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# Enhancements in firmware version 1.80

## **ELSA LANCAPI and fax functions**

The deployment of the *LANCAPI* permits communications programs to access the router via the network. With *LANCAPI*, all of the workstations in the LAN receive unrestricted access to office communications functions such as fax and EuroFileTransfer.

Until now, only fax programs with a CAPI softfax function (such as *ELSA-RVS-COM*) could fax directly via the *LANCAPI*. Fax programs without softfax functions or CAPI support used the *ELSA CAPI faxmodem*, a general fax driver (fax class 1) as a port to the *LANCAPI*.

Since firmware 1.80 the LANCOM Business router series 4xxx has built-in fax modems which can be accessed through our *LANCAPI*, the routers are therefore also optimally prepared for fax server applications.

LANCOM Business 4000 comes with 2 fax modems and LANCOM Business 4100 comes with 4 fax modems, from which 2 faxes can be received simultaneously.

The following functions are offered by the fax modems:

- 14.400, 9.600, 4.800, 2.400 bps (V.21, V.27ter, V.29, V.17, V.33)  
T.4, T.6 and T.30 with extensions
- ECM (Error Correction Mode)
- Conversion of fax pages during transmission from SFF or ASCII formats into PFF, T6 formats, in realtime



*This functionality is currently restricted to the Windows NT 4.0 and Windows 2000 operating systems.*

*Windows 95 and Windows 98 will be supported in a future firmware version.*



# Enhancements in firmware version 1.70

## Send network configuration over ISDN

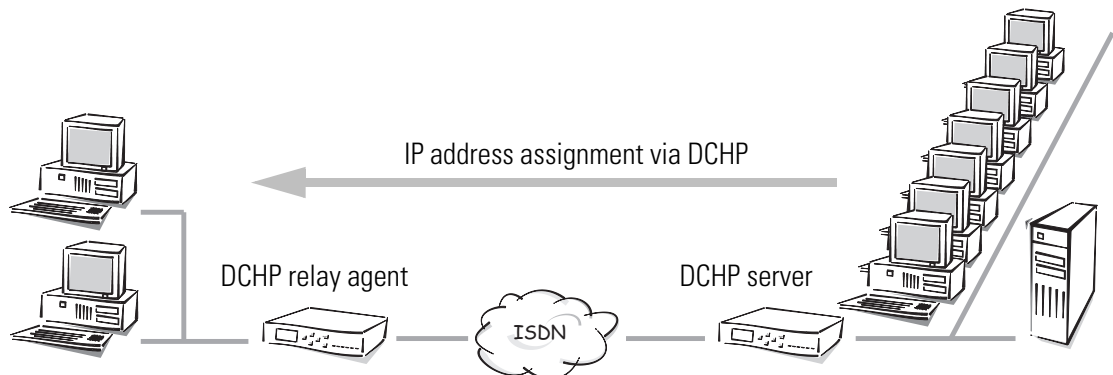
Generally the Proxy ARP function is used to link individual workstations to the LAN of a central office via IP. For this purpose a previously specified IP address from the address range of the central office is assigned to the dialling-in computer.

If an entire branch IP network with a number of computers is to be linked to a central office LAN, a LAN-LAN coupling is implemented. Here, however, the two networks will be in different IP address groups.

While all addresses and other network information can easily be assigned via DHCP within the central office LANs, the LAN-LAN coupling is not so simple.

## Obtain DHCP information from the remote network

The "DHCP Relay Agent" function also enables DHCP information to be sent over ISDN lines. This also makes it possible to link a number of computers in a network into the central office IP address group over an ISDN line.



To enable this the DHCP server is integrated into the branch network in the relay agent mode. The DHCP queries will then be forwarded to another server, whose address will be fixed. The connection to the network is implemented with an appropriate entry in the IP routing table.

If a computer that requests an IP address from a DHCP server is started now in the branch network, the DHCP relay agent will forward this request to the DHCP server in the central office network over the ISDN line. This server then gives the requesting computer a previously specified IP address based on the transmitted MAC address.

The preceding has covered all required settings:

- ① The DHCP server in the router of the branch network is set to forward the DHCP queries. The IP address of the DHCP servers is set in the central office LAN for this purpose.

- ② In addition, this router must have all information for establishing a connection with the central office network (standard LAN-LAN coupling).
- ③ As well the standard routing information, the DHCP server in the central office will have the MAC addresses and the IP addresses that are to be assigned to all the remote stations. The name of the corresponding computer for which the DNS server is to be used will be entered for this purpose.

## Adapt DHCP information

Now all DHCP information is brought to the DHCP server in the central office. However, this results in the router in the central office acting as the gateway for the branch. If a computer in the branch wishes to access the Internet, the query will be forwarded to the gateway in the central office. The Internet connection is therefore via the central office network. To avoid this detour, the DHCP relay agent can use a function that allows the responses from the remote DHCP servers to be adapted to the requirements of their own LANs. Network mask, broadcast address and gateway will then no longer be taken from the central office network.

## Obtain boot images from the remote network

To link branch networks that do not have full workstations but only terminals without bootable hard disks, the DHCP server also provides the capacity of obtaining a complete boot image over the ISDN line. This enables the entire terminal configuration to be maintained and serviced at one central point.

The DHCP relay agent in the branch network is configured for this. In the central office network, in addition to the IP address entries for the specific MAC address, the boot image that must be used is specified. The boot image is input via a symbolic name. The symbolic name is assigned to a server in an image table with information on the directory and files with which the boot image can be found.

If a terminal in the branch network is started, it automatically establishes a connection to the central office network via the router and obtains the current boot image from there.

You can find the settings for the DHCP relay agent, the associated server and the boot images in *ELSA LANconfig* in the 'TCP/IP' configuration area on the 'DHCP' and 'DHCP/BOOTP' registry tabs or in the case of configuration via Telnet in `setup/DHCP-module`.

## Standard and expert mode for *ELSA LANconfig*

The configuration program *ELSA LANconfig* has two different display modes:

- The standard display of the configuration shows only the settings required for standard applications.
- The complete configuration display shows all available settings. There are settings here that should only be changed by experienced users.

Toggle between the two display modes with **View ► Options**.

## Time controller for the default route

Similar to the least cost routing (LCR), the time controller for the default route is a function that automatically selects the provider with the best rate depending on the time of day.

As soon as an IP packet requires a connection over the default route, the remote station entered in the default route is not dialled until the remote station that is to be used has been checked in the time controller table.

You enter the days of the week and the times of the day on which a specific provider must be used into this time controller table. As soon as an IP packet requests the default route, a check is first made in the time controller table of whether its use is enabled. Then a search for an entry that covers the current day and time is made in the table. If a relevant entry is found, the router establishes a connection to the remote stations found there. If there is no appropriate entry in the time controller table, the router returns to the IP routing table and uses the remote station entered there.

You can find the settings for the default route time controller in *ELSA LANconfig* in the 'IP router' configuration section on the 'Routing' registry tabs and for configuration via Telnet in `setup/IP-router-module`. The days are entered in the same syntax as with the LCR. The definition of the holidays is also taken from the LCR module.

## Reservation B channels

The reservation of B channels is intended to enable incoming and outgoing calls at any time and therefore to be available for external remote stations at any time or to be able to make calls at any time.

To enable this, the maximum number of connections that can be made simultaneously on one interface (divided into incoming and outgoing calls) is specified for every  $S_0$  interface.

*The limit on the number of connections is based on all of the device's operating modes, i.e. router, LANCAP, any available a/b ports etc.*



The values for B-channel reservation are entered in the interface table as maximum value for incoming and outgoing connections:

- By default both values are set to 2. This enables two parallel outgoing connections to be established and also two incoming calls to be answered.
- If the value for the maximum number of incoming calls is set to 1, the device can only answer one call in this interface. If another call comes in, it will be rejected, even though a B channel may still be free. However, this channel will then be reserved for outgoing calls. This principal also applies to the maximum number of outgoing calls.
- If the value for the maximum number of incoming calls is set to 0, no calls can be answered at this interface. Only the maximum number of allowable outgoing connections can be established.



*If both values are 0, a connection can no longer be established at this interface at all.*

You can find the settings for the B-channel reservation in *ELSA LANconfig* in the 'Management' configuration section on the 'Interfaces' registry tabs and for configuration via Telnet in `setup/WAN-module/Interface-list`.



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