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RELEASE NOTE V!CAS

September 3, 1997

New System Software:
Release 4.5 Revision 5

This document describes the new features, enhancements, bugfixes, and changes to the V!CAS System Software since Release 4.4 Revision 8.

New in R 4.5.5

Changes in prevous Releases

Prev. Rel's (cont.)

Features appearing in previous Software Releases are documented in the *V!CAS User's Guide* (Document #70016) which is available in Adobe's PDF format via BinTec's HTTP server at http://www.bintec.de.

Upgrading System Software

1. Retrieve the current system software image from BinTec's HTTP server at http://www.bintec.de.

2. With this image you can upgrade the V!CAS with the **update** command from the SNMP shell via a remote host (i.e. using telnet, minipad, or isdnlogin) or by using the **BOOTmonitor** if you are logged in directly on the console.

   Information on using the BOOTmonitor can be found in the *V!CAS User's Guide* under *Firmware Upgrades*.

3. Once you've installed release 4.5 Revision 5 you may want to retrieve the latest documentation (in Adobe's PDF format) which is also available from BinTec's FTP server noted above.

   Note: When upgrading system software, it is also recommended that you use the most current versions of *BRICKware for Windows* and *UNIXTools*. Both can be retrieved from BinTec's HTTP server.

What’s New in Revision 5

4.5 Revision 5:

Released: 03.09.97

Features:

CAPI - DTMF Tone Recognition

V!CAS can now recognize the following DTMF tones with the built-in hardware modem:

0-9, *, #, A-D	Touchtones
X	Fax modem calling tone (1100 Hz, T.30)
e	European data modem calling tone (1300 Hz, V.25)
f	Bell data modem answer tone (2225 Hz)
Y	Modem and Fax answer tone (2100 Hz, V.25 / T.30)

CAPI - Improved Hardware Fax Support

V!CAS now also supports fax transmissions at 12,000 bps and 14,400 bps.

☞ The current revision supports Error Correction Mode (ECM) for outgoing calls with speeds of up to 12,000 bps—if you select 14,400 bps and ECM, V!CAS will automatically transmit at 12,000 bps.

When selecting a fax speed of 9,600 bps or 7,200 bps from a CAPI application V!CAS automatically uses the V.29 modulation, V.17 is only used for 12,000 bps and 14,400 bps.

ISDN / V.110

V!CAS now fully supports asynchronous bit rate adaptation according to V.110.

Asynchronous bit rate adaptation is often used in communication with terminal adapters and for connecting to GSM networks from the ISDN. V!CAS is fully compatible with the V.110 standard.

Configuration

V.110 support can be configured individually for each partner in the *biboPPPLayer1Protocol* variable of the ***biboPPPTable*** (in **Setup Tool** this is the *Layer 1 Protocol* setting in the [*WAN Partner*][*EDIT*][*Advanced Settings*] menu).

v110_1200	V.110 bit rate adaptation (asynchronous 1200 baud, 8,N,1)
v110_2400	V.110 bit rate adaptation (asynchronous 2400 baud, 8,N,1)
v110_4800	V.110 bit rate adaptation (asynchronous 4800 baud, 8,N,1)
v110_9600	V.110 bit rate adaptation (asynchronous 9600 baud, 8,N,1)
v110_19200	V.110 bit rate adaptation (asynchronous 19200 baud, 8,N,1)
v110_38400	V.110 bit rate adaptation (asynchronous 38400 baud, 8,N,1)

For outgoing ISDN calls the Layer1Protocol setting is signalled via the D channel.

Reception of Incoming Calls

For ISDN partners that can be identified by the ISDN Calling Party’s Number (i.e. outband), the *Layer1Protocol* settings will be adjusted according to their [*WAN Partner*] / ***biboPPPTable*** entry (see previous section).

If the caller can not be identified by his calling number, identification must be performed “inband” using PPP. The setting of the *Layer1Protocol* for incoming calls can then be performed in two different ways.

- In most cases you can specify a generic ppp entry for the ISDN number you wish to accept incoming PPP and V.110 calls on (from the SNMP shell this is done in the ***isdnDispatchTable***, setting *Item* to **ppp** and *LocalNumber* to the ISDN number for routing; in Setup Tool go to the slot of your ISDN interface, and then in the [*Incoming Call Answering* >] menu add an entry with *Item* set to **PPP (routing)** and *Number* set to the local ISDN number for routing).

  The Layer 1 parameters are then automatically taken from the D channel signalling elements of the incoming call.

- In some cases these signalling elements are not transmitted correctly (e.g. through certain switching stations and PABXs). You can then setup a different dispatch entry with a different ISDN number for each V.110 speed you wish to support (as described above). The following values for *Item* are supported:

  ppp_v110_1200
  ppp_v110_2400
  ppp_v110_4800
  ppp_v110_9600
  ppp_v110_19200
  ppp_v110_38400

Enhancement:

HTTP password / Setup Tool

The separate HTTP password (see notes to Rel. 4.5.3) can now also be configured from the Setup Tool. It’s the *HTTP Server Password* entry in the [*System*] menu.

Bugfixes

CAPI

- With the introduction of the ***capiMultiControllerTable*** there occured an error. When a CAPI application requested a connection to CAPI controller *n*, the reply contained a PLCI with controller number *n+1*, which was not accepted by some applications.
  The PLCI now contains the correct controller number *n*.

- The system rebooted, when it received incorrectly coded DATA_B3_REQ messages from an RCAPI application, because the message length was not checked.
  This is no longer the case.

- The system also rebooted, when CAPI2_RESET_B3_REQ messages contained an empty NCPI field.
  This bug was fixed.

PPP

- Encapsulation x25_ppp: The appropriate ***biboPPPLinkTable*** entries will now be deleted after closing a dialup connection. These entries were not deleted in Rel. 4.5.3.

- *OperStatus* in the ***IfTable***: In releases 4.5.1 to 4.5.3 this state was immediately changed from **blocked** to **dormant**, ignoring the *biboPPPBlockTime*, which resulted in constant connection setup retries.
  The *biboPPPBlockTime* is now handled correctly.

- (Re)loading configuration files: If the ***IfTable*** contains entries where *AdminStatus*=**dialup**, this state will now be changed to *AdminStatus*=**up** when loading the file.
  In previous releases the *AdminStatus* remained **dialup**, effectively blocking outgoing connections on these interfaces after a reload.

SNMP

- If no IPX license was installed, SNMP used up more and more memory.
  SNMP now correctly releases all memory areas it no longer needs, and additionally makes a »garbage collection« of

the dynamically allocated memory areas from time to time. This is indicated by a special Syslog Message.

X.25

- Closed User Groups / minipad: All Closed User Group parameters of the minipad program now also accept values from 100 to 1000.

Changes in previous Releases

4.5 Revision 3: Released: 01.08.97

Features:

Fax and Modem Support

The built-in hardware fax and modem of your V!CAS are now supported by the system software.

For this purpose there are some changes in the Setup Tool and in the MIB.

These changes—as well as a few application scenarios—are described from page 17.

CAPI

CAPI Modem connection support

Both CAPI 1.1 and CAPI 2.0 now support connections using the built-in modem. At the moment the parameters of modem profile 1 from the ***mdmProfileTable*** (also accessible via the [*MODEM*] menu of the Setup Tool) are used.

Full support of CAPI modem parameters (B2 Configuration for B2 protocol 7, NCPI for B3 protocol 7) will be available in an upcoming release.

New capiMultiControllerTable

A new table, the ***capiMultiControllerTable***, was added to the CAPI group to enable the use of CAPI with different ISDN controllers at the same time.

☞ As your V!CAS has exactly one ISDN controller this table is of interest only for special USA ISDN configurations.

This table contains mappings between controller numbers used by CAPI applications and the ISDN stacks available on the V!CAS (i.e., the *Number* field of the ***isdnStkTable***). The Version field specifies whether an entry applies to a **capi11** or **capi20** application.

If no CAPI 1.1 entry is defined, CAPI 1.1 applications are assigned *isdnStkNumber* **n** where n is the controller number requested by the application.

If no CAPI 2.0 entry is defined, CAPI 2.0 applications are assigned *isdnStkNumber* **n-1** where n is the controller number requested by the application.

Creating entries: Entries are created by assigning a value to the *capiControllerNumber* object.

Deleting entries: An entry can be removed by assigning the value **delete** to its *capiControllerVersion* object.

The fields of the table have the following meaning:

Number The controller number requested by the CAPI application.

StkMask This binary number defines the ISDN stack(s) to use for the specified CAPI 1.1 or CAPI 2.0 applications. Each bit corresponds to one entry (stack) in the ***isdnStkTable***, the rightmost bit selects entry 0, the next bit selects entry 1, and so forth. For example, **Number=1 StkMask=0b1101 Version=capi11** means: allow CAPI 1.1 applications requesting ISDN controller 1 to use ISDN stacks 0, 2and 3.

Version Specifies which CAPI applications (version 1.1, or 2.0) this entry applies to.
Set this field to **delete** to delete this entry.

HTTP / Security

The ***bintecsec*** table now also contains a *biboAdmHttpPassword*, which has to be entered when you want to view system tables from the http status page of your V!CAS. The http password defaults to **bintec**.

⚠ After entering this password, you can view all system tables apart from the ***bintecsec*** table from a WWW browser; therefore you should change the password from its default value (this has to be done from the SNMP shell at the moment), because otherwise anybody knowing the **bintec** password can spy out your system configuration.

☞ Some WWW browsers require that you enter a user name, before accepting the http password.
If this is the case, please use **http** as a user name.

ISDN / DDI

Direct Dialling In (DDI) is now supported for point-to-point ISDN accesses (*Anlagenanschluß* in Germany).

This feature is needed for accepting calls to a point-to-point access from the analogue telephone network, e.g. from a modem.

With DDI the V!CAS can collect the digits of the called party number until a matching entry in the ***isdnDispatchTable*** is found. When the call is initiated from an analog device the digits usually arrive one by one.

☞ You have to set the *Mode* in the ***isdnDispatchTable*** to **left_to_right** (2) to enable DDI.

For an explanation of how to configure this feature from the **Setup Tool** please refer to section *Incoming Call Answering Menu* on page 21.

PPP

New x25_ppp_opt encapsulation

There is a new encapsulation type, *x25_ppp_opt*, which can be used in the ***biboPPPTable***. It provides a special case of the *x25_ppp* encapsulation.

This encapsulation enables your V!CAS to determine whether an incoming call is an X.25 call or a PPP call even if no outband authentication (by CLID) is possible. This is done by scanning the first incoming data packet.

Dial-in partners which can not be authenticated outband (CLID) will then be given an X.25 connection via ISDN, or optionally a PPP connection, when they can be authenticated inband by using CHAP or PAP.

⚠ Concurrent use of X.25 and PPP encapsulation is not possible.

Note that you will need one WAN partner definition for X.25, where the *x25_ppp_opt* encapsulation is selected, and one or more for PPP connections (authentication via PAP, CHAP or RADIUS).

New field Layer2Mode

The variable Layer2Mode was added to the ***biboPPPTable***.

This object specifies the layer 2 mode to be used for a connection. It is only relevant, if the Encapsulation involves a LAPB protocol, this is the case for *x25*, *x25_ppp*, *x25_ppp_opt*, *ip_lapb*, *lapb*, *x31_bchan*, *x75_ppp*, *x75btx_ppp*, and *x25_nosig*.

The default value of this object is *auto*.

For dialup connections, the layer 2 mode will then be DTE on the calling side and DCE on the called side.

For leased lines the layer 2 mode is set at lower layers (for example *isdnChType* in the ***isdnChTable***). When this object is set to *dte* or *dce*, the layer 2 mode will always be DTE or DCE, regardless of the call direction or the settings at the lower layer.

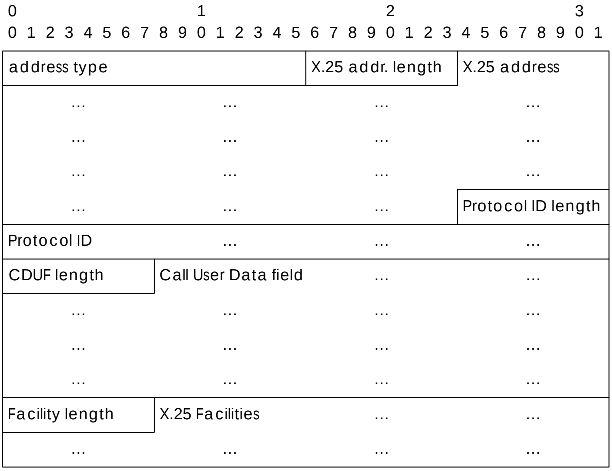
PPP Modem connections

PPP now also accepts modem connections signalled as »ISDN speech 3.1 kHz«. These capabilities are signalled by some PBXs with analog ports.

X.25 / TCP-TP0 Bridge

Enhancements for RFC 1086 Support

X.25 on your V!CAS now also supports extended addresses of address type=4 (standard addresses have type=3). Type 4 allows for variable length address fields and facilities.



```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-------------------------------+---------------+---------------+
| address type                  |X.25 addr. length| X.25 address|
+-------------------------------+---------------+               |
|      ...            ...            ...            ...         |
|      ...            ...            ...            ...         |
|      ...            ...            ...            ...         |
|                                               +---------------+
|      ...            ...            ...       |Protocol ID length|
+-----------------------------------------------+---------------+
| Protocol ID         ...            ...            ...         |
+---------------+-----------------------------------------------+
| CDUF length   | Call User Data field       ...      ...       |
+---------------+                                               |
|      ...            ...            ...            ...         |
|      ...            ...            ...            ...         |
|      ...            ...            ...            ...         |
+---------------+-----------------------------------------------+
| Facility length| X.25 Facilities           ...      ...       |
+---------------+                                               |
|      ...            ...            ...            ...         |
+---------------------------------------------------------------+
```

The address fields have the following meaning:

address type (2 octets)
: A binary-encoded value in network order indicating the address type. The value 4 is used for extended X.25 addressing of this format.

X.25 addr. length (1 octet)
: A binary-encoded value in network order indicating how many octets of the X.25 address there are.

X.25 address
: The ASCII-encoded value of the X.25 address. Maximum length of 55 bytes allowed.

Protocol ID length (1 octet)
: A binary-encoded value indicating the number of protocol ID octets there are.

Protocol ID

Meaningful at the remote system.

CUDF length (1 octet)

A binary-encoded value indicating the number of User Data octets there are.

Call User Data field

Meaningful at the remote system.

X.25 Facility Length (1 octet)

A binary-encoded value indicating the number of X.25 Facility octets there are.

X.25 Facilities

Meaningful at the remote system.

Enhancements for RFC 1006 support

- The maximum packet length is now 65535 bytes including the header instead of just 8191 bytes.
- The transport packet header can now contain additional information for special X.25 packet types.

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---------------+---------------+-------------------------------+
|vrsn           |reserved       |packet length                  |
+---------------+---------------+-------------------------------+
```

When transmitting packets where the *q bit is set* (=1), *vrsn* has to be set to **255** (instead of the default value 3).
For X.25 *reset request/indication* packets the *vrsn* field is set to **255** and the *reserved* field is set to **1**.
For X.25 *reset confirmation* packets the *vrsn* field is set to **255** and the *reserved* field is set to **2**.
A received X.25 *reset indication* packet contains 8 octets of data. The 4th octet contains the X.25 cause code and the 8th octet contains the X.25 diagnostic code. Data contained in transmitted reset packets is ignored.
Reset confirmation packets contain no additional data, so the packet length of such packets is always set to 4.

Closed User Group support

The Closed User Group (CUG) feature of X.25 is now supported. For this purpose the three variables *Cug*, *CugOutgoing*, and *CugBilateral* were added to both the ***x25RouteTable*** and the ***x25RewriteTable***. The fields have the following meaning:

Cug Closed User Group. Connections are only possible to DTEs in the same CUG. *Cug* can take values of -1 (*default*) if you do *not* want to use this feature, and 0-9999 for closed user groups.
In the ***x25RewriteTable*** the value -2 is also possible, meaning that the *Cug* field of a call request packet is cleared on rewriting.

CugOutgoing
Closed User Group with outgoing access. Connections are also possible to DTEs not in the same CUG. *CugOutgoing* can take values of -1 (*default*) if you do *not* want to use this feature, and 0-9999 for closed user groups.
In the ***x25RewriteTable*** the value -2 is also possible, meaning that the *CugOutgoing* field of a call request packet is cleared on rewriting.

CugBilateral
Bilateral Closed User Group. Connections are only possible between exactly two DTEs. *CugBilateral* can take values of -1 (*default*) if you do *not* want to use this feature, and 0-9999 for closed user groups.
In the ***x25RewriteTable*** the value -2 is also possible, meaning that the *CugBilateral* field of a call request packet is cleared on rewriting.

New minipad options

To support the Closed User Group feature, three call options were added to the *minipad* application available on your V!CAS.

-*c ‹cug›* Closed user group.
Possible values for ‹*cug*›: 0-9999.

-*o ‹outgocug›*

Closed user group with outgoing access.
Possible values for ‹*outgocug*›: 0-9999.

-*b ‹bcug›*

Bilateral Closed user group.
Possible values for ‹*bcug*›: 0-9999.

Miscellaneous

- The *RewritingRule* in the ***x25RewriteTable*** can now take values of up to 999999 instead of 9999.
- The **debug x.25** command now outputs extensive information concerning layer 2 and layer 3 events on the existing links.

Bugfixes

CAPI

- When receiving a fax message the memory area allocated for that purpose was not returned to the system properly, resulting in less and less available user memory.
  This bug has been fixed.
- When you used the autoconfiguration feature of the ISDN interface (*Autoconfig*=**on** in the ***isdnIfTable***) your CAPI configuration in the ***capiConfigTable*** was overwritten on each system start.
  This is no longer the case.

Ethernet

Several problems regarding the ethernet driver were fixed.

- Occasionally duplicate packets were produced.
- The sender rarely ran into a blocked state.
- Under certain circumstances the ethernet response got very slow (e.g. ping reply times of up to 1000ms).

These problems no longer occur.

HTTP

- The graphics on the V!CAS' HTTP status page were sometimes not displayed correctly. They are now displayed correctly.

IP

- You could not establish TCP connections to Windows PCs running Version 2.0 of the OnNet32 TCP/IP stack software of Ftp Software, Inc.
  This problem no longer occurs.

PPP

- Leased lines: When changing or deleting bundle configurations in conjunction with leased lines the system occasionally rebooted. After creating a new bundle it was necessary to reset the system to actually use it.
  These problems have been fixed.
- Multilink PPP: The *ifOutOctets* counter in the ***ifTable*** now displays the correct number of transmitted bytes.
- SPVs (»Semi-permanente Verbindungen« of the german 1TR6 ISDN protocol) are now fully supported.
- VJHC: The Van Jacobson Header Compression now also works correctly in connection with Windows PCs.

V.42bis on Leased Lines

- When you used V.42bis data compression on a leased line, and the leased line failed, it could happen that after the leased line was back up the data connection could not be reestablished.
  This is no longer the case.

X.25

- Encapsulation x25/x25_ppp: When using the minipad application in connection with this encapsulation the system sometimes rebooted after closing the minipad session.
  This problem was fixed.
- RFC 1086 Support: The Protocol ID Length field of X.25 packet headers is now correctly evaluated. This means that you can set the Protocol ID Length field to 0 and use the following 16 bytes for Call User Data.

Modem and Fax Support

Hardware

Your V!CAS is equipped with an internal module (CM-POTS-MOD1-14) that provides two POTS ports and 14,400 bps fax and modem chips.

☞ Please note that due to software limitations the current system software release 4.5.3 supports fax connections of up to 9600 bps only.

The following type of fax / modem support is included with your new V!CAS.

Modem Operations **(V.32bis modem)**	**Fax Operations** **(V.17 fax)**
• Data rates to 14,400 bps • V.42 LAPM, V.42 / MNP4, MNP2-4, and MNP10 error correction modes • V.42bis (LAPM or MNP10) and MNP5 data compression	• Group 3 fax data rates from 2400 – 14,400 bps • T.30 ECM (error correction mode)

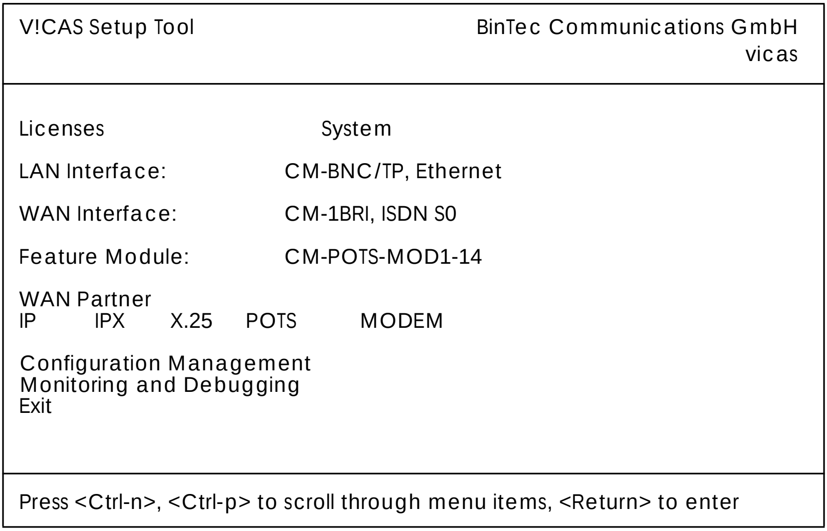
Note: The feature module installed on your system is displayed in Setup Tool's Main Menu as shown below.

Software

In connection with the feature module included with your V!CAS, several changes and additions have been made to the Setup Tool menus. Note that this information is not yet included in your printed or online manuals.

Main Menu

As shown below Setup Tool's main menu displays an entry for the installed feature module. There are no settings for this menu item; it's displayed upon detecting the feature module installed on your system (CM-POTS-MOD1-14).



```
V!CAS Setup Tool                              BinTec Communications GmbH
                                                                   vicas

Licenses                    System

LAN Interface:           CM-BNC/TP, Ethernet

WAN Interface:           CM-1BRI, ISDN S0

Feature Module:          CM-POTS-MOD1-14

WAN Partner
IP      IPX     X.25    POTS       MODEM

Configuration Management
Monitoring and Debugging
Exit

Press <Ctrl-n>, <Ctrl-p> to scroll through menu items, <Return> to enter
```

A new [*MODEM*] menu has also been added to the main menu; this is described in the next section.

New Modem Menu

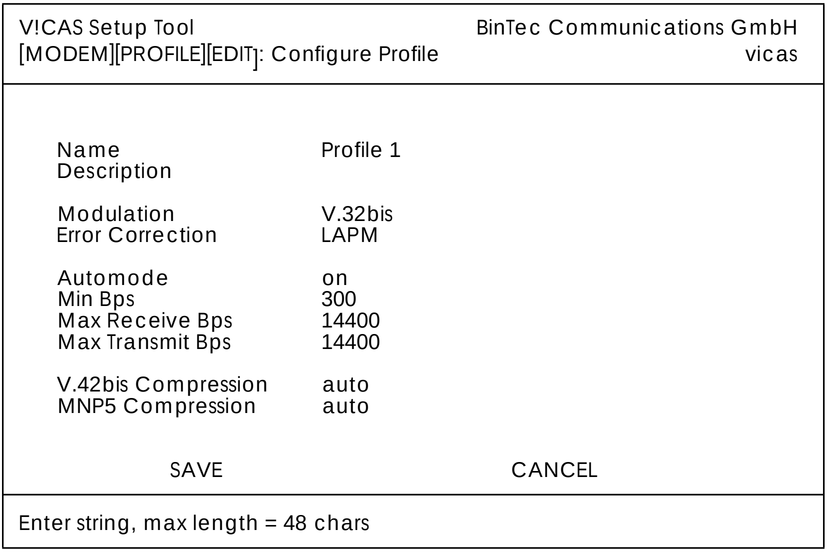
In the [*MODEM*] menu you can configure up to eight different modem profiles. All settings made in this menu show up in the ***mdmProfileTable***.

The modem profiles can be associated with the Called Party's Number of incoming calls in the [*CM-1BRI*] [*Incoming Call Answering*] menu. Thus, using your available MSNs, you can create separate profiles to support the analog equipment your remote access users (dial-up clients) will be calling from.

In theory you could use only one profile, where all values are set to maximum—or auto, where applicable—and let the calling modem negotiate the values it needs.

This will work in most cases—only older modems will be unable to negotiate the necessary values—but will require more time to negotiate the connection parameters at connect time. After starting the Setup Tool, go to the [*MODEM*] [*Profile Configuration*] menu, and select *Profile 1*.

You must ensure that the modem settings correspond to the type of fax / modem provided by your feature module. The settings are shown below should be fine for 14400 modems.



```
V!CAS Setup Tool                                  BinTec Communications GmbH
[MODEM][PROFILE][EDIT]: Configure Profile                              vicas

   Name                       Profile 1
   Description

   Modulation                 V.32bis
   Error Correction           LAPM

   Automode                   on
   Min Bps                    300
   Max Receive Bps            14400
   Max Transmit Bps           14400

   V.42bis Compression        auto
   MNP5 Compression           auto

            SAVE                           CANCEL

Enter string, max length = 48 chars
```

The fields in this menu have the following meanings:

Name = Profile 1…8. Cannot be changed.

Note that Profile 1 is used as the *default profile* for modem connections, if no other profile is explicitly specified.

Description = descriptive string for this profile.

Modulation = modem standard to use, select with the space bar. Values range from K56flex down to Bell 103. Make sure you select a modulation that your feature board's modem supports; V32bis or below for 14400 modems.

Error Correction = select the type of error correction to use.

Value	Meaning
none	Do not use any error correction.
required	First tries LAPM and then MNP5 error correction. If both fail, the modem will hang up.
auto	First tries LAPM and then MNP5 error correction. If both fail, the modem will not use error correction.
LAPM	Selects LAPM error correction. If this fails, the modem will hang up.
MNP5	Selects MNP5 error correction. If this fails, the modem will hang up.

Automode = enable (*on*) or disable (*off*) negotiation of speed and modulation parameters.

Min Bps = the minimum baudrate you want to use with this profile. You can set any speed supported by the current modulation (i.e. standard). The connection is released, if it cannot negotiate a baud rate ≥ to this speed.

Max Receive Bps = the maximum baudrate you want to use with this profile. You can set any speed supported by the current modulation (i.e. standard). Note that the value set in Max Transmit Bps will be used if its < the value set here.

Max Transmit Bps = only used in conjunction with the *K56flex* modulation. Sets the maximum transmit baudrate (»*downstream*«, server to client) you want to use with this profile. K56flex modulation is not supported for your feature module.

V.42bis Compression = enable (*auto*) or disable (*off*) negotiation for using V.42bis compression.

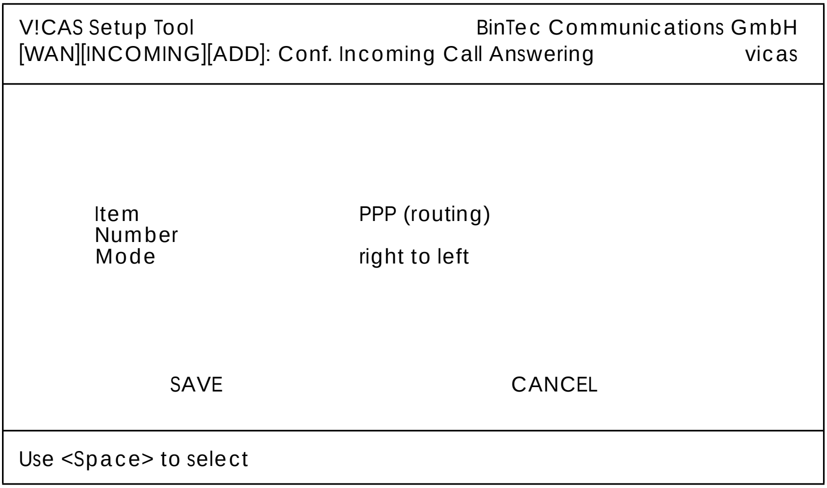
MNP5 Compression = enable (*auto*) or disable (*off*) negotiation for using MNP5 compression.

Incoming Call Answering Menu

The [*Incoming Call Answering*] menu is slightly different than shown in your printed manuals. Its purpose remains the same; however, it now contains a list of arbitrary entries instead of a mask with only a few possible variations. The settings from this menu show up in the ***isdnDispatchTable***.

The entries in this list are used to distribute incoming ISDN calls received the ISDN to different services. The V!CAS distinguishes incoming calls based on the »Called Party's Number« transmitted with each ISDN call.

Select [*ADD*] from the [*CM-1BRI*] [*Incoming Call Answering*] menu to create a new list entry.



```
V!CAS Setup Tool                                BinTec Communications GmbH
[WAN][INCOMING][ADD]: Conf. Incoming Call Answering                  vicas



       Item                    PPP (routing)
       Number
       Mode                    right to left



              SAVE                           CANCEL

Use <Space> to select
```

Item = the ISDN service you want to use for this call. You can select one of the following:

Value	Meaning
PPP (routing)	Default value, good for all PPP connection types listed below (except for the specific PPP Modem Profile 2 ... 8 settings) if the calls are signalled correctly (as is the case in most of Europe). ***If in doubt, try this value.***

Value	Meaning
ISDN Login	login service
PPP 64k	64kbps PPP data connection
PPP 56k	56kbps PPP data connection (not supported by the feature module)
PPP Modem	selects Modem Profile 1 as configured in the [*MODEM*] menu
PPP DOVB	data transmission over voice bearer; useful e.g. in the US where voice calls sometimes cost less than data connections
PPP V.110 (1200 - 38400)	bit-rate adaption according to V.110 (1200 bps, 2400 bps, …, 38400 bps)
Pots	only for V!CAS teleworking routers (not supported by the feature module)
PPP Modem Profile 1 … 8	selects Modem Profile 1 … 8 as configured in the [*MODEM*] menu
CAPI 1.1 EAZ 0 … 9 Mapping	EAZ mapping for CAPI 1.1 applications

Number = the telephone number to use for this item.

Mode = the direction for matching the incoming telephone number (Called Party Number), either starting from the right (*right to left*, this is the default), or from the left (*left to right (DDI)*, only useful for the Direct Dial In (DDI) feature of point-to-point ISDN accesses (*Anlagenanschluß* in Germany).

WAN Partner / Outgoing Calls

The last change concerns the [*WAN Partner*] [*Advanced Settings*] menu, where you configure ISDN partners.

Here we added the *Layer 1 Protocol* entry, which also shows up in the ***biboPPPTable***. This entry only has an effect on outgoing calls to this partner and on incoming calls which are identified by their calling party number. For an outgoing modem connection you should select one of the eight modem profiles.

The Layer 1 Protocol for incoming calls *not* identified by their calling party number—which will probably the case for most incoming modem connections, as they usually originate from the analogue telephone network, where no calling party numbers are supplied with the calls—is taken from the [*Incoming Call Answering*] settings.

The following table shows the possible values for the *Layer 1 Protocol* entry.

☞ Note that most entries correspond to similar entries in the *Item* field of the [*Incoming Call Answering*] menu.

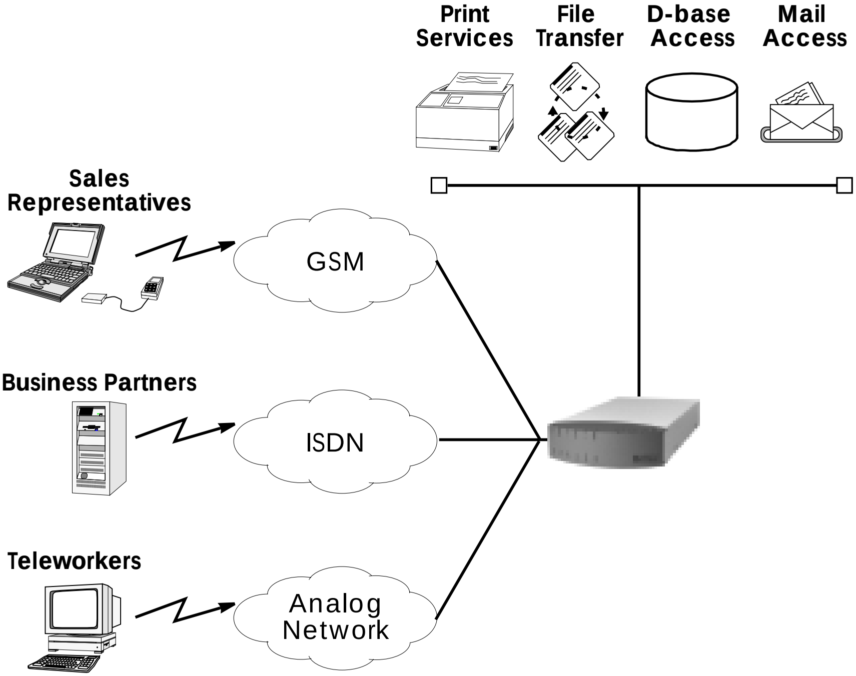
Value	**Meaning**
ISDN 64kbps	64kbps ISDN data connection
ISDN 56kbps	56kbps ISDN data connection
Modem	selects Modem Profile 1 as configured in the [*MODEM*] menu
DOVB	data transmission over voice bearer; useful e.g. in the US where voice calls sometimes cost less than data connections
V.110 (1200 - 38400)	bit-rate adaption according to V.110 (1200 bps, 2400 bps, …, 38400 bps)
Modem Profile 1 … 8	selects Modem Profile 1 … 8 as configured in the [*MODEM*] menu

Application Scenarios

To initially install and configure your new V!CAS refer to the accompanying *Los Geht's / Getting Started* documentation. After setting up the V!CAS for basic routing operation refer to the examples in this document when setting up Remote Access Services and / or fax services for local and remote hosts.

The V!CAS as a Remote Access Server

The V!CAS accepts dial-up connections from remote hosts via the analog, GSM, and ISDN networks. Configuring remote access for all of these hosts involves two steps which are described below.



Configuring the V!CAS for Dial-Up Modem Access

Remote PCs that establish network connections with the V!CAS are called Dial-Up Clients. On the V!CAS, a WAN partner interface must be created for each dial-up client.

➤ Configure a WAN partner interface for each Dial-Up client by performing the following steps:

1. In the WAN PARTNER → ADD → menu create a new WAN partner interface. Here you'll need to set:

`Partner Name`	*<Unique Name>*
`Enabled Protocols`	**IP**
`Encapsulation`	**PPP**
`Identify by Calling Number`	**no**
`PPP Authentication Protocol`	**PAP and CHAP**
`Partner PPP ID`	*<Partner's PPP ID>*
`Local PPP ID`	*<V!CAS' PPP ID>*
`PPP Password`	*<Unique Password>*

2. If this dial-up client already has its IP address configured go into to the IP submenu and set the IP address and netmask fields appropriately.

3. If you want the V!CAS to assign this client an IP address at connect time, in the ADVANCED SETTINGS submenu set:

`Dynamic IP-Address Server`	**on**

   Then select **SAVE** and return to the main menu. This client will be assigned an available address from the IP address pool. IP addresses can be added to the pool from the IP → DYNAMIC IP ADDRESSES (SERVER MODE) → menu.

4. If this dial-up client will connect via an analog modem you must ensure that the ISDN number this client calls is associated with a compatible modem profile.

   Do this by verifying the settings in the [*Incoming Call Answering*] menu (see page 21). If this client's analog equipment is compatible with Profile 1, you can skip this step. Refer to the MODEM menu (see page 18) for configuring modem profiles.

Configuring Windows 95 Dial-Up Clients

The Windows 95 Dial-Up Networking subsystem allows remote (or mobile) PCs to establish network connections to remote access servers such as the V!CAS. Once connected to the network user's can work as if they're directly connected to the company LAN accessing such services as:

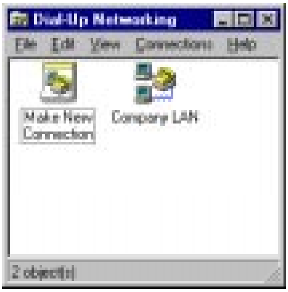
Remote Mail
With Microsoft Exchange and a Microsoft Mail workgroup post office users can dial in to the network and send and receive electronic mail after establishing a dial-up connection to the V!CAS (explained below).

Windows 95 Briefcase
Included with Windows 95, this application synchronizes differences between files stored on remote and local PCs.

Deferred Printing
Users can also submit print jobs to printers on the LAN from remote sites.

Database access and other services provided by locally
Access to other network services depending on the local configuration.

➤ Configure Windows 95 Dial-Up clients as follows:



1.In the My Computer window double-click the **Dial-Up Networking** folder.

2.Then in the Dial-Up Networking window double-click the **Make New Connection** icon to start Window's Make New Connection Wizard.

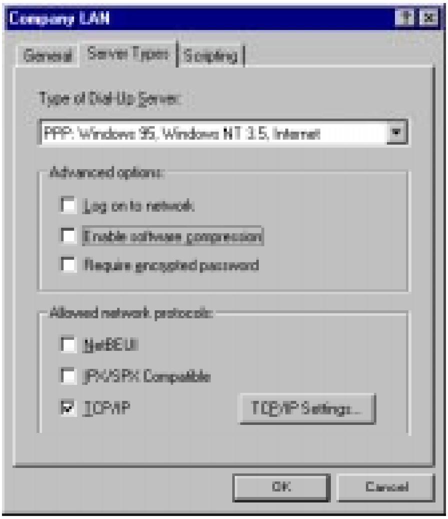
3. In the resulting dialog select the dialup device to use (modem or GSM), assign the connection a name, and configure the device as needed. Click Next.

4. In the **Telephone Number** field enter the ISDN number configured for routing on your V!CAS. If this client is calling in via an analog modem, make sure the number

you set here is associated with a compatible modem profile on the V!CAS. (See step 4 on page 25.) Click Finish.

5. A new connection icon will appear in the Dial-Up Networking window. Right-click this new icon and edit the **Properties** for this connection.

   Under **Server Types**, make sure **PPP: Windows 95, Windows NT, Internet** is selected as the server type.



Type of Dial-Up Server:
PPP: Windows 95, Windows NT 3.5, Internet

Advanced options:
□ Log on to network
□ Enable software compression
□ Require encrypted password

Allowed network protocols:
□ NetBEUI
□ IPX/SPX Compatible
☑ TCP/IP

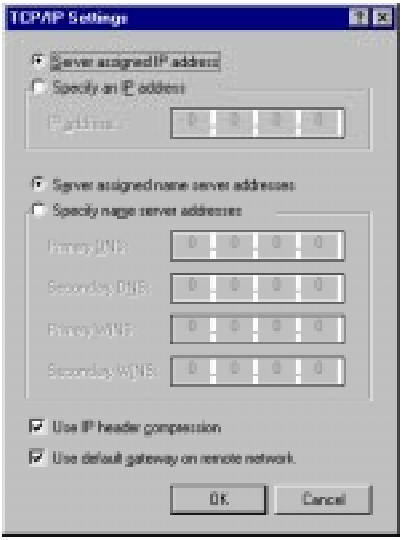
Advanced options should be set as follows:

optional	Log on to network (if an NT server is on the LAN)
recommended	Enable software compression (saves money on connections costs)
disable	Require encrypted password

In the **Allowed network protocols** section only allow those protocol that you enabled in the [*WAN Partners*][*Advanced Settings*] menu on the V!CAS. NetBEUI is not yet supported on the V!CAS.

6. Click **TCP/IP Settings** to set the IP address and nameserver settings.

If the V!CAS is set to assign this client an IP address at connect time (see step 3 on page 25) leave the settings in this dialog to their default values as shown below.



TCP/IP Settings

● Server assigned IP address
○ Specify an IP address
IP address: 0 . 0 . 0 . 0

● Server assigned name server addresses
○ Specify name server addresses
Primary DNS: 0 . 0 . 0 . 0
Secondary DNS: 0 . 0 . 0 . 0
Primary WINS: 0 . 0 . 0 . 0
Secondary WINS: 0 . 0 . 0 . 0

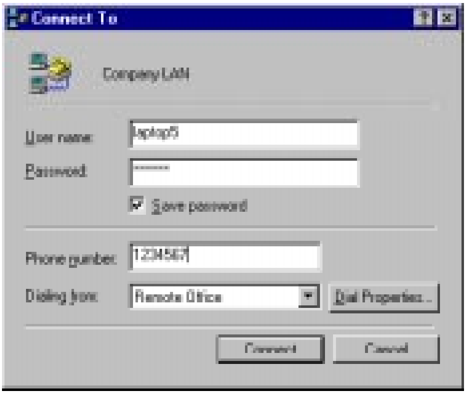
☑ Use IP header compression
☑ Use default gateway on remote network

Otherwise set the nameserver, and other routing information as needed.

7. Click OK once, and then again to finish.

➤ Establishing the Dial-Up Link to the V!CAS

1. To establish a dial-up connection from this PC double-click the connection icon. A pop-up will appear.



Connect To

Company LAN

User name: laptop5
Password: ********
☑ Save password

Phone number: 1234567
Dialing from: Remote Office

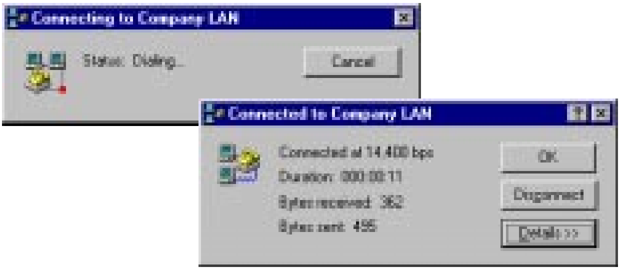
Before connecting enter the following:

User name: *<Partner PPP ID>*
Set in [*WAN Partners*] menu on the V!CAS

Password: *<PPP Password>*
Set in [*WAN Partners*] menu on the V!CAS

Verify the telephone number and click Connect. The Save password field can be enabled to save the PPP ID and password settings for this dial-up connection.

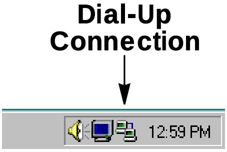
2. As the PC dials up your V!CAS a pop-up window will appear. When the dial-up link is established a status window will show the data rate and duration of the connection.



Status: Dialing...

Connected at 14,400 bps
Duration: 000:00:11
Bytes received: 362
Bytes sent: 495

Note Upon connecting the status window may automatically minimize. An active dial-up connection can also be identified by the network symbol is added to the Windows Taskbar.



TIP: If you run into trouble getting dial-up clients to connect there are a couple of places to start looking for problems.

1. Windows keeps logs each dial-up connection attempt in the **`ModemLog.txt`** file in the **`C:\Windows`** directory. (This log file is only created if you enable the Record to log file field when adjusting connection properties in the **General→Connection →Advanced** menu.)

2. You can also use the debug command while the dial-up client dials in. The `debug all` command should help in determining what's happening during call connection

The V!CAS as a fax server

PCs on the LAN that don't have locally attached fax hardware can access the V!CAS' fax / modems using CAPI based fax solutions. Some commercially available fax applications that can be used with the V!CAS include the following; contact the manufacturers for details.

• **ComFax**	ComMtex, Munich	Unix based
• **|*Fax**	Servonic, Munich	Win / WinNT
• **FaxWare**	David Tobit, Ahaus	Novell based
• **FaxServe**	Cheyenne, CO., USA	Novell based
• **Edition 1**	Dr. Materna, Berlin	Novell based

RVS/COM for Windows 95 and Windows NT, included on the Companion CD, provides both hardware and software based solutions for faxing via a PC on the LAN. Both solutions are based on BinTec's Remote CAPI Client. The hardware solution is for PCs that have LAN access to fax hardware; in this case provided by the V!CAS. The software solution is for PCs that have access to ISDN hardware but not to fax hardware (such as mobile users operating laptop computers with ISDN access.

The RVS / COM software easily integrates into the Microsoft mailing system allowing the user to send / receive faxes via configured Addressbook entries. Faxes can also be sent via MS applications by accessing Windows printer drivers.

⚠ **NOTE**: RVS / COM Lite is supplied with one user license and may be installed on one PC. Additional licenses may be purchased separately however.

➤ Using the RVS/COM Solution for a PC on the LAN

TIP: Since this solution involves adding the RVS Fax service as an additional e-mail transport service, the Windows e-mail system should already be installed and configured.

1. First, install RVS / COM Lite and BRICKware for Windows to your PC from the Companion CD. The Remote CAPI client must also be configured and involves assigning the TCP port and IP address of your V!CAS.

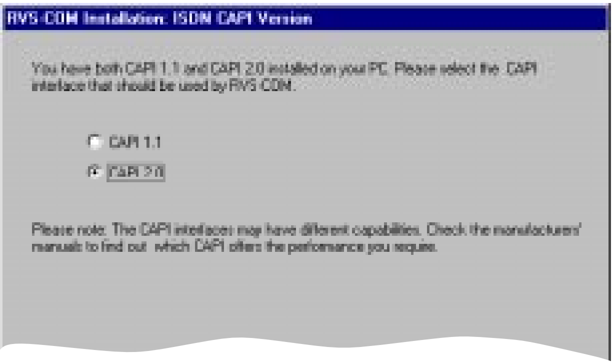
2. From the RVS / COM for Windows and Windows 95 pro gram group, start the Installation Wizard. The Wizard guides you through setting up RVS / COM components on the PC.

   Installation Wizard

3. In an initial dialog you will asked to select the components to setup. To allow for incoming and outgoing faxing the following components must be installed:

•	ISDN Adapter	Steps 4 – 6
•	ISDN Phone Numbers	Steps 7 – 9
•	RVS / COM E-Mail Services	Step 10

4. As mentioned above, the remote CAPI must be installed and configured first. If the PC can access the V!CAS (via the LAN) you should see the following dialog.



RVS-COM Installation: ISDN CAPI Version

You have both CAPI 1.1 and CAPI 2.0 installed on your PC. Please select the CAPI interface that should be used by RVS COM.

○ CAPI 1.1

● CAPI 2.0

Please note: The CAPI interfaces may have different capabilities. Check the manufacturers' manuals to find out which CAPI offers the performance you require.

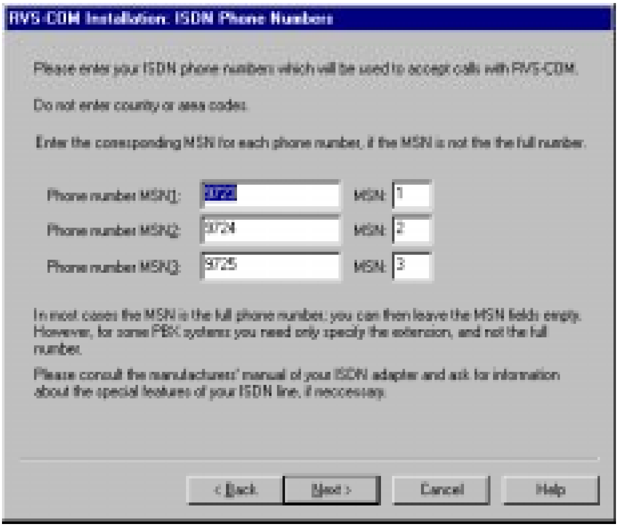
Verify CAPI 2.0 services are available and click Next.

5. The next dialog shows which protocols and services are available. All the fields here are subdued (they cannot be changed). Click Next> to move on to the Softfax option.

6. The Softfax solution is for PCs that have access to an ISDN adapter but not to fax hardware. Since the V!CAS provides the fax hardware you can disable the Softfax options for both send and receive. Click Next>.

7. Continue until you arrive at the **ISDN Line and Location** dialog. Verify the ISDN protocol is correct and click Dialing Properties to control how outgoing local and international calls are placed from the PC. Click OK, then Next>.

8. In this dialog you associate the telephone numbers used by your V!CAS with an MSN. Specific RVS / COM services are associated with these numbers in the next dialog. Click Next>.



RVS-COM Installation: ISDN Phone Numbers

Please enter your ISDN phone numbers which will be used to accept calls with RVS-COM.

Do not enter country or area codes.

Enter the corresponding MSN for each phone number, if the MSN is not the the full number.

Phone number MSN1: 9723 MSN: 1
Phone number MSN2: 9724 MSN: 2
Phone number MSN3: 9725 MSN: 3

In most cases the MSN is the full phone number; you can then leave the MSN fields empty. However, for some PBX systems you need only specify the extension, and not the full number.

Please consult the manufacturers' manual of your ISDN adapter and ask for information about the special features of your ISDN line, if neccessary.

9. The next step is to associate the MSNs defined above with a specific service. This is required so that incoming calls dispatched by the V!CAS can be automatically answered by the appropriate RVS / COM service on your

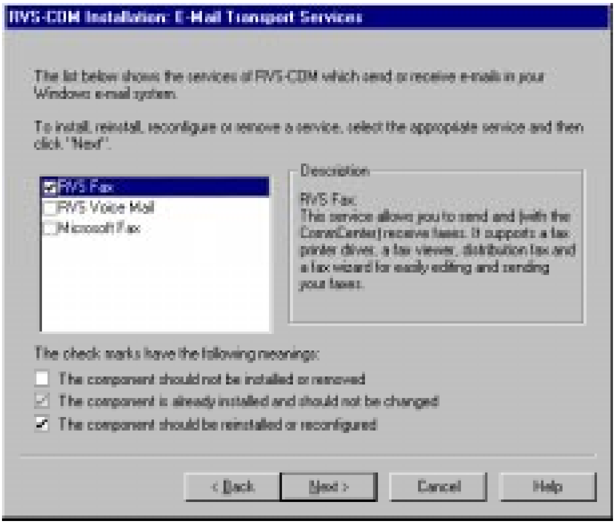
PC. As noted in the dialog, you can only activate 1 analog and 1 digital service for each available MSN.

Click Finish>. The ISDN Phone Numbers component is configured.

10. Now you need to enable the RVS E-Mail Service. The RVS E-Mail service works together with Windows compatible e-mail systems such as MS Exchange, MS Outlook, and Windows Messaging. By enabling the RVS Fax service in this dialog, a new transport service will be added to mail applications allowing messages to be sent from the mail reader via Addressbook entries. See: Faxing from Microsoft Exchange on page 35.

    Incoming faxes are saved as Inbox messages that can be displayed by the mail reader.

    Note that some mail programs may need to be restarted before the RVS FAX driver is acknowledged.



RVS-COM Installation: E-Mail Transport Services

The list below shows the services of RVS-COM which send or receive e-mails in your Windows e-mail system.

To install, reinstall, reconfigure or remove a service, select the appropriate service and then click 'Next'.

☑ RVS Fax
□ RVS Voice Mail
□ Microsoft Fax

Description

RVS Fax
This service allows you to send and (with the CommCenter) receive faxes. It supports a fax printer driver, a fax viewer, distribution fax and a fax wizard for easily editing and sending your faxes.

The check marks have the following meanings:

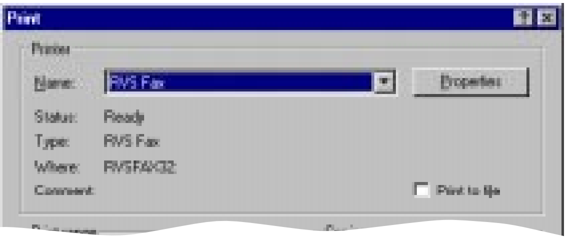
□ The component should not be installed or removed
☑ The component is already installed and should not be changed
☑ The component should be reinstalled or reconfigured

➤ Faxing from MS Applications via RVS Fax

Once the RVS / COM components are configured outgoing faxes can be sent from any MS application that has access to the Windows printing system. From the application the document to be faxed as follows.

1. From the application menu select the File option then Print...

2. In the Printer section of the print setup dialog, select the printer name **RVS Fax**.



Print

Printer

Name: RVS Fax

Status: Ready

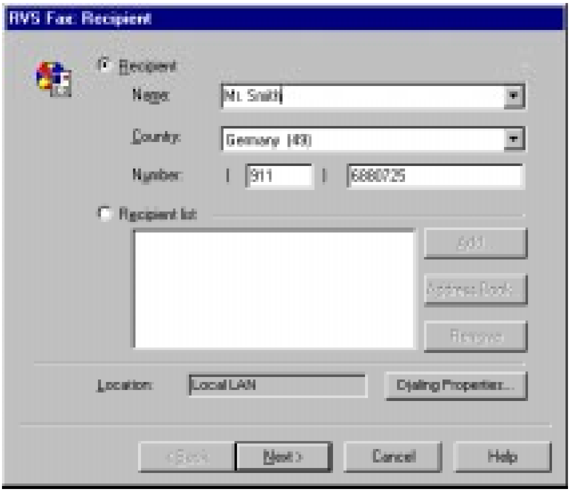
Type: RVS Fax

Where: RVSFAX32

Comment:

□ Print to file

3. The RVS Fax Assistant is then started. The parameters for this fax can be defined here.



RVS Fax: Recipient

● Recipient

Name: Mr. Smith

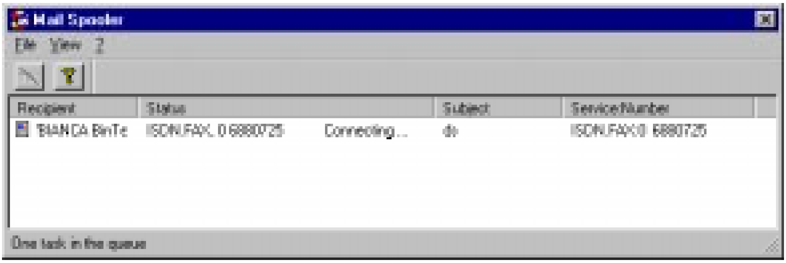
Country: Germany (49)

Number: (911) 6880725

○ Recipient list

Location: Local LAN

4. The new fax is then spooled to the Mail Spooler which shows the status of the fax transmission.



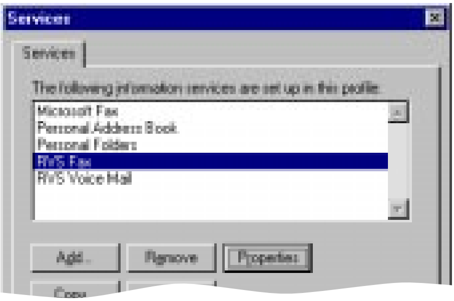
Recipient	Status		Subject	ServiceNumber
BIANCA BinTe	ISDN.FAX, 0 6880725	Connecting...	de	ISDN.FAX:0 6880725

One task in the queue

➤ Faxing from Microsoft Exchange

With the RVS/COM components configured as noted above, faxes can also be sent directly from Microsoft Exchange. By creating the appropriate addressbook entries (shown below) fax messages from Exchange are sent just like sending email messages.

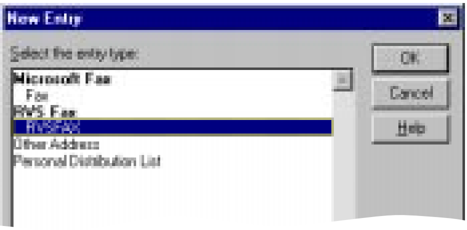
1. In Microsoft Exchange's Services menu the following services should be listed. Verify that RVS Fax service is available here.



The following information services are set up in this profile:

Microsoft Fax
Personal Address Book
Personal Folders
RVS Fax
RVS Voice Mail

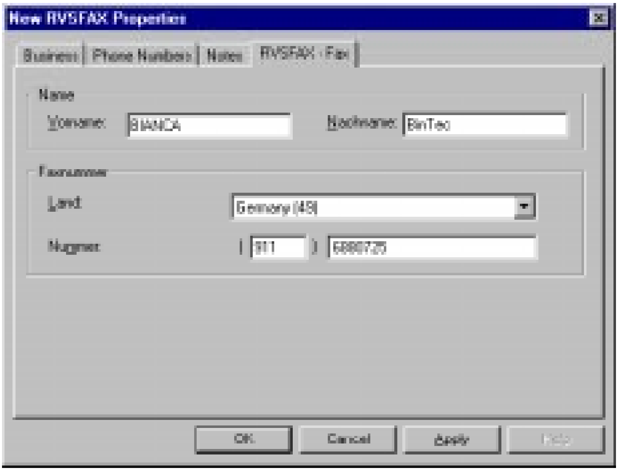
2. An AddressBook entry can be created by selecting: Tools→Addressbook→New Entry from Exchange's main menu. Select RVS Fax and click OK



Select the entry type:

Microsoft Fax
Fax
RVS Fax
RVSFAX
Other Address
Personal Distribution List

3. Select the RVS Fax tab to associate a Fax number with this addressbook entry. When email messages are sent to this addressbook entry the messages will be spooled to the mail spooler where the connection status of the fax transmission is displayed.



Name

Vorname: BIANCA

Nachname: BinTec

Faxnummer

Land: Germany (49)

Nummer: (911) 6880725