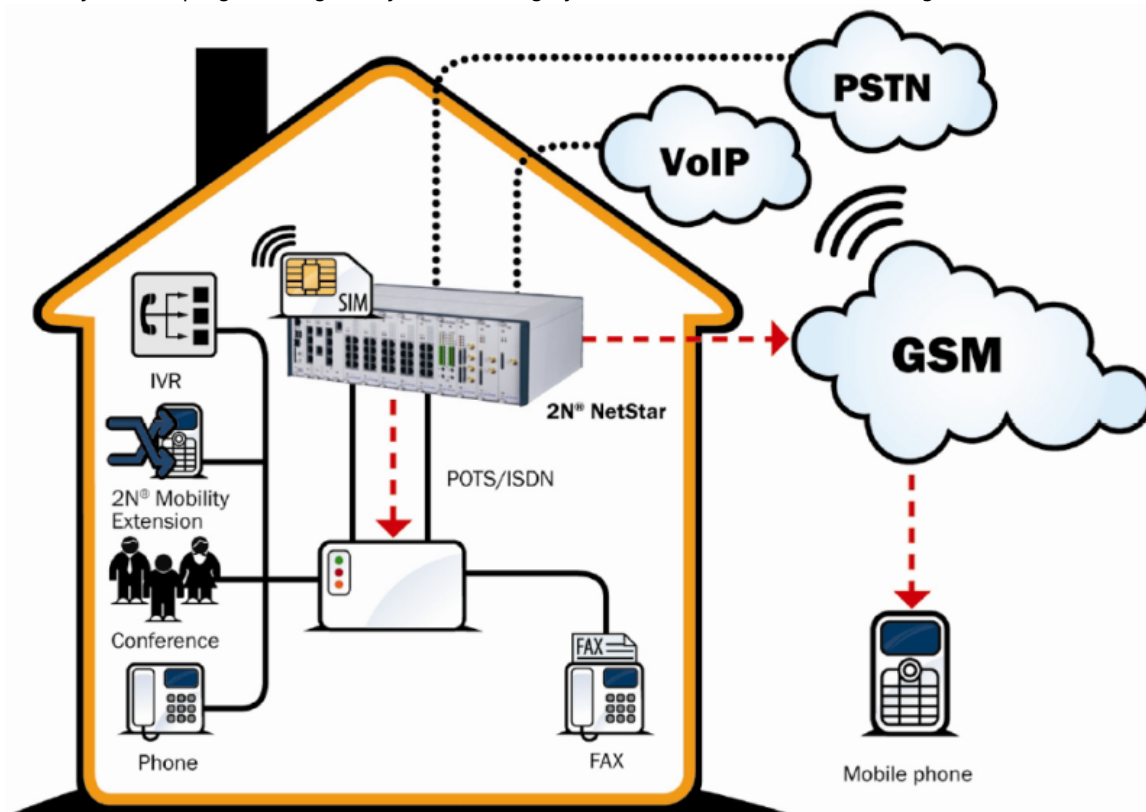


PBX booster - How to set 2N® NetStar as a PBX booster

- This „how to“ manual will help you to set up 2N® NetStar as a PBX booster. NetStar is connected via PRI/BRI between the PSTN network and the PBX and brings new services like:
 - Mobility Extension
 - IVR
 - CallBack
 - AutoClip Routing
 - SMS

Before you start programming the system, it is highly recommended to read the configuration manual.

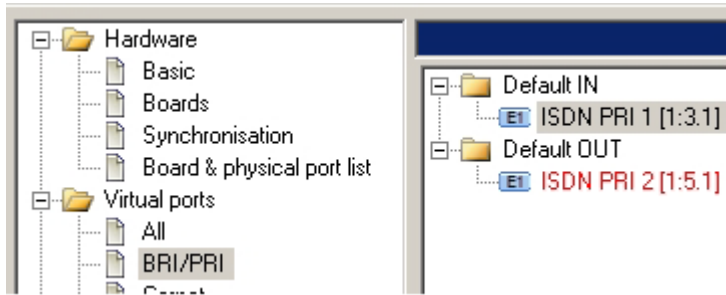


1. Check your licence – you need at least 2 PRI ports and Mobility Extension licence – according to number of ME extensions. (Global data -> Licence). If you do not have it, please contact support@2n.cz.

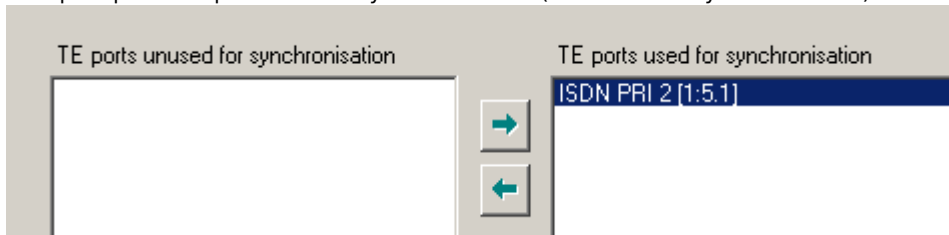
Licence files		
File	ID	Status
/data/netstar/licence/7.key	NS2LIC-Gbc8dfd035d97	OK

2. Set up both PRI ports.
 - a. Port connected to PSTN as TE, port connected to PBX as NT. (Set up jumpers too!)

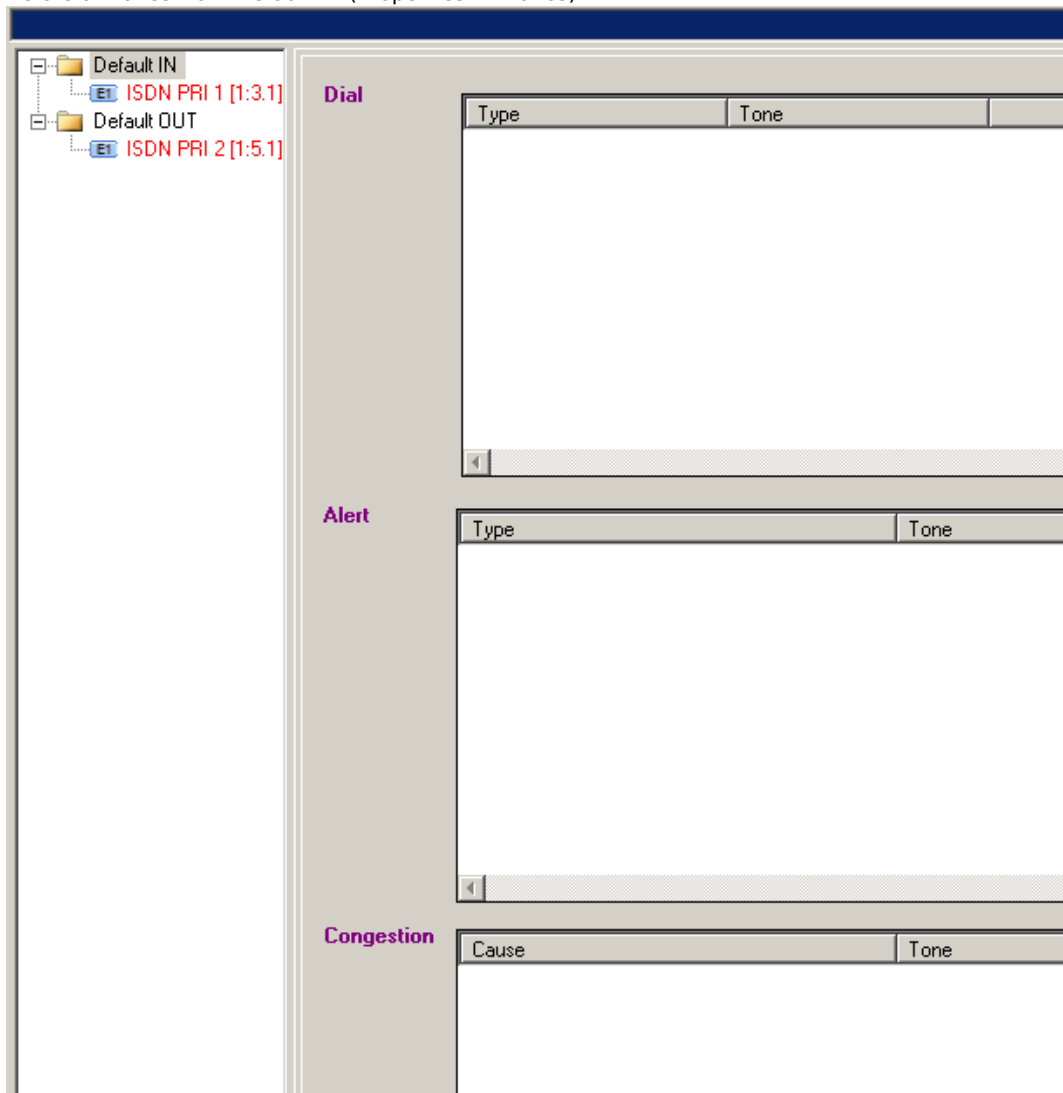
- b. Set up TE port as Default OUT and NT port as Default IN (important for proper network tones transmission).



- c. Set up TE port as a port used for synchronisation. (Hardware -> Synchronisation).

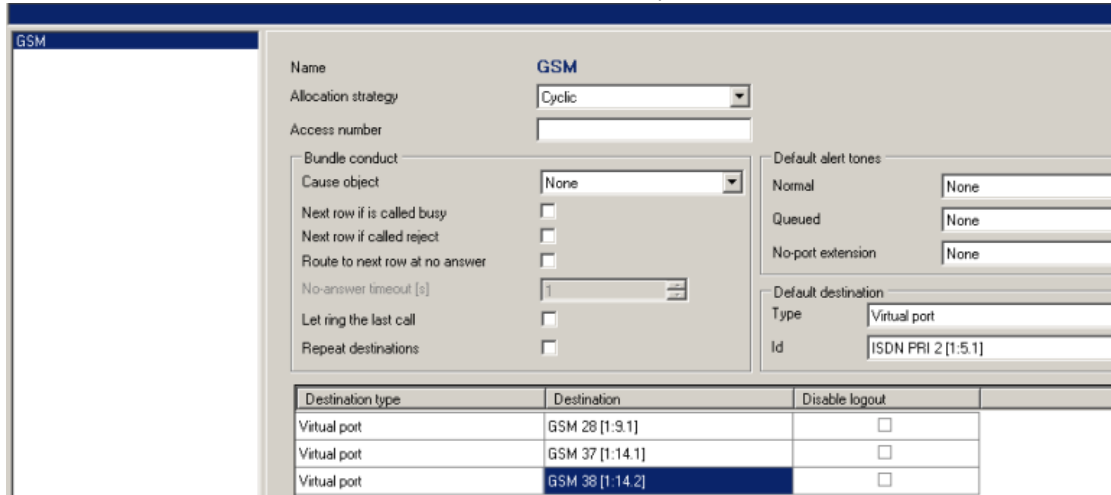


- d. Delete all tones from Default IN (Properties -> Tones).



3 . Set up GSM/UMTS ports

- a. Create a bundle - GSM (Routing -> Routing objects -> Bundle) and use all GSM ports in this bundle. It is recommended to use cyclical strategy.
- b. If you want to have an overflow to PSTN network (in case all GSM/UMTS modules are busy) fill in default destination - PRI port to PSTN.

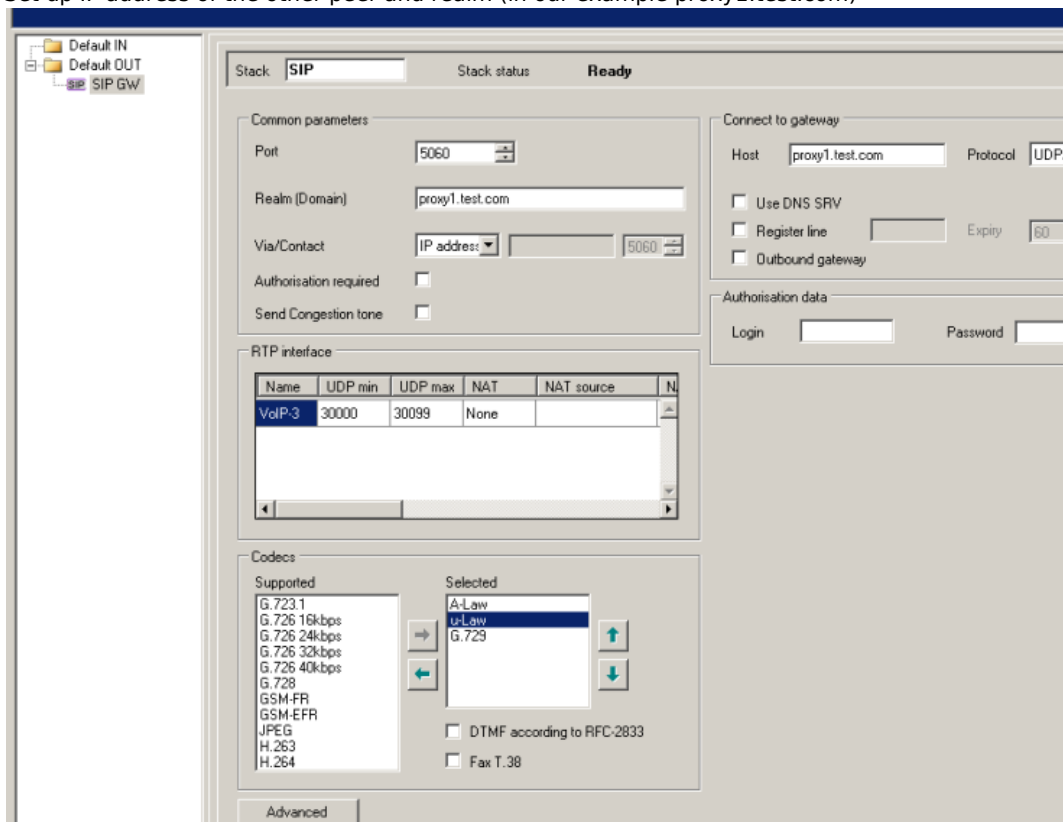


The screenshot shows the configuration window for a GSM bundle. The 'Name' is 'GSM' and the 'Allocation strategy' is set to 'Cyclic'. The 'Access number' field is empty. Under 'Bundle conduct', the 'Cause object' is 'None', and several checkboxes for 'Next row if called busy', 'Next row if called reject', 'Route to next row at no answer', 'Let ring the last call', and 'Repeat destinations' are present. The 'Default alert tones' section has 'Normal', 'Queued', and 'No-port extension' all set to 'None'. The 'Default destination' is set to 'Virtual port' with 'Id' 'ISDN PRI 2 [1:5.1]'. A table at the bottom lists destinations:

Destination type	Destination	Disable logout
Virtual port	GSM 28 [1:9.1]	<input type="checkbox"/>
Virtual port	GSM 37 [1:14.1]	<input type="checkbox"/>
Virtual port	GSM 38 [1:14.2]	<input type="checkbox"/>

4. If you want to make calls to VoIP provider:

- a. Create a SIP trunk - SIP GW. (Virtual ports -> SIP -> SIP Gateway).
Add RTP interface
Select codecs
Set up IP address of the other peer and realm (in our example proxy1.test.com)



The screenshot shows the configuration window for a SIP Gateway. The 'Stack' is 'SIP' and the 'Stack status' is 'Ready'. Under 'Common parameters', the 'Port' is '5060', the 'Realm (Domain)' is 'proxy1.test.com', and the 'Via/Contact' is 'IP address'. The 'RTP interface' table is as follows:

Name	UDP min	UDP max	NAT	NAT source	N
VoIP-3	30000	30099	None		

The 'Codecs' section shows supported codecs (G.723.1, G.726 16kbps, G.726 24kbps, G.726 32kbps, G.726 40kbps, G.728, GSM-FR, GSM-EFR, JFEG, H.263, H.264) and selected codecs (A-Law, u-Law, G.729). There are checkboxes for 'DTMF according to RFC-2833' and 'Fax T.38'. The 'Connect to gateway' section has 'Host' 'proxy1.test.com' and 'Protocol' 'UDP'. The 'Authorisation data' section has 'Login' and 'Password' fields.

- b. set up a VoIP card (Hardware -> Boards -> VoIP Board)

Network setting

Interface IP parameters

IP address: 192 . 168 . 3 . 188

Subnet mask: 255 . 255 . 255 . 252

Default gateway: 192 . 168 . 1 . 5

Additional information

Descr.: SURF C6412 VER. 6.0.1.3Jan 11

Producer:

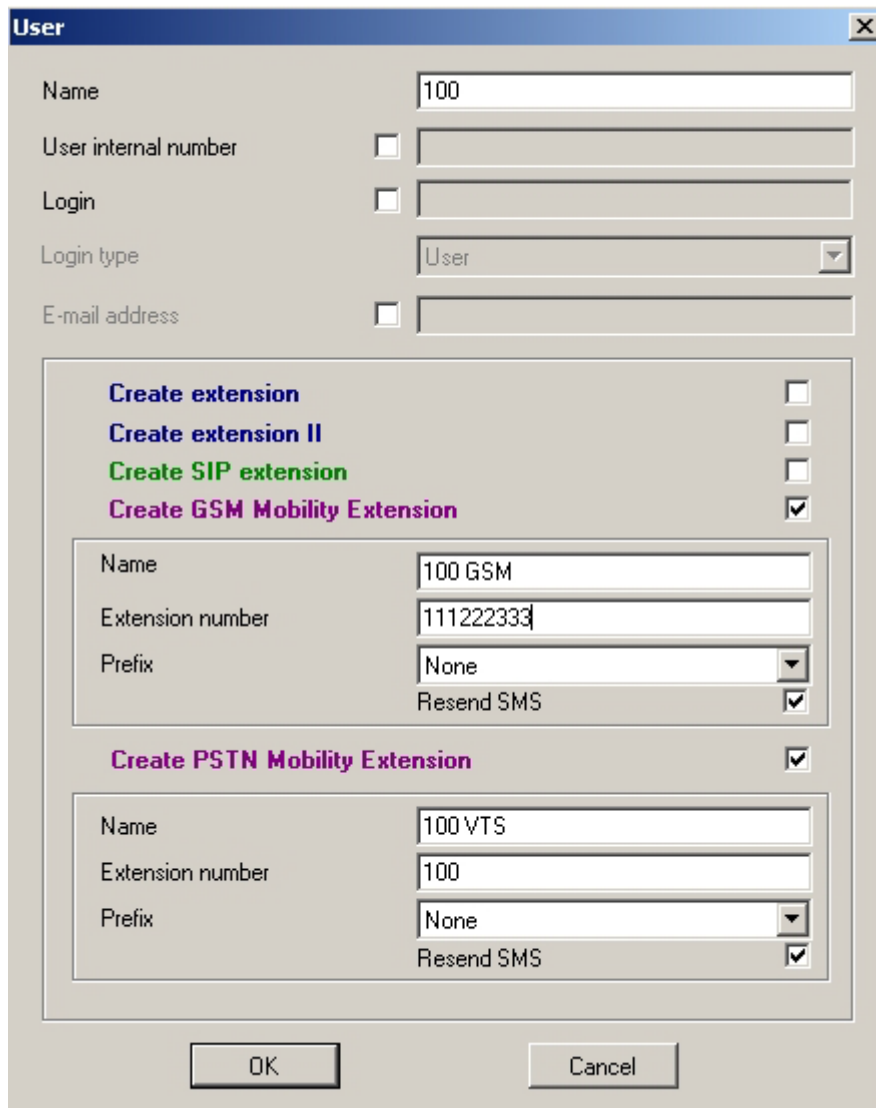
5. Create a Group - ME users

ME Users

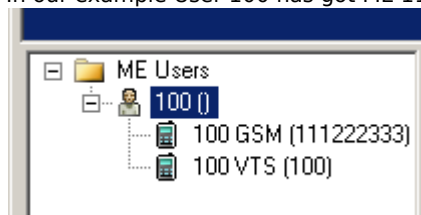
Object	Group
Name	ME Users
Save messages	Default
Maximal number of messages	Default <input checked="" type="checkbox"/> 0

6. Create User and his extensions
- each user has got 2 extensions:

- ME (mobile phone)
- DDI of the PBX (set up the number in the same format that does PBX expect!)



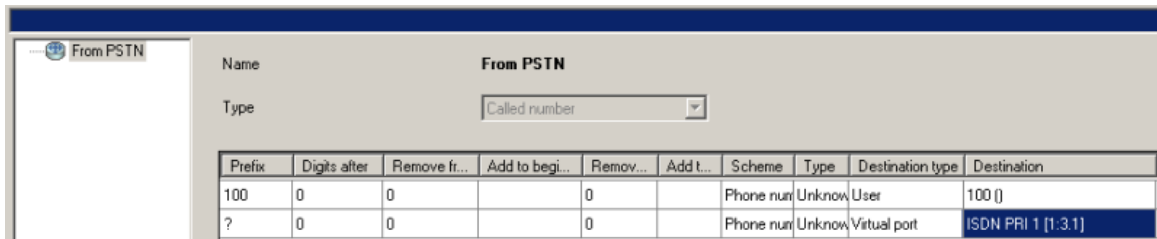
In our example User 100 has got ME 111 222 333 and DDI 100



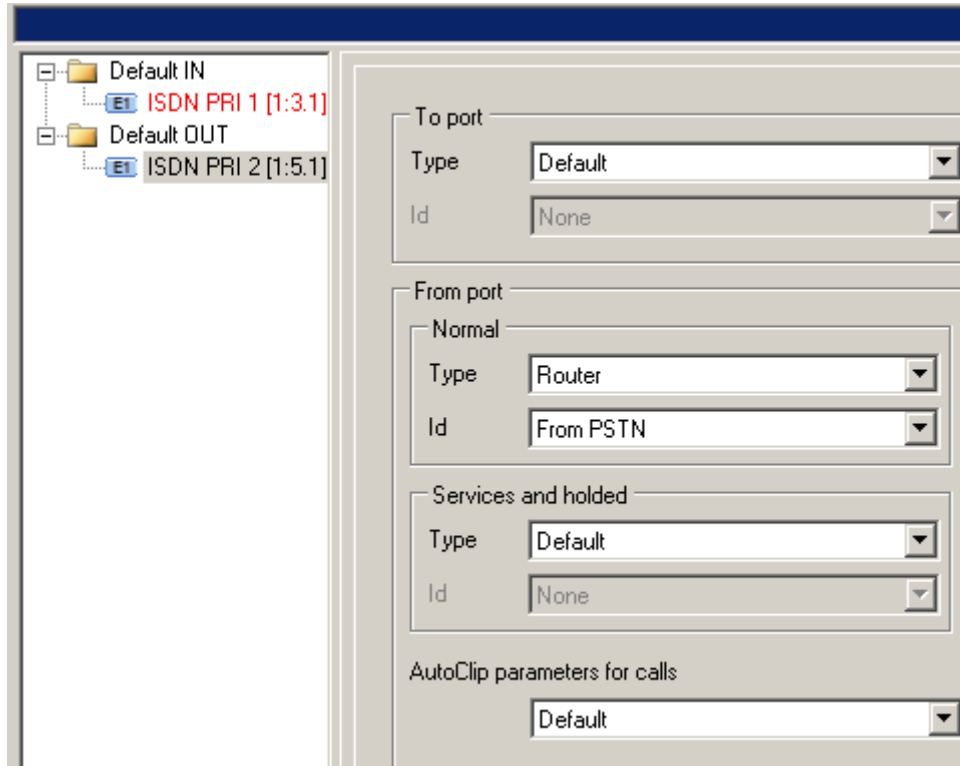
7. Create a router - From PSTN. (Routing -> Routers -> Called party number Router).

- the purpose of this router is to capture particular DDI in incoming call from PSTN and split the call to PBX (DDI) and GSM (Mobility Extension).

In our example number 100 is captured and split and the other calls are transparently resent to PBX.



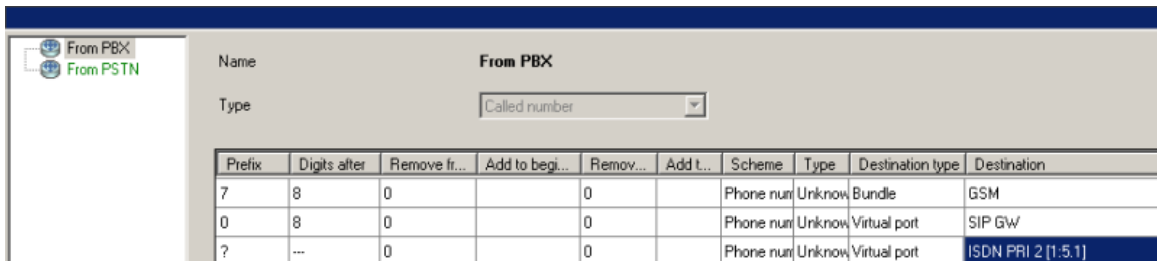
8. Use router From PSTN as a from port router on the TE port. (Properties -> Routing)



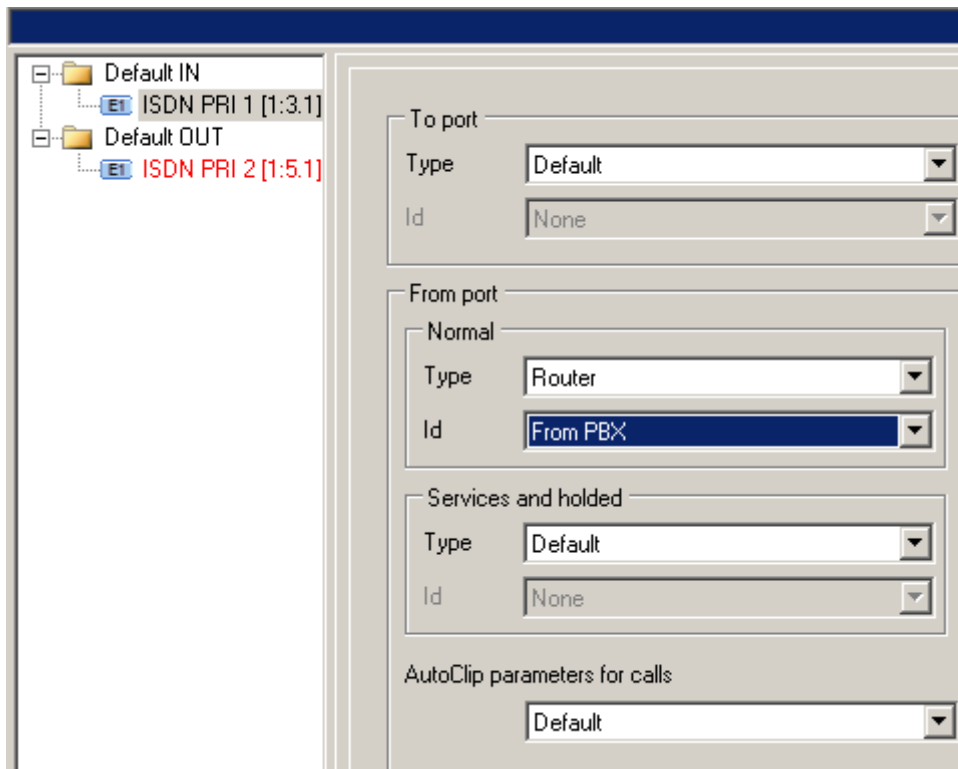
9. Create a router - From PBX. (Routing -> Routers -> Called party number Router)

-the purpose of this router is to be a decision maker which will send GSM calls to GSM, VoIP calls to VoIP trunk and all other calls to PSTN.

In our example the GSM prefix is 7 (9 digit long). Calls beginning with 0 (9 digits long) are sent to VoIP.



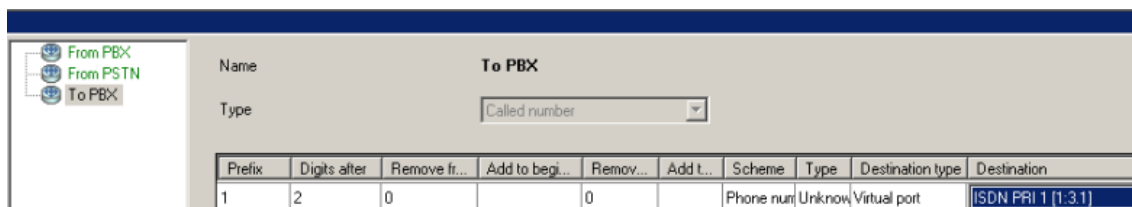
10. Use router From PBX as the from port router on the NT port. (Properties -> Routing)



11. Set up IVR

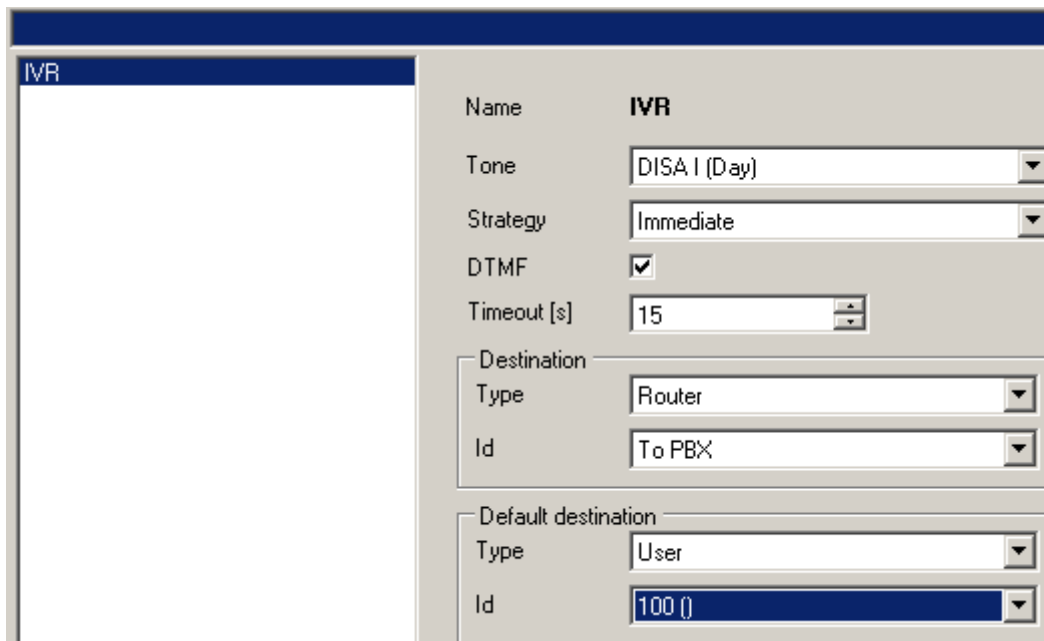
a. Create Router To PBX (Routing -> Routers -> Called party number Router)

-the purpose of this router is to route DDI numbers to PBX (in our example DDIs - 1xx)



b. Create DISA - IVR (Routing -> Routing Objects -> DISA)

-the purpose of DISA is to play announcement to the caller and to give the caller an opportunity to dial DDI number to PBX.



IVR

Name: **IVR**

Tone: DISA I (Day)

Strategy: Immediate

DTMF:

Timeout [s]: 15

Destination

Type: Router

Id: To PBX

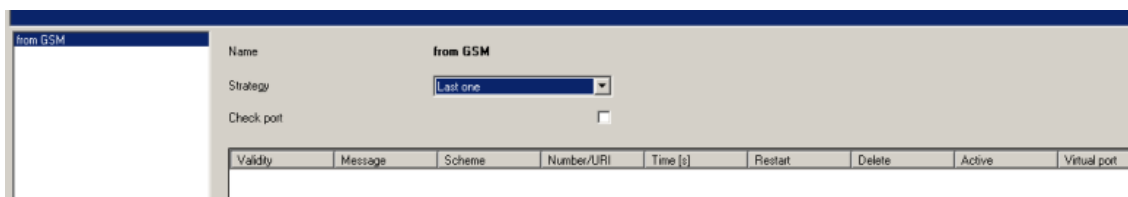
Default destination

Type: User

Id: 100 ()

12. Create AutoCLIP router - From GSM. (Routing ->AutoCLIP Routers)

-the purpose of this router is to route all missed calls from GSM to particular extensions, the outbound calls have been originally made. Any other incoming call will be sent to IVR.



from GSM

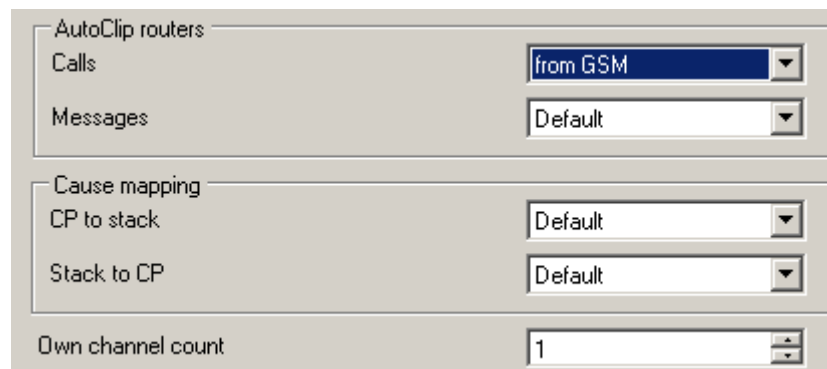
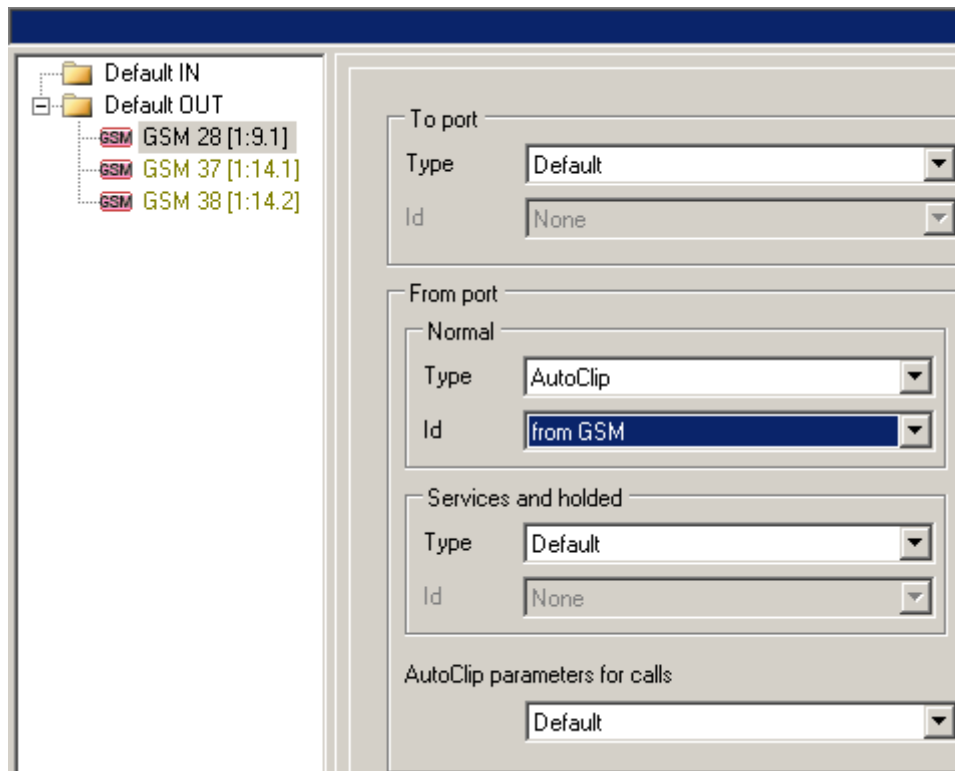
Name: **from GSM**

Strategy: Last one

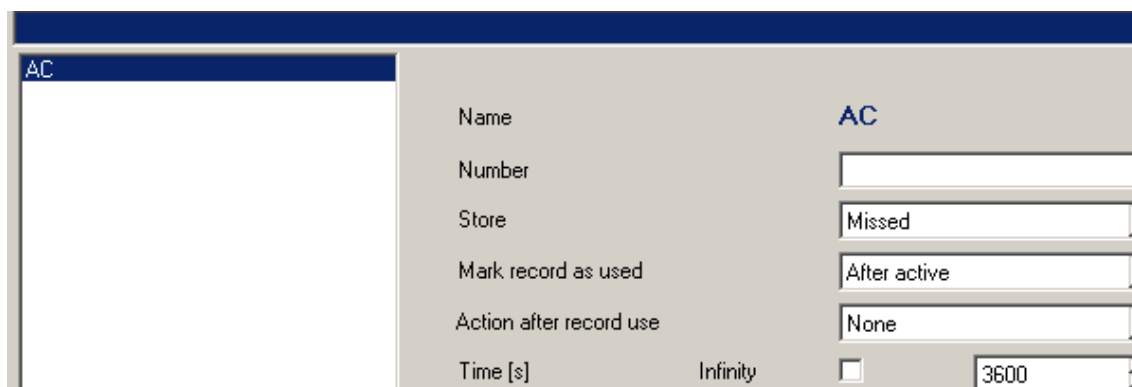
Check port:

Validity	Message	Scheme	Number/URI	Time [s]	Restart	Delete	Active	Virtual port

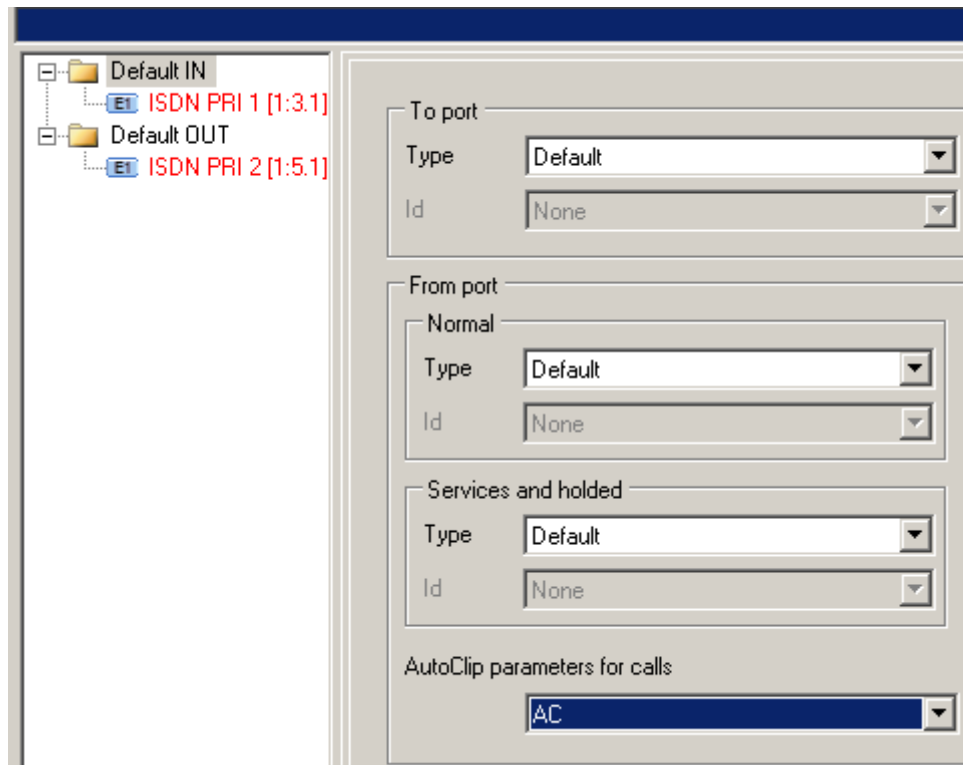
13. Use AutoCLIP router From GSM as a from port router on all GSM ports. (Properties ->Routing) and (Virtual ports -> GSM -> Basic).



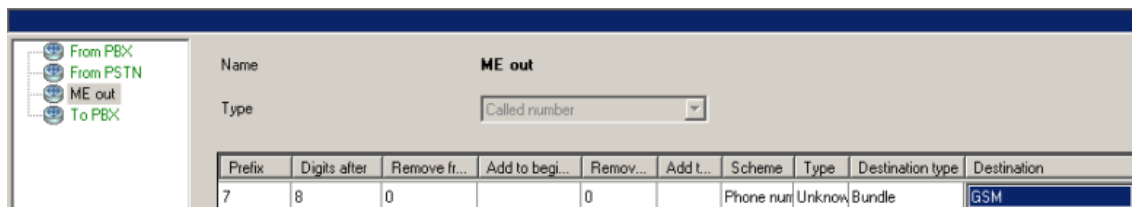
14. Create AutoClip parameters - AC (Global Data -> AutoClip parameters)



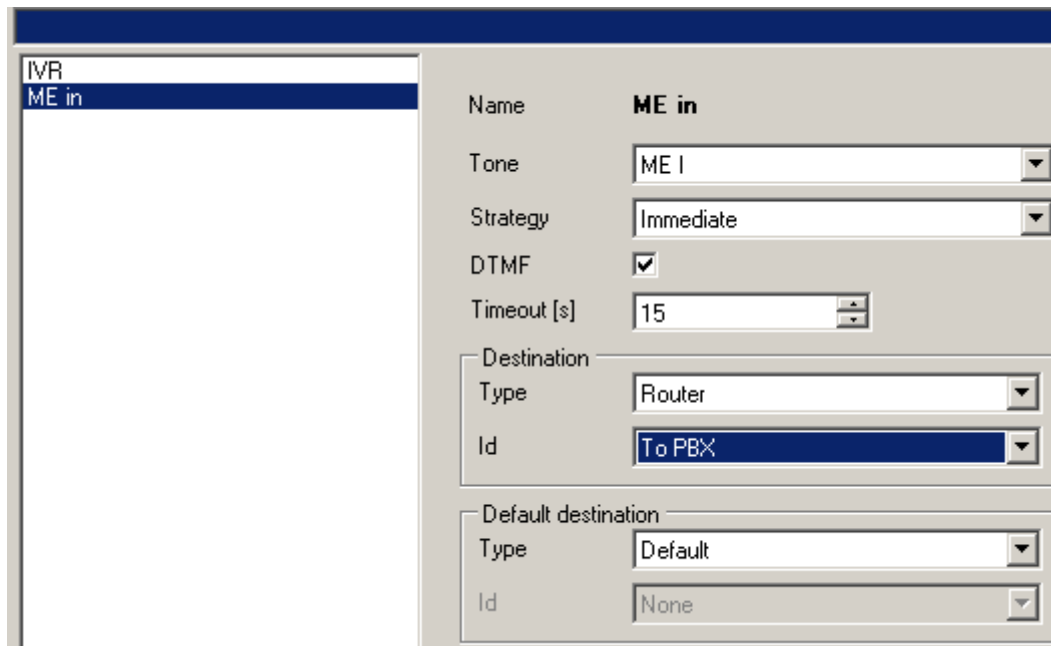
15. Use AutoClip parameters AC on Default IN. (Properties -> Routing)



16. Create router - ME out. (Routing -> Routers -> Called party number Router)
 -the purpose of this router is to route calls to ME extensions. (In our example GSM numbers begins with 7)



17. Create DISA - ME in (Routing -> Routing Objects -> DISA)



IVR
ME in

Name: **ME in**

Tone: ME I

Strategy: Immediate

DTMF:

Timeout [s]: 15

Destination

Type: Router

Id: To PBX

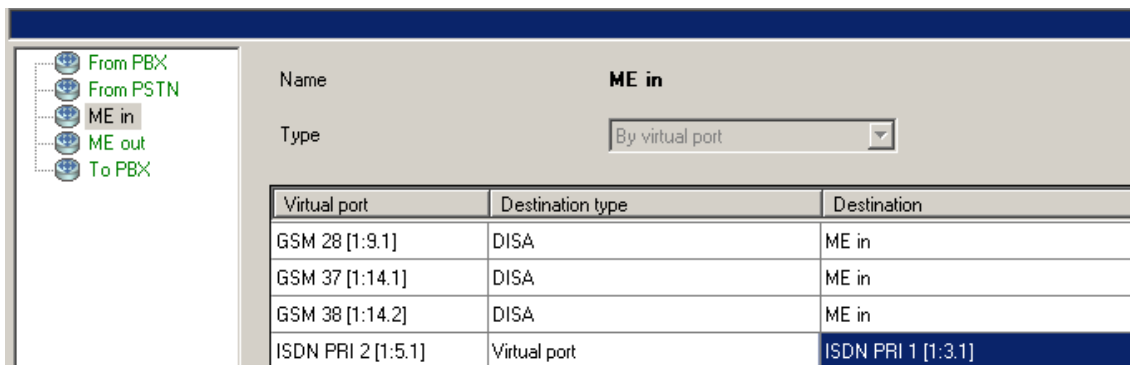
Default destination

Type: Default

Id: None

18. Create router - ME in (Routing -> Routers -> By virtual port)

-the purpose of this router is to provide a dial tone to ME extensions, so you can dial any DDI of the PBX.

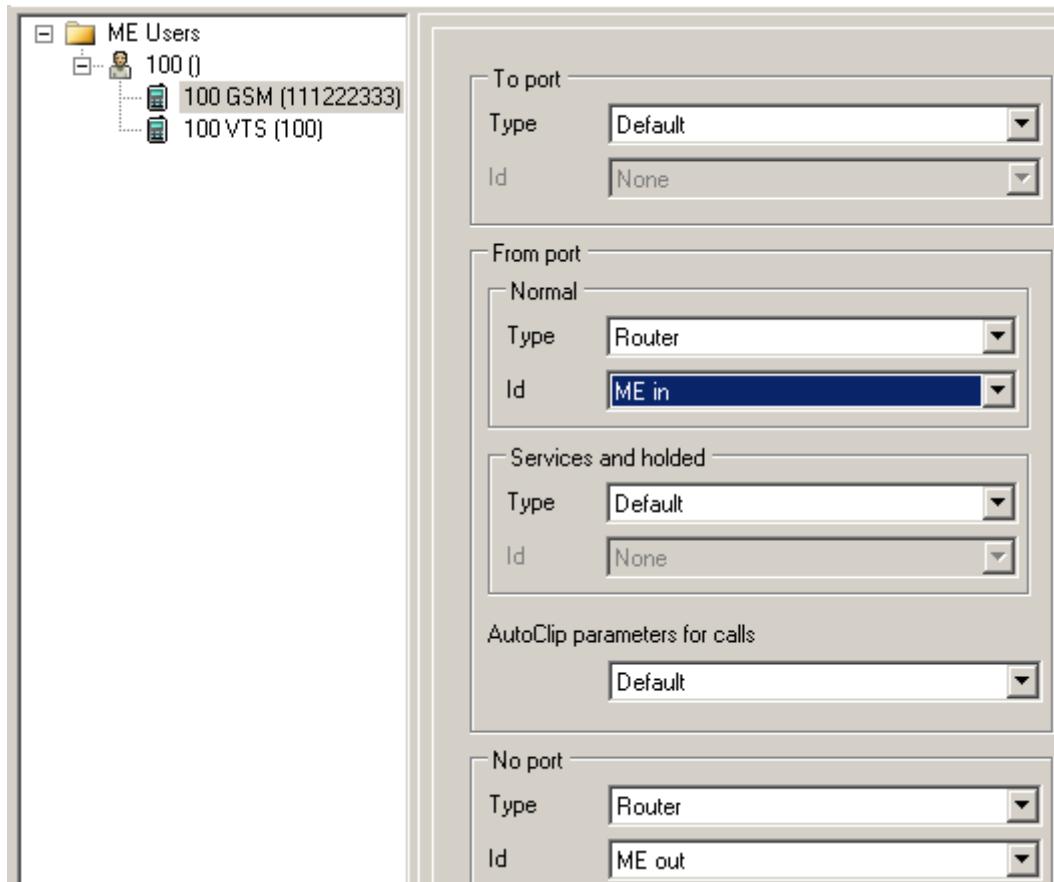


Name: **ME in**

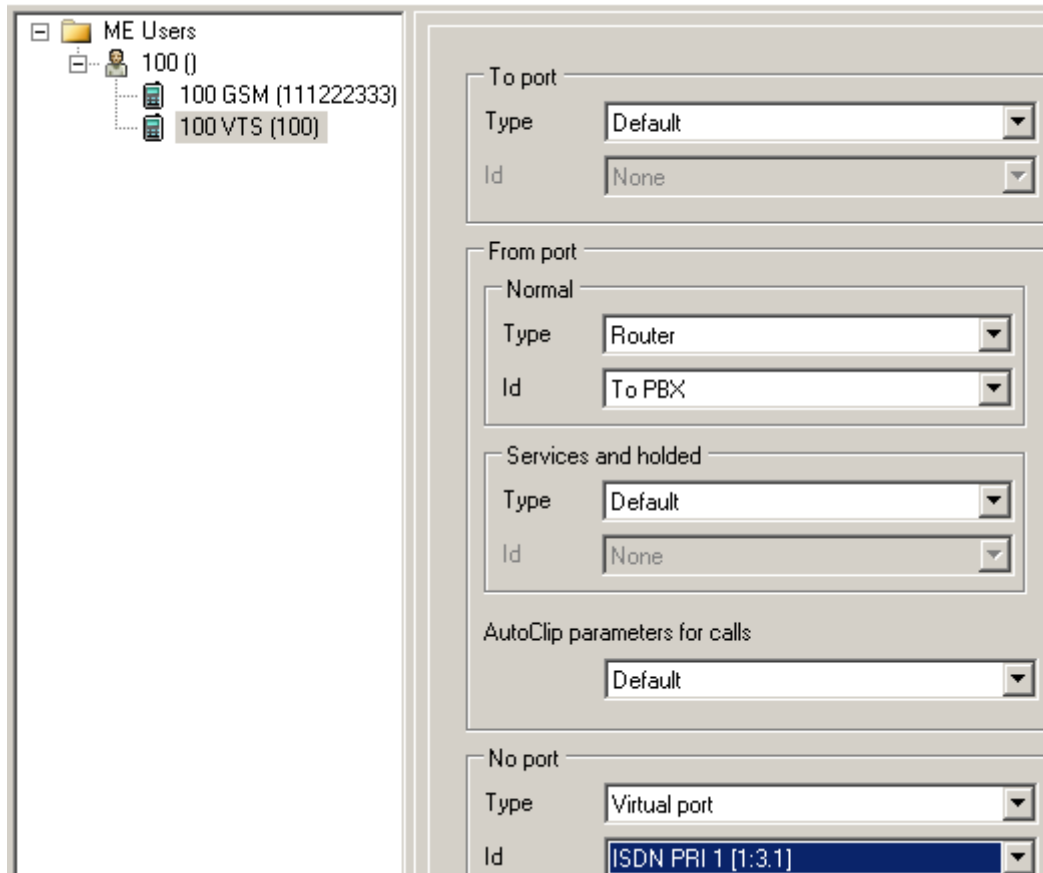
Type: By virtual port

Virtual port	Destination type	Destination
GSM 28 [1:9.1]	DISA	ME in
GSM 37 [1:14.1]	DISA	ME in
GSM 38 [1:14.2]	DISA	ME in
ISDN PRI 2 [1:5.1]	Virtual port	ISDN PRI 1 [1:3.1]

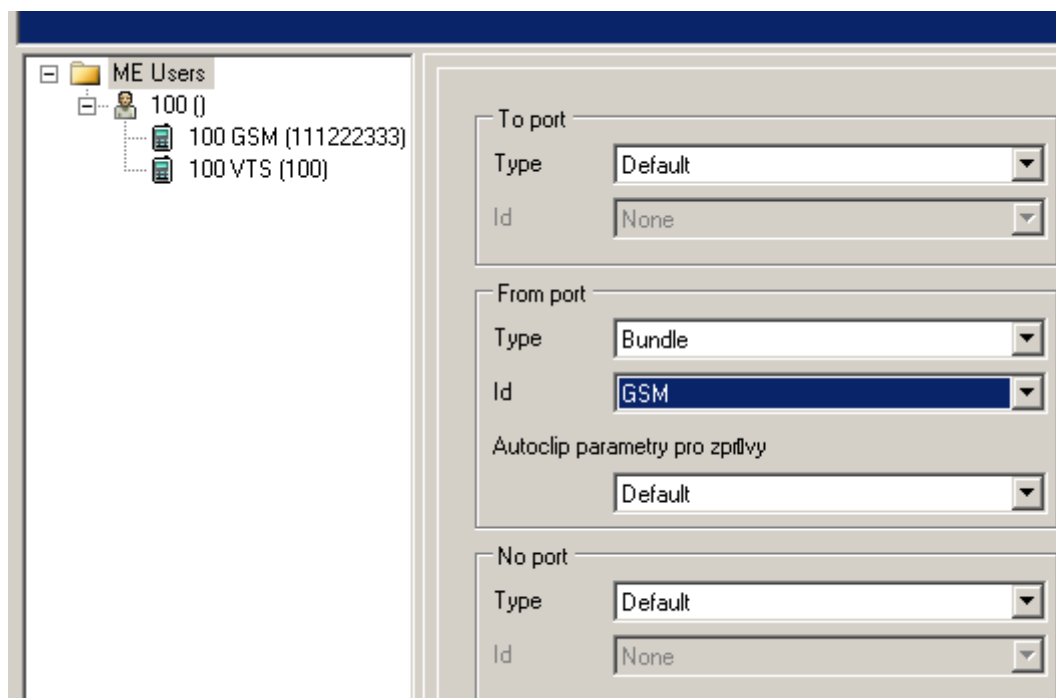
19. Use router ME out as no port router and router ME in as from port router on all ME (GSM) extensions. (Properties -> Routing)



20. Set up routing for DDI extensions (Properties -> Routing)

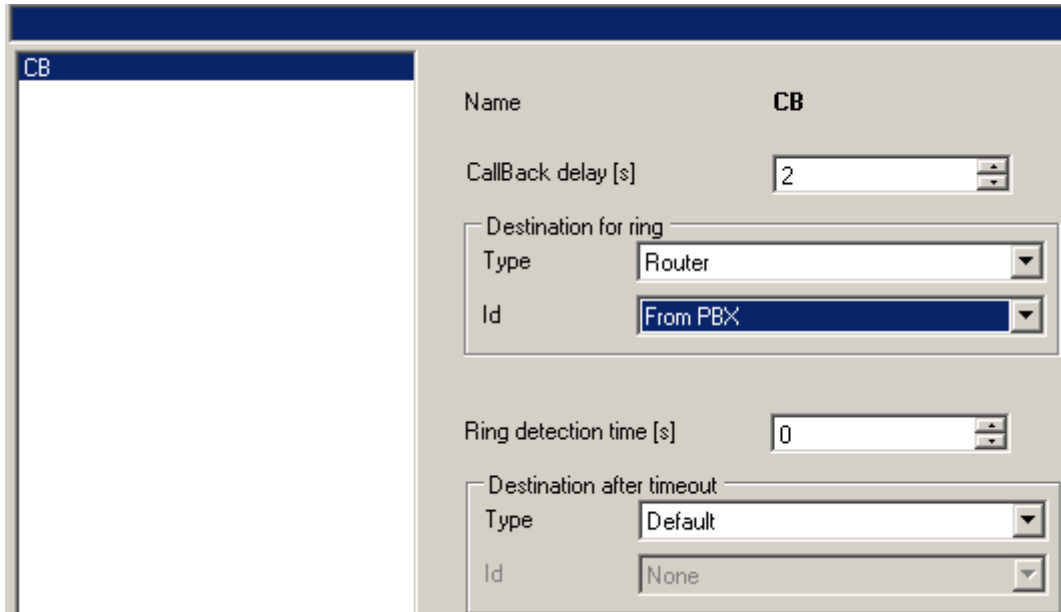


21. Set up SMS routing (Users & Groups -> Properties -> Messages routing)
 -the purpose of this routing is to give you a possibility to send SMS from NS Assistant.

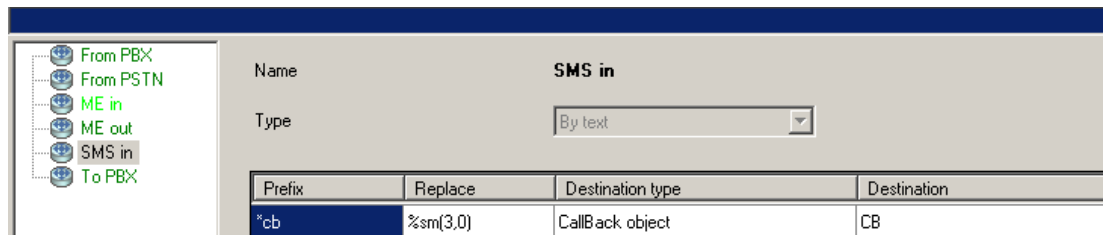


22. Set up Callback

- a. Create a Callback object - CB (Routing -> Routing objects -> Callback objects)

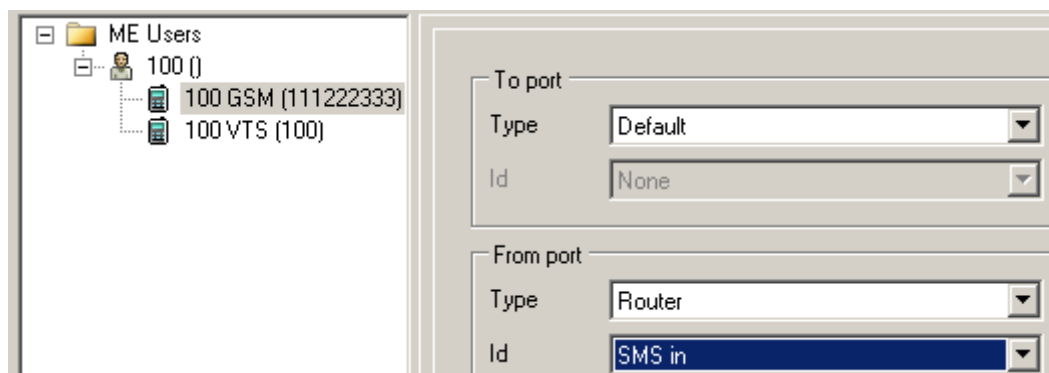


- b. Create router - SMS in (Routing -> Routers -> By text)



Prefix	Replace	Destination type	Destination
*cb	%sm(3,0)	CallBack object	CB

- c. Use router SMS in as a from port routing on ME extensions (Users & Groups -> Properties-> Messages routing)



- d. Activate Callback on all ME extensions - you need a licence!! (Basic)

<div style="border: 1px solid gray; padding: 5px;"> <ul style="list-style-type: none"> ME Users <ul style="list-style-type: none"> 100 () <ul style="list-style-type: none"> 100 GSM (111222333) 100 VTS (100) </div>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Object</td> <td style="text-align: right;">Extension</td> </tr> <tr> <td>Name</td> <td style="text-align: right;">100 GSM</td> </tr> <tr> <td>Class</td> <td style="text-align: right;">External (Mobility extension)</td> </tr> <tr> <td colspan="2" style="border-top: 1px solid gray;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Scheme</td> <td>Phone number</td> </tr> <tr> <td>Prefix</td> <td>None</td> </tr> <tr> <td>Number/URI</td> <td>111222333</td> </tr> </table> </td> </tr> <tr> <td>User</td> <td style="text-align: right;">100</td> </tr> <tr> <td>Type</td> <td style="text-align: right;">Default</td> </tr> <tr> <td>Ring group</td> <td style="text-align: right;">None</td> </tr> <tr> <td>Active</td> <td style="text-align: right;"><input checked="" type="checkbox"/></td> </tr> <tr> <td>Do not ring at call to user</td> <td style="text-align: right;"><input type="checkbox"/></td> </tr> <tr> <td>Resend SMS</td> <td style="text-align: right;"><input checked="" type="checkbox"/></td> </tr> <tr> <td>Enable CallBack object</td> <td style="text-align: right;"><input checked="" type="checkbox"/></td> </tr> </table>	Object	Extension	Name	100 GSM	Class	External (Mobility extension)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Scheme</td> <td>Phone number</td> </tr> <tr> <td>Prefix</td> <td>None</td> </tr> <tr> <td>Number/URI</td> <td>111222333</td> </tr> </table>		Scheme	Phone number	Prefix	None	Number/URI	111222333	User	100	Type	Default	Ring group	None	Active	<input checked="" type="checkbox"/>	Do not ring at call to user	<input type="checkbox"/>	Resend SMS	<input checked="" type="checkbox"/>	Enable CallBack object	<input checked="" type="checkbox"/>
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Prefix	None																													
Number/URI	111222333																													
User	100																													
Type	Default																													
Ring group	None																													
Active	<input checked="" type="checkbox"/>																													
Do not ring at call to user	<input type="checkbox"/>																													
Resend SMS	<input checked="" type="checkbox"/>																													
Enable CallBack object	<input checked="" type="checkbox"/>																													

More product information:

[2N® NetStar IP \(Official Website 2N\)](#)

[2N® NetStar \(Official Website 2N\)](#)

Manuals:

[Product support for 2N® NetStar \(wiki.2n.cz\)](#)