TELECOMMUNICATIONS

2N® EasyRoute

UMTS Data and Voice Gateway

User Manual

Version **1.04.00**

www.2n.cz

The 2N TELEKOMUNIKACE a.s. joint-stock company is a Czech manufacturer and supplier of telecommunications equipment.

The product family developed by 2N TELEKOMUNIKACE a.s. includes GSM gateways, private branch exchanges (PBX), and door and lift communicators. 2N TELEKOMUNIKACE a.s. has been ranked among the Czech top companies for years and represented a symbol of stability and prosperity on the telecommunications market for almost two decades. At present, we export our products into over 120 countries worldwide and have exclusive distributors on all continents.

2N TELEKOMUNIKACE administers the FAQ database to help you quickly find information and to answer your questions about 2N products and services. On faq.2n.cz you can find information regarding products adjustment and instructions for optimum use and procedures „What to do if...".

Declaration of Conformity

2N TELEKOMUNIKACE a.s. hereby declares that the 2N® EasyRoute product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see the CD-ROM enclosed and at www.2n.cz.

2N TELEKOMUNIKACE is the holder of the ISO 9001:2000 certificate. All development, production and distribution processes of the company are managed by this standard and guarantee a high quality, technical level and professional aspect of all our products.

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1 Product Overview

In this section, we introduce the 2N® EasyRoute product, outline its application options and highlight the advantages following from its use. This chapter also includes safety instructions.

Here is what you can find in this section:

- **Product Description**
- **Description of Changes**
- **Terms and Symbols Used.**

1.1 Product Description

The 2N® EasyRoute GSM/UMTS gateway is a new product, which has been developed and manufactured to provide the maximum utility value, quality and reliability. We hope you will be fully satisfied with 2N® EasyRoute for a long time. Therefore, use your 2N® EasyRoute for purposes it has been designed and manufactured for, in accordance herewith.

2N® EasyRoute is available in two basic versions with different hardware capacities. The basic version is designed for Internet connection and UMTS/GSM calls. The FAX version, in addition, supports VoIP voice transmission and VoIP FAX transmission using the T.38 protocol. The parameters are distinguished as follows.

- **The 2N® EasyRoute basic version parameters are designated as ER.**
- **The 2N® EasyRoute FAX version parameters are designated as ERF.**

Tip

- **You can identify your gateway easily: A gateway that enables FAX and VoIP calls is an ERF version.**
- **To make sure, select the *Setup* > *Telephony* menu. If the menu includes the SIP and FAX submenus, your gateway is ERF. If not, it is ER.**

Basic Features

- **2N® EasyRoute combines the support of a circuit switched telephone network interface (FXO), Fast Ethernet switch and WiFi network support.**
- **2N® EasyRoute provides a continuous broadband Internet connection for multiple users via the Fast Ethernet switch or the 2N® EasyRoute WiFi network.**

Advantages of 2N® EasyRoute Use

- **Fast data connection**
  2N® EasyRoute transmits data using the high speed HSDPA connection (up to 7.2 Mbps).
- **Call cost cutting**
  By forwarding GSM calls to 2N® EasyRoute you save a lot on PSTN – GSM calls.
- **Easy installation**
  2N® EasyRoute is ready for immediate use without programming.

- **You get all you need in the delivery**
  Your 2N® EasyRoute delivery contains all you need to operate the system (power supply adapter, telephone cable, Ethernet cable, antenna, CD manual).
- **A solution for sites without telephone lines**
  2N® EasyRoute is a perfect solution for such sites as exhibition halls, mountain chalets, conference rooms, etc.
- **CLIP**
  2N® EasyRoute is equipped with the Calling line idendtification presentation (CLIP) feature, so if a terminal capable of receiving the CLIP is used you know the caller's number.
- **Radiation hazard minimization**
  Unlike mobile phones, 2N® EasyRoute does not expose you to a direct antenna RF electromagnetic field radiation while telephoning.
- **Full GSM / UMTS coverage**
  2N® EasyRoute supports all GSM bands (1900, 1800, 900, 850MHz). EasyRoute is available in version for all used UMTS bands (2100 1900, 900, 850MHz).
- **Fast Ethernet switch**
  2N® EasyRoute provides a 4-port Fast Ethernet switch for you to connect all the required devices (using an external switch for a larger port extension).
- **WiFi**
  2N® EasyRoute helps you connect a PC and other devices using the WiFi 2.4 GHz or 5 GHz interface. The 802.11a/b/g standards and maximum transmission rate of 54 Mbps are supported.
- **VoIP – fax version (ERF)**

  2N® EasyRoute enables directing calls from devices, connected to FXS port, into VoIP network.
- **FAX – fax version (ERF)**

  2N® EasyRoute provides an option to send FAX messages using the T.38 protocol. All FAX messages are routed to the VoIP network.

Safety Precautions

Do not switch on 2N® EasyRoute in the vicinity of medical apparatuses to avoid interference. The minimum distance of the antenna and pacemakers should be 0.5m.

Do not switch on 2N® EasyRoute aboard of a plane.

Do not switch on 2N® EasyRoute near petrol stations, chemical facilities or sites where explosives are used.

Any mobile telephone use prohibition based on RF energy radiation applies to 2N® EasyRoute too.

2N® EasyRoute may disturb the function of TV sets, radio sets and PCs.

Warning! 2N® EasyRoute contains components that may be swallowed by small children (SIM card, antenna, etc.).

The voltage value mentioned on the adapter may not be exceeded. If you connect 2N® EasyRoute to another power supply, make sure that the voltage value is in the acceptable range.

When your 2N® EasyRoute comes to the end of its operational life, dispose of it in accordance with applicable regulations.

1.2 Description of Changes

The manufacturer reserves the right to modify the product in order to improve its qualities.

Manual version	Changes
1.0	n The User Manual applies to FW Version 1.00 (Basic function).
1.02	n The User Manual applies to FW Version 1.02 (Extended function).
1.03	n The User Manual applies to FW Version 1.03 (Hotspot).
1.04	n The User Manual applies to FW Version 1.04 (FAX + VoIP - ERF).

Caution

- **The manufacturer is committed to meeting customers' requirements by improving the firmware. For the latest 2N® EasyRoute processor firmware and the User Manual see www.2n.cz.**
- **For a detailed description of the 2N® EasyRoute firmware upgrade refer to the chapter devoted to the 2N® EasyRoute settings.**

1.3 Terms and Symbols Used

Manual Symbols

Accident hazard

- Always abide by this information to prevent personal accident.

Warning

- Always abide by this information to prevent damage to the device.

Caution

- Important information. Disobedience may result in a malfunction.

Tip

- Useful information for easy and quick use and programming.

Note

- Routines and advice for efficient use of the device.

Future Functions

The grey-marked text in this document designates the 2N® EasyRoute functions that are under preparation or development at present.

2 Description and Installation

This section describes the 2N® EasyRoute product and its installation.

Here is what you can find in this section:

- **Description**
- **Before You Start**
- **Mounting**
- **Telephone Line Connection.**

2.1 Description

2N® EasyRoute consists of a plastic-encased GSM/UMTS gateway, removable antenna and telephone network/LAN connecting cables.

2N® 2N® EasyRoute status is indicated by the LED on its front side. All possible states are described in the following figure.

Figure 2.1
2N® EasyRoute LED Indicators

Power Supply

Blue light	Power supply is connected.
No light	Power supply is not connected.

GSM / WiFi Network

Yellow flashing	GSM network is active. *)
Yellow, no light	GSM network is inactive.
Green flashing	WiFi network is active. *)
Green, no light	WiFi network is inactive.

*) The LED lighting time depends on the data traffic intensity:
short flash ... active network, low traffic;
up to 1s flash ... peak network data traffic.

Telephone Line

No light	Standby (relax, on-hook)
Quick flashing	Off-hook or ringing
Light	Active call

Figure 2.2
2N® EasyRoute Connectors

Restart (Reset) button

Power supply connector (2.1 mm DC jack)

Telephone line connector (RJ 12, 6/2)

Four-port Fast Ethernet switch (RJ45)

2.2 Before You Start

Product Completeness Check

Please check the product for completeness before installation. The package should include the following pieces:

- **1 2N® EasyRoute**
- **1 GSM+UMTS antenna**
- **1 supply adapter**
- **1 telephone cable**
- **1 network cable (Fast Ethernet RJ45)**
- **Quick start manual**
- **CD containing User Manual and other information**

Installation Requirements

- **2N® EasyRoute is designed for vertical mounting on suspension holes (use the included template for wall drilling). This position is the best for signal reception because a vertical antenna is used. 2N® EasyRoute can be operated in the horizontal position too where the GSM signal is good.**
- **Install 2N® EasyRoute with respect to the GSM signal strength – check the signal strength using the 2N® EasyRoute web interface.**
- **Place 2N® EasyRoute out of range of sensitive devices and human bodies to minimize electromagnetic interference.**
- **For the allowed range of operating temperatures refer to the Technical Parameters chapter.**
- **It is impossible to operate 2N® EasyRoute on sites exposed to direct solar radiation or near heat sources.**
- **2N® EasyRoute is designed for indoor use. It may not be exposed to rain, flowing water, condensed moisture, fog, etc.**
- **2N® EasyRoute may not be exposed to aggressive gas, acid vapours, solvents, etc.**
- **2N® EasyRoute is not designed for environments with high vibrations such as means of transport, machine rooms, etc.**

Caution

- **Make sure that you are provided with all necessary technical devices – SIM with UMTS data connection support, an analogue telephone set or a PBX with a free external analogue interface (FXO), a PC, or a fax machine (for ERF).**

2.3 Mounting

External Antenna Connection

Screw the antenna included in the package into the SMA antenna connector.

Caution

- **Tighten the antenna connector gently by hand – never use wrenches!**

Note

- **The antenna has a sufficient gain for a trouble-free operation in normal conditions. If the GSM signal is poor or you want to place your antenna separately from 2N® EasyRoute, you can use an antenna with an SMA-connector terminated cable (not included). The antenna should be mounted vertically.**
- **The antenna should be located within the same building as 2N® EasyRoute.**

SIM Card Installation

Release the safety pin and open the SIM cardholder on the 2N® EasyRoute backside. Insert the SIM card and click the holder back into position.

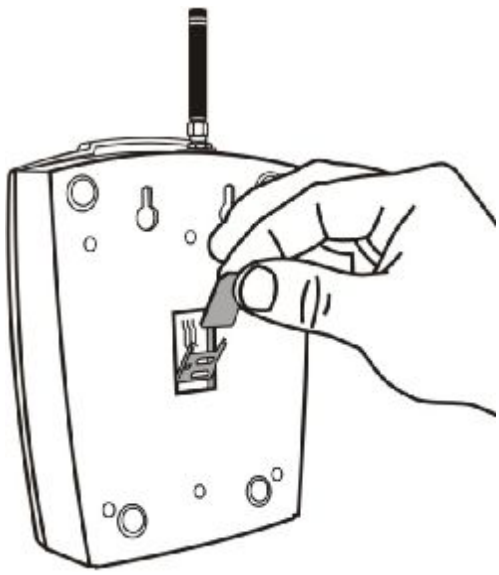


Figure 2.3 *SIM Card Installation*

Cautions

- **Make sure that your GSM provider's SIM card is compatible with the GSM network supported by your 2N® EasyRoute version.**
- **Select the required GSM provider and SIM card services, such as call 7forwarding, call barring, preferred networks, SMS centre, etc. in your mobile phone before inserting your SIM card in 2N® EasyRoute.**

Wall Mounting

The 2N® EasyRoute cover backside is equipped with two wall-mounting holes:

Figure 2.4
2N® EasyRoute Wall Mounting

Power Supply

2N® EasyRoute is fed with 10–16V DC. Where a source other than the included power supply adapter is used, the voltage range and polarity shown on the 2N® EasyRoute power supply connector have to be maintained

Warning

- **Do not connect the power supply until the antenna is connected to 2N® EasyRoute to avoid the GSM/UMTS module damage.**

Restart (Reset) Button

The restart (reset) button is located to the left of the 2N® EasyRoute power supply plug. When pressed shortly, it restarts 2N® EasyRoute. When pushed longer (10 s at least), it resets 2N® EasyRoute to default values (factoryset-up).

Tip

- **You will find the default value setting useful, for example, when you forget the password or the gateway IP address for your web interface access.**

2.4 Telephone Line Connection

PBX Connection

Connect 2N® EasyRoute to a vacant CO line of your PBX. Configure your PBX in such a manner that UMTS and GSM (VoIP for EFR) outgoing calls are routed to 2N® EasyRoute.

Tip
n 2N® EasyRoute - ER is equipped with the FSK-based CLIP function. If your PBX is able to process the caller's ID, you are advised to enable this function.
n 2N® EasyRoute - ERF is equipped with an FSK/DTMF-based Calling Line Identification (CLIP) function.

Telephone Set (Answering Machine, Coin Telephone Station, Fax) Connection

You can connect a standard telephone, an answering machine or any other FXO-interface terminal to 2N® EasyRoute.

In addition to the above mentioned devices, you can connect an analogue FXO-equipped fax machine to your 2N® EasyRoute - ERF.

n 2N® EasyRoute - ER is equipped with the FSK-based CLIP function. If your PBX is able to process the caller's ID, you are advised to enable this function.
n 2N® EasyRoute - ERF is equipped with an FSK/DTMF-based Calling Line Identification (CLIP) function.

3 2N® EasyRoute Configuration

This section describes configuration of the 2N® EasyRoute product.

Here is what you can find in this section:

- **2N® EasyRoute Configuration;**
- **Table of Programmable Parameters.**

3.1 2N® EasyRoute Configuration

2N® EasyRoute is configured via a user-friendly network web interface.

PC Connection

You have received a Fast Ethernet cable for PC connection. To enter the web browser programming interface enter 192.168.1.1 in the web browser address field after connecting 2N® EasyRoute to your PC. The following login dialogue is displayed.

Figure 3.1
2N® EasyRoute Login Dialogue

To enter the web interface enter the correct username and password. The default values for the Administrator are as follows:

- **Initial username:** ***admin***
- **Password:** ***admin***

The Administrator has full access to all device settings except for the Operator password.

The default values for operator are as follows:

- **Initial username:** ***operator***
- **Password:** ***operator***

The Operator is qualified to operate the time limited connection system – Hotspot. The Operator has access to the following menus only:

Hotspot > Sale - **time limited connection selling;**

Status **information about the mobile network connection;**

Setting **Operator password settings.**

The default values for the User are as follows:

- **Initial username:** ***user***
- **Password:** ***user***

The User is authorised to work with the SMS, access the call register and manage the User password.

Caution

- **We recommend that you should change the web access username and password after the first power up!**

Caution

- **The following changes in the default login parameters are being prepared to support the product series unification:**
- **Name: Admin Password: 2n**
- **Name:Operator Password: 2n**
- **Name:User Password: 2n**

3.2 Table of Programmable Parameters

All programmable parameters of 2N® EasyRoute are listed in this section. The unit used, description of 2N® EasyRoute's behaviour upon a change, setting options, the setting step and the default (initialization) setting are included for each parameter. The figure below gives an insight into the gateway configuration interface.

Figure 3.2 ***Gateway Configuration Interface***

Basic Controls

Language Mutations

To select the language mutations of the configuration interface use the tags in the right-hand upper corner. Two language mutations are available at present – Czech and English.

Icons

There are three icons in the upper part of the screen that provide an easy access to the SETUP, SMS and STATUS menus.

Menu

The left-hand section of the screen shows menus that can be opened by a mouse click. The last item of the section called LOGOUT is used for logging out the configuration interface user.

STATUS Menu

Cellular Section

Signal

Shows the strength of the receiving signal in [dBm].

Provider

Shows the name of the SIM card provider. If the SIM card cannot log in to a network (e.g. requires the PIN), the Limited service message is displayed.

Connection type

Shows the connection type (GSM, EDGE, UMTS, etc.).

Internet Section

Status

Displays the current status of data connection to the provider.

Disconnected	***The data connection has not been established.***
Connected	***The data connection has been established.***
Connecting	***The data connection is being established.***
Disconnecting	***The data connection is being cancelled.***

Sent

Shows the total count of packets and (bytes) sent to the mobile network.

Received

Shows the total count of packets and (bytes) received from the mobile network.

Wireless Section

Status

Shows the current WiFi network status of the gateway.

Disabled	***The WiFi network is disabled.***

Enabled	***The WiFi network is enabled.***
Sent	***Shows the total count of packets and (bytes) sent to the WiFi network.***

Received

Shows the total count of packets and (bytes) received from the WiFi network.

LAN Section

Sent

Shows the total count of packets and (bytes) sent to the LAN.

Received

Shows the total count of packets and (bytes) received from the LAN.

SMS Section

Inbox

Displays the total count of received SMS messages that are currently in the incoming SMS storage.

Deleted

Displays the total count of deleted SMS messages that are currently in the deleted SMS storage.

Total

Displays the total count of SMS messages in the gateway. This item includes not only messages in the received and sent SMS storage areas but also messages that were deleted by the user and now are in the deleted SMS storage.

Size

Displays the current data size that is occupied by the SMS stored in the gateway. It includes not only messages in the received and sent SMS storage areas but also messages that were deleted by the user and now are in the deleted SMS storage. Whenever this value reaches the defined upper limit, all deleted messages are removed, giving space to new incoming and outgoing SMS.

Menu Buttons

Refresh

Push this button to refresh the screen data (substitutes for the F5 key function).

Connect / Disconnect

This button is used for connecting/disconnecting the gateway to/from the Internet. It is available only if the manual Internet control is active. It is absent if the automatic Internet control is enabled.

WIZARD Menu

SIM Section

IMSI

The IMSI (International Mobile Subscriber Identity) is a unique worldwide identifier of the SIM card inserted.

Status

Shows the status of the inserted SIM card.

Busy	***Data are being read from the SIM card.***
Error	***The inserted SIM card is damaged or absent.***
PIN required	***The inserted SIM card is PIN-protected, enter the PIN.***
Ready	***The inserted SIM card is ready for use.***

PIN

Fill in the PIN of the SIM card inserted.

Setting options:	***0, 4–8 characters (0–9)***
Default setting:	***None***

Hide

The PIN is not displayed in the text format.

Setting options:	***ON/OFF***
Default setting:	***ON***

Remember

2N® EasyRoute remembers the PIN after the first successful SIM card login and enters it automatically whenever powered up. If the entered PIN is wrong, 2N® EasyRoute does not save it. When a new SIM card has been inserted, 2N® EasyRoute enters the saved PIN, thus exhausting one PIN entering option. Having noticed that the saved PIN is wrong, 2N® EasyRoute deletes the PIN from its memory. To avoid this you can fill in a new PIN using the 2N® EasyRoute web interface before exchanging the SIM card.

Setting options:	***ON/OFF***
Default setting:	***OFF***

Apply button

Push this button to confirm the changes. If the PIN is filled in correctly, 2N® EasyRoute logs in to the network.

Internet Section

Mode

Here determine the way of connecting to the Internet.

Setting options:	***Manual*** ***2N® EasyRoute is connected to the Internet whenever the Connect button in the STATUS menu is pushed.***

Auto
2N® EasyRoute is connected to the Internet automatically whenever powered up.

Default setting: ***Auto***

APN

The APN (Access Point Name) is the provider's Internet access code. If the item is not filled in by the user, the gateway enters its data related to the selected provider.

Default setting: ***empty (The database is searched for)***

Dial

Fill in the telephone number of the requested service. This parameter is determined by the provider.

Setting options: ***0–15 characters (0–9, *, #, +)***

Default setting: ***empty (The database is searched for)***

User

Enter the username for connection to the provider. If you fail to fill in the name, the gateway enters its own data related to the selected provider.

Default setting: ***empty (The database is searched for)***

Password

Enter the password for connection to the provider. If you fail to fill in the name, the gateway enters its own data related to the selected provider.

Default setting: ***empty (The database is searched for)***

Apply button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Note

- **To display the internal APN database, click on the [list] link. The currently used data are highlighted in the table. If no table row is highlighted, 2N® EasyRoute has no data on your provider. In that case, enter the data manually.**

Wireless Section

Enable

Enable/disable the WiFi network transmitter.

Setting options: ***ON/OFF***

Default setting: ***OFF***

Network name (SSID)

The SSID (Service Set Identifier) is a WiFi identifier transmitted to the users. It is a string of up to 32 characters and represents a unique WiFi identifier in the area.

Setting options: ***1–32 characters***

Default setting: ***EasyRoute***

Encryption

Here set the 2N® EasyRoute WiFi interface security levels.

Setting options: ***None***
WEP
WPA
WPA2
WPA+WPA2

Default setting: ***None***

Key format

Enter the WiFi interface security key format.

Setting options: ***ASCII / HEX***

Default setting: ***ASCII***

Key

The WiFi security key consists of a sequence of alphanumeric characters or hexadecimal symbols (as defined in the key format).

Setting options: ***For WEP key:***
Enter 5, 13 or 16 alphanumeric characters or 10, 26 or 32 hexadecimal symbols.
For WPA/WPA2 key:
Enter 8 to 63 alphanumeric characters or 64 hexadecimal symbols.

Default setting: ***empty***

Apply button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

CALLS Menu

All Section

The menu gives an overview of all gateway calls. It includes all answered outgoing calls plus answered and unanswered incoming calls. Unanswered incoming calls are signalled by the Missed note in the last column. Each page shows thirteen calls and to move between the pages use the page numbers in the bottom part of the screen. To jump onto the oldest call, use the >> symbol.

Direction

The Direction column specifies whether the call is an incoming or outgoing one.

Time

The Time column displays the date and time of the selected call. The time value refers to the off-hook time for answered incoming and outgoing calls and to the ringing start time for unanswered incoming calls.

Number

The Number column displays the called numbers for outgoing calls and the calling numbers for incoming calls.

Duration

The Duration column shows the duration of calls. This value refers to the call ringing time for unanswered incoming calls.

Incoming Section

The menu gives an overview of all incoming gateway calls, including both answered and unanswered calls. Unanswered incoming calls are signalled by the Missed note in the last column. The meanings of the menu columns correspond to those in the All section. To move between the pages use the page numbers in the bottom part of the screen. To jump onto the oldest call use the >> symbol.

Outgoing Section

The menu gives an overview of all answered outgoing gateway calls. Unanswered call attempts are not filed. The meanings of the menu columns correspond to those in the All section. To move between the pages use the page numbers in the bottom part of the screen. To jump onto the oldest call use the >> symbol.

Missed Section

The menu gives an overview of all missed incoming gateway calls. The meanings of the menu columns correspond to those in the All section. To move between the pages use the page numbers in the bottom part of the screen. To jump onto the oldest call, use the >> symbol.

SMS Menu

Inbox Section

The Inbox section displays the received SMS messages and helps you read them including such details as the SMS sender number and delivery time. To delete a message, select it and push the Delete button. To move between the pages use the page numbers in the upper part of the screen.

Create Section

Phone number

Here enter the telephone number for SMS sending.

Setting options: ***1–15 characters (0–9, *, #, +)***

Default setting: ***empty***

Text

Enter the text of the SMS to be sent. The SMS may also contain diacritic symbols and special characters as enabled in the coding scheme used. You can also send SMS messages longer than 160 characters without or 70 characters with diacritic symbols but remember that long messages are physically divided into the required count of SMS and you will have to pay for all of them.

Send SMS button

Push this button to send your SMS message.

Outbox Section

The Outbox section displays the sent SMS messages and helps you read them including such details as the SMS addressee. To delete a message, select it and push the Delete button. To move between the pages use the page numbers in the upper part of the screen.

To Send Section

The To Send section displays all pending SMS messages that have not been sent for whatever reason. When sent, the messages are transferred into the Outbox section. When sent unsuccessfully, they are transferred into the Errors section. The menu helps you read the messages including such details as the SMS addressee. To delete a message, select it and push the Delete button. To move between the pages use the page numbers in the upper part of the screen.

Trash Section

The Trash section displays the SMS messages that have been deleted from other sections. This storage is an intermediate step before deleting SMS from the user-accessible storage areas to avoid unintentional deletions. The menu helps you read the messages including such details as the SMS sender or addressee. To delete a message, select it and push the Delete button. To move between the pages use the page numbers in the upper part of the screen. An SMS deleted here

is moved to the storage of deleted SMS and, together with the other SMS messages, deleted automatically when the assigned data space is filled up.

Errors Section

The Errors section displays the SMS messages that failed to be sent. The menu helps you read the messages including such details as the SMS addressee. To delete a message, select it and push the Delete button. To move between the pages use the page numbers in the upper part of the screen.

Menu Buttons

Select all

Push this button to select all SMS on the page. It is available in all SMS menus except for the Create menu.

Delete

Push this button to delete the selected SMS. It is available in all SMS menus except for the Create menu.

SETUP Menu > Cellular

SIM Section

IMSI

The IMSI (International Mobile Subscriber Identity) is a unique worldwide identifier of the SIM card inserted.

Type

Displays the type of the SIM card inserted.

SIM	
USIM	
Unknown	***2N® EasyRoute cannot identify the inserted SIM card.***

Status

Shows the status of the SIM card inserted.

Busy	***Data are being read from the SIM card.***
Error	***The inserted SIM card is damaged or absent.***
PIN required	***The inserted SIM is PIN-protected, enter the PIN code.***
Ready	***The inserted SIM is ready for use.***

PIN

Fill in the PIN of the SIM card inserted.

Setting options:	***0, 4–8 characters (0–9)***
Default setting:	***None***

Hide

The PIN will not be shown as a text.

Setting options:	***ON/OFF***
Default setting:	***ON***

Remember

2N® EasyRoute remembers the PIN after the first successful SIM card login and enters it automatically whenever powered up. If the entered PIN is wrong, 2N® EasyRoute does not save it. When a new SIM card has been inserted, 2N® EasyRoute enters the saved PIN, thus exhausting one PIN entering option. Having noticed that the saved PIN is wrong, 2N® EasyRoute deletes the PIN from its memory. To avoid this you can fill in a new PIN using the 2N® EasyRoute web interface before exchanging the SIM card.

Setting options:	***ON/OFF***
Default setting:	***OFF***

Apply button

Use the button to confirm the changes. If the PIN is filled in correctly, 2N® EasyRoute logs in to the network.

Refresh button

Push this button to refresh the screen data.

Mobile Network

Used for provider selection if a SIM card is used for roaming in 2N® EasyRoute.

Frequency bands

Set the frequency bands to be used by 2N® EasyRoute for GSM connections.

Setting options:	***All bands***
	WDCMA 2100
	GSM 900/1800
	GSM all
	WCDMA all
Default setting:	***All bands***

n **By setting a frequency band you disable 2N® EasyRoute from using the optimum frequency band, which may decelerate your data transmission and deteriorate the VoIP call and FAX transmission quality. 2N® EasyRoute continuously evaluates the signal intensity and adjusts the frequency bands accordingly to optimise the available connection options. Thus, we recommend you to keep the factory settings.**

Provider code (MCC+MNC)

The provider code is an identifier consisting of the Mobile Country Code (MCC) and the Mobile Network Code (MNC). Use the parameter to select the provider to which 2N® EasyRoute should register the SIM for roaming purposes. Just select a provider of an available network and the provider code will be set automatically.

Setting options: ***5-6 characters [0-9], MCC – 3 digits, MNC – 2-3 digits***

Default setting: ***empty***

Available networks

A list of available mobile networks to which your 2N® EasyRoute log in. The gateway only works if logged in to a network that enables roaming for the gateway SIM card provider.

Save button

Push this button to save the new settings.

Refresh button

Push this button to identify all available networks and display them in the Available networks field.

Internet Section

Mode

Here determine the way of connecting to the Internet.

Setting options: ***Manual***
2N® EasyRoute is connected to the Internet whenever the Connect button in the STATUS menu is pushed.
Auto
2N® EasyRoute is connected to the Internet automatically whenever powered up.

Default setting: ***Auto***

APN

The APN (Access Point Name) is the provider's Internet access code. If the item is not filled in by the user, the gateway enters its data related to the selected provider.

Default setting: ***empty (The database is searched for)***

Dial

Fill in the telephone number of the requested service. This parameter is determined by the provider.

Setting options: ***0–15 characters (0–9, *, #, +)***

Default setting: ***empty (The database is searched for)***

User

Enter the username for connection to the provider. If you fail to fill in the name, the gateway enters its own data related to the selected provider.

Default setting: ***empty (The database is searched for)***

Password

Enter the password for connection to the provider. If you fail to fill in the password, the gateway enters its own data related to the selected provider.

Default setting: ***empty (The database is searched for)***

Note

- **To display the internal APN database, click on the [list] list. The currently used data are highlighted in the table. If no table row is highlighted, 2N® EasyRoute has no data on your provider. In that case, enter the data manually.**

LCP echo interval [0 – 3600 s]

Set the time interval after which the LCP echo should be sent.

LCP echo failures [0 - 10]

Set the count of unsuccessful LCP echo attempts after which the connection error should be detected.

Max connect failures before reset

Set the count of unsuccessful connection attempts after which the system is restarted.

DNS1/DNS2

The IP address of the DNSs used, which is assigned by the provider upon network login. Cannot be programmed!

IP

The IP address of the default gateway used, which is assigned by the provider upon network login. Cannot be programmed!

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Voices Section

Noise suppression

Use this parameter to enable/disable noise suppression.

Setting options: ***ON/OFF***

Default setting: ***ON***

Echo cancellation mode

Use this parameter to enable one of the predefined echo cancellation modes.

Setting options: ***OFF***

Handset (ESEC)

Headset

Car kit (AEC) – for use in noisy environment
Speaker

Default setting: ***Handset (ESEC)***

RX AVC (Automatic Volume Control)

Enable/disable the automatic setting of the receiving signal volume.

Setting options: ***ON/OFF***

Default setting: ***ON***

RX AGC (Automatic Gain Control)

Enable/disable the automatic setting of the signal receive gain.

Setting options: ***ON/OFF***

Default setting: ***ON***

TX AGC (Automatic Gain Control)

Enable/disable the automatic setting of the signal transmit gain.

Setting options: ***ON/OFF***

Default setting: ***ON***

Volume

Here set the transmission and sidetone volumes.

Setting options: ***0–7 (0 = muted, 7 = max)***

Default setting: ***3***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Services Section

Enable GSM character set

Here enable/disable the GSM character set for SMS coding. This option is automatically ticked off if none of the coding sets is selected.

Setting options: ***ON/OFF***

Default setting: ***ON***

Enable UCS2 character set

Here enable/disable the UCS2 (Unicode) character set for SMS coding.

Setting options: ***ON/OFF***

Default setting: ***ON***

Enable multipart SMS

Here enable/disable sending of multipart SMS messages. A multipart SMS means a message longer than 160 characters without or 70 characters with diacritic symbols and special characters.

Setting options: ***ON/OFF***

Default setting: *ON*

SMS database limit

Here set the maximum size of the SMS storing database. After the database is filled up, incoming SMS messages are stored on the inserted SIM card and no more SMS are sent and/or received. The user is notified of this fact by an error message while sending SMS.

Setting options: *8–512 kB*
Setting step: *1 kB*
Default setting: *16 kB*

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SETUP Menu > Telephony

SLIC - Basic Version ER

This section is split into two subsections to distinguish the two available 2N® EasyRoute versions – the basic version (standard, ER version) and the FAX version (ERF).

Dialling ER

Dialling timeout

Define a timeout for 2N® EasyRoute to await more digits to be dialled. The connection is established when this timeout elapses and no more digits are accepted.

Setting options: *500–10000 ms*
Setting step: *1 ms*
Default setting: *5000 ms*

Disconnect tone

Define the tone played to the gateway user after the connection is terminated by the GSM network.

Setting options: *Busy / Continuous*
Default setting: *Busy*

Pulse width

Define a pulse width to be identified as one dialling pulse. If the limits are set incorrectly, pulse dialling cannot be used.

Setting options: *10–90 ms*
Default setting: *50–80 ms*

Pulse delay

Define a period of time to be identified as a delay between pulses.

Setting options: ***10–90 ms***
Default setting: ***30–60 ms***

Minimum interdigit delay

Set the minimum interval between two digits dialled.

Setting options: ***100–500 ms***
Setting step: ***1 ms***
Default setting: ***100 ms***

On-hook timeout

Set the minimum line current discontinuation to be evaluated as hang-up by 2N® EasyRoute. If shorter, the discontinuation is ignored by the gateway.

Setting options: ***100–1000 ms***
Setting step: ***1 ms***
Default setting: ***300 ms***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Tones Section ER

Dialtone – frequency

Here set the frequency of the dialling tone in [Hz]. You can set up to two frequencies for a dual tone. The first frequency is obligatory, the other is optional.

Setting options: ***100–3,500 Hz***
Setting step: ***5 Hz***
Default setting: ***425 Hz for the first tone, the other tone is disabled.***

Dialtone – modulation

Set the dialtone modulation, choosing one of the predefined dialtone patterns.

Setting options: ***Continuous, 320/320/640/640 (Morse A)***
Default setting: ***Continuous***

Busy tone– frequency

Set the busy tone frequency in [Hz]. You can set up to two frequencies for a dual tone. The first frequency is obligatory, the other is optional.

Setting options: ***100–3,500 Hz***
Setting step: ***5 Hz***
Default setting: ***425 Hz for the first tone, the other tone is disabled.***

Busy tone – modulation

Set the busy tone modulation, choosing one of the predefined dialtone patterns.

Setting options: ***250/250, 330/330, 200/200, 375/375, 500/500***

Default setting: *330/330*

Continuous tone – frequency

Set the continuous tone frequency in [Hz]. You can set up to two frequencies for a dual tone. The continuous tone can be used for setting the Disconnect tone parameter.

Setting options: *100–3,500 Hz*

Setting step: *5 Hz*

Default setting: *425 Hz for the first tone, the other tone is disabled.*

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Ringing and CLIP Section ER

Frequency

Here set the signal frequency for terminal or PBX ringing in the case of an incoming GSM call.

Setting options: *10–60 Hz*

Setting step: *1 Hz*

Default setting: *50 Hz*

Modulation

Here set ringing signal modulation, choosing one of the predefined ringing patterns.

Setting options: *1000/4000, 400/200/400/2000, 1500/3500,2000/4000*

Default setting: *1000/4000*

CLIP

Set this item to enable sending of a calling GSM line identification. The function can be enabled if you have a FSK/ETSI receiving device on your telephone line.

Setting options: *Disable*
2N® EasyRoute restricts the CLI towards the telephone line.
FSK during ringing
2N® EasyRoute transmits the FSK-based CLI according to the ETSI EN 300 659 standard during ringing.

Default setting: *ETSI FSK during ringing*

Replace '+'

If this parameter is enabled, the '+' character is replaced with the defined string in the international prefix of the CLI. It is because the "+" character can neither be transmitted by the FSK protocol nor dialled in the DTMF format from a terminal.

Setting options: *0–15 characters (0–9, *, #)*

Default setting: *empty*

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Signalling Section ER

Pulse frequency

Set the tariff pulse frequency.

Setting options: ***12/16 kHz***

Default setting: ***12 kHz***

Tariff pulse at call beginning

Enable/disable tariff pulse sending when the call begins. The pulse is sent when the call is answered in the GSM network.

Setting options: ***Enabled/Disabled***

Default setting: ***Disabled***

Tariff pulse at call end

Enable/disable tariff pulse sending when the call ends. The pulse is sent when the call is hung up in the GSM network.

Setting options: ***Enabled/Disabled***

Default setting: ***Disabled***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Advanced Section ER

Enable receive path high pass filter

Enable/disable the high pass filter for the signal receive path.

Setting options: ***ON/OFF***

Default setting: ***ON***

Enable transmit path high pass filter

Enable/disable the high pass filter for the signal transmit path.

Setting options: ***ON/OFF***

Default setting: ***ON***

Receive path gain

Set the gain for the receive path.

Setting options: ***0 dB***

3.5 dB
-3.5 dB
Muted

Default setting: *0*

Transmit path gain

Set the gain for the transmit path.

Setting options: *0 dB*
3.5 dB
-3.5 dB
Muted

Default setting: *0*

Line capacitance compensation

Set the line capacitance compensation.

Setting options: *Off*
4.7 nF
10 nF

Default setting: *Off*

Telephone line impedance

Adjust the telephone line to the FXS interface.

Setting options: *600 Ohm*
900 Ohm
600 Ohm + 2.16 µF
900 Ohm + 2.16 µF
270 Ohm + 750 Ohm || 150 nF
220 Ohm + 820 Ohm || 120 nF
220 Ohm + 820 Ohm || 115 nF
370 Ohm + 620 Ohm || 310 nF
Disabled

Default setting: *600 Ohm*

Pulse metering hybrid adjustment

Set the trans-hybrid feedback for tariff pulse metering. Use this function, for example, to eliminate penetration of tariff pulses into the wireless network and potential interference.

Setting options: *+4.08 dB*
+2.50 dB
+1.16 dB
0 dB
-1.02 dB
-1.94 dB
-2.77 dB
Off

Default setting: *0 dB*

Audio hybrid adjustment

Set the audio trans-hybrid feedback. Use this function, for example, to suppress echo more efficiently.

Setting options: ***+4.08 dB***
+2.50 dB
+1.16 dB
0 dB
-1.02 dB
-1.94 dB
-2.77 dB
Off

Default setting: ***0 dB***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SLIC – FAX Version ERF

SLIC > Dialling ERF

Use the SLIC submenus to set the analogue line (FXS port) parameters.

On-hook timeout

Set the minimum line current discontinuation to be evaluated as hang-up by 2N® EasyRoute. If shorter, the discontinuation is ignored by the gateway.

Setting options: ***10–10000 ms***
Setting step: ***1 ms***
Default setting: ***400 ms***

Off-hook timeout

Set the minimum time interval after which the off-hook state is detected.

Setting options: ***10–10000 ms***
Setting step: ***1 ms***
Default setting: ***40 ms***

Minimum Flash timeout

Set the minimum time interval after which the Flash is detected.

Setting options: ***10–10000 ms***
Setting step: ***1 ms***
Default setting: ***40 ms***

Maximum Flash timeout

Set the maximum time interval before which the Flash can be detected.

Setting options: ***10–10000 ms***
Setting step: ***1 ms***
Default setting: ***200 ms***

Minimum idle pulse time

Set the minimum inactive pulse time.

Setting options: ***10 – 10000 ms***
Setting step: ***1 ms***
Default setting: ***40 ms***

Maximum idle pulse time

Set the maximum inactive pulse time.

Setting options: ***10–10000 ms***
Setting step: ***1 ms***
Default setting: ***60 ms***

Minimum active pulse time

Set the minimum active pulse time.

Setting options: ***10 – 10000 ms***
Setting step: ***1 ms***
Default setting: ***40 ms***

Maximum active pulse time

Set the maximum active pulse time.

Setting options: ***10–10000 ms***
Setting step: ***1 ms***
Default setting: ***60 ms s***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SLIC > Tones ERF

Dialtone - frequency

Here set the dialtone frequency in [Hz]. You can set up to two frequencies for a dual tone. The first frequency is obligatory, the other is optional.

Setting options: ***100–4000 Hz***
Setting step: ***1 Hz***
Default setting: ***425 Hz for the first tone, the other is disabled***

Dialtone – modulation

Set the dialtone modulation, choosing one of the predefined dialtone patterns.

Setting options: ***Continuous, 320/320/640/640 (Morse A), 330/330, 200/200, 250/250, 375/375, 500/500, 50/50, 1500/3000***

Default setting: ***Continuous***

Busy tone – frequency

Set the busy tone frequency in [Hz]. You can set up to two frequencies for a dual tone. The first frequency is obligatory, the other is optional.

Setting options: ***100–4000 Hz***

Setting step: ***1 Hz***

Default setting: ***425 Hz for the first tone, the other is disabled***

Busy tone – modulation

Set the busy tone modulation, choosing one of the predefined dialtone patterns.

Setting options: ***Continuous, 320/320/640/640 (Morse A), 330/330, 200/200, 250/250, 375/375, 500/500, 50/50, 1500/3000***

Default setting: ***200/200***

Ringing tone – frequency

Set the ringing tone frequency in [Hz]. You can set up to two frequencies for a dual tone. The first frequency is obligatory, the other is optional.

Setting options: ***100–4000 Hz***

Setting step: ***1 Hz***

Default setting: ***425 Hz for the first tone, the other is disabled***

Ringing tone – modulation

Set the ringing tone modulation, choosing one of the predefined dialtone patterns.

Setting options: ***Continuous, 320/320/640/640 (Morse A), 330/330, 200/200, 250/250, 375/375, 500/500, 50/50, 1500/3000***

Default setting: ***1500/3000***

Error tone – frequency

Set the tone frequency in [Hz]. You can set up to two frequencies for a dual tone. The first frequency is obligatory, the other is optional.

Setting options: ***100–4000 Hz***

Setting step: ***1 Hz***

Default setting: ***425 Hz for the first tone, the other is disabled***

Error tone – modulation

Set the tone modulation, choosing one of the predefined dialtone patterns.

Setting options: ***Continuous, 320/320/640/640 (Morse A), 330/330, 200/200, 250/250, 375/375, 500/500, 50/50, 1500/3000***

Default setting: ***50/50***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SLIC > Advanced ERF

Ringing

Set the telephone line ringing voltage modulation, choosing one of the predefined ringing patterns.

Setting options: ***1000/4000, 400/200/400/2000, 1500/3500, 2000/4000***

Default setting: ***1000/4000***

CLIP

Set this item to enable sending of a calling GSM line identification. The function can be enabled if you have a FSK/DTMF (ETSI) receiving device on your telephone line.

Setting options: ***Disable***
2N® EasyRoute restricts the CLI towards the telephone line.
ETSI FSK
2N® EasyRoute transmits the CLI using the FSK (Frequency Shift Keying) to a telephone line.
ETSI DTMF
2N® EasyRoute transmits the received CLI using the DTMF (Dual Tone MultiFrequency) signalling to a telephone line.

Default setting: ***ETSI FSK***

LEC

Enable or disable the echo cancelling function (Line Echo Canceller).

Setting options: ***Enabled/Disabled***

Default setting: ***Enabled***

Receive path gain

Set the gain for the receive path.

Setting options: ***-24 to 24 dBms***

Setting step: ***1 dBms***

Default setting: ***-18 dBms***

Transmit path gain

Set the gain for the transmit path.

Setting options: ***-24 to 24 dBms***

Setting step: ***1 dBms***

Default setting: *0 dBms*

Jitter

Set the buffer jitter capacity.

Setting options: *Fixed/Adaptive*

Default setting: *Fixed*

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SIP > Basic ERF

Set login data for VoIP providers, codec priorities and other VoIP parameters in this menu.

Enable

Enable the use of the SIP account and VoIP routing.

Setting options: *Enabled/Disabled*

Default setting: *Disabled*

Client name

Set the name to be displayed to the called subscriber.

Setting options: *0–49 characters (ASCII)*

Default setting: *EasyRoute*

Local port

Set the port to be used for SIP communication by 2N® EasyRoute.

Setting options: *1 - 65535*

Setting step: *1*

Default setting: *5060*

Local RTP port

Set the port for RTP stream sending.

Setting options: *1 - 65535*

Setting step: *1*

Default setting: *10000*

Count of RTP ports

Set the range of the RTP ports to be used.

Setting options: *without limitation*

Setting step: *1*

Default setting: *3*

Login timeout

When the preset time interval elapses, the gateway sends a new registration packet to the SIP proxy as defined in the *SIP > Account* menu.

Setting options: ***without limitation [s]***
Setting step: ***1 s***
Default setting: ***60 s***

KeepAlive period

When the preset time interval elapses, the gateway sends a KeepAlive packet to restore the gateway path storing time in the NAT router tables.

Setting options: ***without limitation [ms]***
Setting step: ***1 ms***
Default setting: ***60 ms***

Codecs 1 to 5

Set the priorities of codecs 1 to 5. The lower the number, the higher the priority.

Setting options: ***G.729, G.723, PCMU, PCMA***
Default settings: ***Codec 1 – G.729***
Codec 2 – G.723
Codec 3 – PCMU
Codec 4 – PCMA
Codec 5 – Unused

Note

n Currently, 2N® EasyRoute supports four types of codecs. They are: G.729, G.723, PCMU and PCMA. Codec 5 is reserved for future codec extension. So do not change the default values of Codec 5 for the time being (Unused).

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SIP > Account ERF

Registrar

Set the IP address or domain name for the registrar server.

Setting options: ***0–49 characters (ASCII)***
Default setting: ***empty***

Proxy

Set the IP address or domain name of the SIP proxy that 2N® EasyRoute uses for calling.

Setting options: ***0–49 characters (ASCII)***

Default setting: *empty*

Port

Set the port to which the registration packet for the registrar and signalling for the SIP proxy are sent.

Setting options: *1 - 65535*

Setting step: *1*

Default setting: *5060*

Display name

Set the user or device name to be displayed to the opponent (if the network allows so).

Setting options: *0–49 characters (ASCII)*

Default setting: *empty*

Display number

Set the user or device name to be displayed to the opponent (if the network allows so).

Setting options: *0–49 characters (ASCII)*

Default setting: *empty*

User name

Set the user name to be used for registration.

Setting options: *0–49 characters (ASCII)*

Default setting: *empty*

Password

Set the authorisation password for registration.

Setting options: *0–49 characters (ASCII)*

Default setting: *empty*

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SIP > Flood ERF

Enable

Enable/disable the use of the Flood function.

Setting options: *Enable/Disable*

Default setting: *Enable*

Port

Set the port to which stimulation packets should be sent.

Setting options: *1 - 65535*

Setting step: *1*

Default setting: *65534*

Packet size

Set the size of the stimulation packet.

Setting options: *0 – 1024 B*
Setting step: *1*
Default setting: *100*

Sending intervals

Set the time intervals for stimulation packet sending.

Setting options: *5 – 500 ms*
Setting step: *1*
Default setting: *20*

Tip

- **The Flood function has been developed to compensate the initial data transmission slowness in the UMTS network. Thus, 2N® EasyRoute sends stimulation packets at preset intervals to achieve the optimum data flow at initial stages of bulk data transmissions. The default value is Enabled.**
- **Do not disable this function to avoid connection errors at the beginning of VoIP and T.38 FAX calls.**

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

FAX > Basic ERF

Enable

Enable the FAX function.

Setting options: *Enabled/Disabled*
Default setting: *Disabled*

Protocol

Set the protocol for FAX transmission.

Setting options: *UDP / TCP*
Default setting: *UDP*

Port

Set the port to be used for FAX data transmission.

Setting options: *1 - 65535*
Setting step: *1*
Default setting: *10004*

Data flow

Set the data flow to be preferred. The data flow set in here need not necessarily be used. If two opposite devices agree so during the FAX call set-up, a lower value may be selected.

Setting options: ***2400 bps***
4800 bps
7200 bps
9600 bps
14400 bps

Default setting: ***9600 bps***

TCF

Define how to perform the training sequence according to the T.38 protocol.

Setting options: ***Local***
The training sequence is performed locally only.
Transferred
The whole training sequence is transmitted in the same way and under the same conditions as the following FAX message.

Default setting: ***Transferred***

Buffer size

Set the buffer size for UDP/TCP datagrams.

Default setting: ***200 B***

Datagram size

Set the maximum UDP/TCP datagram size.

Default setting: ***200 B***

Error correction method

Define how to correct the errors in the FAX messages to be transmitted.

Setting options: ***Redundancy***
2N® EasyRoute uses the Redundancy Error Correction.
FEC
2N® EasyRoute uses the Forward Error Correction.

Default setting: ***Redundancy***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

FAX > Advanced ERF

Reinvite tone

Define to which of the detected tones the reinvite tone should be sent in the SIP protocol from the voice codec (G.729, e.g.) for T.38 transmission.

Setting options: ***CNG / CED / DIS***

Default setting: ***CNG***

Reinvite direction

Define which of the subscribers should make reinvite from the voice codec for T.38.

Setting options: ***Calling / Called***

Default setting: ***Called***

Enable old ASN notation

The transmission obeys the preset ASN standard.

Setting options: ***Enabled / Disabled***

Default setting: ***Enabled***

Disable ECM

Set error correction on the T.30 level for the devices that enable this function.

Setting options: ***Enabled / Disabled***

Default setting: ***Disabled***

Tip

- **Each network to which 2N® EasyRoute is connected may behave in a different way. If you have FAX transmission problems, you can probably resolve them by setting the above mentioned parameters properly.**

Output signal strength

Set the output signal level for FAX modulation.

Default setting: ***10 dBm***

Buffer length

Set the total size of the buffer for the T.38 process. To get the actual value, multiply the set value ten times. So, if the parameter is set to 50, the actual size is 500ms.

Setting options: ***0 – 100***

Default setting: ***50***

Data redundancy (V.17, V.29, V.27)

Set the UDPTL protocol parameters. Define how many copies of the preceding packets should be used for error correction.

Setting options: ***0 - 6***

Default setting: ***3***

Control data redundancy (V.21)

Set the UDPTL protocol parameters.

Setting options: ***0 - 6***

Default setting: ***3***

T.30 indicator duplication

Set how many times the indicator (CNG, CED, e.g.) should be copied.

Setting options: ***0 - 6***

Default setting: ***4***

Packets count for FEC

Set the count of packets for calculation of the XOR packet for FEC.

Setting options: ***0 - 6***

Default setting: ***2***

Transmit path gain

Set the gain for the output signal.

Default setting: ***96***

Receive path gain

Set the gain for the input signal.

Default setting: ***96***

Modulation start level

Set the buffer filling level for the beginning of data modulation.

Default setting: ***320 ms***

Data request level

Set the buffer filling level for the moment another data request is sent.

Default setting: ***233 ms***

Demodulation buffer

Set the size of the demodulation buffer.

Default setting: ***32 ms***

Caution

- **The above mentioned parameters are used for precise setting and debugging of the T.38 modulation. Any unprofessional intervention may result in a modulation and/or FAX malfunction. These parameters have factory settings and need not be changed under normal conditions.**
- **If necessary, ask a skilled technician for advice.**

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Baby Call Section

An off-hook initiates the countdown defined in the Dialling timeout parameter. If no dialling is made within this timeout, the pre-set telephone number is dialled automatically. If any digit is dialled, the BabyCall function is cancelled.

Enable

Here enable/disable the Automatic Call function.

Setting options: ***ON/OFF***

Default setting: ***OFF***

Telephone number

Here enter the number to be used for the Automatic Call.

Setting options: ***0–31 characters (0–9, *, #, +)***

Default setting: ***empty***

Dialling timeout

Set the time interval between the line off-hook and the beginning of the Automatic Call (if enabled). During this timeout, 2N® EasyRoute waits for a dialling to cancel the Automatic Call. Thus, you can make standard calls even if the BabyCall function is enabled.

Setting options: ***500–10000 ms***

Setting step: ***1 ms***

Default setting: ***5000 ms***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Routing Section

Prefix

Enter the call type identifying prefixes (GSM, trunk, free, etc.). The Others row is used for calls with prefixes that are not included in the table. One empty row is always available. When a prefix is entered and saved, another empty row is added. To remove a row, delete the prefix and save the data again.

Setting options: ***0–15 characters (0–9, *, #)***

Default setting: ***empty***

Allow

Use this parameter to allow/bar calls with the prefixes specified on the given row.

Setting options: ***ON/OFF***

Default setting: ***ON***

Length

Use the Length parameter to define the expected length of a number including its prefix for the given row. This enables the start of a GSM dialling immediately after the last digit is dialled. If the telephone number to be dialled is shorter, the call will not be set up until the predefined timeout elapses. '0' means that the function is disabled.

Setting options: ***0-20***

Setting step: ***1***

Default setting: ***0***

#

Use the # parameter to enable call set-up whenever a '#' (hash) is received. This character is removed from the number to be dialled. If you want a "#" to be part of the dialled number, you cannot use this function for the given prefix.

Setting options: ***ON/OFF***

Default setting: ***ON***

Remove

Use the Remove parameter to enable automatic call forwarding. Define a number of digits (prefix) to be removed from the beginning of the number to be dialled.

Setting options: ***0–20***

Setting step: ***1***

Default setting: ***0***

Add

Use the Add parameter to enable automatic call forwarding. Define a string (prefix) to be added to the beginning of the number to be dialled.

Setting options: ***0–8 characters (0–9, *, #, +)***

Default setting: ***empty***

Extra

Set the pseudo tariff metering rules independent of call duration. Set a fixed count of tariff pulses to be added to the pulses sent according to the call duration and the Tariff rate setting after the call start. This parameter helps set the minimum call cost.

Setting options: ***0–255***

Setting step: ***1***

Default setting: ***0***

Tariff rate

Set the pseudo tariff-metering rules based on call duration. Define how often (in seconds) you want to transmit tariff pulses. A lower number means a more expensive call. '0' means no tariff pulse metering according to call duration.

Setting options: ***0–255 s***

Setting step: ***1 s***

Default setting: *0 s*

VoIP ERF

The checkbox is available in the FAX version only and helps route numbers corresponding to the table row to the VoIP network.

Setting options: *Enabled/Disabled*

Default setting: *Disabled*

Routing mode

The lower screen menu helps you set the mode of the routing table use.

Setting options:

GSM: *2N® EasyRoute routes all calls to the GSM network regardless of the routing table settings.*

VOIP: *Available in the FAX version only. 2N® EasyRoute routes all calls to the VoIP network regardless of the routing table settings.*

According to table: 2N® EasyRoute routes all calls to the GSM or VoIP network according to the routing table settings.

Default setting: According to table

Save button

Push this button to save the new settings.

SETUP Menu > Wireless

Basic Section

Enable

Use this option to activate/deactivate the WiFi network transmitter.

Setting options: *ON/OFF*

Default setting: *OFF*

Network name (SSID)

The SSID (Service Set Identifier) is a WiFi identifier transmitted to the users. It is a string of up to 32 characters and represents a unique WiFi identifier in the area.

Setting options: *1–32 characters*

Default setting: *EasyRoute*

Channel

A manual/automatic setting of the channel to be used in the given WiFi bandwidth (2.4/5 GHz).

Setting options: *Auto*

Accessible channels

Default setting: ***Auto***

Transmission rate

A manual/automatic setting of the WiFi interface transmission rate. The automatic option is only available at present.

Setting options: ***Auto,***
1–54 Mbps

Default setting: ***Auto***

TX power

Set the transmission power of the gateway WiFi transmitter.

Setting options: ***Auto***
Max
0–17 dBm

Setting step: ***1 dBm***

Default setting: ***Max***

Beacon

Set the beacon frame for a periodic sending of the SSID to the WiFi interface.

Setting options: ***15–65,535 ms***

Setting step: ***1 ms***

Default setting: ***100 ms***

RTS

The RTS value gives the packet size limit in bytes below which the CSMA/CA and above which the RTS/CTS flow control should be used. Set the parameter to the maximum value in the AP mode.

Setting options: ***0–2,346 B***

Setting step: ***1 B***

Default setting: ***2,346 B***

Fragmentation

Set the maximum size of packets for a wireless network.

Setting options: ***0–2,346 B***

Setting step: ***1 B***

Default setting: ***2,346 B***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Security Section

Encryption

Here set the 2N® EasyRoute WiFi interface security levels.

Setting options: ***None***

WEP
WPA
WPA2
WPA+WPA2

Default setting: *None*

Key format

Set the WiFi interface security key format.

Setting options: *ASCII / HEX*

Default setting: *ASCII*

Key

The WiFi security key consists of a sequence of alphanumeric characters or hexadecimal symbols (as defined in the key format).

Setting options: *For WEP key:*
Enter 5, 13 or 16 alphanumeric characters or 10, 26 or 32 hexadecimal symbols.

For WPA/WPA2 key:
Enter 8 to 63 alphanumeric characters or 64 hexadecimal symbols.

Default setting: *empty*

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SETUP Menu > Hotspot

Hotspot is a function allowing a user to access the Internet with the aid of a time limited access password - a ticket. It is intended for Internet coffee bars and similar public facilities. This function makes it possible to calculate connection costs easily.

The SNTP (Simple Network Time Protocol) must be active for Hotspot to work reliably. The default setting is the NTP server "ntp.nic.cz", or any other NTP server in the case of troubles.

After Hotspot activation, any user without the admin rights is redirected to the web page for filling in the access key.

The *Sale* item is accessible both for the Administrator and Operator.

Basic

Enable Hotspot

Enable the Hotspot function. The parameters set here will be used as default values for the Operator's sale in the *Sale* menu.

Setting options: ***Enabled/Disabled***
Default setting: ***Disabled***

Time of connection

Set the value of the time limited connection starting from the ticket-based login.

Setting options: ***1 minute to 60 days***
Default setting: ***1 hour***

Ticket validity

Set the time period during which the connection may be activated. After this time period passes, the ticket becomes invalid.

Setting options: ***1 minute to 60 days***
Default setting: ***2 hours***

Enable calculation

Enable the connection cost calculation and ticket registration.

Setting options: ***Enabled/Disabled***
Default setting: ***Disabled***

Unit price (per hour)

Set the unit price for the ticket cost calculation.

Setting options: ***0-4294967295 (for the position of the decimal separator refer to the setting below)***
Default setting: ***0***

Decimal places

Define the position of the decimal point in the unit price.

Setting options: ***0-4***
Default setting: ***2***

Administrators

MAC address table with remark

The users with the MAC addresses included in this table are not limited by the Hotspot system while accessing the Internet.

Setting options:	***MAC address – 12 hexadecimal symbols***
	Remark - text
Default setting:	***empty***

Append my MAC

Add the MAC address of PC to which the Administrator is currently logged in to the table.

Tickets

Overview of the generated tickets and their use – valid tickets only.

History

Overview of the generated tickets and their use – including used and invalid tickets. This menu allows an export of records to Excel for future use. It gives an overview of prices of sold tickets. The maximum count of registered tickets is 1,000.

Sale (Accessible for Operator too)

Time of connection

Set the value of the time limited connection starting from the ticket-based login. The value predefined in the *Basic* menu is used by default.

Setting options:	***1 minute to 60 days***
Default setting:	***1 hour***

Ticket validity

Set the time period during which the connection may be activated. After this time period passes, the ticket becomes invalid. The value predefined in the *Basic* menu is used by default.

Setting options:	***1 minute to 60 days***
Default setting:	***2 hours***

Ticket preview

Displays the parameters of the ticket to be generated and information on the last ten tickets generated.

Serial – ticket serial number, assigned automatically;
Code – connection code with a ticket;
Time of connection – time for connection;
Ticket validity – ticket validity term;
Price – ticket price.

SMS notify

Fill in a phone number to which SMS information on the ticket should be sent. To send the SMS, push the Send button.

Setting options: ***phone number of up to 20 digits***
Default setting: ***empty***

SETUP Menu > Network

LAN Section

IP

Displays the IP address assigned to 2N® EasyRoute. You will get connected to this address through your web browser for gateway configuration and SMS and call list management.

Setting options: ***Valid IP address***
Default setting: ***192.168.1.1***

Network mask

Displays the mask of the network where 2N® EasyRoute will be operating.

Setting options: ***Valid network mask***
Default setting: ***255.255.255.0***

Enable custom gateway

Enable the use of your own gateway, not the one assigned by your mobile provider.

Setting options: ***ON/OFF***
Default setting: ***OFF***

Gateway

Enter the IP address assigned to your gateway, to which all gateway IP packets are primarily routed.

Setting options: ***Valid gateway IP address***

Default setting: *empty*

Use custom DNS

Enable the use of your own DNS, not the one assigned by your mobile provider.

Setting options: *ON/OFF*

Default setting: *OFF*

Custom DNS1/DNS2

Enter the IP addresses of the DNSs preferred in the Internet.

Setting options: *Valid DNS IP address*

Default setting: *empty*

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

DHCP Section

Enable

Enable the DHCP (Dynamic Host Configuration Protocol) for 2N® EasyRoute. With the DHCP enabled, the connected devices can be assigned IP addresses automatically from the required range.

Setting options: *ON/OFF*

Default setting: *ON*

Start IP

Displays the first address in the block of addresses that the DHCP server may assign. Its setting is adjusted automatically according to the set gateway IP address.

Setting options: *Valid IP address*

Default setting: *192.168.1.100*

End IP

Displays the last address in the block of addresses that the DHCP server may assign. Its setting is adjusted automatically according to the set gateway IP address.

Setting options: *Valid IP address*

Default setting: *192.168.1.200*

Gateway

Displays the IP address of the currently used gateway. The item can include either an IP address defined by the user in the LAN menu or the 2N® EasyRoute IP address.

DNS1/DNS2

Displays the IP addresses of the currently used DNSs. The item can include the servers defined by the user in the LAN menu or assigned by the GSM provider, or the 2N® EasyRoute IP address.

WINS

Shows the WINS (Windows Internet Name Server) address. The WINS is responsible for the list of communication IP addresses and corresponding PC names.

Setting options: ***Valid WINS IP address***

Default setting: ***empty***

Lease time

This parameter determines the time of leasing the IP address to a network device. After this time, the network device has to send a new IP address assignment request to the DHCP server.

Setting options: ***3,600–604,800 s***

Setting step: ***1 s***

Default setting: ***86,400 s***

Maximum leases

Here define the maximum count of network devices that are assigned the IP address dynamically by the DCHP. Further addresses may be assigned statically only.

Setting options: ***1–250***

Setting step: ***1***

Default setting: ***50***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

DNS section

Enable

Here enable/disable the 2N® EasyRoute DNS.

Setting options: ***ON/OFF***

Default setting: ***ON***

DNS1 / DNS2

Displays the mobile provider's servers or user-defined (LAN menu) servers to which the gateway DNS refers for replies to queries.

Enable cache

Enable/disable the 2N® EasyRoute cache memory for DNS entries.

Setting options: ***ON/OFF***

Default setting: ***ON***

Cache low

The minimum number of DNS entries in the cache memory.

Setting options: ***10–10000***

Setting step: ***1***

Default setting: ***100***

Cache high

The maximum number of DNS entries in the cache memory. When this limit is reached, entries are deleted down to the minimum number of entries as provided by the Cache low parameter.

Setting options: ***10–10000***

Setting step: ***1***

Default setting: ***300***

Maximum sockets

The maximum number of requests that the DNS server can handle simultaneously.

Setting options: ***1–200***

Setting step: ***1***

Default setting: ***20***

Timeout

The time limit for the DNS server response. If the DNS server fails to respond within this timeout, a reply comes back saying that the address is unknown or invalid.

Setting options: ***1–30 s***

Setting step: ***1 s***

Default setting: ***10 s***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

DDNS Section

The dynamic DNS is a system that is used for updating the server records on the Internet domain in real time. The DDNS allows you to use a stable DNS name instead of a variable IP address.

Enable

Enable/disable the use of the dyndns.org server by 2N® EasyRoute.

Setting options: ***ON/OFF***

Default setting: ***OFF***

Username

Enter the username for DDNS connection. The user must be registered with the dyndns.org server.

Setting options: ***Alphanumeric characters***

Default setting: ***empty***

Password

Enter the access password for DDNS connection. The password must correspond with the user password on the dyndns.org server.

Setting options: ***Alphanumeric characters***

Default setting: ***empty***

Hostname

Enter the name that will be part of the gateway domain name on the DDNS. A complete name is as follows: here_enter.dyndns.org

Setting options: ***Valid domain name***

Default setting: ***empty***

Update

Set a time interval for periodical DDNS data updating. After this time, the gateway sends updated IP address information to the dyndns.org server.

Setting options: ***1-86,400 s***

Setting step: ***1 s***

Default setting: ***60 s***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Firewall Section > Basic

Enable Firewall

Here enable/disable the use of the Firewall for communication from an internal network (LAN, WiFi) to the Internet.

Setting options: ***ON/OFF***

Default setting: ***ON***

Enable remote administration

Enable/disable remote control of your gateway. This means that the gateway can be configured not only from an internal network (LAN, WiFi) but also from the Internet via the UMTS connection.

Setting options: ***ON/OFF***

Default setting: ***OFF***

Check TCP

Enable/disable the check of TCP packets passing through the gateway.

Setting options: ***ON/OFF***

Default setting: ***ON***

SYN-flood protection

Enable/disable protection against the SYN-flood attack. This type of attack is based on sending of an excessive quantity of packets with the SYN flag to the server, which then receives no replies to its confirmation requests. The server, however, has already allocated the communication-establishing means and becomes flooded by an excessive count of such requests.

Setting options: ***ON/OFF***

Default setting: ***ON***

Spoofing protection

Enable/disable protection against the so-called IP-spoofing attack. A spoof address is included in the SYN requests and sent to the server. The server then sends its connection confirmation request to this address, but receives no reply. The server, however, has already allocated the communication-establishing means and becomes flooded by an excessive count of such requests.

Setting options: ***ON/OFF***

Default setting: ***ON***

Check ICMP

Enable/disable the check of the ICMP packets passing through the gateway. The ICMP (Internet Control Message Protocol) packets are used by the network equipment operating systems for sending error messages.

Setting options: ***ON/OFF***

Default setting: *ON*

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

Firewall Section > Port Forwarding

Used for routing packets coming from the Internet to specified ports, routed to specified internal addresses and ports. The function is often designated as the static NAT.

Input

Define the port to be forwarded. If a packet routed to this port comes to the gateway, it is automatically forwarded to the destination specified in the Target column.

Setting options: *0-65,535*

Default setting: *empty*

Target

Define the target destination to which packets routed to specified ports are forwarded. Obligatorily, the destination includes the IP address and the port.

Setting options: *Valid IP address and port*

Default setting: *empty*

Enable

Enable/disable port forwarding as defined in the table above the parameter.

Setting options: *ON/OFF*

Default setting: *OFF*

Delete button

Push this button to remove the selected records.

Save button

Push this button to save the new settings.

Firewall Section > Port Filter

Used for restricting the gateway access. If the Firewall is active and the Port filter is enabled in this menu, the access through the gateway is possible via selected ports only.

Protocol

Specify the protocol type for the packet to be filtered.

Setting options: *TCP*

UDP

Both

Default setting: *TCP*

Port (Service)

Define the port to be used for the internal network – Internet communication. If the selected port is associated with a service, the service is given in the parentheses behind the port number, e.g. 23 (telnet).

Setting options: ***0-65,535***

Default setting: ***empty***

Enable

Enable/disable port filtering according to the rules defined above the parameter.

Setting options: ***ON/OFF***

Default setting: ***OFF***

Delete button

Push this button to remove the selected records.

Save button

Push this button to save the new settings.

VRRP Section

The VRRP (Virtual Router Redundancy Protocol) is a protocol increasing the availability of the default gateway, which provides the user service in a certain network segment. For a correct function, there must be two servers at least in the segment – one master and one backup.

Enable

Enable/disable the use of the VRRP in 2N® EasyRoute.

Setting options: ***ON/OFF***

Default setting: ***OFF***

Virtual IP

Set the IP address of the virtual server. One and the same address should be set here for all the devices that are to work as servers.

Setting options: ***Valid IP address***

Default setting: ***empty***

ID

Set the gateway ID to be displayed as server identification in the given network segment. Each server should have a unique ID.

Setting options: ***1-255***

Setting step: ***1***

Default setting: ***1***

Priority

Set the server priority. A higher number means a higher priority. The device with priority 255 must be available in the network and is regarded as the master. The other priority numbers need not be assigned sequentially. Priorities should not be multiplied in the given network segment.

Setting options: ***1-255***

Setting step: ***1***

Default setting: ***255***

Enable pre-emptive mode

Enable/disable return to the master upon its recovery.

Setting options: ***ON/OFF***

Default setting: ***OFF***

Enable authentication

Enable/disable the use of another device-specifying parameter within the VRRP network. Authentication is a sort of safety lock against unintentional misuse of devices with identical IDs rather than a password or unauthorised access prevention.

Setting options: ***ON/OFF***

Default setting: ***OFF***

Password

Enter the VRRP device password. It is included in every VRRP packet transmitted by the device.

Setting options: ***1-8 alphanumeric characters***

Default setting: ***empty***

Reporting interval

Set the interval for sending state notifications to IP address 224.0.0.18.

Setting options: ***1-50 s***

Setting step: ***1 s***

Default setting: ***1 s***

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SNTP Section

The SNTP (Simple Network Time Protocol) provides time synchronisation with the selected server. A client supporting the SNTP only cannot be a server for other clients.

Enable

Enable/disable the use of the NTP server as defined below.

Setting options: ***ON/OFF***

Default setting: ***OFF***

NTP server name

Enter the NTP server domain name or IP address.

Setting options: ***NTP server address***

Default setting: ***empty***

Update interval

Enter the synchronisation interval for the selected NTP server.

Setting options: ***5-43,200 min***
Setting step: ***1 min***
Default setting: ***60 min***

Time zone

Set a time value for the given location (time zone). The gateway receives time data in the GMT (Greenwich Mean Time) format from the NTP server, which is the prime meridian time. To set time for Prague, for example, add 120 minutes in summer and 60 minutes in winter to this value.

Setting options: ***-720 to +720 min***
Setting step: ***15 min***
Default setting: ***0 min***

Local time

If time synchronisation was successful, this item shows the local date and time. The parameter cannot be configured. If the NTP server is not configured, the date and time data are reset to Thu Jan 1 00:00:00 2009 after every gateway restart.

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SSH - Basic

The SSH (Secure Shell) protocol provides encoded connection with the SSH-supporting servers. 2N® EasyRoute always works in the client mode.

Enable SSH client

Enable the use of the SSH protocol.

Setting options: ***Enabled/Disabled***
Default setting: ***Disabled***

SSH server name

Enter the name of the SSH server to which 2N® EasyRoute is to be connected.

Setting options: ***String including the server name***
Default setting: ***empty***

Client public key

A key generated by 2N® EasyRoute (represented by a code), which can be stored on a disk.

Host public key

A key generated by the server (represented by a code), which can be stored on a disk.

Always accept remote host key

Enable this field to make the key acceptable before connecting to a server not used so far. If this field is not Enabled, the server's public key is checked for match with an earlier stored key when the server is used repeatedly and if no match is found, the connection is rejected. This enhances security and prevents some types of attacks.

Erase host key database

Whenever a change in the server's public key occurs, delete the stored list of keys to enable the key check as described above.

Generate private key

Generate a key of your own for server connection. The key is displayed in the Public key field.

Type

Select a type of the key to be generated.

Setting options: ***RSA***
DSS

Default setting: ***RSA***

Size

Set the size in bits for the key to be generated.

Setting options: ***As required by the server operator, we recommend you to keep the value 1024. After a key of the required value is stored, the size is reset to 1024.***

Default setting: ***1024***

Save button

Push this button to save the new settings and launch the key generation.

SSH - Forwarding

The SSH forwarding function allows for port forwarding using the SSH tunnel.

Location

Select the side to initiate the connection.

Setting options: ***Remote***
Local

Default setting: *Remote*

Port

Set the port number to which requirements of the device connected to 2N® EasyRoute should be routed.

Setting options: *port number*

Default setting: *empty*

Target

Set the IP address and port to which the connection is routed.

Setting options: *IP address:port number*

Default setting: *empty*

Ping

The Ping function allows for checking the connection with the defined server.

Enable

Enable the function.

Default setting: *Disabled*

ICMP echo server

Define the server to be checked by the Ping service.

Setting options: *server name or IP address*

Default setting: *empty*

Interval

Set the checking interval for the server connection check.

Setting options: *1 to 86400s*

Default setting: *5s*

Timeout

Set the maximum server response time.

Setting options: *1 to 60s*

Default setting: *3s*

Max failures before re-connect

Set the maximum count of attempts before the Peer-to-Peer Protocol (PPP) is restarted in 2N® EasyRoute.

Setting options: *0 to 1000 (0 – no restart, 0 is not displayed)*

Default setting: *0*

Erase statistics

Set the Ping rate statistics deleting command.

Save button

Push this button to save the new settings.

Default button

Push this button to restore the default values (factory settings).

SETUP Menu > System

Password Section

User

Name of the user whose password is to be changed. The gateway supports the admin user at present.

Setting options: ***1-31 alphanumeric characters***

Default setting: ***admin***

Current password

Enter the currently valid password for the gateway configuration interface connection.

Setting options: ***1-31 alphanumeric characters***

Default setting: ***admin***

New password

Enter a new password to be used for the gateway configuration interface connection.

Setting options: ***1-31 alphanumeric characters***

Default setting: ***empty***

Password confirmation

Re-enter the new password for confirmation and prevention of typing errors. If the re-entered password fails to conform to the preceding parameter, no change is executed.

Setting options: ***1-31 alphanumeric characters***

Default setting: ***empty***

Apply button

Push this button to save the new settings.

Firmware Section

Module

Displays information on the module version and date of issue.

Bootloader

Displays information on the bootloader version and date of issue.

Firmware 0 / 1

Displays information on the firmware version, date of issue and downloading instance number (behind the '#' symbol). An Active note is added to one of the firmware instances to indicate the currently used one. The new firmware is stored automatically, replacing the preceding one, and becomes active after restart. Thus, whenever restarted, the gateway operates with the firmware version with the highest serial number.

Choose...

Push this button to choose the path to firmware for updating.

Automatic reboot

Enable/disable the automatic gateway restart after firmware downloading.

Setting options: ***ON/OFF***

Default setting: ***ON***

Update button

Push this button to update the gateway firmware.

Configuration Section

SMS database

Push the Export button to export the current SMS database. A dialogue is invoked for you to select the storage on the disk. Push the Select button to choose an earlier exported SMS database. Having selected the database, you can push the Import button to import the database into the gateway.

Configuration

Push the Export button to export the current gateway configuration. A dialogue is invoked for you to select the storage on the disk. Push the Select button to choose an earlier exported gateway configuration. Having selected the configuration, you can push the Import button to import the configuration into the gateway.

License Section

FW version

Displays the current firmware version used by the gateway.

FW date

Displays the date of issue of the current firmware version used by the gateway.

Serial number

Displays the gateway serial number.

Parameters

Displays information on the hardware parameters. Individual parameters are separated with a comma.

Parameters: ***2***
Signals the use of hardware with two WiFi antennas.

LAN MAC

Displays the MAC address of the LAN interface.

WiFi MAC

Displays the MAC address of the wireless WiFi interface.

IMEI

The IMEI (International Mobile Equipment Identity) is a unique identification code for gateway GSM modules.

IMSI lock

The MSI (International Mobile Subscriber Identity) is a unique identification code for SIM cards. Using the IMSI lock, the gateway locks a selected SIM card, rejecting the other ones.

Report Section

Report type

Here select the type of the report to be displayed.

Setting options: ***EasyRoute***
System reports of the 2N Telekomunikace program module (settings, calls, SMS, etc.).

VOIP/FAX

System reports of the 2N Telekomunikace program module (registration, calls, FAX messages, etc.).

SIP

SIP system reports adapted for launch in the protocol analyser (Wireshark, e.g.).

T.38

T.38 system reports adapted for launch in the protocol analyser (Wireshark, e.g.).

System
System reports of other program modules running in 2N® EasyRoute (VRRP, SNTP, etc.).

Default setting: ***EasyRoute***

Note

- **The event reporter is the same for either 2N® EasyRoute version. EasyRoute and System are the only options available in the basic version. The other options are useless as they are not supported.**

Save button

Push this button to display the storage selecting dialogue and subsequently store the report on the disk.

Refresh button

Push the button to refresh the screen data.

4 Function and Use

This section describes the basic and extending functions of the 2N® EasyRoute product.

Here is what you can find in this section:

- **Voice Function**
- **Ethernet Switch and WiFi Interface**
- **SIM Card PIN Protection.**

4.1 Voice Function

Outgoing and incoming call set-up procedures for an analogue telephone are described for illustration. Use the same procedures for the 2N® EasyRoute–PBX connection, just remember to program call routing to 2N® EasyRoute properly. Check the 2N® EasyRoute function by connecting a telephone.

Suppose that a SIM card has been inserted, the PIN code entered or not required, the antenna connected and 2N® EasyRoute logged-in to the GSM network – the GSM network LED is flashing and you can hear the dialtone upon off-hook. A VoIP account is configured and the gateway is logged in to the provider in the ERF version.

Outgoing Call

1. **Hook off the telephone, you can hear the dialtone and the Line LED starts flashing.**
2. **Dial the required GSM subscriber number. Since 2N® EasyRoute receives tone dialling by default, select the DTMF mode. If your telephone transmits pulse dialling only, program 2N® EasyRoute to receive pulse dialling. The inter-digit delay may not exceed 5 s (or as pre-programmed - ER). The number is evaluated as complete and transmitted to the GSM network after this timeout.**
3. **A short delay follows the last-dialled digit, 2N® EasyRoute awaits further dialling. Then, the dialling end is signalled and connection is established.**
4. **If the called subscriber is available, you can hear the ringing tone. If not, you can hear the busy tone or any of the GSM provider's messages.**
5. **When the called subscriber answers the call, a call is established. The Line LED is permanently on during the call.**
6. **Hang up to terminate the call. The Line LED goes off. If the called subscriber is the first to hang up, you will hear the busy tone and hang up.**

Incoming Call

1. **Ringing signals an incoming call. The Line LED keeps flashing during ringing. If programmed so, 2N® EasyRoute transmits the FSK-based CLIP between the first and second rings (FSK or DTMF for ERF). Advanced telephone sets are able to display the CLI.**
2. **Hook off the phone to establish the call. The Line LED is permanently on during the call.**
3. **Hang up to terminate the call. The Line LED goes off. If the called subscriber is the first to hang up, you will hear the busy tone and hang up.**

Automatic Call (BabyCall)

If the Automatic Call (BabyCall) function is enabled, a pre-programmed period of time is counted down after off-hook. If you do not start dialling within this timeout,

2N® EasyRoute signals dialling end and starts establishing a call to the pre-programmed number automatically – from now on 2N® EasyRoute behaves as if processing a standard outgoing call. Any dialling during the BabyCall timeout cancels this function and a standard outgoing call can be made.

16 or 12 kHz Tariff Pulses

2N® EasyRoute has a tariff pulse transmitter. You can use the pulses for outgoing call metering and/or billing. 2N® EasyRoute offers pseudo tariff metering only – its tariff pulses do not correspond to the provider's call tariffs but are transmitted according to the pre-programmed parameters. Remember to program the routing table parameters in order to set tariff metering for calls with different prefixes.

You can also program 2N® EasyRoute to transmit tariff pulses as call connect/disconnect signalling if your PBX cannot receive telephone line polarity reversal signalling.

4.2 Ethernet Switch and WiFi Interface

2N® EasyRoute is equipped with a 4-port Fast Ethernet switch and a WiFi card. These interfaces allow a PC/LAN to be connected to 2N® EasyRoute. A proper network address and mask settings are needed for correct LAN and Internet connections. Use the UTP or STP cables of the CAT5 category at least for connecting devices to the 2N® EasyRoute Ethernet switch.

Static Network Configuration

If you are using static configuration for all of your LAN devices, you can disable the 2N® EasyRoute DHCP server using the Network > DHCP > Enable options. Remember to assign your LAN devices the addresses that fall into the same address area as the IP address assigned to 2N® EasyRoute in order to ensure a correct function of the Internet connection. To set the IP address and network mask, use the Network > LAN programming tool menus and the IP and Network mask options.

Dynamic Network Assignment

IP addresses can also be assigned dynamically to network devices. Enable the 2N® EasyRoute DHCP server in the Network > DHCP >Enable menus and set the automatic IP address obtaining for your network devices connected to 2N® EasyRoute. Set the 2N® EasyRoute IP address and network mask in the Network > LAN menus using the IP and Network mask parameters, and define the range of addresses to be assigned to your network devices by the DHCP server in the Network > DHCP menus using the Start IP and End IP options. All the addresses to be assigned and the 2N® EasyRoute address must fall into one and the same address area.

Combination of Static and Dynamic IP Address Assignment

It is possible to combine dynamic and static IP address assignments. Set the static IP address for the selected network devices. Enable the automatic IP address obtaining option for all the other devices. Set the 2N® EasyRoute IP address in the Network > LAN menus using the IP and Network mask parameters, then enable the DHCP server in the Network > DHCP > Enable menus and finally set the range of the dynamically assigned addresses in the Network > DHCP menus using the Start IP and End IP parameters. All the static and dynamic addresses to be used must fall into one and the same address area and each address may be assigned just once for the network to work properly.

WiFi Interface

2N® EasyRoute's WiFi card operates in the 2.4 a 5 GHz bandwidths, supports the 802.11a/b/g standards and provides the transmission rate of up to 54Mbps. To configure the WiFi card use the Wireless menu. You can set all wireless network parameters, including WiFi security modes and keys.

4.3 SIM Card PIN Protection

Web Interface PIN Entering

Like other parameters, the PIN code can be entered using the 2N® EasyRoute web interface. If you store the PIN in the 2N® EasyRoute memory using the web interface, the PIN is entered automatically upon every gateway power up.

Automatic PIN Entering

You do not have to enter the PIN upon power up if it is stored in the 2N® EasyRoute memory - it is entered automatically. This function is convenient in case of power failure; 2N® EasyRoute is operable in a short time after power recovery without requiring interventions from the operating staff.

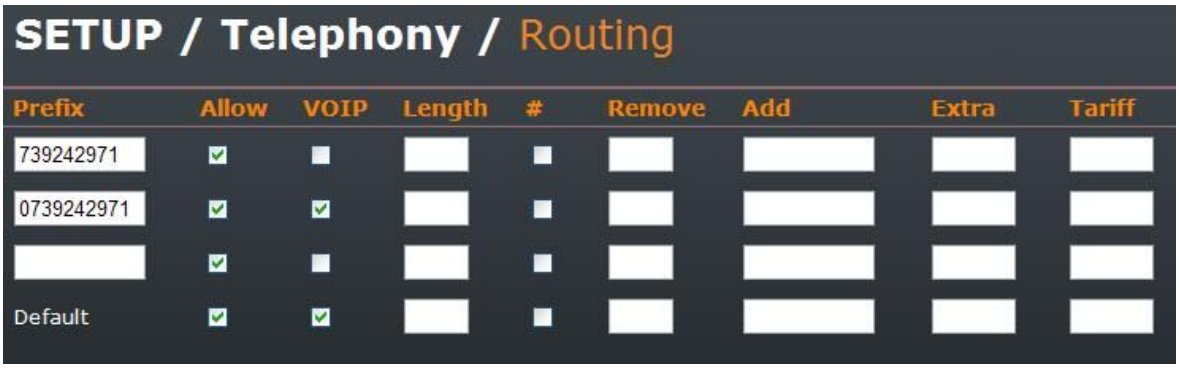
Warning

- **One PIN entering option is exhausted by the attempt to enter the PIN automatically upon SIM card replacement or PIN change. If wrong, the automatically entered PIN is cleared from the internal memory to avoid another false attempt upon the next power up. There are still two manual PIN-entering attempts after such unsuccessful automatic entering. To prevent the unsuccessful automatic PIN entering, delete or properly program the 2N® EasyRoute PIN using the web interface in case of SIM card exchange.**

4.4 FAX - ERF

Suppose the SIM card is inserted, the PIN entered or not requested, an antenna connected and 2N® EasyRoute logged in to a GSM network – the GSM network indicator is flashing and, having seized the line, you hear the dialtone. Suppose the VoIP account is configured and the gateway is logged in to a VoIP provider.

Remember that 2N® EasyRoute is (technically) incapable of sending a standard analogue fax message to a GSM network. All outgoing FAX calls have to be routed to the VoIP network. Therefore, make sure that your VoIP account is configured properly. The routing table may not include prefix collisions that might route FAX calls to GSM. If you still want to send a FAX message to a number whose calls are routed to a GSM network, create a new routing table row for the number and enter a specific prefix or a '#' character at its end.



Outgoing FAX

1. **Insert the document to be sent in your fax machine.**
2. **Dial the GSM / VoIP / PSTN subscriber number. Then push the FAX starting button on your fax machine.**
3. **Your fax machine now starts sending the pre-inserted document.**
4. **If the called subscriber is available, you will hear the ringing tone. If the subscriber is busy, you will get the busy tone or one of the GSM / VoIP provider's voice messages.**
5. **When the called subscriber answers, the FAX call is established. The line is switched into the T.38 mode and the FAX transmission starts. During transmission you can hear the fax machine 'beeping'. Beeping is normal; it is a sequence of predefined T.38 tones. The Line indicator keeps shining during the whole FAX transmission process.**
6. **Typically, you are informed of your FAX transmission success or failure through a success or failure report printout.**

Incoming FAX

1. **The incoming fax process is even simpler. A majority of fax machines provide automatic answering after a predefined count of rings. The device answers the call and, if connection is established successfully, prints out the incoming document.**

5 Technical Parameters

This section describes the technical parameters of the 2N® EasyRoute product.

5.1 Technical Parameters

GSM

UMTS/GSM module, UMTS/GSM bandwidth	MC8790V	850 / 1 900 / 2 100 MHz UMTS WCDMA / HSDPA 850 / 900 MHz EGSM / GPRS / EDGE 1 800/1 900 MHz GSM / GPRS / EDGE
	MC8791V	2 100 MHz UMTS WCDMA / HSDPA 850 / 900 MHz EGSM / GPRS / EDGE 1 800/1 900 MHz GSM / GPRS / EDGE
	MC8792V	900 / 1 900 / 2 100 MHz UMTS WCDMA / HSDPA 850 / 900 MHz EGSM / GPRS / EDGE 1 800/1 900 MHz GSM / GPRS / EDGE
Maximum transmission power		2 W EGSM 850 / 900 MHz, 1W GSM 1 800 / 1 900 MHz 0,25W UMTS 850 / 1 900 / 2 100 MHz
Receiver sensitivity		-110.5 dBm UMTS 2 100 / 1 900 MHz -111.5 dBm UMTS 850 MHz -107.5 dBm GSM 850 / 900 MHz -106.5 dBm GSM 1 800 / 1 900 MHz
Audio		HR+FR+EFR Half rate+Full rate+Enhanced full rate Echo cancellation, Echo suppression, WDCMA AMR Adaptive Multirate
DATA		GPRS/EDGE Class B, max 5 slots total, multislot class 12 CSD max 14.4 kb/s; Coding scheme CS 1–4, MCS 1–9 WCDMA/HSDPA category 8, MS Class A (Simultaneous Voice and Data), downlink max 7.2Mbps, uplink max 2Mbps
Antenna		850 / 900/ 1 800/ 1 900 MHz, 50 Ω SMA antenna connector
SIM card		3 V/1.8 V plug-in

Power Supply

Mains supply	100–240 V/12 V; 2A adapter
DC power supply	10 to 16V DC

12 V consumption	Standby 350 mA Voice call 450 mA Data connection 400 mA Voice and data 500 mA
Supply connector	DC Jack 2.1 mm

Phone Interface – basic version (ER)

Interface type	2wire analogue FXS
Telephone connector type	RJ 12, 6/2
Call impedance	Adjustable worldwide, default 600 Ω
Loop voltage	48 V DC
Loop current	Max 20 mA
Tone frequency	Adjustable, default 425 Hz
Dialling type	Tone (DTMF) and pulse
Ringing voltage	42 Vrms 10–60 Hz
Calling line identification	CLIP during ringing according to ETSI FSK
Tariff pulses	f=16/12 kHz
Answer supervision	12/16 kHz pulses

Phone Interface – fax version (ERF)

Interface type	2wire analogue FXS (for telephone / FAX/ PBX CO line)
Telephone connector type	RJ 12, 6/2
Loop voltage, on-hook	48 V DC
Loop current	Max 20 mA
Tone frequency	Adjustable, default 425 Hz
Dialling type	Tone (DTMF) and pulse
Ringing voltage	42 Vrms
Calling line identification	CLIP during ringing according to ETSI FSK / DTMF

Ethernet Switch

Interface type	**4-port Fast Ethernet switch 100Mbps**
Connector	**RJ-45**

WiFi

Bandwidth	**2,5 / 5 GHz**
Standard	**802.11a/b/g**

Others

Dimensions (w/o connectors)	**170×130×45 mm**
Operating temperature	**0° C to 45° C**
Operating status signalling	**3 LEDs (On; Network and WiFi status; Line)**

6 Supplementary Information

This section provides supplementary information on the product.

Here is what you can find in this section:

- **Directives and Regulations;**
- **Troubleshooting;**
- **List of Abbreviations;**
- **General Instructions and Cautions.**

6.1 Directives and Regulations

2N® EasyRoute conforms to the following directives and regulations:

- **Directive 1999/5/EC of the European Parliament and of the Council, of 9 March 1999 – on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity**
- **Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits**
- **Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC**
- **Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment**
- **Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC**
- **Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment**

6.2 Troubleshooting

For tips for the solution of other potential problems see faq.2n.cz.

- ***No LED is on after power up.***
  - **u Check the power supply.**
- ***2N® EasyRoute is not logging into the GSM network.***
  - **u Check the SIM card.**
  - **u Check the PIN.**
  - **u Check the antenna connection.**
  - **u Select a place with a good GSM signal.**
- ***No tone can be heard after line off-hook.***
  - **u Check the telephone line connection.**
  - **u 2N® EasyRoute has not been initialized properly (approx. 10 s after power up).**
  - **u 2N® EasyRoute is not supplied with power.**
- ***2N® EasyRoute is ignoring the user dialling, transmitting the dialtone.***
  - **u Select the correct dialling type (DTMF/pulse).**
  - **u Adjust the width of the dialling pulses.**
  - **u Adjust the delay value between the pulses.**
- ***2N® EasyRoute is not communicating with the PC.***
  - **u Check the Ethernet cable connection.**

6.3 List of Abbreviations

- **APN (Access Point Name)**
  Necessary for the GPRS service.
- **CLIP (Calling Line Identification Presentation)**
- **CSD (Circuit Switched Data)**
- **COM**
  A PC Serial port.
- **DTMF (Dual Tone MultiFrequency)**
  Tone dialling.
- **FSK (Frequency Shift Keying)**
  A transmission protocol using variable signal frequencies for logic level encoding.
- **FXO**
  An interface electrically identical with a standard telephone (opposite side = FXS interface).
- **FXS**
  A telephone interface allowing a standard telephone connection (opposite side = FXO interface).
- **FW (Firmware)**
  Similar to SW, a term for the central microprocessor program.
- **GSM (Group Switched Mobile system)**
  The present-day standard digital mobile telephone network.
- **GPRS (General Packet Radio Service)**
  High-speed data transmission for GSM networks.
- **HW (Hardware)**
  An electronic device, circuit, board, component, etc. in this context.
- **P(A)BX (Private (Automatic) Branch Exchange)**
- **PC (Personal Computer)**
  A personal computer based on the IBM PC standard.
- **PIN (Personal Identification Number)**
  A SIM card securing password.
- **PUK (Personal Unblocking Key)**
  A password used for releasing a blocked SIM card after repeated wrong PIN entering.
- **RS-232C**
  A PC serial port standard.
- **SIM (Subscriber Identity Module)**
  A chip-equipped module to be inserted in a GSM device for identification.
- **SMS (Short Message Service)**
  A term for the system and one unit (message).
- **SW**
  Software.

- **TTL (Transistor-Transistor Logic)**
  A standard digital technology defining voltage for levels 0 and 1.
- **PSTN**
  Public Switched Telephone Network.
- **LEC (Line Echo Canceller)**
  An echo cancelling function during calls.

6.4 General Instructions and Cautions

Please read this User Manual carefully before using the product. Follow all instructions and recommendations included herein.

Any use of the product that is in contradiction with the instructions provided herein may result in malfunction, damage or destruction of the product.

The manufacturer shall not be liable and responsible for any damage incurred as a result of a use of the product other than that included herein, namely undue application and disobedience of the recommendations and warnings in contradiction herewith.

Any use or connection of the product other than those included herein shall be considered undue and the manufacturer shall not be liable for any consequences arisen as a result of such misconduct.

Moreover, the manufacturer shall not be liable for any damage or destruction of the product incurred as a result of misplacement, incompetent installation and/or undue operation and use of the product in contradiction herewith.

The manufacturer assumes no responsibility for any malfunction, damage or destruction of the product caused by incompetent replacement of parts or due to the use of reproduction parts or components.

The manufacturer shall not be liable and responsible for any loss or damage incurred as a result of a natural disaster or any other unfavourable natural condition.

The manufacturer shall not be held liable for any damage of the product arising during the shipping thereof.

The manufacturer shall not make any warrant with regard to data loss or damage.

The manufacturer shall not be liable and responsible for any direct or indirect damage incurred as a result of a use of the product in contradiction herewith or a failure of the product due to a use in contradiction herewith.

All applicable legal regulations concerning the product's installation and use as well as provisions of technical standards on electric installations have to be obeyed. The manufacturer shall not be liable and responsible for damage or destruction of the product or damage incurred by the consumer in case the product is used and handled contrary to the said regulations and provisions.

The consumer shall, at its own expense, obtain software protection of the product. The manufacturer shall not be held liable and responsible for any damage incurred as a result of the use of deficient or substandard security software.

The consumer shall, without delay, change the access password for the product after installation. The manufacturer shall not be held liable or responsible for any damage incurred by the consumer in connection with the use of the original password.

The manufacturer also assumes no responsibility for additional costs incurred by the consumer as a result of making calls using a line with an increased tariff.

Electric Waste and Used Battery Pack Handling

Do not place used electric devices and battery packs into municipal waste containers. An undue disposal thereof might impair the environment!

Deliver your expired electric appliances and battery packs removed from them to dedicated dumpsites or containers or give them back to the dealer or manufacturer for environmental-friendly disposal. The dealer or manufacturer shall take the product back free of charge and without requiring another purchase. Make sure that the devices to be disposed of are complete.

Do not throw battery packs into fire. Battery packs may not be taken into parts or shirt-circuited either.

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