



# **MOXA serial interface (FTI06020)**

## **Software Installation Manual**

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## References

MOXA:  
[www.MOXA.com](http://www.MOXA.com)

MOXA documentation:  
[http://www.MOXA.com/support/search\\_result.aspx?prod\\_id=197](http://www.MOXA.com/support/search_result.aspx?prod_id=197)

## Introduction

The Installation manual provides instructions for setting and adjusting the serial interface as used within FT NavVision®. The chapters and sections are organized in chronological order in which the specific components must be installed and monitored (where applicable).

## About the installation manual

The installation manual contains the following chapters:

- Chapter "Safety instructions" presents warning, caution and note information, which the user should pay attention to.
- Chapter "Setting and adjustment" gives an instruction on how to set and adjust the serial interface.
- Chapter "Technical specifications" contains an overview of the main features and technical data.

## Abbreviations list

AC	Alternating Current
CE	Conformité Européenne (placed on products to signify conformance with European Union regulations)
CPU	Central Processing Unit
CTS	Clear To Send
C-UL	Canadian UL (Canadian safety certification organization)
DC	Direct Current
DCD	Data Carrier Detect
DSR	Data Set Ready
DTR	Data Terminal Ready
EMC	Electromagnetic Compatibility
EN	Europe Norm
ESD	Electrostatic Discharge
FCC	Federal Communications Controller
FT	Free Technics
GND	Ground
IP	Internet Protocol
LAN	Local Area Network
LED	Light Emitting Diode
MAC	Media Access Control
N/A	Not Applicable
RAM	Random Access Memory
Rx	Receive
RTC	Real Time Clock
RTS	Request to Send
RxD	Received Data
TÜV	Technischer Überwachungsverein (German safety monitoring agency)
Tx	Transmit
TxD	Transmitted Data
UL	Underwriters Laboratories (US safety certification organization)



## Safety instructions

**NOTE:**

*This section provides only a summary of the most important safety requirements and notes, which will be mentioned in the individual sections. To protect your health and prevent damage to the devices, it is essential to read and carefully follow the safety instructions.*

The indications NOTE, CAUTION and WARNING have the following significance:

**NOTE:**

*An operating procedure, practice or condition etc., which it is essential to emphasize.*

**CAUTION**

**An operating procedure, practise or condition etc., which, if not strictly observed, may damage or destroy equipment.**

**WARNING**

**An operating procedure, practise or condition etc., which, if not carefully observed may result in personal injury or loss of life.**

## Revision history

Revisions issued since publication.

Issue	Date	Revision	Reason
1.0	August 26, 2010		First release
1.1	November 20, 2012	Update	

## 1. Setting and adjustment

### 1.1 Detection of new devices

It is difficult to detect new MOXA software on the network because of the following IP-address settings:

- LAN 1: 192.168.3.127 / 255.255.255.0
- LAN 2: 192.168.4.127 / 255.255.255.0

In order to reach the MOXA serial device, at least one of the two IP addresses and netmasks must be known to connect the serial device or alternately temporarily modify the static IP address.

### 1.2 Altering the IP-address

If the software does not connect to the serial device within 10 seconds, a “Serial config(uration)” screen will be shown. This screen can also be shown by means of the “Serial configure” button (Figure 1-1). Via the “Serial config” screen the PC’s serial port can be selected which is necessary to configure the serial device. Having selected the right PC COM port the relevant Ethernet settings (current settings) appear. The old settings (current settings) can be altered into new settings via menu “New settings”. New settings are loaded into the system via the “Set” button (Figure 1-1).

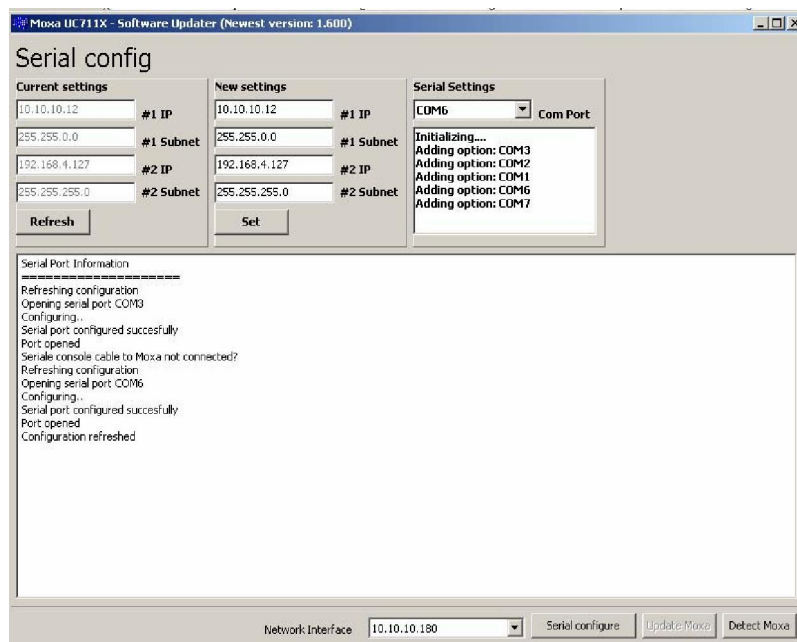
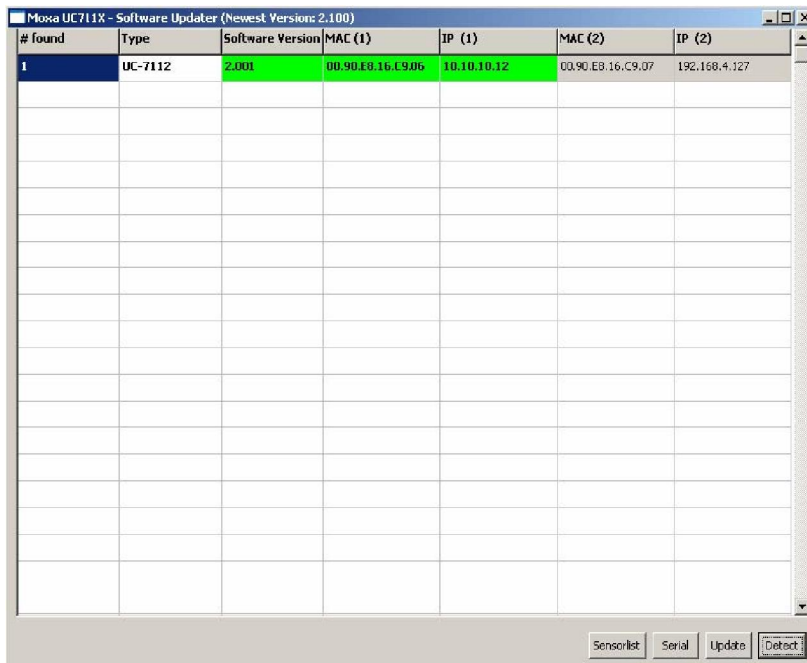


Figure 1-1: Serial config screen

### 1.3 Detection of installed serial devices

The detected serial device is shown on the screen below. All present and detected serial devices are shown on this screen.



# found	Type	Software Version	MAC (1)	IP (1)	MAC (2)	IP (2)
1	UC-7112	2.001	00.90.E8.16.C9.06	10.10.10.12	00.90.E8.16.C9.07	192.168.4.127

Figure 1-2: Software updater screen

#### 1.3.1 Explanation of detection screen columns

- Column “# found”  
The number in this column indicates the number of hardware detections
- Column “Type”  
In this column the serial device type number is shown e.g. UC-7112 or UC-7110. If the software does not support the MOXA serial device, the column text will show “Unknown device”.
- Column “Software version”  
This column shows the actual serial device software version. New devices are recognized as “N/A”. If the device is equipped with FT software then the FT software version is given. The column “Software version” appears in different colours i.e.:

#### 1.3.2 Software version column colours

- Column “MAC (1) / IP (1)” and “MAC (2) / IP (2)”  
In this column the IP address of LAN 1 and LAN 2 are shown. When FT software has been installed, these IP-addresses match the physical interfaces. If not, only IP (1) and MAC (1) are shown (physical port in unknown). The column “MAC / IP-address” appears in different colours (see table below):

Colour	Description
Red	Software as used is obsolete and can be updated.
Green	MOXA software version is identical to software updater version. No update of software necessary.
Purple	MOXA software version is newer than software updater version. Software updater version is probably obsolete. DO NOT UPDATE SOFTWARE UPDATER.

### 1.3.3 Installation of software

When installing the (new) MOXA software ensure that the relevant serial device is selected from the list (you will find the latest releases on the server at Free Technics). Select the "Update" button to load the device software. With the latest updater this should only show version 2.7 Once the software is fully loaded the MOXA serial device including software will automatically restart. Once the software has been successfully loaded, the software updater will show the latest device software number.

Colour	Description
Green	IP-address is configured for the same subnet and the selected PC network interface. This indicates that a direct connection is possible (only when cabling is ok)
Grey	IP-address is configured for a different subnet than the selected PC network interface. Most likely the subnetmask is not identical.



*FT NavVision® will configure the MOXA automatically concerning the IP-addresses. For more information we refer to the "commissioning and installation manual" Chapter 11.9.3.2*

## 2. Extra functionality

### 2.1 Introduction

The moxa is capable to store some extra intelligence. For example Firewall, IPforwarding or Ipod connection. It is also possible to reserve a port for remote access. While the implementation of all this intelligence is the same, we take remote access as example.

### 2.1.1 Connection

After you've updated the standard firmware to version 2.7 you can now add some extra functionality..

Connect your laptop to the same Lan-network and make sure that it is in the same IP range (this should already be the case when you just have updated the standard version)

Open Windows Explorer

Type into the address field the following: <ftp://root@192.168.x.x> (the moxa's IP address, probably 192.168.3.127).

You will be asked for a username (root) and password (root)

### 2.1.2 Installing the files

In the prepared files (to be found on the server at Free Technics) you go to the folder configurations (see Figure 2-1)

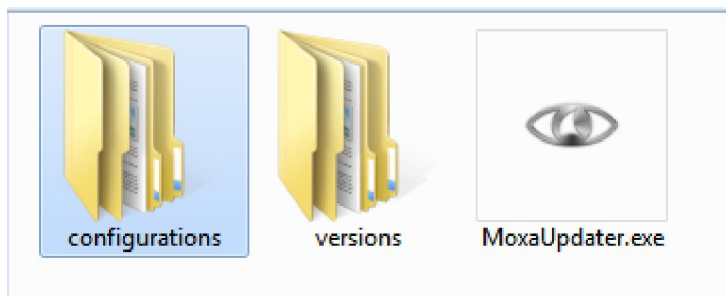


Figure 2-1: Moxa configuration folder

When opening you will find the following folders:

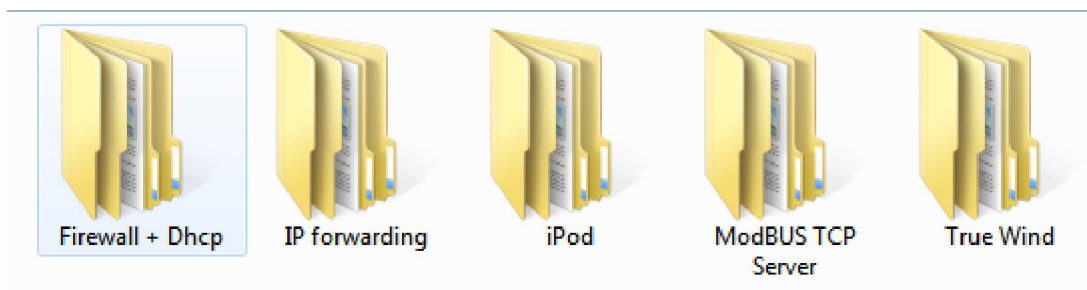
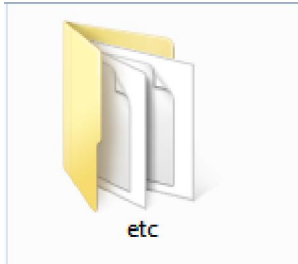


Figure 2-2: Update folders

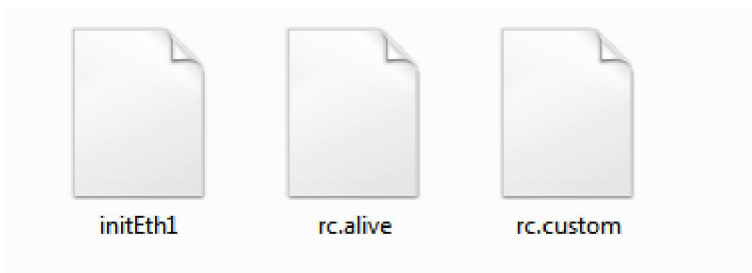
Open the folder you need for your update and make sure that you copy and overwrite all the files in that folder to the predefined folders in the Moxa.

For example in the folder "Firewal + Dhcp" you find a folder "etc" (see Figure 2-3)



**Figure 2-3: Update folder**

Within that folder you find all the files you need to update (see Figure 2-4).



**Figure 2-4: Update files**

Copy this files to the etc-folder on the moxa and overwrite the existing files.

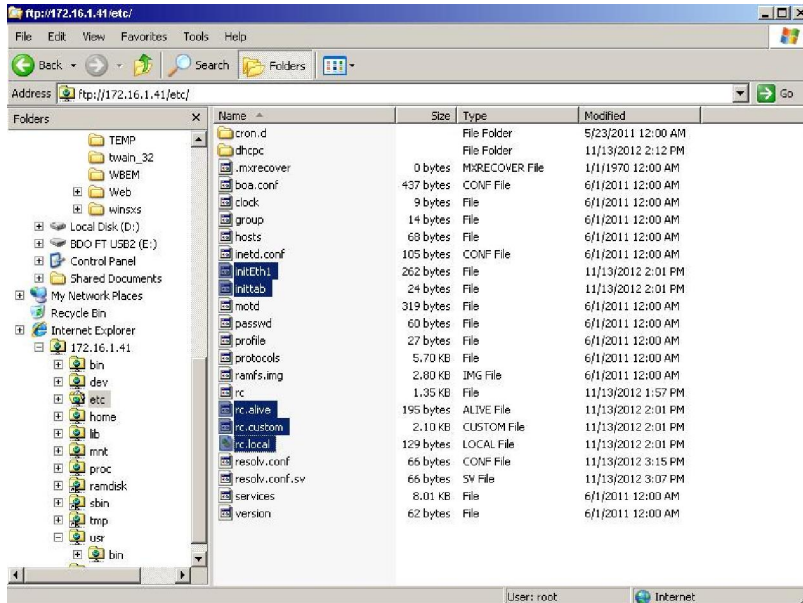


*When you send the files to someone else, make sure that you ZIP them to make sure they won't get corrupted.*

### **2.1.3 Additional work**

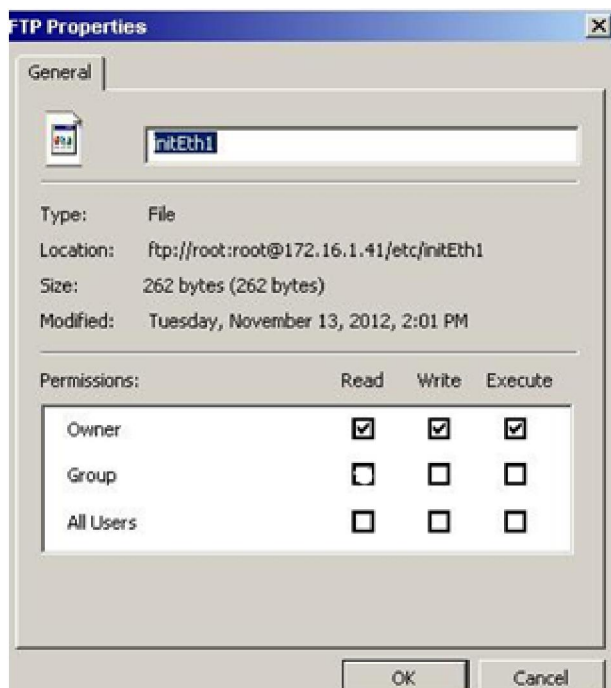
To make the new files work correctly they have to be checked to see that the permissions are still correct. For people familiar with permissions, they need to be `chmod 700`.

Goto the folder on the moxa where you copied the files to (see Figure 2-5). Find the files you copied and then right-click on one and choose "properties".



**Figure 2-5: Updated moxa folder**

You will get the permission window (see Figure 2-6) of that file. Make sure that the permissions are exactly as described below. You see that only the upper three boxes are marked. This is right while chmod 700 means that only the owner has Read, Write and Execute rights. Do this for all the files that you have transferred to the Moxa.



**Figure 2-6: Permissions chmod700**

## 2.1.4 Other exceptions

### 2.1.4.1 Modbus TCP server or True Wind

If you need to use the “Modbus TCP server” or the “True wind” You only need to transfer the `moxa_sensorlist.tsv` file to the appropriate folder on the moxa. The Moxa will scan for a `.tsv` file every second. Once found it will create two `.DAT` files and rename the `moxa_sensorlist.tsv` file. After you check that this is done, you do not need to change anything anymore.

### 2.1.4.2 IP forwarding

If you need to use the IP forwarding, copy the `rc.custom` file to the appropriate folder on the Moxa. `Chmod 700` the file. For changing the IP addresses for the forwarding we refer to the “Moxa linux for dummies” manual

### 2.1.4.3 Remote access

If the Moxa is used for remote access there has to be some things changed within FT NavVision©.

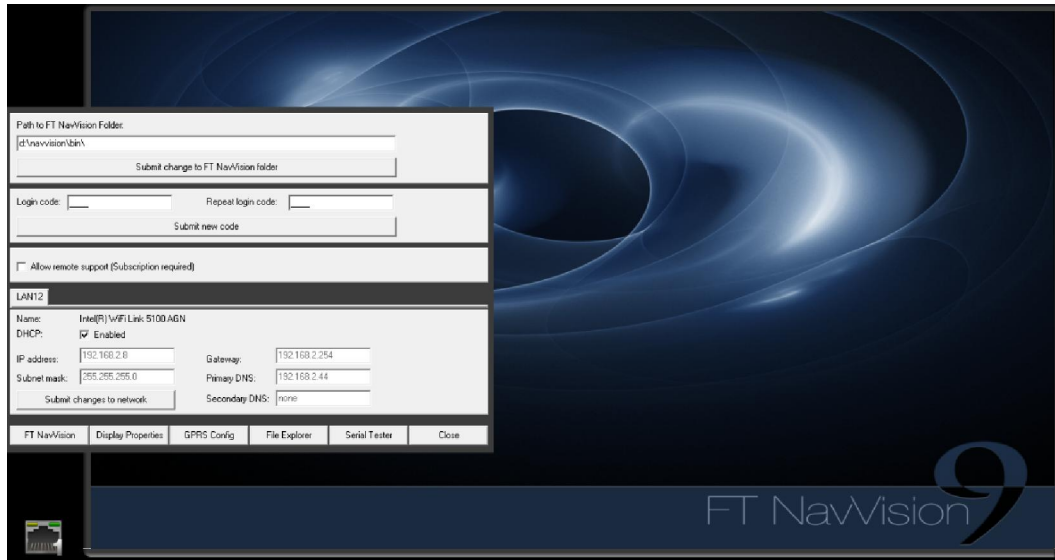
First you will have to go to the boot loader and open the Adjustment window. For those not familiar with this, the boot loader is the shell where FT NavVision© is running on. Once you close all the viewers of the program, you will see a background like in next picture:



Figure 2-7: boot loader window

By clicking and holding the left mouse button, while dragging from left to right, the num-pad will appear. The standard code is “0000”. The adjustment window will appear.



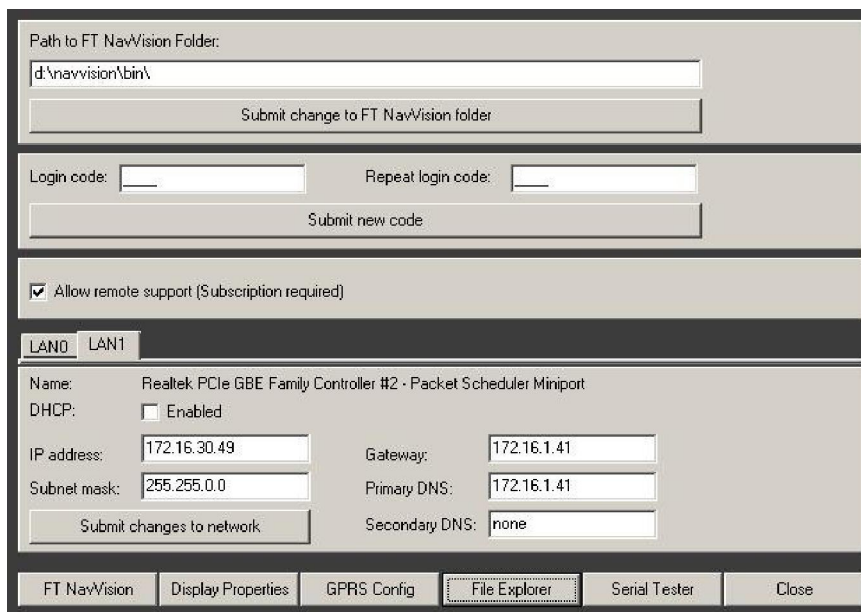


**Figure 2-8: Adjustment window**

In this windows you need to make the following adjustments:

Put a checkmark at “allow remote support”

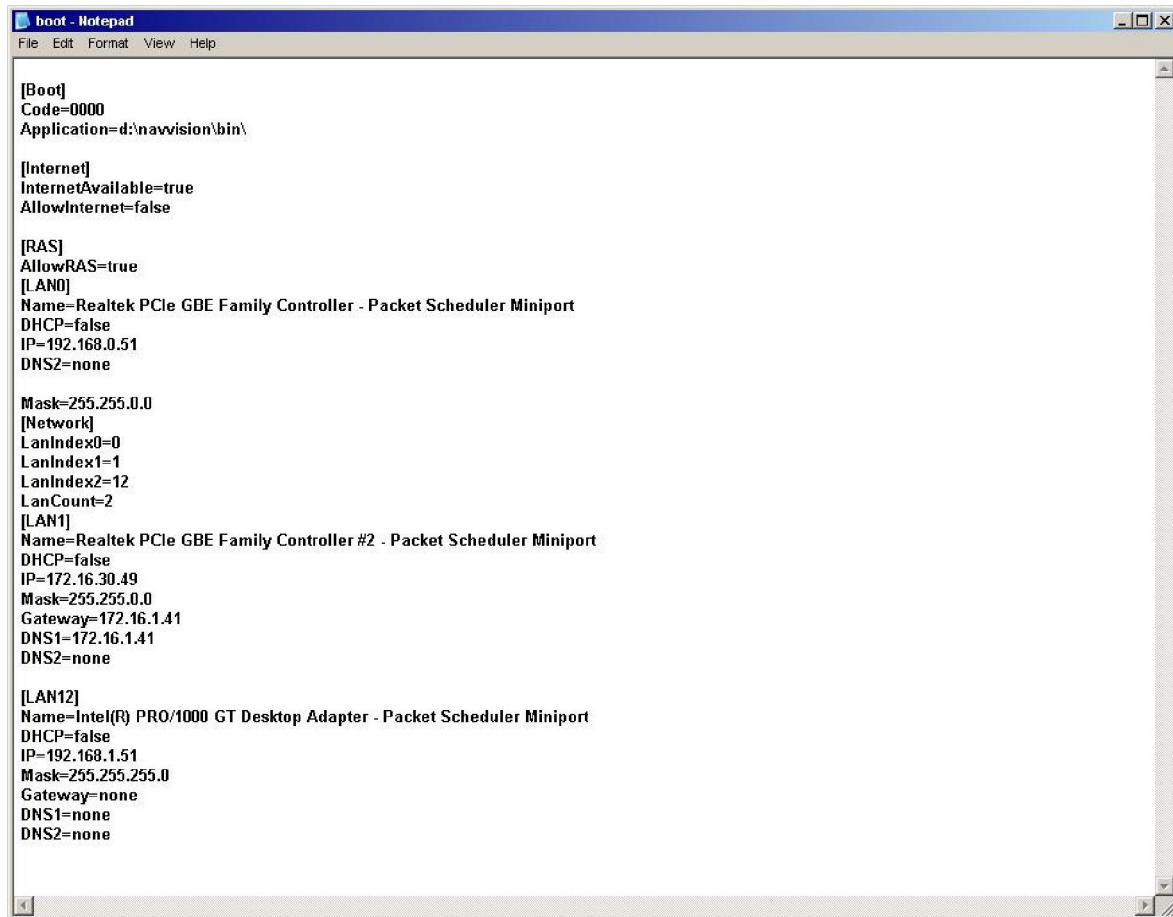
Put the IP-address of the moxa in the fields “Gateway” and “Primary DNS”  
(see Figure 2-9)



**Figure 2-9: Adjustments for remote access**

By clicking on the “file explorer” tab, you will get into the normal windows environment.

Goto D:\NavVision\config\local and open the boot.uc.ini file (see Figure 2-10)

A screenshot of a Windows Notepad window titled "boot - Notepad". The window displays the contents of the boot.uc.ini file, which is a configuration file for a device. The file contains several sections: [Boot], [Internet], [RAS], [LAN0], [LAN1], and [LAN12]. Each section contains various configuration parameters such as Code, Application, InternetAvailable, AllowInternet, AllowRAS, Name, DHCP, IP, Mask, LanIndex, LanCount, Gateway, DNS1, and DNS2. The [Internet] section is highlighted, showing "InternetAvailable=true" and "AllowInternet=false".

```
[Boot]
Code=0000
Application=d:\navvision\bin\

[Internet]
InternetAvailable=true
AllowInternet=false

[RAS]
AllowRAS=true
[LAN0]
Name=Realtek PCIe GBE Family Controller - Packet Scheduler Miniport
DHCP=false
IP=192.168.0.51
DNS2=none

Mask=255.255.0.0
[Network]
LanIndex0=0
LanIndex1=1
LanIndex2=12
LanCount=2
[LAN1]
Name=Realtek PCIe GBE Family Controller #2 - Packet Scheduler Miniport
DHCP=false
IP=172.16.30.49
Mask=255.255.0.0
Gateway=172.16.1.41
DNS1=172.16.1.41
DNS2=none

[LAN12]
Name=Intel(R) PRO/1000 GT Desktop Adapter - Packet Scheduler Miniport
DHCP=false
IP=192.168.1.51
Mask=255.255.255.0
Gateway=none
DNS1=none
DNS2=none
```

**Figure 2-10: Boot.uc.ini**

Under [Internet] change “InternetAvailable=auto” into “InternetAvailable=true”

After a reboot the remote access should work now.

## Technical specifications

Detail	Description
CPU	ARM9-based 32-bit RISC CPU, 166 Mhz
RAM	16 MB (12 MB of user programmable space)
Flash	8 MB (4 MB of user programmable space)
LAN	Auto-sensing 10/100 Mbps x 2
LAN protection	Built-in 1.5 KV magnetic isolation
Serial ports	The two RS-232/422/485 ports support: RS-232 signals: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND RS-422 signals: TxD+, TxD-, RxD+, RxD-, GND 4-wire RS-485 signals: TxD+, TxD-, RxD+, RxD-, GND 2-wire RS-485 signals: Data+, Data-, GND
Serial protection	15 KV ESD for all signals
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
Parity	None, even, odd, space, mark
Flow control	RTC/CTS, XON/XOFF
Speed	50 bps to 921.6 Kbps
Real time clock	Yes
Buzzer	Yes
Console port	RS-232, 3-wire (Tx, Rx, GND) (19200, n, 8, 1)
LEDs	Ready Serial Tx, Rx (2 of each) LAN 10/100 (one on each LAN connector)
Gross weight	190 g
Power input	12 – 48 VDC
Power consumption	290 mA @ 12 VDC
Operating temperature	-10 to +60°C (5 to 95% RH)
Storage temperature	-20 to +80°C (5 to 95% RH)
Serial protection	15 KV ESD for serial port
Regulatory approvals	EMC: FCC Class A, CE Class A Safety: UL, C-UL, TÜV
Warranty	5 years



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