

# WAN PARTNER

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Bintec User's Guide - XGeneration  
Version 1.0

**Purpose** This document is part of the user's guide to the installation and configuration of Bintec gateways running software release 7.1.14 or later. For up-to-the-minute information and instructions concerning the latest software release, you should always read our **Release Notes**, especially when carrying out a software update to a later release level. The latest **Release Notes** can be found at [www.bintec.net](http://www.bintec.net).

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**Guidelines and standards** Bintec gateways comply with the following guidelines and standards:

R&TTE Directive 1999/5/EG

CE marking for all EU countries and Switzerland

You will find detailed information in the Declarations of Conformity at [www.bintec.net](http://www.bintec.net).

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# 1 WAN Partner Menu

The fields of the *WAN PARTNER* menu are described below.

X2302 Setup Tool	Bintec Access Networks GmbH	
[WAN]: WAN Partners	MyGateway	
Current WAN Partner Configuration		
Partnername branch	Protocol ppp	State dormant
ADD	DELETE	EXIT

To enable your gateway to set up connections to networks or hosts outside your LAN, you must configure the partners you want to connect to as so-called WAN partners on your gateway. This applies to outgoing connections (e.g. your gateway dials its WAN partner), as well as incoming connections (e.g. a WAN partner dials the number of your gateway) and leased lines.

If you want to access the Internet, you must set up your Internet Service Provider (➤➤ **ISP**) as a WAN partner. If you want to connect your LAN to a remote LAN, e.g. your LAN (head office) and the LAN of a branch office (corporate network connection), you must configure the remote LAN as a WAN partner.

All the WAN partners entered are displayed in a list that contains the partner name (**PARTNERNAME**), the encapsulation used (**PROTOCOL**) and the current state of each (**STATE**). **PROTOCOL** can have the possible values of **ENCAPSULATION**, see [table “Possible values for State field,” on page 4](#).

The **STATE** field can have the following values:

Description	Meaning
up	connected
dormant	not connected (dialup connection); dial-up possible

Description	Meaning
blocked	not connected (e.g. an error occurred on setting up an outgoing connection, a renewed attempt is only possible after a specified number of seconds)
down	administratively set to <i>down</i> (deactivated); dial-up impossible for leased lines: not connected

Table 1-1: Possible values for **STATE** field

The WAN partner configuration is made in the **WAN PARTNER → ADD/EDIT** menu:

X2302 Setup Tool	Bintec Access Networks GmbH
[WAN] [ADD]: Configure WAN Partner	MyGateway
Partner Name Encapsulation                      PPP  PPP > Advanced Settings >  IP > Bridge >  <div style="text-align: center;"> <span>SAVE</span>                                      <span>CANCEL</span> </div>	

The **WAN PARTNER** → **ADD/EDIT** menu consists of the following fields:

Field	Description
Partner Name	<p>Enter a name for uniquely identifying the WAN partner.</p> <p>In this field the first character must not be a number. Don't use special characters or umlauts. The entry can have max. 25 characters.</p>
Encapsulation	<p>➤➤ <b>Encapsulation</b>. Defines how the ➤➤ <b>data packets</b> are packed for transfer to the WAN partner. Possible values:</p> <ul style="list-style-type: none"> <li>■ <i>PPP (Defaultwert)</i></li> <li>■ <i>Multi-Protocol LAPB Framing</i></li> <li>■ <i>Multi-Protocol HDLC Framing</i></li> <li>■ <i>Async PPP over X.75</i></li> <li>■ <i>Async PPP over X.75/T.70/BTX</i></li> <li>■ <i>Async PPP over V.120 (HSCSD)</i></li> <li>■ <i>X.25_PPP</i></li> <li>■ <i>X.25</i></li> <li>■ <i>HDLC Framing (only IP)</i></li> <li>■ <i>LAPB Framing (only IP)</i></li> <li>■ <i>X31 B-Channel</i></li> <li>■ <i>X.25 No Signalling</i></li> <li>■ <i>X.25 PAD</i></li> <li>■ <i>X.25 No Configuration</i></li> <li>■ <i>Frame Relay</i></li> </ul>

Field	Description
Encapsulation (cont.)	<ul style="list-style-type: none"><li data-bbox="715 286 1219 315">■ <i>X.25 No Configuration, No Signaling</i></li></ul> <p data-bbox="715 329 1219 450">As not all Bintec devices support all protocols, please check prior to configuration the availability of the respective protocol according to the data sheet at <a href="http://www.bintec.net">www.bintec.net</a>.</p>

Table 1-2: **WAN PARTNER** menu fields



## 2 Submenu PPP

The **PPP** submenu is described below.

X2302 Setup Tool		Bintec Access Networks GmbH
[WAN] [EDIT] [PPP]: PPP Settings (branch)		MyGateway
Authentication	CHAP + PAP	
Partner PPP ID		
Local PPP ID	x2302	
PPP Password		
Keepalives	off	
Link Quality Monitoring	off	
OK		CANCEL

The **WAN PARTNER** → **PPP** menu contains specific ►► **PPP** settings that only refer to the WAN partner to be configured. The gateway uses these settings to perform an authentication negotiation.

The **PPP** menu consists of the following fields:

Field	Description
Authentication	Authentication protocol. Possible values: see <a href="#">table "Selection options in Authentication field," on page 9.</a>
Partner PPP ID	ID of WAN partner.
Local PPP ID	ID of your gateway. The set value of <b>LOCAL PPP ID</b> in the <b>SYSTEM</b> menu is default value.
PPP Password	Password.

Field	Description
Keepalives	<p>Activates the function PPP-Keepalive for checking the reachability of the remote PPP terminal. Possible values:</p> <ul style="list-style-type: none"> <li>■ <i>off</i> (default value for dialup connection) - deactivates keepalive.</li> <li>■ <i>on</i> (default value for leased line) - activates keepalive.</li> </ul> <p>For the function PPP-Keepalive every three seconds a packet is sent to the remote terminal. If the packet is unanswered five times, normally the interface is set to <i>down</i> for leased line connections and <i>dormant</i> for dialup connections.</p>
Link Quality Monitoring	<p>Activates PPP Link Quality Monitoring as per RFC 1989. Possible values:</p> <ul style="list-style-type: none"> <li>■ <i>off</i> (default value)</li> <li>■ <i>on</i></li> </ul> <p>Only necessary in exceptional cases, e.g. with Nokia Communicator.</p>

Table 2-1: **PPP** submenu fields

The **AUTHENTICATION** field contains the following selection options:

Description	Meaning
CHAP + PAP (default value)	Run primarily CHAP, otherwise PAP.
PAP	Only run >> <b>PAP</b> (PPP Password Authentication Protocol); the password is transferred uncoded.
CHAP	Only run >> <b>CHAP</b> (PPP Challenge Handshake Authentication Protocol as per RFC 1994); the password is transferred encoded.
none	Run no PPP authentication protocol.
MS-CHAP	Only run MS-CHAP version 1 (PPP-Microsoft Challenge Handshake Authentication Protocol).
CHAP + PAP + MS-CHAP	Run primarily CHAP, on denial the authentication protocol required by the WAN partner. (MS-CHAP version 1 or 2 possible.)
MS-CHAP V2	Run MS-CHAP version 2 only.

Table 2-2: Selection options in **AUTHENTICATION** field



## 3 Submenu Advanced Settings

The fields of the *ADVANCED SETTINGS* submenu are described below.

X2302 Setup Tool		Bintec Access Networks GmbH
[WAN] [EDIT] [ADVANCED]: Advanced Settings (branch)		MyGateway
Static Short Hold (sec)	20	
Delay after Connection Failure (sec)	10	
Layer 1 Protocol		PPP over Ethernet (PPPoE)
Special Interface Types	none	
OK		CANCEL

Specific functions for **>> WAN partners** make it possible to define the characteristics for connections to WAN partners individually and are configured in the **WAN PARTNER → ADVANCED SETTINGS** menu.

**Defining short hold** **>> Short hold** is defined to clear an unused connection automatically, i.e. when no more user data is sent, and thus save charges. The short hold setting can be either static or dynamic and tells the gateway the duration of the idle time, after which it is to clear down the connection. The setting determines how much time should pass between sending the last **>> user data packet** and clearing the connection. Enter a fixed period of time in seconds.

**Delay after connection failure** This function enables you to set the period of time the gateway is to wait for an attempt to set up an outgoing connection after an unsuccessful attempt to set up a call.

**Layer 1 protocol** You can define the Layer 1 protocol for outgoing connections to the WAN partner.

The **ADVANCED SETTINGS** menu consists of the following fields:

Field	Description
Static Short Hold (sec)	Idle time in seconds for static short hold. Default value is 20. e.g. 10 for FTP connections 20 for LAN to LAN connections 90 for Internet connections
Delay after Connection Failure (sec)	Block timer. Indicates the wait time in seconds before the <b>XGeneration</b> gateway tries again after an attempt to establish a connection has failed. Default value is 10.
Layer 1 Protocol	Defines which Layer 1 Protocol the <b>XGeneration</b> gateway is to use. This setting applies to outgoing connections with the WAN partner. Possible values: see <a href="#">table "Selection options of Layer 1 Protocol," on page 13.</a>
Special Interface Types	This option defines a special application of the interface. Possible values: <ul style="list-style-type: none"> <li>■ <i>none</i>: No special type selected.</li> <li>■ <i>dialin only</i>: The interface is used for incoming dialup connections and for callback initiated from the outside.</li> <li>■ <i>Call-by-Call (dialin only)</i>: The interface is defined as multi-user WAN partner, i.e. several clients dial in with the same user name and password. Only practical if <b>WAN PARTNER → IP → BASIC SETTINGS → IP TRANSIT NETWORK</b> is set to <i>dynamic server</i>.</li> </ul>

Table 3-1: **ADVANCED SETTINGS** menu fields

**LAYER 1 PROTOCOL** contains the following selection options. As not all Bintec devices support all protocols, please check prior to configuration the availability of the respective protocol according to the data sheet at [www.bintec.net](http://www.bintec.net).

Description	Meaning
PPP over Ethernet (PPPoE)	For connections to xDSL
PPP over PPTP	For connections to xDSL, e.g. in Austria
PPP over L2TP (LNS mode)	Using this option, the WAN Partner is used for accepting L2TP tunnels and terminating the encapsulated PPP data stream.
PPP over L2TP (LAC mode)	Using this option, the WAN Partner is used to encapsulate a PPP data stream into L2TP and create an L2TP tunnel to a remote LNS.
PPP over ATM (PPPoA)	Using this option, the WAN Partner is used to transfer a PPP data flow directly via an ATM network (RFC 2364).

Table 3-2: Selection options of **LAYER 1 PROTOCOL**





## 4 Submenu IP

The *IP* submenu is described below.

The *WAN PARTNER* → *IP* submenu is used for making routing settings specifically for a WAN partner.

The *IP* submenu consists of the following additional submenus:

- *BASIC IP-SETTINGS*
- *MORE ROUTING* (is not displayed if *WAN PARTNER* → *ADD/EDIT ADVANCED SETTINGS* → *LAYER 1 PROTOCOL = PPP over PPTP*)
- *ADVANCED SETTINGS*

### 4.1 Submenu Basic IP-Settings

The fields of the *BASIC IP-SETTINGS* submenu are described below. When *TRANSIT NETWORK* is set to *yes*, the following screen is displayed (example addresses are used here):

X2302 Setup Tool		Bintec Access Networks GmbH	
[WAN] [EDIT] [IP] [BASIC]: IP Settings (branch)		MyGateway	
IP Transit Network		yes	
Local IP Address		192.168.100.1	
Partner IP Address		192.168.100.2	
Default Route		no	
Remote IP Address		192.168.1.0	
Remote Netmask		255.255.255.0	
SAVE		CANCEL	

To be able to transfer IP datagrams between two remote LANs, the gateway must know the route to the respective destination network. In this menu you can define the basic routing or generate a default route to the partner gateway.

**Default route** All data is sent automatically to the WAN partner on a default route, if no other route matches.

Setting up an Internet connection, you should configure the route to your Internet Service Provider (ISP) as a default route.

If you configure e.g. a corporate network connection, only enter the route to the head office as a default route if you do not configure Internet access over your gateway.

If you configure both Internet access and a corporate network connection, enter a default route to the ISP and a network route to the head office.

You can configure several default routes on your gateway, but only one can be active. Make sure that you set different values for **METRIC**, if you configure more than one default route.

**Transit network** You use an additional IP address each for your gateway and the WAN partner. This sets up a virtual IP network – called a transit network – during the connection. You do not normally need this setting, but it is necessary for some special configurations.

If in **WAN PARTNER → ADD/EDIT → ADVANCED SETTINGS → LAYER 1 PROTOCOL** other options than *PPP over PPTP* are set, the **BASIC IP-SETTINGS** menu consists of the following fields:

Field	Description
IP Transit Network	<p>Defines whether your gateway uses a transit network to the WAN partner. Possible values:</p> <ul style="list-style-type: none"> <li>■ <i>yes</i>: The transit network is used.</li> <li>■ <i>no</i> (default value): The transit network is not used.</li> <li>■ <i>dynamic client</i>: Your gateway receives an IP address dynamically.</li> <li>■ <i>dynamic server</i>: Your gateway assigns IP addresses to the remote gateway dynamically.</li> </ul>
Local IP Address	<p>Only for <b>IP TRANSIT NETWORK</b> = <i>yes</i>, <i>no</i>.</p> <ul style="list-style-type: none"> <li>■ if <i>yes</i> = WAN IP address of your gateway</li> <li>■ if <i>no</i> = LAN IP address of your gateway</li> </ul>
Partner IP Address	<p>Only if <i>yes</i> is set for <b>IP TRANSIT NETWORK</b>. WAN partner's WAN IP address in the transit network.</p>
Enable NAT	<p>Only if <i>dynamic client</i> is set for <b>IP TRANSIT NETWORK</b>. Possible values:</p> <ul style="list-style-type: none"> <li>■ <i>yes</i>: NAT is activated for this WAN partner.</li> <li>■ <i>no</i> (default value): NAT is deactivated for this WAN partner.</li> </ul> <p>The settings in this menu correspond to NAT activation in the <b>IP → NETWORK ADDRESS TRANSLATION → EDIT</b> menu.</p>

Field	Description
Default Route	Only if <i>dynamic client</i> , <i>no</i> or <i>yes</i> is set for <b>IP TRANSIT NETWORK</b> . Possible values: <ul style="list-style-type: none"> <li>■ <i>yes</i>: Route to this WAN partner is defined as default route.</li> <li>■ <i>no</i> (default value): Route to this WAN partner is not defined as default route.</li> </ul>
Remote IP Address	Only if <i>yes</i> or <i>no</i> is set for <b>IP TRANSIT NETWORK</b> . WAN partner's LAN IP address.
Remote Netmask	Only if <i>yes</i> or <i>no</i> is set for <b>IP TRANSIT NETWORK</b> . WAN partner's LAN netmask.

Table 4-1: **BASIC IP SETTINGS** menu fields

For an xDSL connection via PPTP, e.g. by Telekom Austria, *PPP over PPTP* is set in **WAN PARTNER → ADD/EDIT → ADVANCED SETTINGS → LAYER 1 PROTOCOL**. Then the **BASIC IP-SETTINGS** menu consists of the following fields:

Field	Description
PPTP VPN Partner's IP Address	Here you enter the IP address of the PPTP remote terminal of your Internet Service Provider (=ISP).
via IP Interface	This field is displayed if an IP address has been entered into the field <b>PPTP VPN PARTNER'S IP ADDRESS</b> . Here you select the IP interface via which packets from/to the PPTP remote terminal are transported.
Use Gateway	This field is displayed, when an interface has been selected in <b>VIA IP INTERFACE</b> . Defines whether the PPTP tunnel is carried out via another gateway. Default value is <i>no</i> , which should only be modified in special applications.

Field	Description
Gateway IP Address	Only if <b>USE GATEWAY</b> = <i>yes</i> IP address of the gateway activated by setting <b>USE GATEWAY</b> to <i>yes</i> .
Local PPTP VPN IP Address	This field is displayed, if an interface has been selected in <b>VIA IP INTERFACE</b> and if <b>USE GATEWAY</b> is set to <i>no</i> . IP address of your gateway for the PPTP connection.
Enable NAT	Defines if Network Address Translation is active. Possible values: <ul style="list-style-type: none"> <li>■ <i>yes</i>: NAT is activated for this WAN partner.</li> <li>■ <i>no</i> (default value): NAT is deactivated for this WAN partner.</li> </ul>
Default Route	Defines if the route to this WAN partner is set as default route. Possible values: <ul style="list-style-type: none"> <li>■ <i>yes</i>: Route to this WAN partner is defined as default route.</li> <li>■ <i>no</i> (default value): Route to this WAN partner is not defined as default route.</li> </ul>

Table 4-2: **BASIC IP SETTINGS** menu fields for **LAYER 1 PROTOCOL = PPP over PPTP**

## 4.2 Submenu More Routing

The fields of the **MORE ROUTING** submenu are described below.

If a route has been entered for a specific WAN partner in **BASIC IP-SETTINGS**, a routing entry is created automatically in your gateway's routing table. The submenu **MORE ROUTING** appears in the **WAN PARTNER → IP** menu. In this menu you can edit the routing entries of a specific WAN partner and add other entries.

All the IP routes entered are listed in the **IP → MORE ROUTING** menu:

X2302 Setup Tool		Bintec Access Networks GmbH	
[WAN] [ADD] [IP] [ROUTING]: IP Routing (branch)		MyGateway	
The flags are: U (Up), D (Dormant), B (Blocked), G (Gateway Route), I (Interface Route), S (Subnet Route), H (Host Route), E (Extended Route)			
Destination	Gateway	Mask	Flags Met. Interface Pro
192.168.1.0	192.168.100.2	255.255.255.0	DG 1 branch loc
192.168.100.2	192.168.100.1	255.255.255.0	DH 1 branch loc
ADD		ADDEXT DELETE EXIT	

**FLAGS** shows the current status (*Up, Dormant, Blocked*) and the type of route (*Gateway Route, Interface Route, Subnet Route, Host Route, Extended Route*). The protocol with which your gateway has "learned" the routing entry is displayed under **PRO**.

More routes are added in the **WAN PARTNER → IP → MORE ROUTING → ADD** menu. Existing entries can be edited by tagging the desired list entry and pressing the Return key.

X2302 Setup Tool		Bintec Access Networks GmbH	
[WAN] [EDIT] [IP] [ROUTING] [EDIT]		MyGateway	
Route Type	Network route		
Network	WAN with transit network		
Destination IP Address	192.168.1.0		
Netmask	255.255.255.0		
Gateway IP-Address	192.168.100.2		
Metric	0		
SAVE		CANCEL	

The **MORE ROUTING → ADD/EDIT** menu consists of the following fields:

Field	Description
Route Type	Type of route. Possible values: <ul style="list-style-type: none"> <li>■ <i>Host route</i>: Route to a single host</li> <li>■ <i>Network route</i>: Route to a network</li> <li>■ <i>Default route</i>: Is only used if no other suitable route is available.</li> </ul>
Network	Defines the type of connection. For possible values see <a href="#">table “Selection options in Network field,” on page 22.</a> The displayed value cannot be modified in this menu. It depends on the setting of <b>IP TRANSIT NETWORK IN WAN PARTNER → ADD/EDIT → IP → BASIC IP-SETTINGS.</b>
Destination IP Address	Only for <b>ROUTE TYPE</b> <i>Host route</i> or <i>Network route</i> . IP address of the destination host or LAN.
Netmask	Netmask of the partner LAN (only possible for <b>ROUTE TYPE</b> = <i>Network route</i> ; if no entry is made the gateway uses a standard netmask).
Partner / Interface	WAN partner resp. interface (only for <b>NETWORK</b> = <i>WAN without transit network</i> ).
Gateway IP Address	Only for <b>NETWORK</b> <i>WAN with transit network</i> . IP address of the host to which your gateway should forward the IP packets.
Metric	The lower the value, the higher the priority of the route (possible values 0...15).

Table 4-3: **MORE ROUTING** menu fields

**NETWORK** offers the following selection options:

Description	Meaning
WAN without transit network	Route to a destination host or LAN that can be reached via a WAN partner without including any transit network available.
WAN with transit network	Route to a destination host or LAN that can be reached via a WAN partner via a transit network.

Table 4-4: Selection options in **NETWORK** field

In addition to the normal routing table, the **XGeneration** gateway can also make routing decisions based on an additional table called the Extended Routing Table (Extended IP Routing). Apart from the source and destination address, the **XGeneration** gateway can also include the protocol, source and destination port, type of service (TOS) and the status of the destination interface in the decision. If there are entries in the Extended Routing Table, these are treated preferentially compared with entries in the normal routing table.

To create extended IP routing entries, press the **ADDEXT** button to open the relevant menu.

**Example** Extended IP Routing (XIPR) is useful, for example, if two networks are connected via ISDN with a LAN-LAN connection, but certain services (e.g. Telnet) should be routed over an X.25 link and not over an ISDN switched connection. By making entries in the Extended Routing Table, you can allow part of the IP traffic to run over the ISDN switched connection and part of the IP traffic (e.g. for Telnet) to run over an X.25 link.



Configuration is made in the Setup Tool menu **WAN PARTNER → IP → MORE ROUTING → ADDEXT.**

X2302 Setup Tool		Bintec Access Networks GmbH	
[WAN] [ADD] [IP] [ROUTING]: IP Routing - Extended Route		MyGateway	
Route Type	Host route		
Network	WAN without transit network		
Destination IP Address			
Metric	1		
Source Interface	don't verify		
Source IP Address			
Source Mask			
Type of Service (TOS)	00000000	TOS Mask	00000000
Protocol	don't verify		
SAVE		CANCEL	

The menu contains the following fields:

Field	Description
Route Type	Type of route. Possible values: <ul style="list-style-type: none"> <li>■ <i>Host route</i>: Route to a single host</li> <li>■ <i>Network route</i>: Route to a network</li> <li>■ <i>Default route</i>: Is only used if no other suitable route is available.</li> </ul>
Network	Defines the type of connection, see <a href="#">table "Selection options in Network field," on page 22.</a> The displayed value cannot be modified in this menu. It depends on the setting of <b>IP TRANSIT NETWORK IN WAN PARTNER → ADD/EDIT → IP → BASIC IP-SETTINGS.</b>

Field	Description
Destination IP Address	Only for <b>ROUTE TYPE</b> = <i>Host route</i> or <i>Network route</i> IP address of the destination host or LAN.
Netmask	Only for <b>ROUTE TYPE</b> = <i>Network route</i> Netmask of <b>DESTINATION IP-ADDRESS</b> .
Partner / Interface	Displays the WAN partner (only possible for <b>NETWORK</b> = <i>WAN without transit network</i> ). Field cannot be modified.
Mode	Only for <b>NETWORK</b> = <i>WAN without transit network</i> . Defines when the WAN partner is to be used. Possible values see <a href="#">table "Mode selection options," on page 25</a>
Gateway IP Address	Only for <b>NETWORK</b> <i>WAN with transit network</i> . IP address of the host to which your gateway should forward the IP packets.
Metric	The lower the value, the higher the priority of the route (possible values <i>0...15</i> ). Default value is <i>1</i> .
Source Interface	Interface over which the data packets reach the gateway. Default value is <i>don't verify</i> .
Source IP-Address	Source IP address of the source host or LAN.
Source Mask	Netmask of <b>SOURCE IP-ADDRESS</b> .
Type of Service (TOS)	Possible values: <i>0..255</i> as bit string.
TOS Mask	Bit mask for <b>TYPE OF SERVICE</b> .

Field	Description
Protocol	Defines a protocol. Possible values: <i>don't verify, icmp, ggp, tcp, egp, pup, udp, hmp, xns, rdp, rsvp, gre, esp, ah, igrp, ospf, l2tp.</i> Default value is <i>don't verify</i> .
Source Port	Only for <b>PROTOCOL</b> = <i>tcp, udp</i> Source port number or range of source port numbers.
Destination Port	Destination port number or range of destination port numbers. Only for <b>PROTOCOL</b> = <i>tcp, udp</i>

Table 4-5: **ADEXT** menu fields

The **MODE** field includes the following selection options:

Description	Meaning
always	Always use the route.
dialup wait	Use the route if the interface is "up". If the interface is "dormant", dial and wait until the interface is "up". Otherwise reroute.
dialup continue	Use the route if the interface is "up". If the interface is "dormant", dial but reroute until the interface is "up". Otherwise reroute.
up only	Use the route if the interface is "up". Otherwise reroute.

Table 4-6: **MODE** selection options

The **SOURCE PORT** and **DESTINATION PORT** fields contain the following selection options:

Description	Meaning
any	All >> port numbers match the route.
specify	Enables the entry of a port number.
specify range	Enables the entry of a range of port numbers.
priv (0..1023)	Port numbers: 0 ... 1023.
server (5000..32767)	Port numbers: 5000 ... 32767.
clients 1 (1024..4999)	Port numbers: 1024 ... 4999.
clients 2 (32768..65535)	Port numbers: 32768 ... 65535.
unpriv (1024..65535)	Port numbers: 1024 ... 65535.

Table 4-7: Selection options of **SOURCE PORT** and **DESTINATION PORT**

### 4.3 Submenu Advanced Settings

The fields of the **ADVANCED SETTINGS** submenu are described below.

X2302 Setup Tool		Bintec Access Networks GmbH
[WAN] [EDIT] [IP] [ADVANCED]: Advanced Settings (branch)		MyGateway
RIP Send		none
RIP Receive		none
IP Accounting		off
Back Route Verify		off
Route Announce		up or dormant
Proxy Arp		off
Van Jacobson Header Compression		off
Dynamic Name Server Negotiation		yes
OK		CANCEL

Extended routing settings and other adjustments for the respective WAN partner can be made in the **WAN PARTNER → IP → ADVANCED SETTINGS** menu.

**RIP** The entries in the routing table can be defined statically or the routing table can be updated constantly by a dynamic exchange of routing information between several gateways. This exchange is controlled by a Routing Protocol, e.g. RIP (Routing Information Protocol).

Gateways use **➤➤ RIP** to exchange information stored in routing tables by communicating with each other at regular intervals to mutually supplement and replace their routing entries. The **XGeneration** gateway supports both version 1 and version 2 of RIP, either individually or together.

RIP is configured separately for LAN and WAN.

#### Active and passive

Gateways can be defined as active or passive gateways: Active gateways offer their routing entries to other gateways via **➤➤ broadcasts**. Passive gateways accept the information from the active gateways and store it, but do not pass on their own routing entries. The **XGeneration** gateway can be either active or passive.

### WAN partner

If you negotiate with a WAN partner to receive and/or send RIP packets, your gateway can exchange routing information dynamically with the gateways in the LAN of the remote gateway.



#### Note

Receiving routing tables via the RIP is a possible security loophole, as external computers or gateways can change the routing functionality of the **XGeneration** gateway.

RIP packets do not set up or hold dialup connections.

**IP Accounting** This option is for activating or deactivating the creation of IP accounting messages for this WAN partner. If IP accounting is activated, a statistics message is generated (and entered in the **biboAdmSyslogTable**), which contains detailed information about the connections to this WAN partner. (Settings for storage of accounting messages into a file can be done in **SYSTEM → EXTERNAL SYSTEM LOGGING**.)

**Back Route Verification** This term conceals a simple but very powerful function of the **XGeneration** gateway. If Backroute Verification is activated for a WAN partner, data packets are only accepted at the interface if answering packets would be routed over the same interface. You can therefore prevent packets with fake IP addresses being accepted – even without filters.

**Route Announce** This option enables you to set when routing protocols (e.g. RIP), that have been activated if applicable, propagate the IP routes defined for this interface.

**Proxy ARP** >>> **Proxy ARP** enables the gateway to answer >>> **ARP** requests from its own LAN acting for the defined WAN partner. If a host in the LAN wants to set up a connection to another host in the LAN or to a WAN partner, but doesn't know its hardware address (MAC address), it sends an ARP request as a >>> **broadcast** to the network. If Proxy ARP is activated on the gateway and the desired target host can be reached e.g. via a host route, the gateway answers the ARP request with its own hardware address. This is sufficient for establishing the connection: The >>> **data packets** are sent to the gateway, which then forwards them to the desired host.

The **ADVANCED SETTINGS** menu consists of the following fields:

Field	Description
RIP Send	Enables RIP packets to be sent via the interface to the WAN partner. Possible values: see <a href="#">table “Selection options for RIP Send and RIP Receive,” on page 31.</a>
RIP Receive	For receiving RIP packets via the interface to the WAN partner. Possible values: see <a href="#">table “Selection options for RIP Send and RIP Receive,” on page 31.</a>
IP Accounting	For generating accounting messages for e.g. <b>&gt;&gt; TCP</b> , <b>&gt;&gt; UDP</b> and ICMP sessions. Possible values: <i>on</i> , <i>off</i> (default value).
Back Route Verify	Activates Back Route Verification for the interface to the WAN partner. Possible values: <i>on</i> , <i>off</i> (default value).
Route Announce	Possible values: <ul style="list-style-type: none"> <li>■ <i>up or dormant</i> (default value): Routes are propagated if the interface’s status is <i>up</i> or <i>dormant</i>.</li> <li>■ <i>always</i>: Routes are always propagated independent of operational status.</li> <li>■ <i>up only</i>: Routes are only propagated if the interface status is <i>up</i>.</li> </ul>
Proxy ARP	Enables the <b>XGeneration</b> gateway to answer ARP requests from the own LAN acting for the defined WAN partner. Possible values: see <a href="#">table “Proxy ARP selection options,” on page 31.</a>

Field	Description
Van Jacobson Header Compression	Reduces the size of the TCP/IP packet. Possible values: <ul style="list-style-type: none"> <li>■ <i>on</i>: VJHC activated.</li> <li>■ <i>off</i>: VJHC deactivated.</li> </ul>
Dynamic Name Server Negotiation	Defines whether the <b>XGeneration</b> gateway receives IP addresses for <b>PRIMARY DOMAIN NAME SERVER</b> , <b>SECONDARY DOMAIN NAME SERVER</b> , <b>PRIMARY WINS</b> and <b>SECONDARY WINS</b> from the WAN partner or sends them to the WAN partner. For possible values see <a href="#">table "Dynamic Name Server Negotiation selection options," on page 32.</a>

Table 4-8: **ADVANCED SETTINGS** menu fields

**RIP SEND** and **RIP RECEIVE** contain the following selection options:

Description	Meaning
none	Not activated.
RIP V2 multicast	Only for <b>RIP SEND</b> The gateway waits for version 2 RIP packets with RIP V2 multicast address 224.0.0.9.
RIP V1 triggered	RIP V1 messages are sent resp. received and processed as per RFC 2091 (Triggered >> <b>RIP</b> ).
RIP V2 triggered	RIP V2 messages are sent resp. received and processed as per RFC 2091 (Triggered >> <b>RIP</b> ).
RIP V1	For sending and receiving version 1 RIP packets.
RIP V2	For sending and receiving version 2 RIP packets.



Description	Meaning
RIP V1 + V2	For sending and receiving RIP packets of both version 1 and 2.

Table 4-9: Selection options for **RIP SEND** and **RIP RECEIVE**

**PROXY ARP** offers the following selection options:

Description	Meaning
off	Deactivates Proxy ARP for this WAN partner.
on (up or dormant)	The <b>XGeneration</b> gateway answers an ARP request only if the status of the connection to the WAN partner is <i>up</i> (active) or <i>dormant</i> (idle). In the case of <i>dormant</i> , the <b>XGeneration</b> gateway only answers the ARP request; the connection is not set up until someone actually wants to use the route.
on (up only)	The <b>XGeneration</b> gateway answers an ARP request only if the status of the connection to the WAN partner is <i>up</i> (active), i.e. a connection already exists to the WAN partner.

Table 4-10: **PROXY ARP** selection options

**DYNAMIC NAME SERVER NEGOTIATION** contains the following selection options:

Description	Meaning
off	The <b>XGeneration</b> gateway sends or answers no requests for name server addresses.

Description	Meaning
yes	<p>The meaning depends on the settings in <b>WAN PARTNER → EDIT → IP</b> under <b>IP TRANSIT NETWORK</b>):</p> <ul style="list-style-type: none"> <li>■ If <i>dynamic client</i> has been selected, the <b>XGeneration</b> gateway sends Name Server Address Requests to the WAN partner.</li> <li>■ If <i>dynamic server</i> has been selected, the <b>XGeneration</b> gateway answers Name Server Address Requests from the WAN partner.</li> <li>■ If <i>yes</i> or <i>no</i> has been selected, the <b>XGeneration</b> gateway answers, but sends no Name Server Address Requests .</li> </ul>
client (receive)	The <b>XGeneration</b> gateway sends Name Server Address Requests to the WAN partner.
server (send)	The <b>XGeneration</b> gateway answers Name Server Address Requests from the WAN partner.

Table 4-11: **DYNAMIC NAME SERVER NEGOTIATION** selection options

# 1 Submenu Bridge

The **BRIDGE** submenu is described below.

X2302 Setup Tool	Bintec Access Networks GmbH
[WAN] [ADD] [BRIDGE]: Bridge Configuration (branch)	MyGateway
Enable Bridging	no
OK	CANCEL

The **XGeneration** gateway can be operated in Bridging Mode.

In contrast to a **router**, bridges operate at layer 2 of the **OSI model**, are independent of higher-level protocols and transmit data packets using **MAC addresses**.

Bridges are used to physically decouple networks and to reduce network data traffic. This is done by using filter functions that allow data packets to pass to certain network segments only.

To operate the **XGeneration** gateway in Bridging Mode, the function must be activated in the field **BRIDGING** for the respective Ethernet interface of the LAN.

To include the defined WAN partner in the bridging function, the value in the **ENABLE BRIDGING** field is set to *yes* (default value is *no*).



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