V!CAS

Getting Started

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NOTE

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This manual provides a description of an initial, first-time configuration of the V!CAS router with software version 4.6.

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BinTec Communications GmbH October 1997

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V!CAS – GETTING STARTED

Welcome! This manual has been designed to help you quickly install and configure your new V!CAS.

First, we'll provide a short list of the available features on the V!CAS, then we'll cover installing the additional software included with your V!CAS.

Next, we'll describe physically *Installing the V!CAS* on page 5.

Configuring the V!CAS is divided into 3 steps and is described beginning on page 8.

Finally, we'll describe a few simple tests that you can use to verify that your configuration was successful (p. 25).

Features

V!CAS is BinTec's entry-level product for teleworking offices. V!CAS (Virtual Company Access Station) is the

newest member of the successful BIANCA / BRICK family of ISDN routers.[1]

V!CAS can be used as a Private Branch Exchhange (PBX) for two POTS[2] devices (e.g. analog telephones, fax machines, modems, etc.). At the same time it manages the data connections between your workplace and the company LAN. It satisfies all the requirements of today's LAN - WAN connections by combining the functions of a Gateway, Router, Bridge, X.25 Switch and Telematic Server in a single, compact product.

The most important features of V!CAS include:

- Two analog ports for connecting POTS devices, such as telephones, fax machines, or modems.
- Free-of-charge internal calls between two connected analog telephones.
- Priority Voice Technology—incoming voice calls take precedence over existing two-B-channel data connections, i.e. the data connection gives up one of its B-channels for the incoming telephone call.
- Support for TCP / IP routing, X.25 packet transfer, IPX routing, and bridging.
- Remote CAPI services for many communications applications under Windows 3.x, Windows 95, and Windows NT.
- Remote TAPI services for many Windows 95 and Windows NT telephony applications.
- Configuration via serial connection (V.24), telnet (TCP / IP), isdnlogin (ISDN), miniPAD (X.25), sepa-

1. Any section in this document—or in other parts of your V!CAS user documentation—which refers to a »BRICK« in general is also valid for your V!CAS.
2. »Plain old telephone service«

rate SNMP managers, or special Windows software (DIME Browser).

- STAC compression on both B channels.
- Integrated Firewall, using NAT (Network Address Translation) and Access Lists.
- Detailed accounting of ISDN and TCP/IP connections.
- LAN interface with 10Base-T (RJ45) and 10Base2 (BNC) ports.
- Standard ISDN S_0 interface with automatic detection/configuration of protocol settings.
- Windows and UNIX software for configuring and administering the V!CAS.
- HTTP and Java Status Monitors.

Software Installation

Your V!CAS includes several helper / utility programs for Windows and UNIX.

BRICKware for Windows

BRICKware for Windows consists of the following programs (for detailed information, please refer to the online *BRICKware for Windows* documentation):

- *DIME Tools* – a set of tools for administering your V!CAS which includes: *BootP Server*, *TFTP Manager*, *Syslog Server*, *Time Server*, and *ISDN and CAPI Trace Utility*.
- *DIME Browser* – An SNMP manager with a graphical user interface for administering your V!CAS.
- *BRICK at COM1/2* – Preconfigured Windows terminal sessions for accessing your V!CAS over your computer's serial ports.
- *Remote CAPI* clients for CAPI 1.1 and 2.0.
- *Remote TAPI* service provider for TAPI 1.4 and 2.0.

If you intend on configuring your V!CAS from a PC or using it as a CAPI or TAPI server for PC applications you should install the software as explained in the online document *BRICKware for Windows*.

RVS-COM

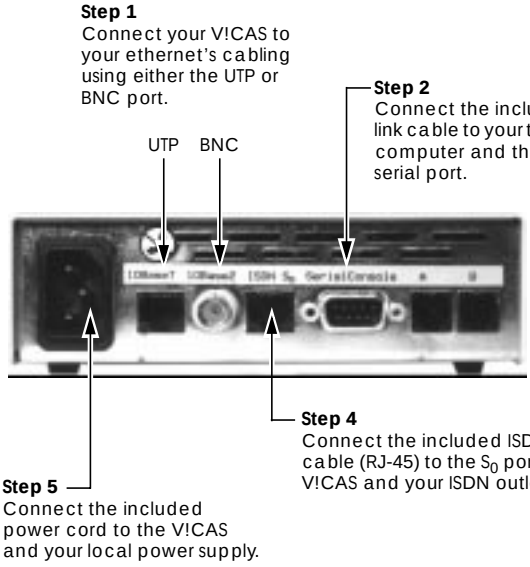
RVS-COM for Windows 95 and Windows NT (Lite Version) is an application that runs using the CAPI interface and provides various telecommunications services, such as T-Online (formerly Btx or Datex-J), Fax, Voice Mail, and Eurofiletransfer. Complete instructions can be found in the online documentation included on the CD.

BRICKtools for UNIX

BRICKtools for UNIX includes a Eurofiletransfer server and client as well as ISDN and CAPI trace tools for various UNIX platforms (refer to the *Software Reference*).

Installing the V!CAS

Select a flat, stable location for your V!CAS and connect the included cables to the ports located on the back plane as follows:



Note that the V!CAS does not have a power switch. The system will power up as soon as it is connected to your power source. You may decide to wait until you're ready to access the V!CAS before connecting the power source.

LED Indicators

Each time you power up the system, the V!CAS switches into **Power Up Mode** and performs a self-test to verify the integrity of the system. The LEDs on the front panel correspond to various stages of the test.

Upon successful completion of the self test, the V!CAS then switches into **BOOTmonitor Mode**, (the right three LEDs remain on) as described in the *User's Guide.*

If the ERR indicator remains on (see table below) there may be a problem with the cabling. Verify the ISDN and LAN cabling is correct (particularly if you are using twisted pair for the LAN) and power up the system again.

After 4 seconds, the system then switches into **Normal Operation Mode**. During normal operation, the front panel indicators display status information as follows.

LED	State	Meaning
PWR	On	Power: Power is being supplied.
FAX	–	Reserved for future updates
LAN	On	LAN activity: Packet being sent via Ethernet
Line A,Line B	On	Data transmission on B-Channel 1 (Line A) or B-Channel 2 (Line B)
ERR	On (constant)	Error: The LAN cabling is not connected. (no 10Base2 or 10BaseT cable found)

PBX Functions

You can connect two POTS[1] devices (e.g. analog telephones, fax machines, modems, etc.) to ports A and B of V!CAS.

Please note, however, that these devices must be configured to use tone dialling, and not pulse selection.

If you just connect V!CAS to the ISDN and two analog telephones to ports A and B you can use the following functions without any further configuration.

- Free-of-charge internal calls between the two connected devices—the device at port A can be reached by dialling »*1«, the number for port B is »*2«.
- You can call any external number by simply dialling it. If your V!CAS is connected to the ISDN through an external PBX, you may have to dial a prefix code for external calls.

Some PBXs and exchanges may, however, refuse to forward calls without an ISDN calling party number. In these cases you will have to configure your V!CAS as described in the following sections before you can make external calls.

1. »Plain old telephone service«

Configuration

Configuring your new V!CAS involves three simple steps which are described in the following sections.

Gathering the Information (p. 9)

1. First, you will need to know several pieces of information about your network setup. At a minimum you will need to know the information listed in the table shown on the following page. Fill in the fields now and refer to them later when needed.

Accessing the V!CAS (p.10)

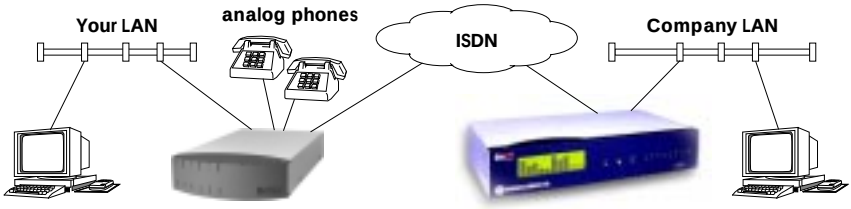
2. Next, you need to decide whether you want to configure your V!CAS over its Ethernet, ISDN, or serial port. The section *Accessing the V!CAS* describes the possible ways of gaining access to your new V!CAS.
   No matter which method you select, you will arrive at an SNMP shell login prompt and can continue with the configuration using the Setup Tool.

Configuration with Setup Tool (p.14)

3. The last step involves logging into the V!CAS as **admin**, using the **bintec** password, and issuing **setup** at the shell prompt. Using the Setup Tool is the easiest way to get your V!CAS up and running. After logging into the V!CAS, use the information you gathered for your local setup, and proceed to the section *Configuration with Setup Tool*.

Gathering the Information

In the following example network setup, the host ***merlin*** will be acting as the nameserver and timeserver for ***vicas***, the V!CAS we will be configuring with Setup Tool. The router ***partnerbrick*** will serve as the remote router for connecting the Company LAN over ISDN.

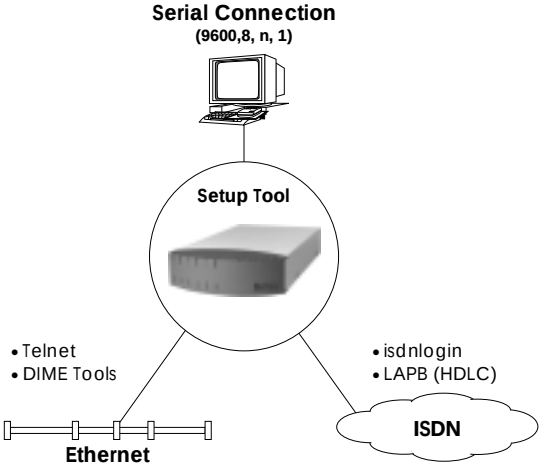


Fill in the table below with the configuration parameters for your local setup, then proceed to the next section.

Parameters	See page	Our example	Your V!CAS
License Information	15	–	(see license card)
IP Address	11/18	199.1.1.2	
Hostname	11/18	vicas	
ISDN telephone # of your V!CAS	20	091112341 091112342	
Remote router's IP Address	22	200.1.1.1	
Remote router's Hostname	21	partnerbrick	
Remote router's ISDN telephone #	21	08965432	
Remote partner's PPP password	21	secret	

Accessing the V!CAS

The V!CAS can be configured over any of its interfaces using a variety of methods.



Access Methods

As shown above, there are several ways of accessing your V!CAS once connected to the network interfaces.

- Over a Serial Connection (p. 11)
  - From a computer or terminal.
- Over Ethernet (p. 11)
  - From a Windows PC using *DIME Tools*.
  - From any computer on the LAN using telnet.
- Over ISDN (p. 12)
  - From a computer connected to another BRICK or V!CAS
  - Other ISDN stations capable of LAPB (HDLC).

Setup Tool

The simplest method involves using the **Setup Tool** over a Serial Connection. This method requires a terminal or a computer running a terminal program to be attached directly to the V!CAS' serial port.

Over Serial Port

With a terminal or terminal program (UNIX or PC)

- Connect the computer or terminal using the included cable to the V!CAS' serial port.
- Set your communications parameters to: 9600 bps, 8 data bits, no parity, 1 stop bit, software handshake (XON, XOFF) and VT100 terminal emulation.
- After pressing the <Return> key, you should receive a login prompt.

For Windows PCs: You can also use the preconfigured terminal programs *BRICK at COM1/COM2* included in the *BRICKware* suite.

- Continue with the *Configuration with Setup Tool* as described on page 14.

Over Ethernet

From a Windows PC using DIME Tools

You can access the V!CAS from a Windows PC on the LAN. This requires *BRICKware* and a TCP / IP stack to be installed on a PC on the same ethernet segment as the V!CAS. Power up your V!CAS; then with *DIME Tools* running:

- A *BootP Server* window will open automatically once the PC receives a BOOTP request from the V!CAS.
- In this window, enter the V!CAS' IP address, netmask, and hostname. The nameserver and timeserver's address can also be set here.
- Using a VT100 compatible telnet program, telnet to your V!CAS using the IP address you assigned it with *BootP Server*.
- Continue with the *Configuration with Setup Tool* as described on page 14.

From any computer using telnet

Once the IP address is assigned to V!CAS (using *BRICKware* and *BootP Server* as mentioned above) you can access it from a computer on the LAN.

- Using a VT100 compatible telnet program, telnet to the V!CAS at it's IP address.
- Continue with the *Configuration with Setup Tool* as described on page 14.

Over ISDN

From a computer connected to another BRICK

The V!CAS automatically configures its ISDN interface at boot time if the system is attached to an ISDN dialup line. You can login to your new V!CAS from this computer over ISDN using the *isdnlogin* program.

- Login to your existing BRICK.
- At the shell prompt, issue **isdnlogin** <*telno*> where *telno* is the ISDN number your new V!CAS is connected to.
- Continue with the *Configuration with Setup Tool* as described on page 14.

Additional Configuration Possibilities

SNMP shell

Of course, the V!CAS can be configured manually from the SNMP shell or by using an external SNMP manager such as *DIME Browser for Windows*. These mechanisms require a greater understanding of the internal data structures of V!CAS, SNMP, and the MIB (management information base).

For information on working with the SNMP shell or using DIME Browser, refer to the *Software Reference* and *BRICKware for Windows* respectively (both are included on the Companion CD).

Third party SNMP Manager

The V!CAS can also be configured using third party SNMP Managers such as HP OpenView, Sun / Netmanager, and Transview. The Management Information Base implemented on the V!CAS must be imported into your SNMP manager. The complete MIB is included on the Companion CD. See your SNMP manager documentation on importing MIBs.

Configuration with Setup Tool

If you haven't already done so, login to the V!CAS now by entering **admin** at the login prompt and **bintec** at the password prompt. Enter **setup** now. Setup Tool's main menu will be displayed as follows.

```
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                    POTS        MODEM

Configuration Management
Monitoring and Debugging
Exit

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

Navigating the Menus

The Setup Tool menus can be navigated using the following keys:

Return	Enters the currently highlighted menu item.
↑ Tab ↓	Moves forward and backward between menus and fields.
← →	Scrolls among entries in a list of possible field values.
Spacebar	Selects / unselects (toggles) special fields or scrolls a list of field entries.
Esc Esc	Entering two successive Esc characters returns you to the previous menu.

As you move between menus, the lines at the top and bottom of your screen will display status information for the respective menu / field you are currently editing.

Licenses

Select the [*Licenses*] menu and then [*ADD*] to enter your license information. You will need to enter your *Serial Number*, *Mask* and *Key*, as shown on your License card.

After entering your information and selecting [*SAVE*], the system will display a list of licensed features.

If the system states that the license is “not ok” then you have entered an invalid Serial Number, Mask, and Key combination. Delete the invalid entry (marking the entry for deletion with the spacebar, then selecting delete) and enter your information again.

You can use the ‹Tab› key to move directly from one field to the next. Useful for moving from a field containing a long list of entries directly to the next field.

Once you have entered your license information, select [*EXIT*] to return to the main menu.

System

Select [*System*] from the main menu. The only required entries at this time are the first two fields (*System Name* and *Local PPP ID*); this information will be used as the hostname and PPP ID for your V!CAS. The other fields are not required and can be edited later.

You can, of course, enter the same name in both fields. In our example both *System Name* and *Local PPP ID* are set to *vicas* (see page 9).

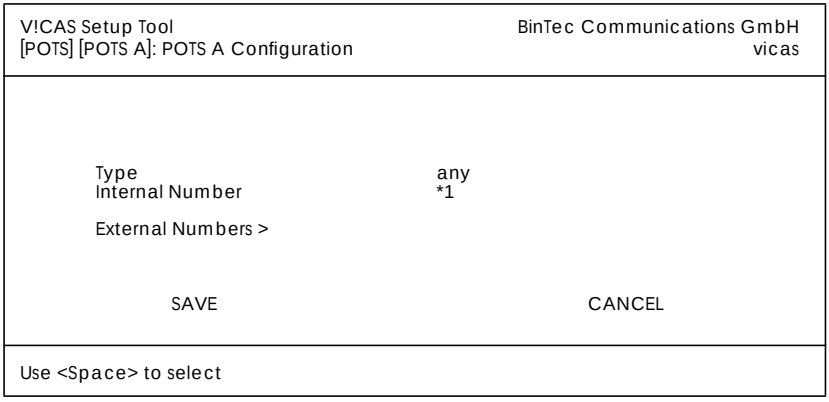
Select [*SAVE*] to accept the entries and return to the main menu.

POTS Configuration

In the [*POTS*] menu you will find all the settings necessary for configuring the POTS ports and the Remote TAPI.

If you have not connected any analog devices to your V!CAS, please read on in section *Setting up the LAN Interface* on page 18.

Enter the [*POTS*] menu and select either the [*POTS A*] or the [*POTS B*] menu, depending on which port you wish to configure. Both these menus feature the same set of fields and possible entries.



Set the *Type* field to the type of device connected to this port. Possible values:

Type	Accept calls for...
any	all voice services
fax	fax machines
telephony	telephones
modem	modems
disable	no calls possible at all

By changing the value in the *Internal Number* field, you can adapt the internal numbers to your liking.

Please note, however, that the internal numbers should *always* start with either an asterisk »*« or a hash mark »#«. If an internal number starts with a digit (0-9) you will not be able to make external calls starting with that digit any more.

Change to the [*External Numbers* >] menu. Here you can assign ISDN telephone numbers to the port.

You can supply each port with one or more numbers of its own, or can use certain numbers for both ports. This is useful if you connect two phones and want them to ring at the same time, when a certain number is called.

If you do not configure any external number for a port, devices connected to this port will not be able to accept external calls..

Select [*ADD*] to add a new number. Then enter the desired number in the *External Number* field (usually the last few digits of the number are sufficient) and leave the *Direction* field at *both*—this means that the number will be used for both incoming and outgoing calls. Confirm your entries by selecting [*SAVE*].

If you add further external numbers, the *Direction* field will be set to *incoming*, because only one *outgoing* or *both* entry is useful for each port.

Remote CAPI and Remote TAPI

After entering the licensing information (see page 15) you normally do not need to configure your V!CAS for using Remote CAPI or Remote TAPI.

There ist, however, the possibility to disable Remote CAPI or TAPI activities from within the Setup Tool.

Remote CAPI Server TCP Port

To disable Remote CAPI go to the [*IP*] [*Static Settings*] menu and set the *Remote CAPI Server TCP Port* to 0 (the default value is 6000).

Remote TAPI Server Port

To disable Remote CAPI go to the [*POTS*] [*Static Settings*] menu and set the *Remote TAPI Server Port* to 0 (the default value is 6001).

Setting up the LAN Interface

Select [*CM-BNC/TP, Ethernet*] to configure your ethernet interface. In the following menu you will need to enter the IP address, the local netmask[1], and the encapsulation to use for your V!CAS. For now, you can select Ethernet II encapsulation.

The settings for our example setup on page 9 are shown below.

```
V!CAS Setup Tool                                BinTec Communications GmbH
[LAN]: Configure Ethernet Interface                                 vicas


IP-Configuration
     local IP-Number          199.1.1.2
     local Netmask            255.255.255.0
     Encapsulation            Ethernet II


Advanced Settings >

          SAVE                                   CANCEL

Enter IP address (a.b.c.d or resolvable hostname)
```

Once your entries are correct, select [*SAVE*].

1. If you are using a standard netmask (e.g. 255.255.255.0), you can leave this field empty.

Setting up the ISDN Interface

Select [*CM-1BRI, ISDN S0*] to configure your ISDN interface.

Dialup Line

Depending on which protocol your ISDN subscriber interface uses and whether or not the ISDN autoconfiguration was successful, the [*CM-1BRI, ISDN S0*] menu may be displayed as follows:

```
V!CAS Setup Tool                                    BinTec Communications GmbH
[WAN]: WAN Interface                                                   vicas

Result of autoconfiguration:      Euro ISDN, point to multipoint

ISDN Switch Type                  autodetect on bootup

D-Channel                         dialup
B-Channel 1                       dialup
B-Channel 2                       dialup

Advanced Settings >
Incoming Call Answering >

                SAVE                          CANCEL

Use <Space> to select
```

The ISDN autoconfiguration procedure runs until either the proper protocol is detected or the switch type is set manually. If the cables are connected and autodetection just keeps running, you may have to select the appropriate ISDN protocol manually by scrolling through the entries in the *ISDN Switch Type* field using the spacebar or the left and right arrow keys.

Leaving the Switch Type setting to “autodetect on bootup” usually allows the V!CAS to automatically detect the proper ISDN protocol each time the system boots.

To ensure data transfers are possible over ISDN, verify that the autoconfiguration is correct or set your ISDN switch type appropriately.

Once the switch type and channel fields are correct select [*Incoming Call Answering* >].

Incoming Call Answering

In this menu you will specify how your V!CAS responds to incoming ISDN calls and which services it will support.

To enable routing (i.e. to allow IP connections via ISDN calls), use [*ADD*] to create a new entry and select **PPP (routing)** in the *Item* field (using the spacebar). Then enter one of your V!CAS' ISDN numbers (or an EAZ) in the *Number* field.

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

    Item                          Number          Mode

        ADD                     DELETE            EXIT

t
```

If you want to login to your new V!CAS via the *isdnlogin* program, you also need to create an *ISDN Login* entry. A different *Number* must be specified. Normally, this is done by using a different Multiple Subscriber Number (in Euro ISDN) or a different EAZ (for 1TR6).

Once your entries are correct select [*EXIT*] to return the [*CM-1BRI, ISDN S0*] menu; select [*SAVE*] to complete the configuration of the ISDN interface and return to the main menu.

WAN Partner

Select [*WAN Partner*]. This menu displays a list of known WAN partners and initially will be empty.

To add a new WAN partner select [*ADD*]. A menu similar to the following will be displayed. For our example setup, we have already filled in the appropriate fields.

```
V!CAS Setup Tool                          BinTec Communications GmbH
[WAN][ADD]: Configure WAN Partner                              vicas

Partner Name                    partnerbrick
Enabled Protocols               <X> IP
Encapsulation                   PPP
Identify by Calling Number      no
PPP Authentication Protocol     CHAP and PAP
Partner PPP ID                  partnerbrick
Local PPP ID                    vicas
PPP Password                    secret

ISDN Numbers >
IP >
IPX >
Advanced Settings >

                    SAVE                    CANCEL

Enter string, max length = 25 chars
```

As you edit each field the remaining fields will change depending on which options you select.

In the *Partner Name* field, enter a name for this partner; normally the partner's hostname is used.

You can specify which protocols to route, the encapsulation to use, and the type of authentication to use for call setup. In our example we are routing IP traffic, and will use both PAP and CHAP authentication.

Then enter the *PPP Password* the remote site must match when performing authentication.

The *Partner PPP ID* must match the local PPP ID of the partner.

ISDN Numbers

After adding the WAN partner information, select the [*ISDN Numbers* >] submenu. This menu lists the ISDN numbers this partner can be reached at and initially will be empty. Select [*ADD*] to enter a new ISDN number for the partner you just configured.

In the *ISDN number* field, enter the ISDN telephone number your partner's router can be reached at.

Select [*SAVE*], and then [*EXIT*] to return to the partner settings menu.

IP Partner Configuration

Select [*IP* >] to set the IP parameters for this WAN partner.

```
V!CAS Setup Tool                              BinTec Communications GmbH
[WAN][ADD][IP]: IP Configuration (partnerbrick)                   vicas


IP Transit Network                            no

Partner's LAN IP Address                      200.1.1.1
Partner's LAN Netmask                         255.255.255.0


                SAVE                                  CANCEL

Enter IP address (a.b.c.d or resolvable hostname)
```

Depending on whether you are using a transfer network,enter the IP address and netmask[1] for your WAN Partner.

Select [*SAVE*] to return to the main menu.

IP Configuration

From the main menu select [*IP*]. From the submenus which are displayed select [*Routing*]. This menu displays a list of routes known to the V!CAS. Initially, the list will be empty. Select [*ADD*] to create a new default route. Your display will be similar to the menu shown below.

```
V!CAS Setup Tool                          BinTec Communications GmbH
[IP][ROUTING][ADD]: Confuigure IP Routes                        vicas


Route Type                  Default route
Network                     WAN without transit network

Partner / Interface         partnerbrick

Metric                      1


                SAVE                        CANCEL

Use <Space> to select
```

In the *Route Type* field, select “Default route”.

In the *Network* field select the appropriate entry (using the spacebar) to specify whether the default route should be over the LAN or WAN. For WAN routes, select the appropriate entry depending on whether you are using a transfer network.

In the *Partner / Interface* field select the partner name the default route leads to. For our example, we added a

1. If you are using a standard netmask (e.g. 255.255.255.0), you can leave this field empty.

default route without a transfer network to partnerbrick via ISDN.

Then select [*SAVE*]. You can add additional routes from this menu using ADD. Once you have finished adding routes, return to the main menu by selecting [*EXIT*] twice.

Saving your Configuration

Once you have finished configuring your ISDN dialup line, select [*Exit*] from the main menu.

For an initial configuration you should select [*Save as boot configuration and exit*]. Your initial configuration is now complete and is saved in a flash ROM file named "boot". You are then returned to the SNMP shell prompt.

The configuration file saved as "boot" will be used upon each new system start.

For information on configuration management and the transfer of configuration files to/from remote hosts via TFTP refer to the *User's Guide.*

Testing your Configuration

LAN Test

To test your new configuration try issuing a simple ping command to a PC on the V!CAS' LAN to verify the LAN interface is properly configured. In our example, we would issue:

ping -c 5 199.1.1.1

If the LAN portion of the configuration was successful you should receive output similar to the following:

```
PING 199.1.1.1: 64 date bytes
64 bytes from 199.1.1.1: icmp_seq=0. time=8. ms
64 bytes from 199.1.1.1: icmp_seq=1. time=1. ms
64 bytes from 199.1.1.1: icmp_seq=2. time=1. ms
64 bytes from 199.1.1.1: icmp_seq=3. time=1. ms
64 bytes from 199.1.1.1: icmp_seq=4. time=1. ms
----199.1.1.1 PING Statistics----
5 packets transmitted, 5 packets received, 0% packet loss
round-trip (ms) min/avg/max = 1/2/8
```

ISDN Test

To verify the ISDN portion of the configuration is correct, try the same command using the IP address of the remote router (200.1.1.1 in our example) or a host on the remote LAN.

If the ping command to the remote router is successful, try issuing another ping command using the IP address of a computer on the remote partner's LAN.

Once all ping commands are successful, your configuration is complete.

Troubleshooting

If any of the ping commands are unsuccessful, refer to the *Troubleshooting* chapter in the *V!CAS User's Guide.*

Getting the latest BRICK News and Software

Now that your V!CAS is up and running, you might like to visit our WWW site at

http://www.bintec.de

to keep abreast of new developments at BinTec Communications GmbH.

Via our WWW server BinTec provides you free of charge with the most recent versions of:

- User documentation for your BinTec software and hardware in Portable Document Format (PDF).
- System software for your V!CAS.

You will find instructions on how to update system software in the User's Guide, chapter 8, section *Upgrading System Software*.

- Release notes for upgrading the system software of your V!CAS.
- Windows software and UNIX Tools applications.