

2N[®] PRI gateways



How to install PRI gateway Quick guide

Version 1.2.0

www.2n.cz

1. Preparation

1.1 IP address settings

Open the newest version of config program (you can download it from $\underline{www.2n.cz}$)

Choose Settings – Communication settings



Choose the type of communication

Communication type	
Communication type	Serial communication
Serial communication setting	\$
Serial port :	СОМЗ
	COM3
	COM12 COM19
Communication LOG	
Save communication LO	G to a file
Append LOG file	

Connect to the gateway



Download parametres from the gateway

📱 PRI config program E:\Documents and Settings\Kulda\Dokumenty\2N TELEKDMUNIKACE\PRI Program\u
File Gateway Gateway control Settings Help
Topics Alphabetical glossary
Gateway control
2N BlueTower
Would you like to load parameters from the gateway 2N BlueTower?

In Gateway configuration you can find System parameters and set IP address for CPU.

PRI config program C:\Documents File Gateway Gateway control Setting	and Settings\Kulda\Dokun as Help	nenty\2N TELEP	letwork parame	etres for
🖻 🖬 🗶 🎼 💁 🖡 🕨	🗶 📼 🚹	Ĺ	LPU	
Topics Alphabetical glossay Gateway control System parameters System parameters System parameters Six M parameters Six M source assignment GSM groups assignment GSM incoming groups Prefixes CSM incoming groups GSM incoming groups CLP Routing table Restat	Pactings Pactings Pactings Pactings Pactings Pactings Pactings Pactings Pactings Pacting Pact	192.168.0.1 255.255.255.0 0.0.0 None ♥ 0 0 0 0 0 0 0 (PRI 1 (PRI 2 (ISDN-DSS1 1	Enable automatic log-out log-out-hour : log-in-hour : htm: logged in modules Automatically move to summer Date to move to summer time (dd) Date to move to winter time (dd) TiN : Enable upgrading PW through Port : Save to file	PIN for SIM cards (the same for all SIMs)
unnamed : [COM3] Connected	2N BlueTower M112-150722000	3, Limit : limited, Protocols : I	DSS1 SIP TUN , Networks : All, CPU1	12, SW : 02.52/02.30.02

1.2 VoIP trunk configuration

Let say that we want to connect SG with our company VoIP PBX (SIP proxy) and we want to allow receiving calls from SIP proxy, so we can pass them to GSM and pass all incoming calls to it.

To allow call requests only from our SIP proxy we have to fill its IP address to field **SIP proxy (IP -> GSM)**.

It is very important to set this IP address. In case that there is 0.0.0.0 in this field, call can come from any IP address on our network (in case that you have assigned public IP address, requests can be from any computer on Internet.

If you want to allow call from GSM to your SIP proxy, it is necessary fill its IP address to field **SIP proxy (GSM -> IP)**. If you want more about incoming call setting go to section 3 (Incoming calls) of this document.

Also we have to define IP of our VoIP card – it will be 192.168.0.2 – This is the IP for RTP stream.

You have to setup the opposite PBX to send the SIP packets to IP address of CPU card.

The example of these settings is showed at this picture



1.3 Example of Cisco Call Manager configuration

Following example of configuration correspond with configuration interface of Cisco Call Manager 6,7 and 8.

System 👻 Call Routing 👻 Media	Resources 👻 Voice Mail 👻 Device 👻	Application - Us	er Management 👻	Bulk Administration 👻	Help 👻
Trunk Configuration					
		_	_	_	
🔚 Save 🗙 Delete 🍟 Re	set 🔂 Add New				
Ch. hus					
Status: Ready					
- Device Information					
Product:	Přenosový spoj SIP				
Device Protocol:	SIP				
Device Name*	VB-GSM				
Description					
Device Pool*	GSM	•			
Common Device Configuration	< None >	•			
Call Classification*	Použít výchozí systémová nastavení	•			
Media Resource Group List	< None >	•			
Location*	Hub_None	•			
AAR Group	< None >	•			
Packet Capture Mode*	Žádné	•			
Packet Capture Duration	0				
Media Termination Point Rec	quired				
Retry Video Call as Audio					
Transmit UTF-8 for Calling P	'arty Name				
Unattended Port					
- Multilevel Precedence and	Preemption (MLPP) Information —				
< None >	•				

- Call Routing Information —

nificant Digits*	All	•
nnected Line ID Presentation*	Výchozí	•
nnected Name Presentation*	Výchozí	•
ing Search Space	Local	•
Calling Search Space	< None >	•
x DN	-	

Outbound Calls ————		
Calling Party Selection*	Původce 🗸]
Calling Line ID Presentation*	Výchozí 🗸]
Calling Name Presentation*	Výchozí 🗸	1
Caller ID DN		
Caller Name		
Redirecting Diversion Head	der Delivery - Outbound	

	$\left(\right)$	IP address of SG
- SIP Information		\geq
Destination Address*	192.168.50.39	
Destination Address is an SRV		
Destination Port*	5060	
MTP Preferred Originating Codec*	711alaw	
Presence Group*	Standard Presence group	•
SIP Trunk Security Profile*	Non Secure SIP Trunk Profile	•
Rerouting Calling Search Space	< None >	
Out-Of-Dialog Refer Calling Search Space	< None >	•
SUBSCRIBE Calling Search Space	< None >	•
SIP Profile*	Standard SIP Profile	-
DTMF Signaling Method*	RFC 2833	•

1.4 Configuration of PRI connection

If you have PRI card, you can connect the gateway to your PBX via NT or TE port. Here are examples of possible interconnection scenarios.



In accordance to your situation you have to setup the gateway ISDN parameters.

PRI 1 port has to be always used for connecting to your PBX!

Topics Alphabetical glossary		ISD	N parameters		
Gateway control	ISDN				
Login account					
Date/time	PRI 1				
Firmware/Licence	ISDN PRI port type :	TE	Synchronization :	Slave	-
Tracing			,		
Terminal	Channel number select :	Upwards 🔹	Preffered channel :	0	÷
				, (0 =	no preffered)
Lall data records	L			· · ·	
	PRI 2				
Diagnostics	ISDN PBI part type :	NT	Synchronization :		Macher
Diagnosates	(Valid only if PRI 2 exists)		(Valid only if PRI 2 exists)		
Buffer state	Channel number coloct :	Upwards 💌	Proffered ebannel:	0	
Connection state	Channel number select .	Tobwards	Fielded channel.	0	
GSM monitor info				= UJ	no preffered
Test calls					
🛛 🔂 Online commands					-
Show AutoCLIP routing table	IEI address :	lo 🔳	Assignment of GSM-channel:	Lyclical	
Gateway configuration					
System parameters	0 (blid for both PPI ports if they	u are presented)		1	Settings for
VoiP parameters	(valid to boart thi poits if they	y are presented)			
					the PRI ports
		7		\sim	

Outgoing calls

2.2 How to configure the LCR table

Situation...

Let's say we have SIM cards of two GSM operators (4 pcs. for each one): The first one, we will call it N₅, it has following prefixes (602, 606, 607, 723, 724) and it requires you to dial the number from your mobile phone with the international prefix (+420). All numbers have a nine digit length with the prefix but without the international prefix.

The second one, we may call it NobiCell, has the following prefixes (901, 902, 907, 909) and requires you to dial the number with the prefix (0). All numbers have a nine digit length

with the prefix and without "0".

We have to assign modules to two GSM outgoing groups (for each operator one).

The first step we have to do is place the SIM cards into the SIM holders. We will start with modules 0-3 using the N5 operator SIMs. Modules 4-7 will follow the same procedure but using the NobiCell SIMs.

Topics Alphabetical glossary			GSI	d groups assignment
Gateway control	Groups assignm Module :	nent : Outgoing :	Incoming :	_
SDN parameters	0. module	1. Group	 1. Group 	•
GSM basic parameters	1. module	1. Group	 1. Group 	•
GSM outgoing groups	2. module	1. Group	 1. Group 	•
GSM incoming groups	3. module	1. Group	1. Group	•
LCR table	4. module	2. Group	 1. Group 	•
CLIP Routing table	5. module	2. Group	 I. Group 	•
	6. module	2. Group	 I. Group 	•
	7. module	2. Group	1. Group	•
	Save to the ga	te Load from the	gate Defa	lt
	Save to file			

2.2.1 Configuration of outgoing groups

We have to select the option SIM1 for the Mode of switching SIM card (the SIM inserted in the SIM holder 1 will be used all the time). In the parameter CLIR select option Factory. The settings written above will configure both GSM outgoing groups. For switching between groups you can use the tabs.

	Tabs for 0	GSM outgoing groups	Mode of switching SIMs
	Topics Alphabetical glossary	GSM outg	going groups
	Gateway control Gateway configuration Gateway configuration System parameters VolP parameters GSM basic parameters GSM proupe assignment GSM incoming groups Prefixes LCR table CLP Routing table Restart	1 GSN group 2 GSM group 3 GSM group 4 GSM group 4 Mode of switching SIM card : Last searched SIM : (8 - all SIM will be searched) Disconnect call : SIM limit exceeded SIM limit exceeded Switch to another SIM No ALERTING before CONNECT Day of deleting stats in group : 1 SIM settings : SIM 5-8 is SIM 4 © Disable tone detector IF Generate vitual ring tone	5 GSM group 6 GSM group SM group 8 GSM group SIM 1 ▼ SIM 8 ▼ Delay for CONNECT [s]: (0 = off) ♀ Minimal ring duration to send "SMS (0 = off) ♀ at no answer" [s]: Delay for ALERTING [s]: (0 = off) ♀ Minute' parameter: Court of minutes ▼ Send CLIP from ISDN to GSM : Attention' Must be supported by your GSM / UMTS operator. In other case outgoing cats to GSM / UMTS case be rejected Transfer CLIP to GSM Separating chers:
Paramete	r CLIR	SIM 1 SIM 2 SIM 3 SIM 4 - 8	Call length counting : Seconds
		Roaming enables Ucode: CLIR : Default ▼ Max. number of called minutes : (0 = off) 1 SMS messages number : 0 0 Day of restore call limit and delete statistics : 1 € (0=off, 32=every day) 1 € First count : 1 € Next count : 1 € IV Day limit of called minutes : (0 = off) 0	Time to switch to another SIM From: 00:00 To: 24:00 IF Enable on weekends Image: Comparison of the shower set time Image: Use 2nd interval Image: Comparison of the shower set time Image: Enable on weekends Image: Comparison of the shower set time Image: Use whole weekends Image: Comparison of the shower set time Image: Use the above set time Image: Comparison of the shower set time

2.2.2 Prefix list configuration

We have to create two network lists, the first one for N5 and the second one for NobiCell.

N5 network list:

We configure the normalization of Called party number in the Table of replaced prefixes (the number in front of the slash mark is replaced by number behind the slash mark, if there is not any number in front of the slash mark it is equaled to "everything").

We also have to fill in the Table of prefixes with all prefixes of the N5 operator. Because all numbers are 9 digits length, it is not necessary to specify for each prefix, we can use the parameter Default number of digits and fill there the value 9.



NobiCell network list:

We configure the normalization of Called party number in the Table of replaced prefixes (the number in front of the slash mark is replaced by number behind the slash mark, if there is not any number in front of the slash mark it is equaled to "everything"). We also have to fill in the Table of prefixes with all prefixes of the N5 operator. Because all numbers are 9 digits length, it is not necessary to specify for each prefix, we can use the parameter Default number of digits and fill there the value 9.



2.2.3 LCR table configuration

We have to configure lines in the LCR table where we bind together Outgoing GSM groups with Network lists. Click on ADD button (or edit the first line of LCR table) to add the first line and configure it the following way for the N5:

Prefix list :	Prefix list 1/	Uutgoing destina	tion :
Time limitation of		GSM group 1	-
	use .	<none></none>	•
From : 0:00) To: 24:00	<none></none>	v
🔽 Use whole w	veekend	<none></none>	v
C Use whole	weekend	<none></none>	-
Use the time	ne set above	<none></none>	-
Maximal duration	of call: (0 = off 0	Kone>	-

Click on ADD button to add the second line and configure it the following way for the NobiCell:

efix list :	Prefix list 2/	GSM group 2	-
Fime limitation of	fuse:	<none></none>	-
From : 00:1	00 To: 24:00	<none></none>	7
🗸 Use whole v	veekend	<none></none>	*
C Use whole	weekend	<none></none>	*
Use the tin	ne set above	<none></none>	-
Maximal duration	n of call : (0 = off 0	<none></none>	*

Now you can see two LCR lines in the LCR table:

PRI config program C:\Document	s and Settings\Kulo	la\Dokumenty\2N TELEKO	MUNIKACE\PRI Program\un	named.ini					
File Gateway Gateway control Settin	igs <u>H</u> elp								
	- 💥 📼								
Topics Alphabetical glossary	LCR table								
Gateway control	Prefix List	Valid from/to	Outgoing destination	Call duration limit					
- 🔁 Gateway configuration	1/	0:00/24:00	1	0	A00				
System parameters	2/	00:00/24:00	2	0	Edit				
VolP parameters									
SSM basic parameters					Remove				
GSM groups assignment									
GSM outgoing groups					Remove all				
GSM incoming groups					Load from the gate				
Prefixes					gato				
CLIP Bouting table					Save to the gate				
- Restart					1				
					Save to file				
					Default				
	I • I			1					
unnamed : [COM3] Connected	2N BlueTower M112-:	1507220003, Limit : limited, Pro	otocols : DSS1 SIP TUN , Network	s : All, CPU112, SW : 02.5	2/02.30.02				

2.2.4 Test call

We can connect the phone handset to the AUX card and make a test call. The menu for test calls we can find under Gateway control:



In the window select the option **To GSM (according to the called prefix).** To the space called number the write number you want to dial (use the form of the called party number in which StarGate receives it from the PBX). Click on the Dial button. The call will be established to mobile phone number written in the line called number.



3. Incoming calls

For incoming calls you can define 4 groups with the different behavior and assign GSM modules for them. The settings are similar with GSM group assignment for outgoing calls.

Topics Alphabetical glossary			GS	M groups assignment
Gateway control	Groups assignme	ent :		Incoming group
System parameters	Module :	Outgoing :	Incoming :	assignment
Di VoIP parameters Di ISDN parameters	0. module	1. Group 💌	1. Group	
GSM basic parameters	1. module	1. Group 💌	1. Group	
GSM groups assignment	2. module	1. Group 💌	1. Group	
GSM incoming groups	3. module	1. Group 💌	1. Group	
	4. module	2. Group 💌	1. Group	
CLIP Routing table	5. module	2. Group 💌	1. Group	
	6. module	2. Group 💌	1. Group	
	7. module	2. Group 💌	1. Group	
	Save to the gate	Load from the g	ate Defa	ault
	Save to file			

In GSM incoming groups you can define the behavior for each GSM incoming group. Choose the mode to Reject, Ignore, or accept incoming calls.

Also, you can specify if call should be connected directly to some extension of connected PBX or if you will allow user to dial over DTMF.

Topics Alphabetical glossary	GSM incorgroups						
Gate Mode	1 GSM group 2 GSM group 3 GSM group 4 GSM group Direct routing						
VoIP parameters	List of called numbers :						
GSM basic parameters	(Call number by %A, %G95.8 or none or answer and wait for DTMF) 200						
GSM groups assignment GSM outgoing groups GSM incoming groups	Min. digits in DTMF : 3						
Prefixes LCR table	Max. digits in DTMF : 3						
CLIP Routing table	Timeout for entering DTMF digits (s):						
	Day of deleting GSM in up stastics : 1 🔿 Add Remove emove all						
	Prefix before DJP bion :						
	(+' removed automatically;						
	neout for DTMF						
	Time to keep CLIP in table [hours]: (0 = off) 0						
	CDN recognition in CLIP (Separating char)						
	Add record only for unconnected call						
	Delete record for connected answer						
	Save to the gate Load from the gate Default Save to file						