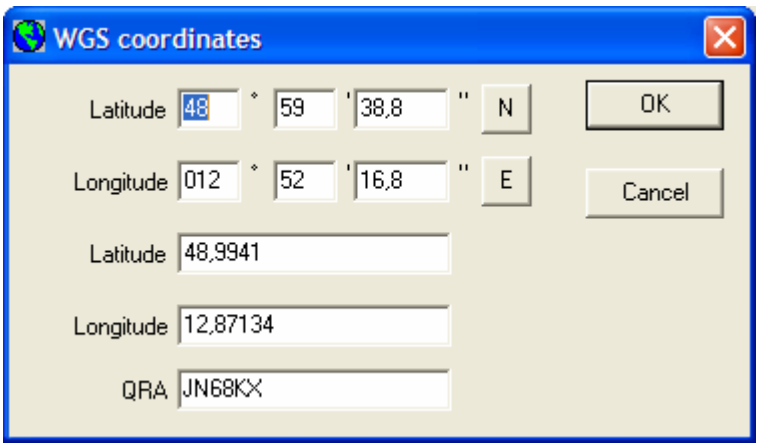


Select: file – unit properties (select unit at cursor position):





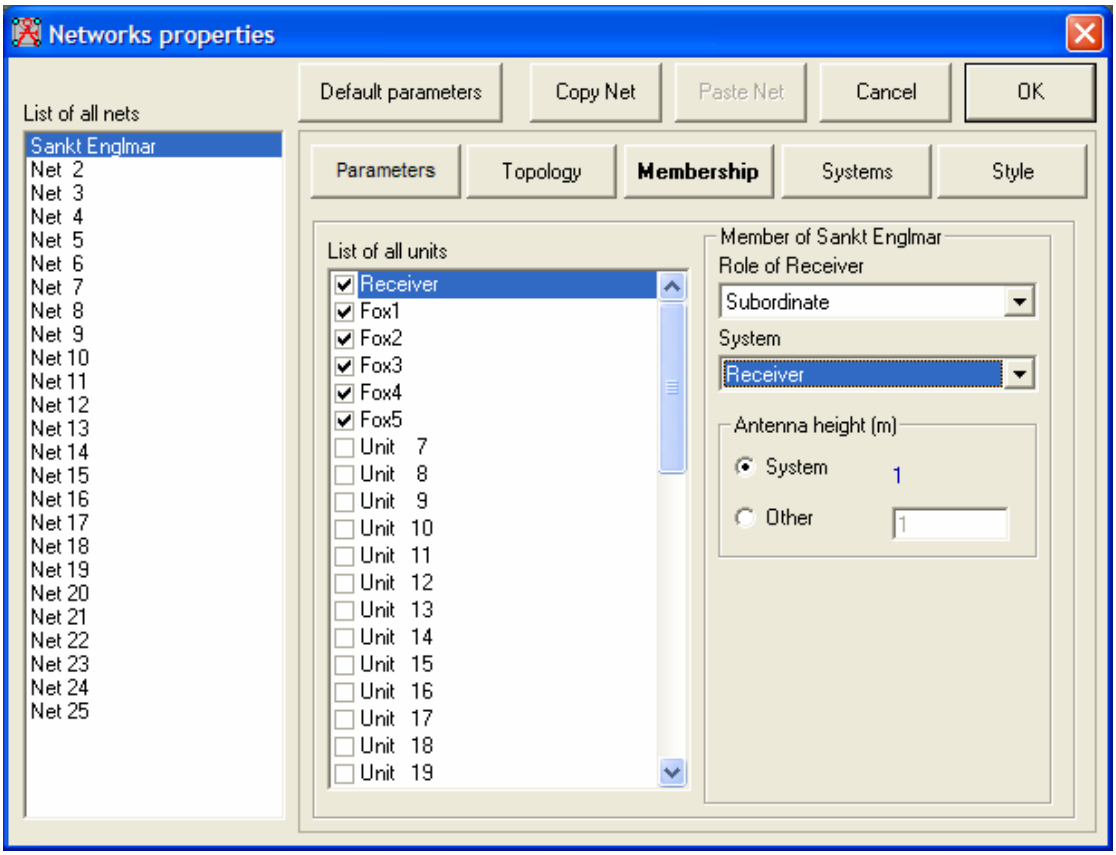
It's also possible to enter the fox position by his coordinates:



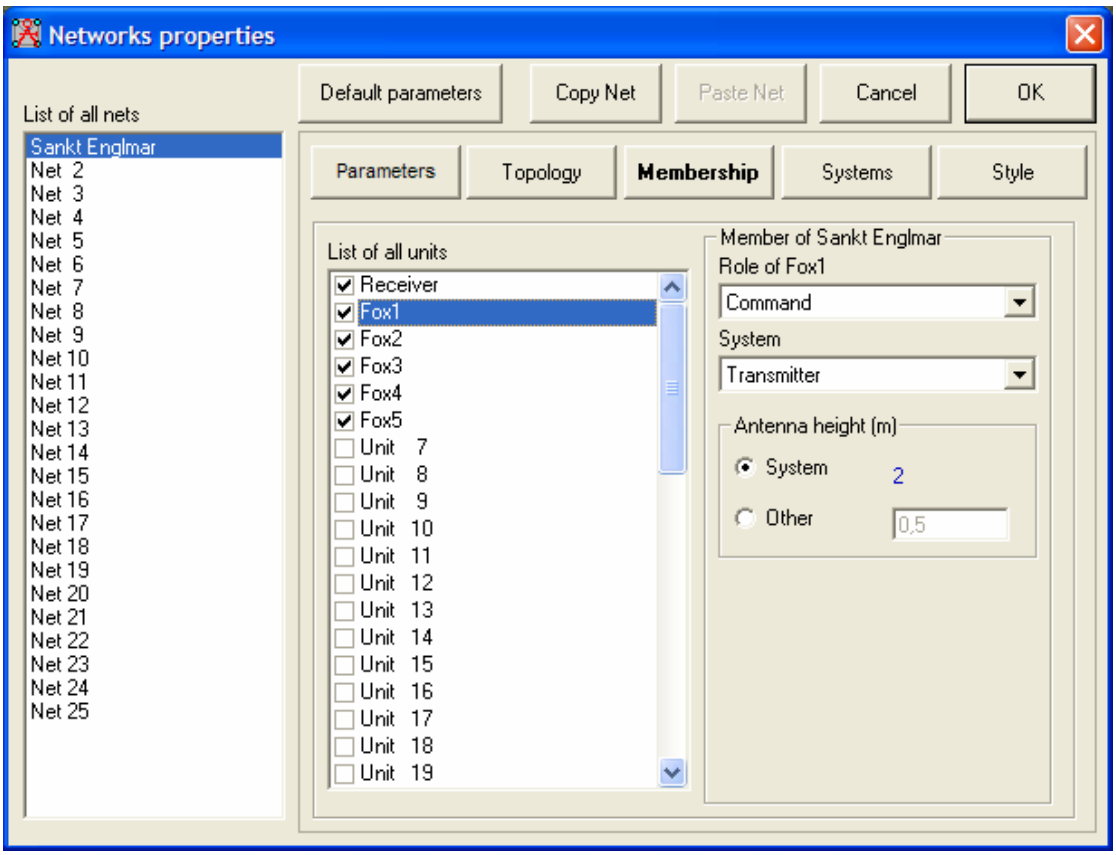
G. Add Rx/Tx to the network:

Add the receiver and foxes to the network in the network properties option:

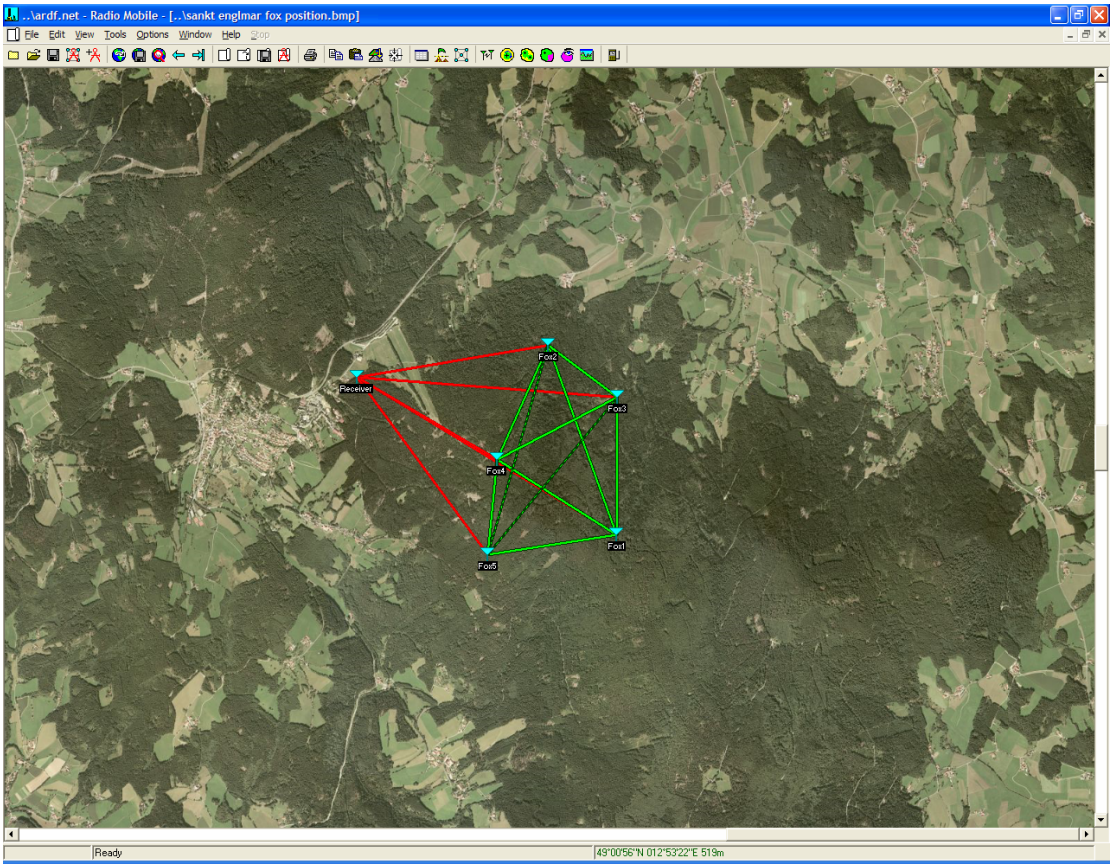
For the receiver:



For the foxes:



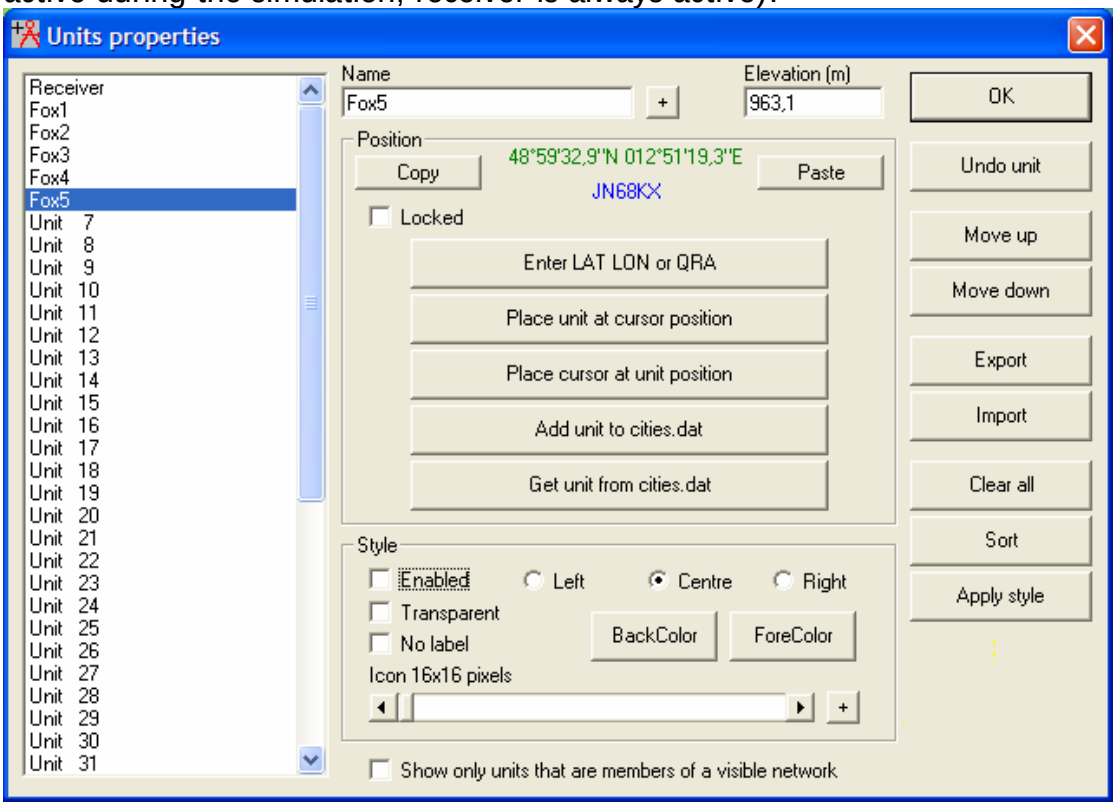
And everything is ready to start the simulation:



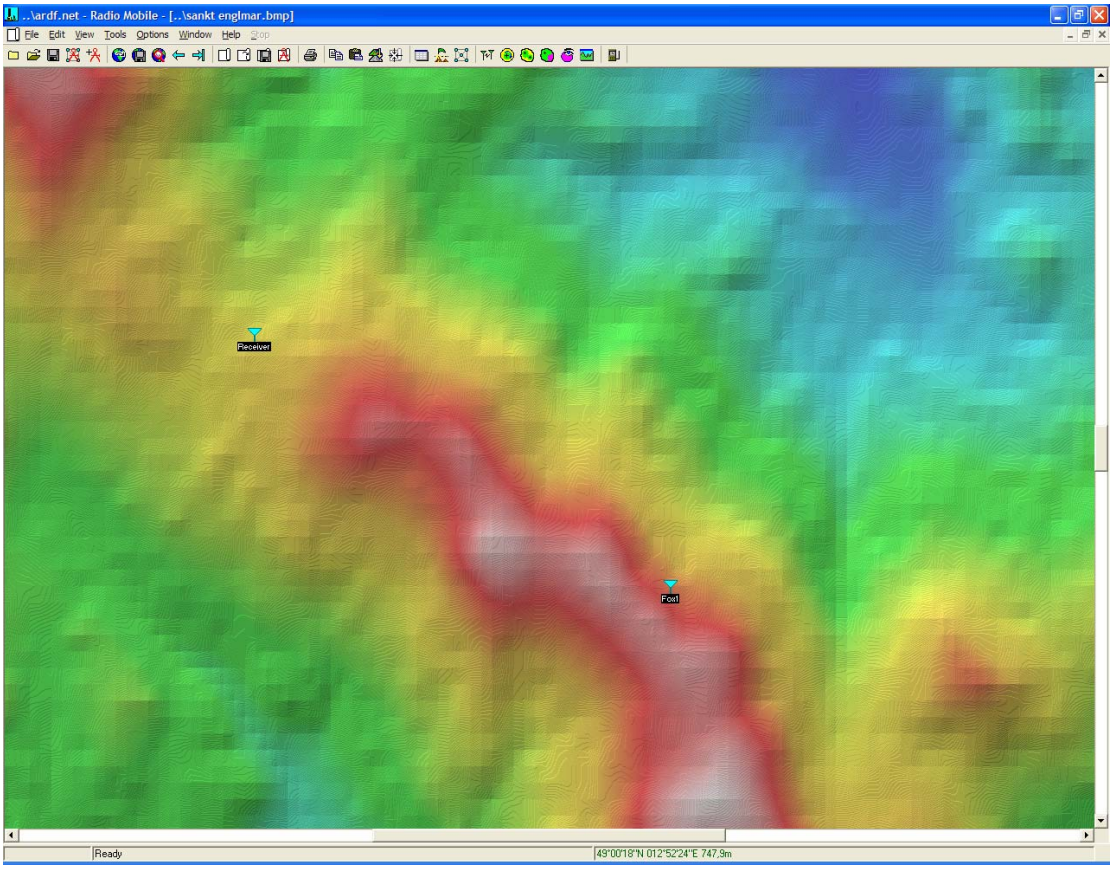
3. Reflection simulation

H. Activation/Deactivation of a transmitter/receiver

Select the unit properties to enable or disable the foxes (only one fox should active during the simulation, receiver is always active):

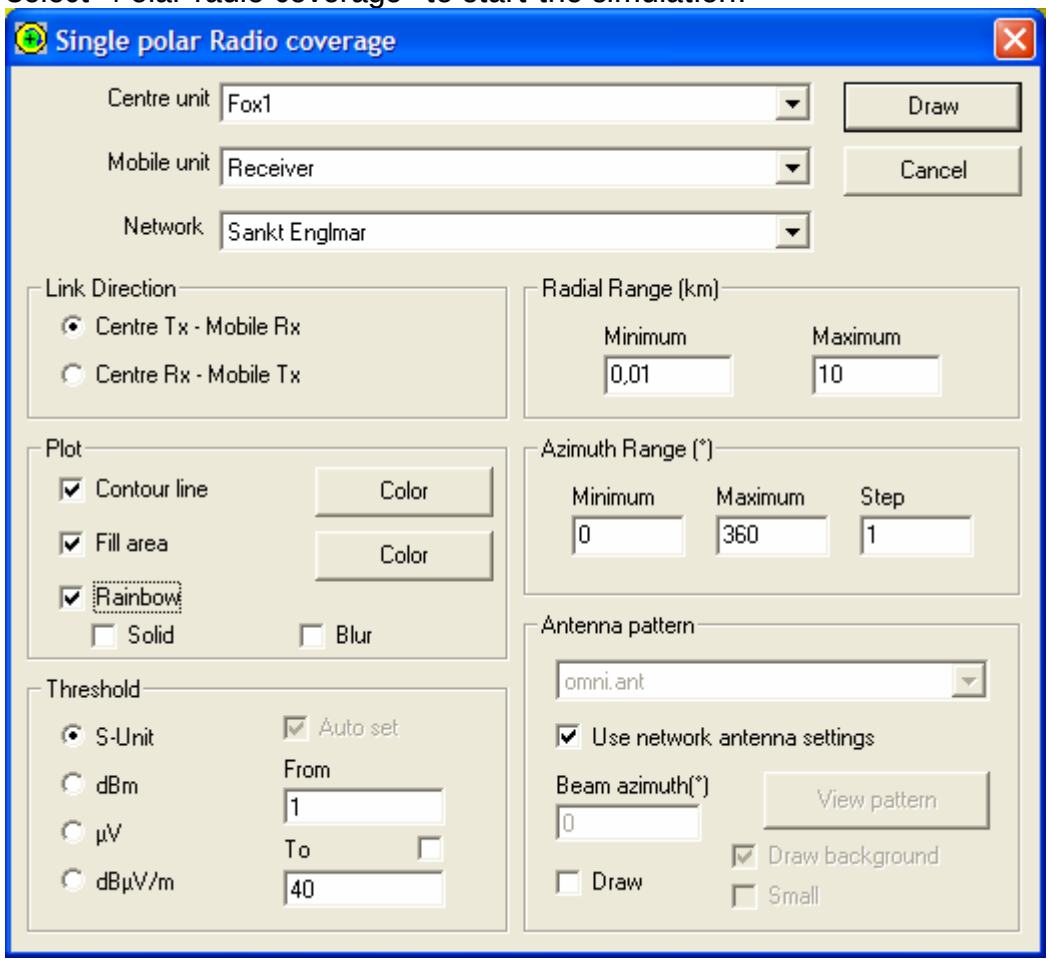


Fox one active:

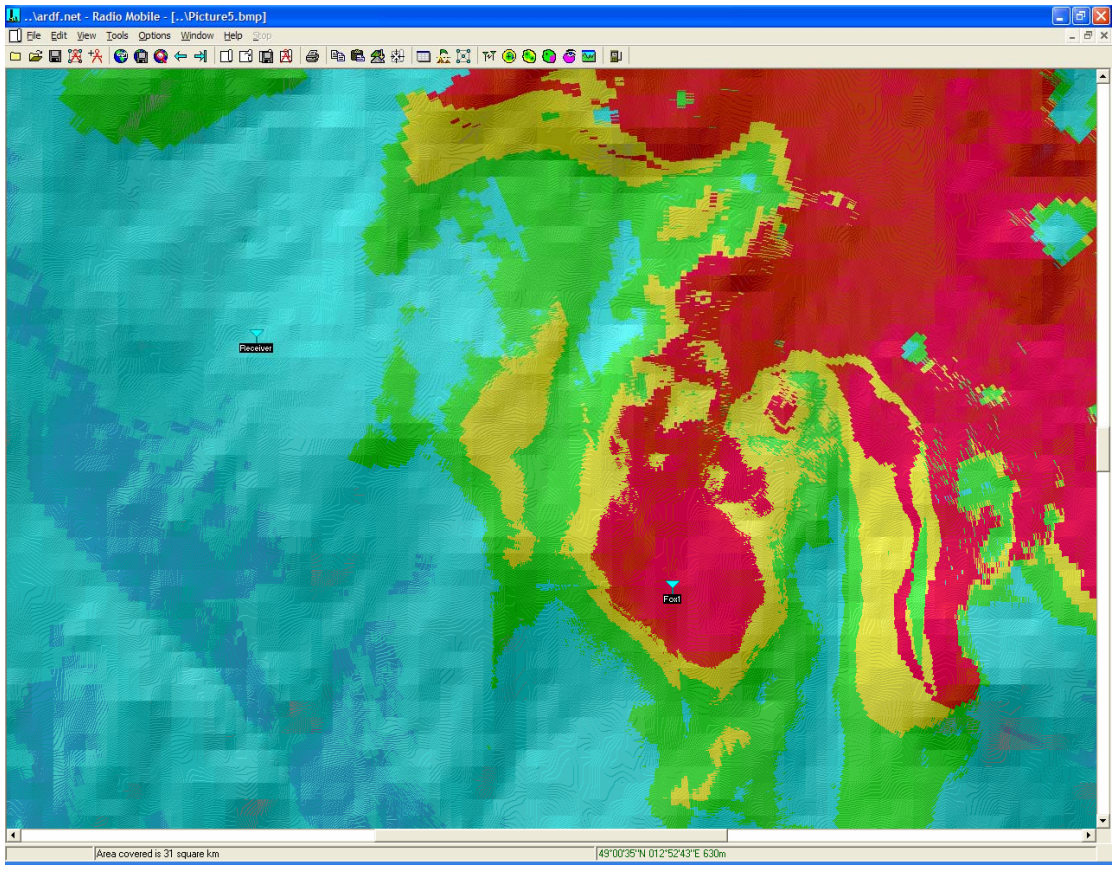


I. Start simulation

Select “Polar radio coverage” to start the simulation:



Result:



J. Redraw the units on the simulated results

Redraw the units on the simulated result by selecting the unit properties and pushing immediately on OK.

K. Saving the results

Save the simulation in a new picture (save picture as ...).

Open a picture (file – new picture) with only elevation data before starting a second simulation!