ATM

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 7.1.15 resp. 7.1.19 for WLAN 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.funkwerk-ec.com.

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R&TTE Directive 1999/5/EG

CE marking for all EU countries and Switzerland

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1 ATM Menu

The fields of the *ATM* menu are described below.

```
X2302w Setup Tool                          Bintec Access Networks GmbH
[ATM]: ATM Configuration                                    MyGateway


       Ethernet over ATM >

       PPP over ATM >

       Routed Protocols over ATM >


       OAM >

       ATM QoS >

       EXIT
```

The first ATM root menu provides access to the following configuration menus:

- Protocol Configurations (***ETHERNET OVER ATM***, ***PPP OVER ATM***, ***ROUTED PROTOCOLS OVER ATM***)
- Operation and Maintenance Configuration (***OAM***)
- Quality of Service for ATM Connections (***ATM QOS***).

The ATM profile is configured in the protocol menu corresponding to the protocol you use for the ATM interface.

1 ATM Menu

2 Ethernet over ATM Submenu

The fields of the *ETHERNET OVER ATM* menu are described below.

The first menu window shows all the connections (PVCs) already configured that use Ethernet over ATM (ETHoA). Press **ADD/EDIT** to access the menu for configuring an ETHoA connection:

```
X2302w Setup Tool                Funkwerk Enterprise Communications GmbH
[ATM] [ETHOA] [ADD]                                              MyGateway


     Description

     ATM Interface                        atm860-3

     Virtual path identifier (VPI)        1
     Virtual channel identifier (VCI)     32

     Encapsulation                        bridged-no-fcs

     IP and Bridging >


                    SAVE                                  CANCEL
```

The menu contains the following fields:

Field	Description
Description	Here you enter the desired description for the connection.
ATM Interface	The ATM interface is only shown and cannot be selected. Bintec gateways are currently equipped with only one ATM interface.

Field	Description
Virtual path identifier (VPI)	Here you enter the VPI value of the ATM connection. ATM distinguishes VP (Virtual Path) and VC (Virtual Channel). Each VP can envelop up to 65503 VCs. The VPI is the identification number of the virtual path to be used in the ATM network. Possible values are *0* to *255* and the default value is *1*.
Virtual channel identifier (VCI)	Here you enter the VCI value of the ATM connection. The VCI is the identification number of the virtual channel to be used in the ATM network. A virtual channel is the logical connection for the transport of ATM cells between two or more points. Possible values are *32* to *65535* and the default value is *32.*
Encapsulation	Here you select the encapsulation to be used. Possible settings: ■ *bridged-no-fcs* - Default value. Bridged Ethernet without frame check sequence (checksum field) ■ *bridged-fcs* - Bridged Ethernet with frame check sequence (checksum field) ■ *VC Multiplexing* - Allows the use of multiplexing on the virtual channel.

Table 2-1: ***ATM → ETHERNET OVER ATM → ADD/EDIT***

Note

The ATM encapsulations are described in RFC 1483 and 2684.

You will find the RFC on the relevant pages of the IETF (www.ietf.org/rfc.html).

Note

For ETHoA connections interfaces within the index range of 50.000 and 79.999 are created.

The menu also allows access to the ***IP AND BRIDGING*** menu.

2.1 IP and Bridging Submenu

The fields of the *ATM* ➜ *ETHERNET OVER ATM* ➜ *ADD/EDIT* ➜ *IP AND BRIDGING* menu are described below.

In the ***IP AND BRIDGING*** menu you configure the local Ethernet interface for the ATM connection. The available parameters are identical with those of the menu for the configuration of physical Ethernet interfaces (***ETHERNET***).

```
X2302w Setup Tool                          Bintec Access Networks GmbH
[ATM][ETHOA][ADD][IP]: Configure Ethernet over ATM          MyGateway


     IP-Configuration           Manual
         local IP-Number
         local Netmask


         Encapsulation          none
    MAC Address

    Bridging                    disabled

    Virtual Interfaces >

              SAVE                                  CANCEL
```

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

Field	Description
IP-Configuration	Possible values: ■ *Manual*: Default value. IP address and netmask must be entered (default value). ■ *VLAN*: Allows the assignment of the Ethernet interface to a ➤➤ **VLAN**. ■ *DHCP*: Your gateway obtains, among other values, IP address and netmask from a DHCP server.
local IP-Number	IP address of your gateway in the network at the interface.
local Netmask	Netmask of the network in which your gateway with ***LOCAL IP NUMBER*** is located.
Second Local IP Number	Only for ***IP CONFIGURATION*** *Manual* or *VLAN* and after entering a ***LOCAL IP-NUMBER***. Second IP address of your gateway in the network.
Second Local Netmask	Only for ***IP CONFIGURATION*** *Manual* or *VLAN*. Netmask of the network in which your gateway with ***SECOND LOCAL IP NUMBER*** is located.
DHCP MAC Address	Only for ***IP CONFIGURATION*** *DHCP*. MAC address of the corresponding Ethernet interface, e.g. *00e1f906bf03*. Some providers use hardware-independent MAC addresses to assign their clients IP addresses dynamically. If your provider has assigned you a MAC address, enter this here.
DHCP Hostname	Only for ***IP CONFIGURATION*** *DHCP*. In this field you can enter the host name required by the ISP. The maximum length of the entry is 45 characters.

Field	Description
Encapsulation	Defines the kind of header added to the IP packets that run over this interface. Possible values: ■ *Ethernet II* (conforms to IEEE 802.3, default value) ■ *Ethernet SNAP* You can generally retain the default value *Ethernet II*. The interface is called e.g. en0-1 for *Ethernet II* and en0-1-snap for *Ethernet SNAP*.
Mode	Defines the mode in which the interface is operated. Possible values: ■ *100 Mbps Full Duplex* (default value): for **X2301** and **X2302** only this value can be configured. ■ *Auto* ■ *10 Mbps Half Duplex* ■ *10 Mbps Full Duplex* ■ *100 Mbps Half Duplex*
MAC Address	Only for ***IP CONFIGURATION*** *Manual* or *VLAN*. Here you can assign the interface another MAC address. This is only required for configurations that are more complex than the basic configuration, e.g. *00a0f906bf03*.
VLAN ID	Only for ***IP CONFIGURATION*** *VLAN*. Here you can assign the Ethernet interface to a VLAN by entering the relevant VLAN ID.

Field	Description
Bridging	Here you can activate ***BRIDGING*** for this interface. This function is only necessary for special configurations. Possible values: *disabled* (default value), *enabled*.

Table 2-2: ***ETHERNET*** menu fields

2.1.1 Advanced Settings Submenu

```
X2302w Setup Tool                          Bintec Access Networks GmbH
[ATM][ETHOA][EDIT][IP][ADVANCED]: Advanced Settings          MyGateway


    RIP Send                   none
    RIP Receive                none

    IP Accounting              off
    Proxy Arp                  off
    Back Route Verify          off


          SAVE                              CANCEL
```

The ***ATM ETHERNET OVER ATM ADD/EDIT*** ➜ ***IP AND BRIDGING*** ➜ ***ADVANCED SETTINGS*** menu contains settings for the Routing Information Protocol (RIP), IP Accounting, Proxy ARP and "Back Route Verify". The menu is only displayed after entering an IP address in ***LOCAL IP-NUMBER***.

The menu consists of the following fields:

Field	Description
RIP Send	Enables RIP packets to be sent via the Ethernet interface. Possible values: see table “Selection options for RIP Send and RIP Receive,” on page 12, default value is *none*.

Field	Description
RIP Receive	For receiving RIP packets via the Ethernet interface. Possible values: see table “Selection options for RIP Send and RIP Receive,” on page 12, default value is *none*.
IP Accounting	For generating accounting messages for e.g. ➤➤ **TCP-**, ➤➤ **UDP** and ICMP sessions. Possible values: *on*, *off* (default value).
Proxy ARP	Enables the **XGeneration** gateway to answer ARP requests from its own LAN acting for a defined WAN partner. Possible values: *on*, *off* (default value).
Back Route Verify	Activates Backroute Verification for the Ethernet interface. Possible values: *on, off* (default value).

Table 2-3: ***ADVANCED SETTINGS*** menu fields

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

Description	Meaning
none	Not activated.
RIP V2 multicast	Only for ***RIP SEND*** For sending RIP V2 messages over the multicast address 224.0.0.9.
RIP V1 triggered	RIP V1 messages are sent rsp. received and processed as per RFC 2091. (Triggered ➤➤ **RIP**).
RIP V2 triggered	RIP V2 messages are sent rsp. received and processed as per RFC 2091. (Triggered ➤➤ **RIP**).
RIP V1	For sending and receiving RIP packets of version 1.

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

Table 2-4: Selection options for ***RIP SEND*** and ***RIP RECEIVE***

2.1.2 Virtual Interfaces Submenu

The fields of the *VIRTUAL INTERFACES* submenu are described below.

```
X2302w Setup Tool                          Bintec Access Networks GmbH
[ATM][VIRTUAL][ADD]: Configure Virtual                      MyGateway
                     LAN Interface # 1

     IP-Configuration            Manual
          Local IP-Number
          Local Netmask



          Encapsulation          none
     MAC Address                 00a0f9


     Advanced Settings >

               SAVE                                  CANCEL
```

The virtual interfaces are shown in the ***ATM ETHERNET OVER ATM ADD/EDIT*** ➜ ***IP AND BRIDGING*** ➜ ***VIRTUAL INTERFACES*** menu. In the ***ATM ETHERNET OVER ATM ADD/EDIT*** ➜ ***IP AND BRIDGING*** ➜ ***VIRTUAL INTERFACES*** ➜ ***ADD/EDIT*** menu you configure virtual Ethernet interfaces for e.g. redundant networks.

The menu consists of the following fields:

Field	Description
IP-Configuration	Here you select one of four different configuration modes. Possible values: see table “Selection options in IP Configuration,” on page 14.
Local IP Number	Here you assign an IP address to the virtual interface.
Local Netmask	Enter the netmask for the ***LOCAL IP-NUMBER***.
Second Local IP Number	Only for ***IP CONFIGURATION*** *Manual* or *VLAN* and after entering a ***LOCAL IP-NUMBER***. Second IP address of your gateway in the network.
Second Local Netmask	Only for ***IP CONFIGURATION*** *Manual* or *VLAN*. Netmask of the network in which your gateway with ***SECOND LOCAL IP NUMBER*** is located.
Encapsulation	Defines the kind of header added to the IP packets that run over this interface. Possible values: ■ *Ethernet II* (conforms to IEEE 802.3, default value) ■ *Ethernet SNAP* ■ *none* You can generally retain the default value *Ethernet II*. The interface is called e.g. en0-1 for *Ethernet II* and en0-1-snap for *Ethernet SNAP*.

Field	Description
MAC Address	Enter the MAC address associated with the virtual interface. You can use the MAC address of the physical interface under which the virtual interface was created, but this is not necessary. You can also assign a virtual MAC address. In *VLAN* and *Manual* mode, the first six 6 characters of the MAC address (in *BRRP* and *BRRP over LAN* mode the first ten characters) are set as default, but can be changed.
VLAN ID	Is only shown if ***IP CONFIGURATION*** is set to *VLAN* or *BRRP over VLAN*. Here you assign the virtual interface to a VLAN by assigning the VLAN ID of the respective VLAN. Possible values are *1* (default value) to *4094*.

Table 2-5: ***VIRTUAL INTERFACES*** submenu fields

IP CONFIGURATION contains the following selection options:

Description	Meaning
Manual	This mode permits simple manual IP configuration.
VLAN	The assignment to a VLAN is made via the VLAN ID, which is configured in this mode. A MAC address must be defined in this mode.

Table 2-6: Selection options in ***IP CONFIGURATION***

This menu provides access to the ***ADVANCED SETTINGS*** submenu. It contains the same option as the as “Advanced Settings Submenu” on page 10.

3 PPP over ATM submenu

The fields of the *PPP OVER ATM* menu are described below.

The menu for the configuration of a PVC (Permanent Virtual Circuit, die Verbindung zwischen zwei Partnern via ATM) with PPP over ATM (PPPoA) differs only slightly from the menu for the configuration of an ETHoA PVC and contains a list of all configured PVCs.

The configuration is carried out in the ***ATM*** ➜ ***PPP OVER ATM*** ➜ ***ADD/EDIT*** menu:

```
X2302w Setup Tool                          Bintec Access Networks GmbH
[ATM] [PPPOA] [ADD]                                          MyGateway


   Description

   ATM Interface                       ar7sar-3

   Virtual path identifier (VPI)       8
   Virtual channel identifier (VCI)    32

   Encapsulation                       VC Multiplexing

   Client Type                         Permanent (Leased Line)



            SAVE                                  CANCEL
```

The following fields in this menu are new or provide other options:

Field	Description
Encapsulation	Here you select the encapsulation to be used. Possible settings: ■ *VC Multiplexing* - Default value. Allows the use of multiplexing on the virtual channel. ■ *llc* - The LLC protocol (Logical Link Control Protocol) is used for the connection.
Client Type	Here you select whether the PPPoA connection is set up permanently or on demand. Possible settings: ■ *Permanent (Leased Line)* - Default value. This setting creates interfaces within the index range of *80.000* and *89.999*. ■ *On Demand (Dialup).*

Table 3-1: ***ATM*** ➜ ***PPP OVER ATM*** ➜ **ADD/EDIT**

Note

Choosing **Client Type** *On Demand (Dialup)* does not automatically create an entry in the **pppTable**. This means that you may need to create an appropriate WAN-Partner using the Layer 1 Protocol PPPoA.

A respective WAN-Partner is automatically created for permanent connections.

4 Routed Protocols over ATM Sub-menu

The fields of the *ROUTED PROTOCOLS OVER ATM* menu are described below.

The menu for the configuration of a connection via Routed Protocols over ATM (RPoA) (***ATM*** ➜ ***ROUTED PROTOCOLS OVER ATM*** ➜ ***ADD/EDIT***) also differs only in parts from the ETHoA menu.

The configuration is carried out in the ***ATM*** ➜ ***ROUTED PROTOCOLS OVER ATM*** ➜ ***ADD/EDIT*** menu:

```
X2302w Setup Tool                          Bintec Access Networks GmbH
[ATM][RPOA][ADD]                                             MyGateway

  Description

  ATM Interface                        ar7sar-3

  Virtual path identifier (VPI)        8
  Virtual channel identifier (VCI)     32

  Encapsulation                        non-ISO

  IP >


            SAVE                                  CANCEL
```

The differences are to be found in the following fields:

Field	Description
Encapsulation	Here you select the encapsulation to be used. Possible settings: ■ *non-ISO* - Default value. Encapsulation according to IEEE 802.1a LLC / RFC 2684. ■ *ISO (not allowed for IP)* - Encapsulation according to IEEE 802.2 LLC / RFC 2684. ■ *VC Multiplexing* - Allows the use of multiplexing on the virtual channel.

Table 4-1: ***ATM*** ➜ ***ROUTED PROTOCOLS OVER ATM*** ➜ ***ADD/EDIT***

Note

For RPoA connections interfaces within the index range of *90.000* and *99.999* are created.

4.1 IP Submenu

The *IP* menu is described below.

Only the following parameters are available for IP configuration with RPoA connections:

Field	Description
IP-Configuration	Here you select the configuration mode. Possible values: ■ *Manual* (default value): IP address and netmask must be entered. ■ *DHCP*: Your gateway obtains, among other values, IP address and netmask from a DHCP server.
Local IP-Number	IP address of your gateway in the network at the interface.
Local Netmask	Netmask of the network in which your gateway with ***LOCAL IP NUMBER*** is located.

Table 4-2: Fields in the ***ATM*** ➜ ***PPP OVER ATM*** ➜ ***ADD/EDIT*** ➜ ***IP*** menu

4 Routed Protocols over ATM Submenu

5 OAM Submenu

The fields of the *OAM* menu are described below.

OAM is a service for monitoring ATM connections. A total of five hierarchies (F1 to F5) are defined for OAM information flow. The most important information flows for an ATM connection are F4 and F5. The F4 information flow concerns the virtual path (VP) and the F5 information flow the virtual channel (VC).

Note

In general monitoring is not initiated by your gateway but is initiated by the ISP. The gateway only has to respond correctly to the signals received. This is the case for both Flow levels (4 and 5) even without a specific OAM configuration.

Two mechanisms are available for monitoring the ATM connection: Loopback Tests and OAM CC (OAM Continuity Check). These can be configured independently of each other. First the configuration can be specified for an already defined Virtual Channel Connection (VCC, specified by the definition of VPI and VCI in one of the menus for configuration of ATM connections). Second you can also define new combinations of VPI and VCI and then make the OAM settings.

The configuration is carried out in the ***ATM*** ➜ ***OAM*** ➜ ***ADD/EDIT*** menu.

```
X2302w Setup Tool                              Bintec Access Networks GmbH
[ATM][OAM][ADD]                                                 MyGateway

  ATM Interface           ar7sar-3

  OAM flow level          virtual channel (VC) level (F5)

  Virtual channel connection (VCC)      specify VPI/VCI
  VPI   0           VCI   32

  Loopback
     Loopback End-to-End    disabled      Loopback Segment   disabled



  CC activation
     CC End-to-End passive            CC Segment    passive
     Direction     both               Direction     both

                SAVE                                CANCEL
```

The menu contains the following fields:

Field	Description
ATM Interface	The ATM interface is only shown and cannot be selected. BinTec gateways are currently equipped with only one ATM interface.
OAM flow level	Here you select the OAM flow level. Possible settings: ■ *virtual channel (VC) level (F5)* - The OAM settings are used for the virtual channel (default value). ■ *virtual path (VP) level (F4)* - The OAM settings are used for the virtual path.
Virtual channel connection (VCC)	Here you select whether you use a previously set combination of VPI and VCI or configure a new combination. Possible settings in the **ADD** menu: ■ *specify VPI/VCI* - For configuring a new combination. ■ *Vpi:* <"*Vpi value*"> *Vci* <"*Vci value*"> - You select a combination already configured in one of the existing ATM connections. Possible settings in the **EDIT** menu: ■ *no VPC defined* - The combination shown in the ***VPI*** and ***VCI*** fields cannot be linked to an existing ATM-connection (PVC). ■ *specify VPI/VCI* - For configuring a new combination.

Field	Description
Virtual path connection (VPC)	Visible only if ***OAM FLOW LEVEL*** = *virtual path (VP) level (F4)*. Here you select whether you use a previously set value for *VPI* or specify a new one. Possible settings in the **ADD** menu: ■ *specify VPI* - For configuring a new value. ■ *Vpi:* <"*Vpi value*"> - You select a value already configured in one of the existing ATM connections. Possible settings in the **EDIT** menu: ■ *no VPC defined* - The value shown in the ***VPI*** field cannot be linked to an existing ATM-connection (PVC). ■ *Vpi:* <"*Vpi value*"> - You select a value already configured in one of the existing ATM connections.
VPI	Only visible if ***VIRTUAL CHANNEL CONNECTION (VCC)*** = *specify VPI/VCI* or ***VIRTUAL PATH CONNECTION (VPC)*** = *specify VPI.* Here you enter a VPI value for this VCC (*0* to *255*). The default value is *0*.
VCI	Only visible if ***VIRTUAL CHANNEL CONNECTION (VCC)*** = *specify VPI/VCI* and ***OAM FLOW LEVEL*** = *virtual channel (VC) level (F5)*. Here you enter a VCI value for this VCC (*32* to *65535*). The default value is *32*.

Field	Description
Loopback End-to-End	Here you select whether you activate the loopback test for the connection between the endpoints of the VCC. Possible settings: ■ *disabled* - Default value ■ *enabled*.
Send Interval (sec)	Only visible if ***LOOPBACK END-TO-END*** = *enabled*. Here you enter the intervals at which the loopback tests are performed. Possible values are *0* to *999*. The default value is *5*.
Pending Requests (max)	Only visible if ***LOOPBACK END-TO-END*** = *enabled*. Here you enter how many loopback tests can remain unanswered before the connection is regarded as “down”. Possible values are *1* to *99*. The default value is *5*.
Loopback Segment enable	Here you select whether you activate the loopback test for the segment connection of the VCC. Possible settings: ■ *disabled* - Default value ■ *enabled*.
Send Interval (sec)	Only visible if ***LOOPBACK SEGMENT*** = *enabled*. Here you enter the intervals at which the loopback tests are sent. Possible values are *0* to *999*. The default value is *5*.

Field	Description
Pending Requests (max)	Only visible if ***LOOPBACK SEGMENT*** = *enabled*. Here you enter how many loopback tests can remain unanswered before the connection is regarded as “down”. Possible values are *1* to *99*. The default value is *5*.
CC End-to-End	Here you select whether you activate the OAM CC (continuity check) test for the connection between the endpoints of the VCC. Possible settings: ■ *passive* - OAM CC requests are answered after negotiation (CC activation negotiation) (default value). ■ *active* - OAM CC requests are sent after negotiation (CC activation negotiation) (default value). ■ *both* - OAM CC requests are sent and answered after negotiation (CC activation negotiation) (default value). ■ *without negotiation* - Depending on the setting in the Direction field, OAM CC requests are either sent and/or answered. There is no negotiation. ■ *disabled*

Field	Description
Direction	Not visible if ***CC END-TO-END*** = *disabled*. Here you select how the OAM CC test signals are sent or received. Possible settings: ■ *both* - CC data are received and generated (default value). ■ *sink* - CC data are only received. ■ *source* - CC data are only generated.
CC Segment	Here you select whether you activate the OAM CC test for the segment connection of the VCC. Possible settings: ■ *passive* - OAM CC requests are answered after negotiation (CC activation negotiation) (default value). ■ *active* - OAM CC requests are sent after negotiation (CC activation negotiation) (default value). ■ *both* - OAM CC requests are sent and answered after negotiation (CC activation negotiation). ■ *without negotiation* - Depending on the setting in the Direction field, OAM CC requests are either sent and/or answered. There is no negotiation. ■ *disabled*

Field	Description
Direction	Not visible if ***CC SEGMENT*** = *disabled*. Here you select how the OAM CC test signals are sent or received. Possible settings: ■ *both* - CC data are received and generated (default value). ■ *sink* - CC data are only received. ■ *source* - CC data are only generated.

Table 5-1: ***ATM*** ➜ ***OAM*** ➜ ***ADD/EDIT***

5 OAM Submenu

6 ATM QoS Submenu

The fields of the *ATM QoS* menu are described below.

```
X2302w Setup Tool                          Bintec Access Networks GmbH
[ATM][QOS][ADD]                                              MyGateway

 ATM Interface           ar7sar-3


 Virtual channel connection (VCC)      specify VPI/VCI
 VPI   0           VCI   32

 ATM Service Category        Unspecified Bit Rate (UBR)

 Peak Cell Rate (PCR) in bits per second         0



          SAVE                                CANCEL
```

Your **XGeneration** gateway supports QoS (Quality of Service) for ATM interfaces.

Configuration is carried out in the ***ATM*** ➜ ***ATM QoS*** ➜ ***ADD/EDIT***.

The menu consists of the following fields:

Field	Description
ATM Interface	The ATM interface is only shown and cannot be selected. Bintec gateways are currently equipped with only one ATM interface.

Field	Description
Virtual channel connection (VCC)	Here you select whether you use a combination of VPI and VCI already specified by an ATM connection or configure a new combination. Possible settings: ■ *specify VPI/VCI* - Default value. Used for configuring a new combination. ■ *Vpi:* <"*Vpi value*"> *Vci* <"*Vci value*"> - You select a combination specified by one of the existing ATM connections.
VPI	Only visible if ***VIRTUAL CHANNEL CONNECTION (VCC)*** = *specify VPI/VCI.* Here you enter a VPI value for this VCC (*0* to *255*). The default value is *0*.
VCI	Only visible if ***VIRTUAL CHANNEL CONNECTION (VCC)*** = *specify VPI/VCI*. Here you enter a VCI value for this VCC (*32* to *65535*). The default value is *32*.

Field	Description
ATM Service Category	Here you select the service category for the data traffic of an ATM connection. The choice implies a specific way of how ATM traffic is handled. Possible settings: ■ *Unspecified Bit Rate (UBR)* - (Default value). The connection is not guaranteed any specific bandwidth. The ***Peak Cell Rate*** (PCR) defines the limit above which data (bursts) are discarded. This category is suitable for non-critical applications. ■ *Constant Bit Rate (CBR)* - The connection is assigned a guaranteed bandwidth. The maximum available bandwidth is determined by the ***Peak Cell Rate***. This category is suitable for real-time applications that require a guaranteed bandwidth. ■ *Variable Bit Rate (VBR.1)* - The connection is assigned a (low) guaranteed bandwidth (***Sustained Cell Rate***). The data transfer is also limited by the ***Peak Cell Rate*** and the ***Maximum Burst Size*** (MBS). The PCR may be temporarily exceeded if necessary, but only for the number of bytes indicated by the MBS. Bursts after this are discarded. This category is suitable for non-critical applications with burst data traffic.
Peak Cell Rate (PCR) in bits per second	Here you enter a value for the maximum bandwidth used. Possible values are *0* to *10000000* and the default value is *0*. A value of *0* means that the PCR is not used to shape data traffic.

Field	Description
Sustained Cell Rate (SCR) in bits per second	Only for ***ATM Service Category*** = *Variable Bit Rate (VBR.1)*. Here you enter a value for the guaranteed minimum bandwidth. Possible values are *0* to *10000000* and the default value is *0*. A value of *0* means that the SCR is not used to shape data traffic.
Maximum Burst Size (MBS) in bytes	Only for ***ATM Service Category*** = *Variable Bit Rate (VBR.1)*. Here you enter a value for the maximum number of bytes which the PCR can be temporarily exceeded by. Possible values are *0* to *100000* and the default value is *0*. A value of *0* means that the MBS is not used to shape data traffic.

Table 6-1: Fields in the ***ATM*** ➜ ***ATM QoS*** ➜ ***ADD/EDIT*** menu

Index: ATM