

ixi-UMS Business connected to PBX

Depending on which ixi-UMS features are deployed, different preconditions in terms of protocols and connections have to be taken into account. The explanations in the following shall help you to configure the PBX for the deployment of the wanted ixi-UMS features.

The protocol to be used should be selected and configured in a way that it fulfills all the necessary requirements. When using ISDN telephone systems and more than 2 channels, all connections should be set up as point-to-point/PP and bundled together.

General Explanations

Definitions to protocols

The fulfillment of the following standards / features is required with the protocols to be used for ixi-UMS:

DSS1	Service Fax Group 3	High Layer Compatibility in accordance with ETSI ETS 300 102-1: 4.5.16 or in accordance with ITU Q.931: 4.5.17
	3.1 kHz Audio	Bearer Compatibility in accordance with ETSI ETS 300 102-1 Anex H1.2 or in accordance with ITU Q.931: 4.5.5
	Point-to-Multipoint PMP -> DSS1/PMP	<ul style="list-style-type: none"> - Called Party Number in accordance with ETSI ETS 300 102-1: 4.5.8 complete in Setup Message 3.1.16 or in accordance with ITU Q.931: 4.5.8 complete in Setup Message 3.3.9 - For "Transfer": Hold/Retrieve in accordance with ETSI EN 300 369-1 ECT with Implicit Linkage or ETC with Explicit Linkage
	Point-to-Point PP -> DSS1/PP	PP means that Overlap Receiving is enabled in accordance with ETSI ETS 300 102-1: 2.1.1.16 as well as 2.1.2.17 or in accordance with ITU Q.931: 5.1.3 <ul style="list-style-type: none"> - CalledPartyNumber in accordance with ETSI ETS 300 102-1: 3.1.16 or in accordance with ITU Q.931: 4.58
Q-SIG	Service Fax Group 3	High Layer Compatibility in accordance with ETSI ETS 300 102-1: 4.5.16 or in accordance with ITU Q.931: 4.5.17 <ul style="list-style-type: none"> - For "Transfer": CallTransfer and PathReplace
	3.1 kHz Audio	Bearer Compatibility in accordance with ETSI ETS 300 102-1 Anex H1.2 or in accordance with ITU Q.931: 4.5.5
SIP / H.323	SoftFax	So-called Fax Pass Through, with Voice Codec G.711 Important: so-called ClearChannel, this means Echo Cancellation, Voice Activity Detection, Comfort Noise and Gain Control all must be OFF/Disabled in the router/gateway. Supported features depend on the PBX
	T.38	Norm: ITU T.38

Connection Variants and Standards

Services / Features	Connection Variants and Standards	
"Route by Redirection"	DSS1	ETS 300 207
	Q-SIG	ECMA 173/174
	H.323	H.450.3
MWI – Message Waiting Indication	Q-SIG	ECMA 242 u. 241
	DSS	ETS 300 650
	H.323	H.450.7
Call Transfer	Q-SIG	CallTransfer ECMA 177/178 and PathReplace ECMA 175/176
	DSS1	ETS 300 367
	H.323	H.450.2 (CT) and H.450.4 (Hold)

Required Connection Properties of the ixi-UMS Features

Depending on which ixi-UMS services and features shall be used, different connection properties are required.

Service / Feature	Required Connection Properties	
Fax / Voice / TTS	DSS1 (recommended)	PP or PMP, with more than one S0: PP
	Q-SIG	ISO, ECMA V1 / V2
	H.323 / SIP	SoftFax or T.38
MWI	Depends on the PBX. For detailed information, please refer to the ixi-UMS Kernel Manual	

Fax / Voice / TTS

With a PMP you have to take care that the individual sender numbers are sent. A PMP is not suitable for systems with more than one S0. With more than one S0, DSS1-PP should be applied and these shall be bundled up in order to guarantee the distribution of incoming calls to all the S0.

If the services shall be handled separately according to number ranges, a PP connection is useful.

MWI (Message Waiting Indication)

The connections to the various PBX's differ considerably. You can find the detailed explanation with connection- and configuration-possibilities in the ixi-UMS Business Manual.

General Information about Call Number Transfer

With the numbers sent to ixi-UMS Business by the PBX, "NumberingPlan" (NP) and "TypeOfNumber" (ToN) information must be consistent with the format of the number itself.

Example:

A UMS-message is received at the site in Munich from the sender number +49 89 123456. The transfer from the PBX to ixi-UMS Business e.g. can be transferred via one of the following "information pairs" (NP/ToN):

NP (NumberingPlan)	ToN (TypeOfNumber)	Transferred Number
unknown	unknown/ISDN-E.164	089123456
ISDN - E.164	unknown/ISDN-E.164	089123456
ISDN - E.164	unknown/ISDN-E.164	12345
ISDN - E.164	national	8912345
ISDN - E.164	Subscriber	12345
ISDN - E.164	international	498912345

Please note::

When a number NP or (and) ToN "Unknown" is signaled by the PBX or the outside line, the internal number conversion rules of ixi-UMS Business are activated. If ""Remove outside line access" is selected, for example, ixi-UMS Business can remove this. **In every other case, these rules do not apply.**

Call number transfer in E.164 Format

ixi-UMS Business can be activated for the procession of call numbers in the international format E.164 (according to ITU-T E.164). In this case the call numbers must be transferred in the format:

<country code><area code><call number> (e.g. 4981424799585).

With outbound calls, for the "CallingNumTypePlan" and the "CalledNumTypePlan" are passed on to ixi-UMS Business: E.164/international

In the configuration, the following differentiations can be made:

E.164 only inbound	With inbound calls, all the call numbers are signaled to ixi-UMS in E.164-format: Recipient number (Called Party Number) Sender number (Calling Party Number) Redirection Number
E.164 only outbound	With outbound calls, ixi-UMS passes on the number to the CAPI in E.164 format: Recipient number (Called Party Number) Sender number (Calling Party Number)
Inbound and outbound	All the call numbers are transmitted in E.164-format, as described above.

Questionnaire for the Configuration of the PBX - for the Operation of ixi-UMS Business

The settings in the PBX for the connection must fulfill the requirements for the wanted ixi-UMS features as described previously. The PBX should be configured completely before installing ixi-UMS Business.

If the requirements are not fulfilled, the installation / configuration of ixi-UMS Business cannot be realized successfully and further costs may arise from this.

Please fill out the questionnaire in the following carefully after the PBX has been configured, and send it to the UMS support department.

Customer: *[Please fill out the fields]*

Company:	
City:	
Partner/Reseller/AVP:	

PBX: *[Please fill out the fields]*

Manufacturer:			
Name /Type :		Softwareversion / Rev.	
Connection Number / Connection Leading			
Technical Contact / PBX Supervisor:			
name:		surname:	
Phone:		Fax:	
e-mail:			

Connection Type / Protocol Variant *[Please check where applicable]*

<input type="checkbox"/> DSS1	with	<input type="checkbox"/> PMP	<input type="checkbox"/> PP	
<input type="checkbox"/> Qsig	with	<input type="checkbox"/> ISO	<input type="checkbox"/> ECMA V1	<input type="checkbox"/> ECMA V2
<input type="checkbox"/> H.323	with	<input type="checkbox"/> T.38	<input type="checkbox"/> Softfa)	
<input type="checkbox"/> SIP	with	<input type="checkbox"/> T.38	<input type="checkbox"/> Softfa)	

Remarks / Characteristics / Comments:

Transmission of the Call Number

Please note down how the call numbers are transmitted to ixi-UMS Business (in the D-channel or with SIP or H.323). ixi-UMS Business configuration depends on the numbers, which are transmitted from / to the PBX.

Call Numbers in E.164-Format:

When all the call numbers are transferred in E.164 format (<country code><area code><call number>), further information requested at "Call Numbers Incoming" are not required.

Transmission in E.164:

<input type="checkbox"/> only inbound	With inbound calls, all the call numbers are signaled to ixi-UMS in E.164-format: Recipient number (Called Party Number) Sender number (Calling Party Number) Redirection Number
<input type="checkbox"/> only outbound	With outbound calls, ixi-UMS passes on the number to the CAPI in E.164 format: Recipient number (Called Party Number) Sender number (Calling Party Number)
<input type="checkbox"/> inbound and outbounc	All the call numbers are transmitted in E.164-format, as described above.

If the call numbers are only processed/transferred in one direction in E.164-format, further information requested at "Call Numbers Incoming" must be specified.

Call Numbers Outgoing:

With outgoing calls, the transmission of the sender call number from ixi-UMS Business to the PBX is required, allowed or not allowed, depending on the PBX.

Please check where applicable] and enter the sender call numbers here or define the respective number range with e.g. 1001 to 3999.

<input type="checkbox"/> mandatory.	
<input type="checkbox"/> not necessary, but allowed	
<input type="checkbox"/> not allowed	

Call Numbers Incoming:

Please state whether and which number information (dependent on protokoll) the is transmitted from your PBX to the CAPI:

DSS1 - PMP

Example: A number dialed from the outside is "089 479942", the PBX, however, only transmits (on the bus to that ixi-UMS Business is connected) "42" in the D-channel. In this case, "42" and not "479942" must be noted down as MSN. Please note down the MSN's exactly the way they are transmitted to ixi-UMS Business:

Which MSN's are transmitted?

[Please fill out the field]

MSNs	
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Qsig / DSS1 - PP

The overall number, which is transmitted from the PBX to the bus, to that ixi-UMS Business is transmitted, basically consists of two components:

Main number and extension digits. Please state whether and which number information is transmitted from your PBX to ixi-UMS Business.

Example: The number "089 479912345" is dialed from the outside.

089 the area code

4799 the number of the (Telekom-) connection, which leads to the PBX

12 the main number for the bus, at that ixi-UMS Business is connected (optional)

345 3 extension digits (from the part of ixi-UMS Business)

Transmitted Number Information?

[Please check where applicable or fill out the fields]

Main Number	<input type="checkbox"/> non	Number: <input type="text"/>	Number of Extension Digits: <input type="text"/>
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H.323 / SIP

With SIP or H.323, usually only the extension and maybe the main number is transmitted, too.

Example: The number "089 479912345" is dialed from the outside.

089 the area code

4799 the number of the (Telekom-) connection, which leads to the PBX

12 the main number for the bus, at that ixi-UMS Business is connected (optional)

345 3 extension digits (from the part of ixi-UMS Business)

Please state whether and which number information is transmitted from your PBX to ixi-UMS Business:

Transmitted Number Information?

[Please check where applicable or fill out the fields]

Main Number	<input type="checkbox"/> non	Number: <input type="text"/>	Number of Extension Digits: <input type="text"/>
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Who filled out this form?

First name:	<input type="text"/>	Surname:	<input type="text"/>
Company:	<input type="text"/>	Department/Position:	<input type="text"/>
E-mail:	<input type="text"/>	Phone:	<input type="text"/>

The information stated above is correct .

Date: _____
Name / Signatur