

2N<sup>®</sup> SIM Star

User Manual



**Version: 2.0**

*Dear customer,*

Congratulations to buying 2N<sup>®</sup> SIM Star. This new product has been designed and manufactured to provide maximum possible performance, quality and reliability. Our wish is that you use 2N<sup>®</sup> SIM Star for a long time and to your complete satisfaction.



The manufacturer continuously improves the software that is part of this product. The applied technology makes it possible to upload the latest version of the control software to the respective parts of the 2N<sup>®</sup> SIM Star solution at any time, using an ordinary PC. The latest versions of the software, the configuration programme as well as this Manual are available at [www.2n.cz](http://www.2n.cz). We recommend using the latest version of the system to avoid unnecessary deficiencies that may have been eliminated already.

The grey text in this Manual identifies features that are going to be implemented with later versions of the system. [www.2n.cz](http://www.2n.cz) also provides the latest version of the user documentation.

Before you start installing the product, check the completeness of the delivered package according to the enclosed pack sheet and get familiar with the instructions provided in this Manual. The manufacturer shall not be held liable for any damage resulting from inappropriate use of the product, i.e., use that is not in compliance with the user documentation. The warranty conditions do not apply to product damage caused by rough handling, inappropriate storage or exceeding the stated technical parameters.

Being very detailed, the user documentation also includes parts that are not necessary for the basic installation.

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## CHAPTER 1

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# **Product introduction**

This Chapter includes:

- Product purpose
- Key components
- Block diagram
- Safety regulations

## 1.1. Product purpose

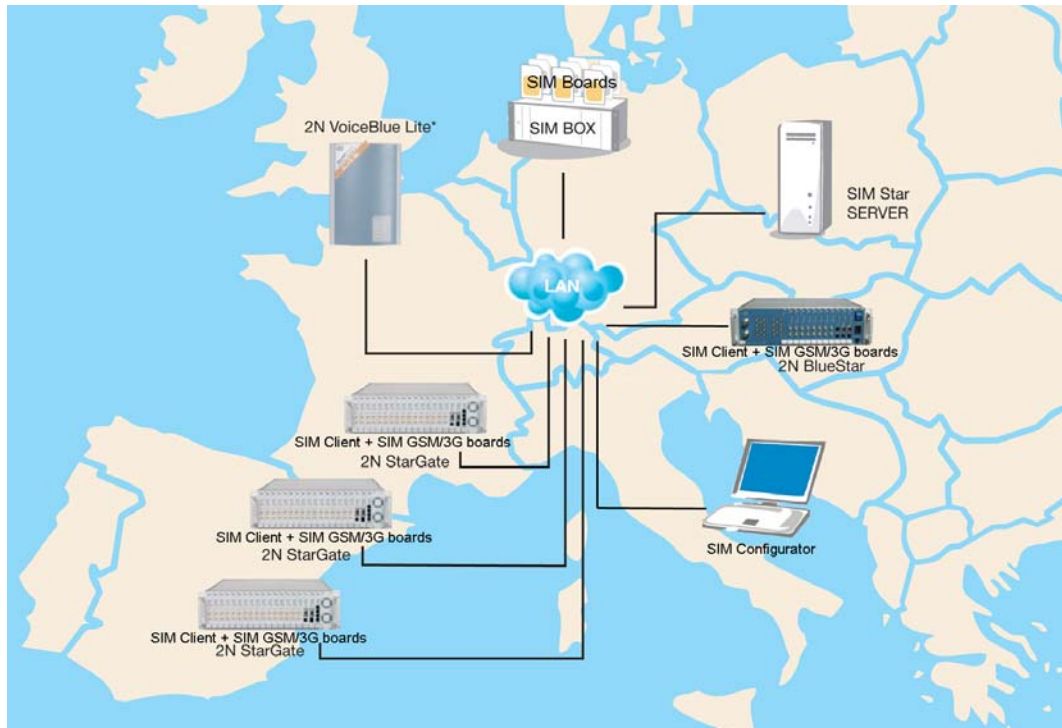
2N<sup>®</sup> SIM Star offers:

- Central administration of all your SIM cards
- Central and safe location for all SIM cards you use
- Eliminates the cost of physical replacements of SIM cards in GSM/3G gateway locations
- Extensive scalability provides high capacity for your SIM cards
- Connection via standard Ethernet interface enables simple implementation to your existing IP solution

## 1.2. Key components of the 2N<sup>®</sup> SIM Star solution

- SIM Client – card designed for 2N<sup>®</sup> StarGate / BlueStar / BlueTower gateways. The card converts data from/to each GSM/3G card on the Ethernet interface.
- SIM Star GSM/3G board – card designed for 2N<sup>®</sup> StarGate / BlueStar / BlueTower gateways. This card replaces the existing GSM/3G cards in the respective gateways. The new solution enables connection to the SIM Client card.
- SIM Board – includes as many as 32 SIM cards, converts data from/to the Ethernet interface.
- SIM Board Box – 3U rack designed for as many as 18 SIM Boards. The SIM Box works as a traditional Ethernet switch that enables comfortable connection and storage of the respective SIM Boards.
- SIM Star Server – Rack PC that ensures seamless operation of the entire system and allocates the SIM cards of the respective GSM/3G modules according to user-defined rules. SIM Star Server includes Web interface for easy and comfortably configure and control complete system SIM Star

### 1.3. Block diagram



\*The version of 2N<sup>®</sup> VoiceBlue Lite for SIM Star is going to be available in 4Q 2008.

## 1.4. Safety regulations relating to high-frequency radiation



In areas where explosives are used, such as the surroundings of quarries, the use any transmitters is prohibited, including 2N<sup>®</sup> SIM Star - connected GSM/3G gateways.

At petrol stations where the use of mobile phones is prohibited, the use of 2N<sup>®</sup> SIM Star - connected GSM/G3 gateways is prohibited, too.

In healthcare facilities, GSM gateways may affect the operation of sensitive apparatuses vital in terms of saving human lives. It is prohibited to use mobile phones in such facilities, including 2N<sup>®</sup> SIM Star - connected GSM/3G gateways.

Generally, any mobile phone ban also applies to GSM gateways as far as the reason for the ban is radiation of high-frequency energy.

If necessary, it is possible to install 2N<sup>®</sup> SIM Star-connected GSM/G3 gateways in a safe distance (e.g., in a neighbouring building) and bring only an Ethernet cable from the GSM gate to the premises where the use of GSM gates is prohibited.

Although the use of GSM gateways in airplanes and cars is not expected, they are subject to the same bans and regulations as mobiles phones.

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# 2

## CHAPTER 2

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### **Brief guide through the installation**

This Chapter includes:

- Main components description
- Brief guide through the installation
- Connection with Ethernet networks
- Factory-set configuration of the SIM Star system

Notice! To make sure that the system is installed successfully, the installation engineer's skills in terms of using OS Linux should be at least at the "Advanced" level!

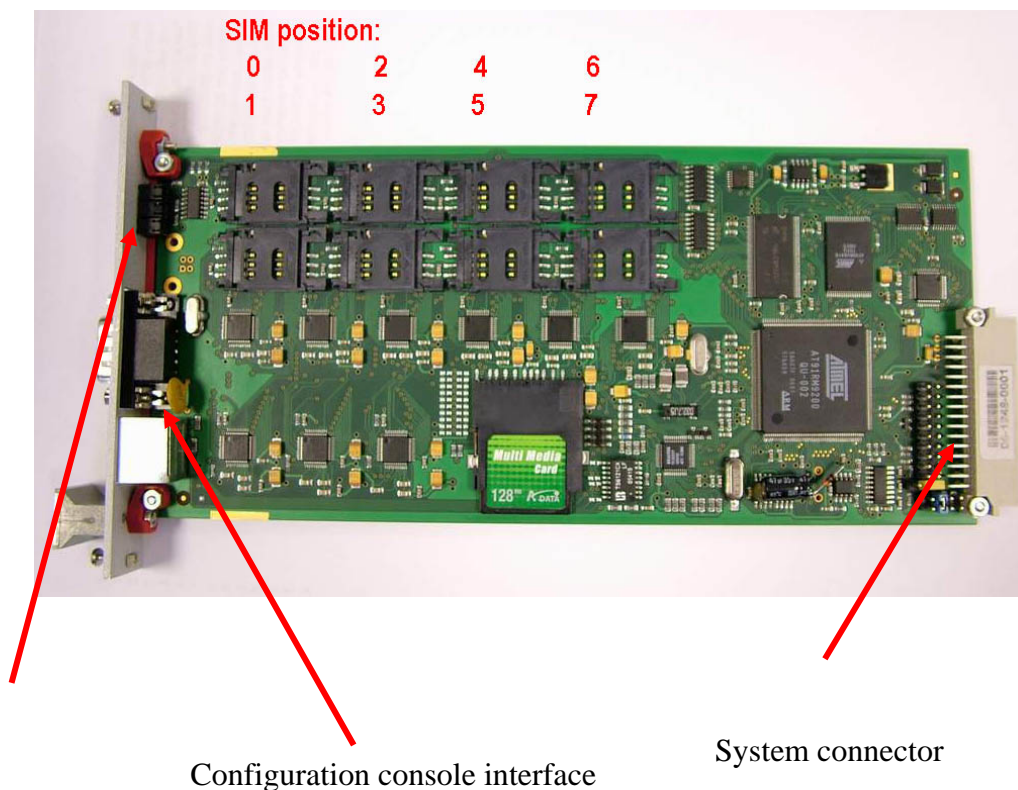
Prior to starting the installation:

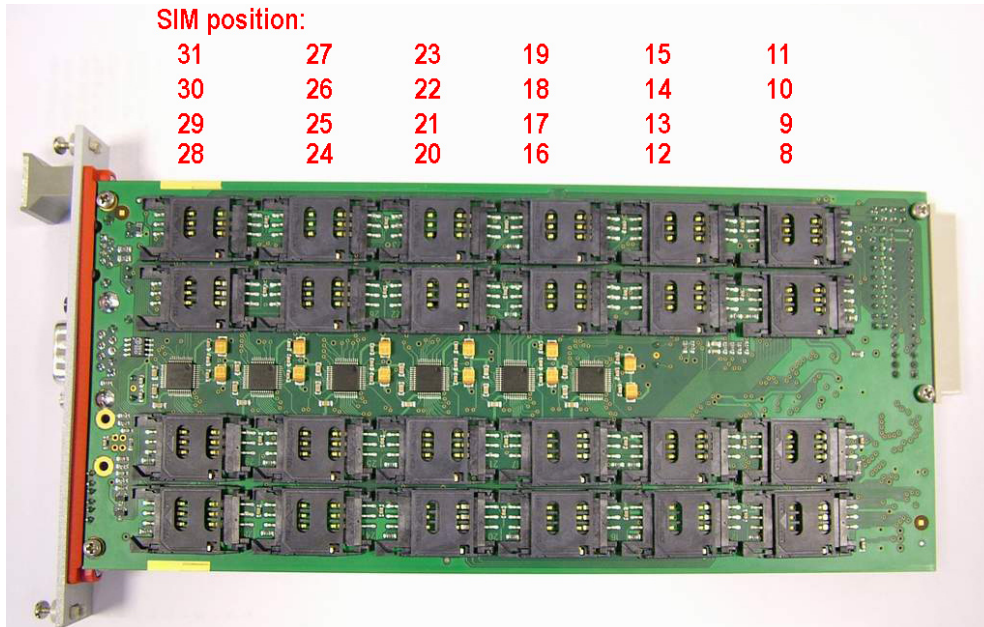
Get familiar with the physical configuration of the key components of 2N – SIM Star before starting the installation.

## 2.1. Main components description

### 2.1.1. SIM Board

The main board for the placement of SIM cards. Each SIM board can store up to 32 SIM cards. The processor installed on this board ensures conversion of data received from the respective SIM cards to the Ethernet interface. The SIM cards use IP Ports 10000-10031, IP Port 1500 is used for communication with the SIM Star Server. SSH – IP Port 22 Protocol is used for direct access to the SIM Board. It is necessary to ensure that all of the ports mentioned above are accessible by the SIM Clients and by the SIM Star Server. Otherwise the system may get unstable. The figures below illustrate the positions of SIM cards on the SIM board card. For better orientation, this identification is also on the card. The SIM board card also includes CAN9 for the initial system configuration (e.g., IP address). The card is a hot-swappable – if the SIM cards need to be replaced, the card can be taken out/inserted without previously switching the SIM Board Box off.





### 2.1.2. SIM Client

Card designed for 2N<sup>®</sup> StarGate / BlueStar / BlueTower GSM gateways. Inserted instead of a single GSM/3G card, this card makes it possible to connect SIM GSM/3G cards with the SIM Star system. The SIM Client Card communicates with the surrounding GSM/3G cards through a RS485 interface. To be activated, such communication requires the new version of the CPU card (delivered within the SIM Star system). The SIM Client Card also includes a RJ45 connector for the 10/100BaseT Ethernet network and a CAN9 connector for the initial system configuration (e.g., IP address). The card is a hot-swappable, i.e., can be taken out/inserted without previously switching the SIM Board Box off.

### 2.1.3. SIM Board Box

3U rack for 1 - 18 SIM Boards. The SIM Board Box also includes a feed adapter, an Ethernet switch that makes it possible to connect the inserted SIM Boards to an Ethernet network simply and two Ethernet 10/100BaseT connectors (RJ45) for simple connection to the Ethernet network and simple system scalability.

#### **2.1.4. SIM Star Server**

2U rack PC with Linux OS and a database system. The SIM Star Server represents the key intelligence in allocating the SIM cards and IMEIs to the GSM/3G modules located in the 2N gateways. Using an Ethernet interface, the SIM Star Server communicates with the SIM Board cards, the SIM Client and also the CPU card of each connected gateway.

SIM Star Server contains Web server which enables you simple configuration, administration and supervision of whole SIM Star system.

Key properties of the SIM Star configuration:

- allocation of SIM cards to the respective function groups
- allocation of IMEI with defined SIM cards
- allocation of GSM modules and GSM gateways to function groups
- configuration of rules for SIM card switching and allocation
- checking the statuses of the respective parts of SIM Star

## **2.2. Brief guide through the installation**

- **Proper placement** – The placement of GSM gateways has to comply with the instructions stated in the installation manual for each GSM gateway. We recommend placing the SIM Board Box and SIM Star Server components to an air-conditioned rack and ensure uninterrupted supply by means of a UPS system including over-voltage protection. An Ethernet interface with high throughput and fast response (round trip delay) to all the other parts of the SIM Star solution is taken for granted.
- **Connection to LAN** – we recommend setting the IP interface for each function unit before performing the connection (SSS, SC and SB come with factory-set DHCP server support) to avoid possible collisions between IP addresses in your LAN.

- 
- **SIM card insertion** – SIM cards can only be inserted into the respective SIM Boards when the SIM Board is out of the SIM Board Box. Inserting the SIM cards while the SB is running may damage the cards! When inserting the SIM cards, you need to pay attention to appropriate position of the cards and the position of the SIM card holder lock. Please insert only SIM cards designed for GSM/3G networks to the respective holders. The system only supports 3V SIM cards!
  - **Connection to PC** – in routine operation, the SIM Star system setting is performed by means of the configuration programme that is part of the attached product CD. The initial configuration of the SB and SC cards is performed by means of a serial interface and the system console. The PC can be connected to SB and SC cards via the attached crossed cable (RS232).
  - **Configuration** – using the web interface of SIM Star Server, you can start setting parameters to determine the behaviour of the SIM Star system.

## **2.3. Connection to PC network**

It is necessary to configure the IP interfaces for each part of the 2N<sup>®</sup> - SIM Star system before the initial connection. The SIM Board, SIM Client and SIM Star Server cards come with factory-activated DHCP server support. As the GSM gateway CPU cards do not support this protocol, it is necessary to set the IP parameters manually, using an appropriate configuration tool. The actual configuration (deactivation of DHCP server support) of IP interfaces for the SIM Board, SIM Client and SIM Star Server cards is described in detail in the following paragraphs:

Configuration of IP interfaces for SIM Board and SIM Client cards:

To deactivate the DHCP server support, it is necessary to make access to SC / SB via DBGU port and change IP settings in user console.

Configuration of the IP interface for SIM Star Server:

The configuration (setting) of the IP interface is identical with that in normally distributed Linux fedora core 7 (or by using specifics access by user ADMIN / ADMIN).

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## 2.4. Factory-set configuration of the 2N<sup>®</sup> SIM Star system

Unit	IP address	Access username / password	Used port / type / usage
SIM Client	DHCP	No rules	22 / SSH / remote access 1500 / TCP / SSS connection 10000 – 10031 / UDP / SIM card
SIM Board	DHCP	No rules	22 / SSH / remote access 1500 / TCP / SSS connection 10000 – 10031 / UDP / SIM card
SIM Star Server**	DHCP	admin/admin	22 / SSH / remote access 12345 / TCP / SSC connection 12346 / TCP / logger
Net Mask	DHCP	Applied in SIM Board, SIM Client, SIM Star Server	
IP gateway	DHCP	Applied in SIM Board, SIM Client, SIM Star Server	
DNS server	DHCP	Applied in SIM Board, SIM Client, SIM Star Server	
NTP server*	Ntp.cesnet.cz	Applied in SIM Board, SIM Client	

\*The SIM Board and the SIM Client synchronise time with the NTP server only after the start. After connecting to the SIM Star Server, time is set according to the configuration saved in the SIM Star Server.

\*\* Applies to SSH access.

Please perform the following actions to restore the default values in the SIM Board and SIM Client boards:

Take the card out of the rack

Press the button located behind the card front

With the button pressed, insert the card into the rack

Once the LED PWR switches off, release the button

The card is in the default configuration now. It is necessary to reconfigure the IP interface (unless you are using the DHCP server) and the system access passwords.

# 3

## CHAPTER 3

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### **2N<sup>®</sup> SIM Star installation**

This Chapter describes the appropriate installation procedure to avoid problems with system operation.

The Chapter includes:

- Configuration of IP interfaces for each part of the system
- Initial system configuration – step by step

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### 3.1. Configuration of IP interfaces for each part of the system

The factory-set configurations of the respective parts of the SIM Star system correspond with the above table. To make the installation simpler, we recommend leaving the configuration of the respective IP parameters according to the DHCP server in which, however, we strongly recommend setting a fixed allocation of IP addresses to the respective SIM Board, SIM Client and SIM Star Server MAC addresses.

### 3.2. Initial system configuration – step by step

Set the required configuration for all GSM gateways that you are going to connect to the 2N<sup>®</sup> SIM Star system.

Configure the Ethernet interfaces of the SIM Clients (default DHCP support)

Connect all CPU and SC cards to the Ethernet network

Insert SIM cards to SIM Board cards and perform a similar configuration of the Ethernet interfaces. **Warning!:** The PIN protection of the SIM cards in the SIM Boards has to be inactive or all the cards have to have the same PIN, otherwise the SIM cards will be wrongly detected. You also have to set the same PIN in the configuration of each GSM gateway!

Connect the SIM Box to the Ethernet network

Install SIM Star Server (see chapter 5 page 17)

Configure the Ethernet interface on the SIM Star Server (default DHCP)  
- see chapter 5.3 page 19 -and connect it to the Ethernet network.

Using SIM Star Server interface, connect to the SIM Star Server, select user = Administrator

The following passwords are set in the SIM Star Server as default:

USERNAME	PASSWORD
administrator	p3
editor	p2
visitor	p1

Enter the IP addresses and settings for the respective GSM gateways, SIM Client and SIM Board boards to the configuration. You can use automatic component detection feature (see chapter 6.12.8 page 34)

Set the required rules for SIM card switching and use.

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# 4

## CHAPTER 4

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### **Key properties of the SIM Star system**

This Chapter includes:

- SIM card groups
- IMEI numbers handling
- GSM module groups
- Rules for SIM card switching and allocation

## **4.1. SIM card groups**

The 2N<sup>®</sup> SIM Star configuration makes it possible to allocate the SIM cards to groups. It is possible to set the SIM card parameters in these groups. The SIM cards are automatically loaded once the SIM Board – SIM Star Server connection is active.

## **4.2. IMEI numbers handling**

System supports remote change of IMEI on GSM modules\*. For example you can hard link selected SIM card with defined IMEI.

\* This feature must be supported by used GSM engine.

## **4.3. GSM module groups**

Like with SIM cards, the 2N<sup>®</sup> SIM Star configuration makes it possible to allocate the GSM modules to groups. GSM modules are automatically loaded once the GSM gateway concerned is allocated to the SIM Star system.

## **4.4. Rules for SIM card switching and allocation**

Depending on the configuration, the SIM Star system makes it possible to dynamically allocate the SIM card groups to the respective GSM gateways/modules. See the description of the configuration tool for SIM card switching methods and limitations.

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# 5

## CHAPTER 5

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### **SIM Star Server Installation CD**

This Chapter presents the installation SIM Star Server from CD.

The Chapter includes:

- CD image
- Requirements
- Main installation procedure

## **5.1. CD image**

From 2N website you can download last version of image of installation SIM Star Server CD. Image is in standard ISO format. For correct burn image to CD please download also control checksum file.

## **5.2. Requirements**

i686 compatible PC

CPU: Intel P4 processor 2.4 GHz or more

RAM: 1GB or more

HDD: 60GB or more

HDD type: SATA100 or SATA133

CDROM: required

LAN: Ethernet 100BaseT

A hardware requirement depends on number of used SIM cards and GSM gateway. In cases of 10 and more gateway please use min 2GB RAM and 1000BaseT Ethernet interface.

UPS: Recommended online type UPS

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### 5.3. Main installation procedure

**CAUTION! BY USING OF INSTALLATION CD YOU WILL REMOVE ALL DATA FROM HARDDRIVE!!!**

This installation is automatic and requires minimal user interaction.

Follow subsequent instruction to get fully working system.

Set up your PC to use CDROM as default boot device

Place installation CD into CDROM

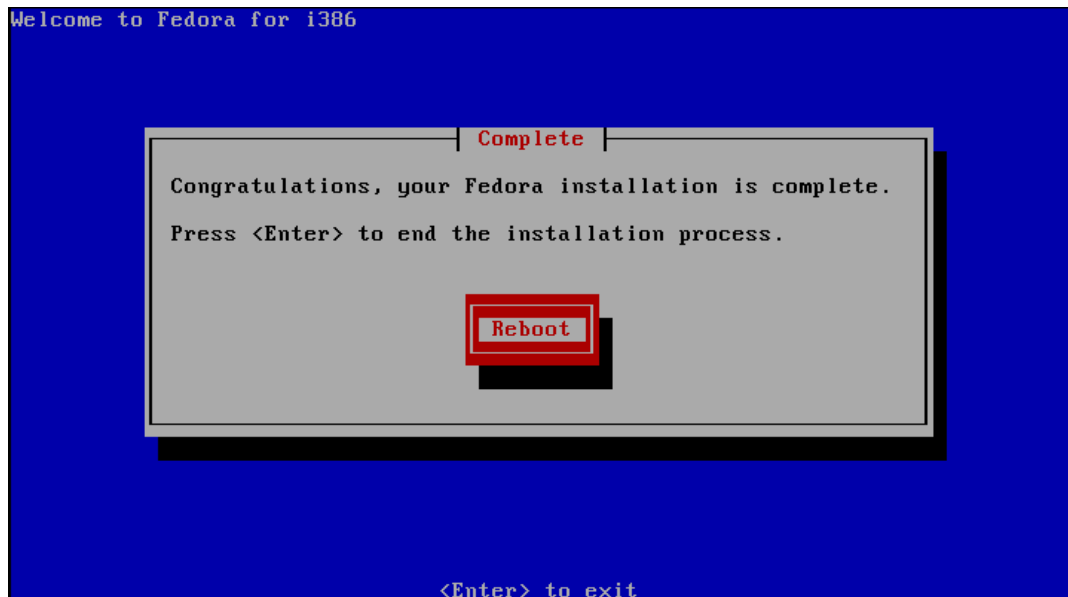
After start of PC you will get this screen. You can choose from multiple boot options. Automatic installation is first option and it will start in 3 seconds

Before installation you will get chance to test installation CD. You can choose OK to test CD or Skip to continue with installation



## TELECOMMUNICATIONS





**Installer will automatically format hard drive** and install all system files. When installation is finished, installer will wait for confirmation of reboot. Press ENTER to continue

Remove CD from CDROM and let boot new system

To finish settings of system, please make login as user **admin** with password **admin**.

Wizard will help you with network settings and correct package installation

a) Network settings

During first login is possible to setup network. Graphical wizard will let you setup IP address, network mask and default gateway. Use TAB to move between options. Use SPACE to check or un-check options

b) Package installation

Choose package you want to install. There is option to install 2N ERM or 2N SIM Star server application.

If you are installing ERM server follow rest of procedure in ERM manual If you are installing SIM Star server follow rest of procedure in SIM Star manual

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# 6

## CHAPTER 6

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### **SIM Star Server Web interface**

This Chapter presents the SIM Star Server Web interface. With this interface you can simply make configuration and control complete SIM Star system.

The Chapter includes:

- Recommended web client
- Default access accounts, Main menu
- Gateways
- GSM groups, GSMs
- SIM groups, SIMs
- IMEIs
- Rules
- SIM Server

## 6.1. Recommended web client

Web interface of SIM Star Server supports following web browsers:

MS Internet Explorer v7.0

Mozilla Firefox v2.0 or higher

The other web browsers may cause problems.

Recommended screen resolution is **1280x1024** / 32bit coloring or higher.

TIP: for better view, press F11 key to expand browser active area.

## 6.2. Default access accounts

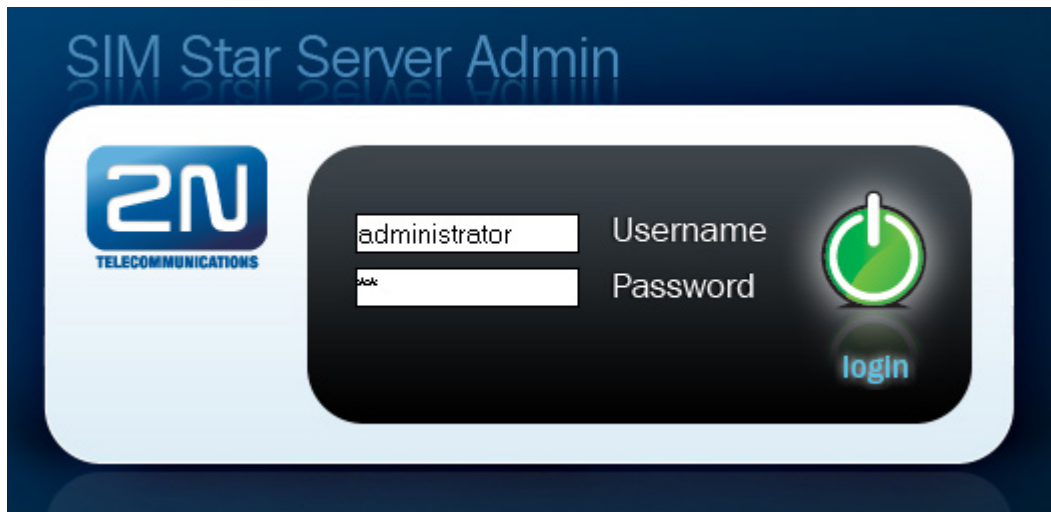
As default, SIM Star server supports three access levels:

administrator (password: p3): complete access and maximum rights

editor (password: p2): limited rights for change configuration

visitor (password: p1): read-only access

**CAUTION!** : After successful access by administrator access, please change default password!



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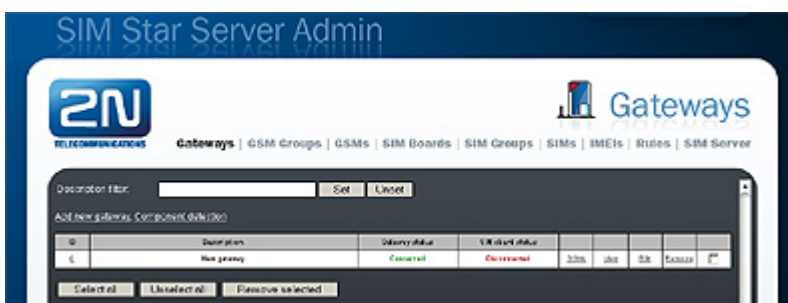
### 6.3. Main menu

Main welcome screen contains icons with links to main configuration and control blocks of SIM Star:



You can use menu on left side of screen or navigation by icons.

### 6.4. Gateways



In this section you can add / remove / modify connected 2N gateways. Supported models are StarGate, BlueStar and BlueTower (Voice Blue Lite gateway will be available at the end of 2008).

### **6.4.1. Add new gateway**

Click to link “Add new gateway” and fill in following lines in form:

#### **GENERAL INFO**

Description: Your description of connected gateway (e.g. “StarGate in Prague, 2N HQ”)

GSM count: Select type of connected gateway (StarGate / BlueStar / BlueTower / Voice Blue Lite)

Timezone: time zone of gateway (in case that gateway is in same time zone as SIM Star server, please keep “Server time zone”).

#### **GW NETWORK INFO**

IP: IP address of connected 2N gateway’s CPU card

AT port: Default telnet port number (in case of direct connection or 1:1 NAT, please keep default 23).

User name, Password: Access user name and password of connected gateway (default is 2N / 2N)

Update port: IP port number for remote firmware upgrade (gateway must contains boot v2.52 or higher!). Default number is 2222

#### **SC NETWORK INFO**

IP: IP address of SIM Client card which is in connected gateway

AT port: Default telnet port number (in case of direct connection or 1:1 NAT, please keep default 1500).

User name, Password: Access user name and password of connected SC (default is 2N / 2N)

Update port: IP port number for remote SC upgrade. Default number is 22

Update password: password for remote SC upgrade. Default is “update”.

#### **NEW GSM DEFAULT SETTING**

With following parameters you can set default values of GSM/3G ports which will be automatically detected in connected 2N gateway.

#### **ADD GSMs NOW**

You can activate automatic detection of GSM/3G ports in new connected GSM gateway.

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## 6.4.2. Actual status (view)

By using link “view” you can see actual status and IP configuration of connected GSM gateway and SIM Client card. At the end of screen you can also see actual firmware / software versions. Upgrade of firmware / software works automatically by SIM Star Server (see chapter 6.12.5 page 33)

**General info**  
Description: New gateway  
GSM count: 32 - StarGate  
Timezone: Server timezone

**GW network info**  
IP: 192.168.1.204  
AT port: 23  
User name: 2n  
Password: 2n  
Update port: 2222

**SC network info**  
IP: 192.168.1.205  
AT port: 1500  
User name: 2n  
Password: 2n  
Update port: 22  
Update password: update

**Status**  
Gateway: Connected  
Gateway SN: M112-0720260002  
SIM client: Disconnected  
SIM client SN: unknown

**Times**  
Gateway time: 2008/05/26 - 12:22:22 dst  
Server local time: 2008/05/26 - 12:22:22 dst  
Server GMT: 2008/05/26 - 10:22:22

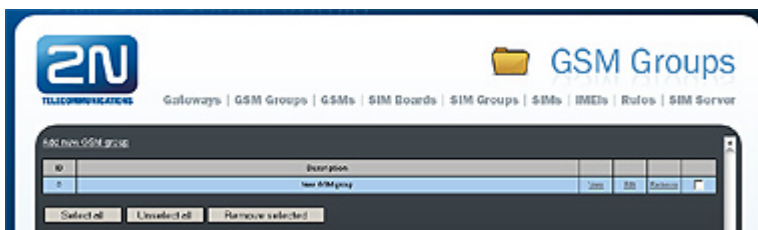
**New GSM default settings**  
Do not use default settings for new GSMs

GW firmware status		SC card status		SC root status	
Status:	version ok	Status:	unknown	Status:	unknown
Actual version:	02.30.01	Actual version:	unknown	Actual version:	unknown
Required version:	none	Required version:	none	Required version:	none

## 6.4.3. Remove / Edit

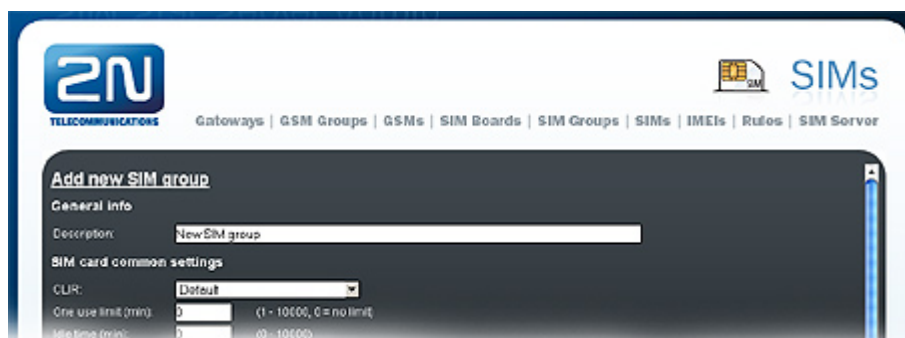
With this options you can modify configurations of GW and SC or complete remove it from SIM Star system.

## 6.5. GSM groups



In this section you can create groups of GSM / 3G modules (channels). Each module can be assigned only to one GSM group.

## 6.5.1. Add new SIM group



When you want to add new SIM group you have to fill in following parameters:

### GENERAL INFO

Description: Your description of new SIM group (e.g. “CZ, T-MOBILE, T-300 tariff”)

### SIM CARD COMMON SETTINGS

CLIR: Activate / deactivate CLIR feature in case of outgoing calls via SIM cards of this SIM group

One use limit: Maximum time of use one SIM card (time of log-in with GSM/3G network). When timer will expire, SIM card will be log-out from GSM/3G network.

Idle time: Time between two use of the SIM card (time how long will be SIM card disabled)

### SIM CARD TARIFF SETTINGS

Free minutes: free minutes of tariff SIM card

Refresh day: day of refresh “free minute” timer.

First count, second count: accuracy of counting free minutes

### PREPAID SIM CARD SETTINGS

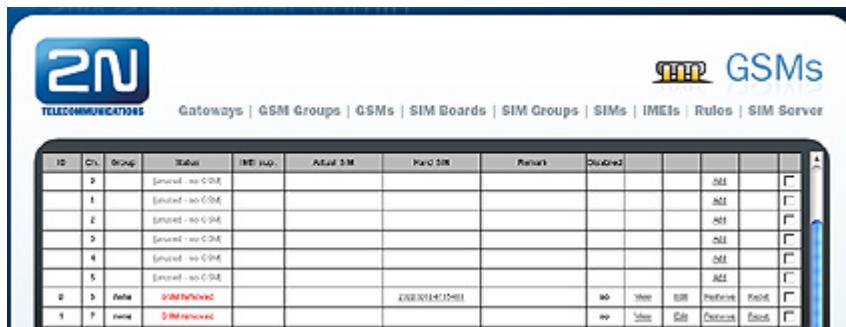
Prepaid check code: USSD command for check actual status of credit

Credit position: Position of credit value in received SMS

Low credit: value of credit which is defined as low – SIM card will be disabled.

## 6.6. GSMs

In this section you can set-up each GSM / 3G module (channel). Here you can see actual status of channels.



ID	Ch.	Group	Status	IMEI (dup.)	Actual SIM	Hard SIM	Remark	Disabled					
0	3		Ignored - no GSM								DEL	<input type="checkbox"/>	
1			Ignored - no GSM								DEL	<input type="checkbox"/>	
2			Ignored - no GSM								DEL	<input type="checkbox"/>	
3			Ignored - no GSM								DEL	<input type="checkbox"/>	
4			Ignored - no GSM								DEL	<input type="checkbox"/>	
5			Ignored - no GSM								DEL	<input type="checkbox"/>	
6	3	None	SIM Detected			430001412981		no	Yes	SIM	Refresh	Reset	<input type="checkbox"/>
7	7	None	SIM Detected					no	Yes	Edit	Remove	Reset	<input type="checkbox"/>

### 6.6.1. Add GSM

#### GENERAL INFO

With this option you add new GSM module to SIM Star system. You have to set following parameters:

GSM group: Select name of GSM group where GSM module will be assigned in.

Remark: optional note e.g. "My first assigned GSM module"

Disabled: Disabled GSM module will be not used in ANY routing rule and it will NOT be logged-in to any GSM/3G network.

#### HARD LINKED SIM

With this option you can bypass SIM Star Server switching rules and permanently assign one SIM card to the GSM channel.

### 6.6.2. View GSM

It shows actual status of selected channel

### 6.6.3. Reset GSM

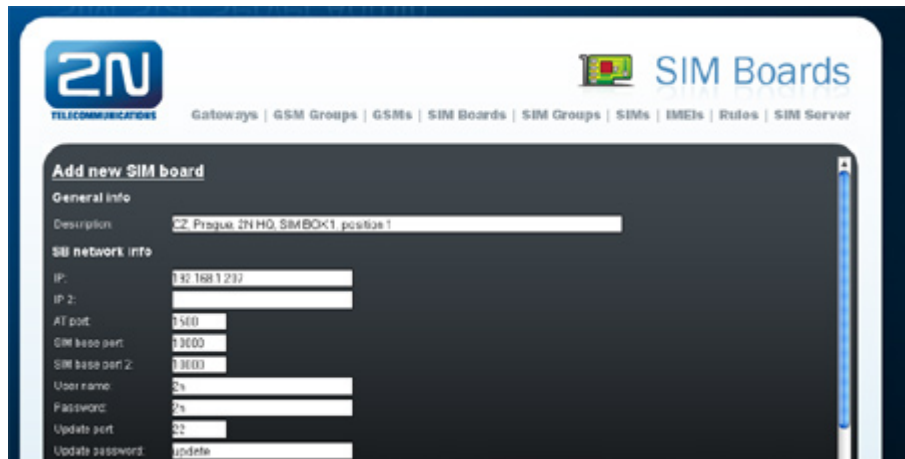
This button causes remote restart of GSM module (channel).

### 6.6.4. Edit / Remove GSM

You can modify configuration of selected GSM module (channel) or completely remove from SIM Star system.

## 6.7. SIM boards

In this section you can configure connected SIM board units.



The screenshot shows the 'Add new SIM board' configuration page in the 2N SIM Boards management interface. The page has a header with the 2N logo and navigation links: Gateways | GSM Groups | GSMs | SIM Boards | SIM Groups | SIMs | IMEs | Rules | SIM Server. The main form is titled 'Add new SIM board' and is divided into two sections: 'General info' and 'SB network info'. The 'General info' section contains a 'Description' field with the value 'CZ Prague 2N HQ, SIMBOX1, position 1'. The 'SB network info' section contains several fields: 'IP' (192.168.1.232), 'IP 2' (empty), 'AT port' (1500), 'SIM base port' (13000), 'SIM base port 2' (13000), 'User name' (2n), 'Password' (2n), 'Update port' (22), and 'Update password' (update).

### 6.7.1. Add new SIM board

#### GENERAL INFO

**Description:** Your description of connected gateway (e.g. “CZ, Prague, 2N HQ, 1<sup>st</sup>. SIM Box, 2<sup>nd</sup> position”)

#### SB NETWORK INFO

**IP:** IP address of SIM board card which is in connected gateway

**AT port:** Default telnet port number (in case of direct connection or 1:1 NAT, please keep default 23).

**User name, Password:** Access user name and password of connected gateway (default is 2N / 2N)

**Update port:** IP port number for remote SB upgrade. Default number is 22

**Update password:** password for remote SB upgrade. Default is “update”.

#### SIM CARDS INFO:

**PIN:** master PIN code for inserted SIM cards. **CAUTION!** : For right detection of SIM cards is recommended to have same PIN on all SIM cards or remove PIN check. Same PIN code settings you have to configure in connected GSM gateways!

**SIM group:** Assignment the SIM card to selected group of SIM card

**Prepaid card:** Choice prepaid / tariff SIM card type

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Free minutes: Set free minutes remaining on SIM card (Note: if SIM card will be not assigned to SIM group + remaining free minutes will be “0” = SIM card will be disabled.

Credit: value of credit in case of prepaid SIM cards

Remark: Your note about SIM card (e.g. “My first SIM card”)

Disabled: Activate / deactivate the SIM card.

### 6.7.2. View

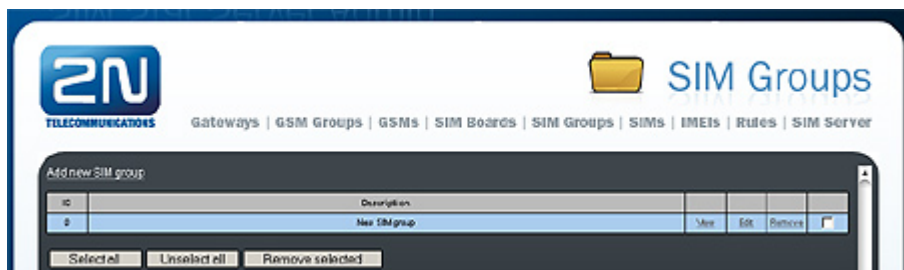
With this option you can see actual status of selected SIM board.

### 6.7.3. Edit / Remove

You can modify configuration of selected SIM board or completely remove from SIM Star system

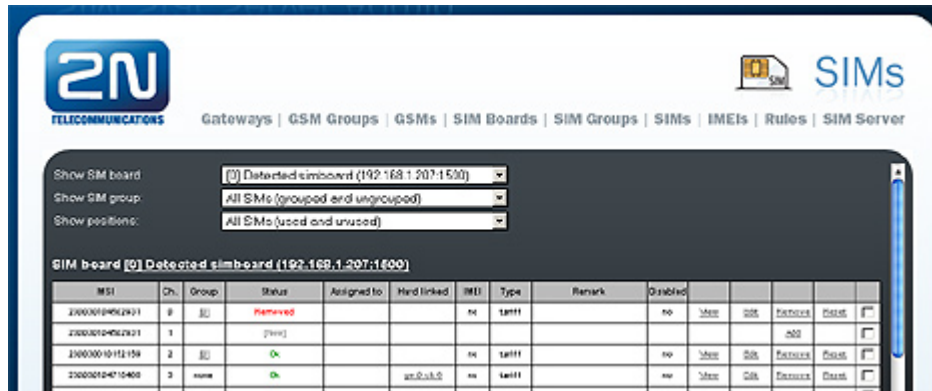
## 6.8. SIM groups

In this section you can create groups of SIM card. Each SIM card can be assigned only to one SIM group.



## 6.9. SIMs

In this section you can manage all SIM cards which are connected to system SIM Star.



### 6.9.1. List of SIM cards

In main windows of section SIMs you can see actual status of all SIM cards inserted to system SIM Star. You can make filters of SIM card by first three combo boxes “Show SIM board”, “Show SIM group”, “Show positions”.

### 6.9.2. Add new SIM card

When you want to add new SIM card to system, you have to fill in following parameters:

#### GENERAL INFO

**SIM group:** Select name of SIM card group where the SIM card will be assigned in.

**Remark:** optional note e.g. “My first assigned SIM card”

**Disabled:** Disabled SIM card will be not used in ANY routing rule and it will NOT be logged-in to any GSM/3G network.

#### SIM CARD TARIFF SETTINGS

**Free minutes:** Set free minutes remaining on SIM card

#### PREPAID SIM CARD SETTINGS

**Credit:** Set remaining credit of SIM card

#### ASSIGNED IMEI

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IMEI: hard linked IMEI number. This IMEI will be loaded to GSM module anytime when SIM card will be used to log-in with GSM network.

### 6.9.3. View

This button will shows actual status of selected SIM card.

### 6.9.4. Reset

With this button you will make restart of selected SIM card.

### 6.9.5. Edit / Remove

You can modify configuration of selected SIM card or completely remove from SIM Star system.

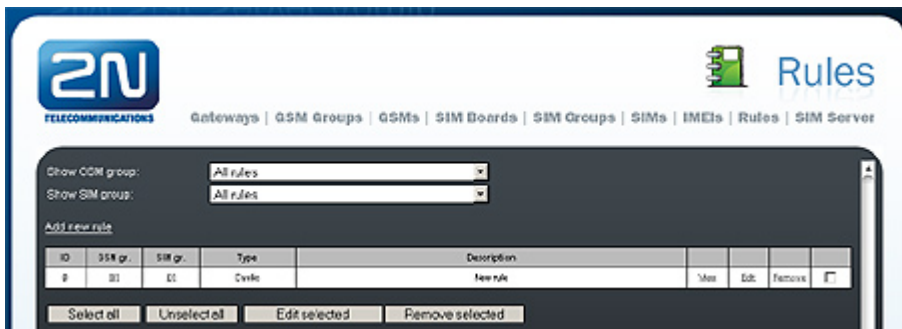
## 6.10. IMEI

In this section you can manage IMEI numbers. You can load CVS file to easy fill IMEI database.



## 6.11. Rules

In this section you can create rules of assigning SIM cards and GSM modules (SIM groups and GSM groups).



### 6.11.1. View

In main windows of section Rules you can see all rules of system SIM Star. You can make filters two combo boxes “Show GSM group”, “Show SIM group”.

### **6.11.2. Add new rule**

In case of new rule you have to fill in following parameters:

GENERAL INFO:

Description: Name of rule (e.g. "0.GSM group, 1.SIM group weekends)

SELECTION SETTINGS:

GSM group: Select used GSM group

SIM group: Select used SIM group

Rule Type:

Cyclic: SIM cards will be used (assigned) in cyclic sequence

Most free minutes: Will be used SIM cards with most remaining free minutes

Most credit: Will be used SIM cards with most remaining credit value

Least used: SIM card which will be least used will be assigned at first

Random: Random assigning of SIM cards

Note: Rule type have reason when number of SIM cards in SIM group is higher than number GSM modules in GSM group.

TIME LIMITATIONS

Set-up day(s) and time when this rule will be valid.

### **6.11.3. Edit / remove rule**

You can modify selected rule completely remove it from SIM Star system.

## **6.12. SIM Server**

### **6.12.1. Main screen**

In main screen of SIM server section you can see:

actual version of SIM Star Server

Actual time used in whole system SIM Star

Status of database engine

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### **6.12.2. About**

Information and contact details.

### **6.12.3. SIM Server load**

Graphs of SIM Star Server load

### **6.12.4. Licence file**

For right function of SIM Star system you need licence file which contains serial numbers of connected CPU (GSM gateway) and enables specific features (IMEI). **CAUTION! SIM Star system will reject all gateways which serial number is not included in this file!**

### **6.12.5. GW & SB / SC firmware**

With this option you can remotely upgrade connected gateways, SIM clients, SIM boards with new released version. Please use only firmware files which are certified by 2N. It's recommended to use last (actual) version of software.

#### **HOW TO UPGRADE SYSTEM:**

prepare upgrade file (which you download from [www.2N.cz](http://www.2N.cz), or receive from 2N technical support)

make upload the file to SIM Star server

System will automatically detect type of firmware and immediately starts upgrade procedure on remote parts of SIM Star system. During upgrade system can make restart of remote parts.

Actual status and version you can check in statuses of gateways (see chapter 6.4.2 page 25 and page 29 chapter 6.7.2) or by click on button "component version review".

### **6.12.6. User accounts**

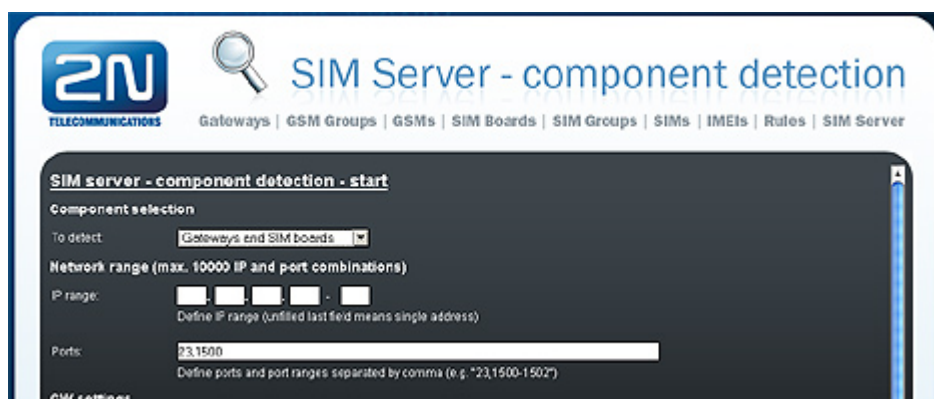
With this option you can add / modify / remove users which can have access to SIM Star Server Web interface.

### **6.12.7. Logger**

Last 100 messages from SIM Star Server log file.

## 6.12.8. Component detection

Feature for simply detect new components (gateways, SIM Boards) which you want to connect to SIM Star system.



### COMPONENT DETECTION

To detect: Select which type of components you have to add.

### NETWORK RANGE

IP range: Range of IP address which will be scanned

Ports: Define IP ports which will be scanned (default 23, 1500)

### GW SETTINGS

User name, password: Access user name and password for access to system (default is 2N/2N)

### SC&SB SETTINGS

User name, password: Access user name and password for access to system (default is 2N/2N)

## 6.12.9. Restart

System restart of SIM Star Server system (complete reboot of PC)

## 6.12.10. Connections

Actual status of connections.

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7

CHAPTER 6

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**Technical parameters**

## SIM Box

### Subrack

Dimensions (W x H x D)	482 x 133 x 360 mm (84HP x 3U x 360 mm)
Weight (full configuration)	9,800 g
Power supply	100-240V AC / 50-60Hz
Power input	max. 230VA
Interfaces	2x 10BaseT (RJ45 connectors)
Space for SIM boards	From 1 to 18 (step 1)

## SIM Star Server

### Rack\*

Dimensions (W x H x D)	482 x 85 x 525 mm (84HP x 2U x 525 mm)
Weight (full configuration)	15000 g
Power supply	240V AC / 50-60Hz
Power input	max. 250VA
Interfaces	1x 10BaseT (RJ45 connector) 1x VGA analog interface 4x USB 2.0 1x RS232 1x LPT port 2x PS/2 (1x mouse, 1x keyboard) 1x FDD 1x DVD/CD reader
CPU	Pentium 4
RAM	Type : DDR3 Size : 2x 512MB (dual channel)
HDD	Type: SATA Size: 40GB, 8MB cache
OS	Linux

\*in case that SIM Star Server hardware is delivered by 2N.

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Use the product as designed and manufactured and in accordance with these instructions for use.

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

2N<sup>®</sup> SIM Star system contains no environmentally harmful components. When the product's service life is exhausted and you find no other application for it, dispose of it in accordance with applicable legal regulations.