



RELEASE NOTE BINGO!

July 24, 1998

New System Software: *Release 4.8 Revision 6*

This document describes the new features, enhancements, bugfixes, and changes to the BinGO! System Software since Release 4.8 Revision 3 (current user documentation).

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Upgrading System Software

1. Retrieve the current system software image from BinTec's WWW server at <http://www.bintec.de>.
2. With this image you can upgrade the BinGO! with the **update** command from the SNMP shell via a remote host (i.e. using telnet, minipad, or isdnlogin) or by using the **BOOTmonitor** if you are logged in directly on the console. Information on using the BOOTmonitor can be found in the *BinGO! User's Guide* under *Firmware Upgrades*.
3. Once you've installed Release 4.8 Revision 6 you may want to retrieve the latest documentation (in Adobe's PDF format), which is also available from BinTec's FTP server at the address noted above.

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

Info:



Performing a software update on a running system (via the **update** command) currently requires that a contiguous block of free memory, \geq the size of the new software image, is available.

To verify enough memory space is available use the **show mem** command and note the output of the "largest block" field. To maximize free memory two options are available.

- Perform the update immediately after rebooting the system. This ensures that memory has been defragmented.
- Temporarily reduce the size of your configuration file by deactivating memory intensive software options such as OSPF or IPX.

Note that you can always perform an update using the BOOTmonitor. The internal procedure of performing software upgrades on the BRICK is currently being optimized and a change is planned for a future release.

What's New in Release 4.8.6

Release 4.8 Revision 6:

Released: 24.07.98

Features:

Bugfixes:

Detailed Description:

Known Problems

In Release 4.8 Revision 6, two problems currently exist.



1. Network Address Translation

After receiving several broadcast packets via an interface where NAT is being performed the BinGO! may either “lock-up” or inadvertently reboot. If the system locks up the BinGO! will no longer be accessible (via remote or console) and must be power cycled on and off.

2. Dial-up connections for RADIUS-Users

Interfaces configured to use `ip_lapb` encapsulation, using the following entry in `/etc/raddb/users`,

```
BinTec-biboPPPTable = "Encapsulation=ip_lapb"
are sometimes rejected by the BinGO!.
```

Features

Microsoft Callback Extension to Mode 3

The Microsoft Callback Control Protocol (CBCP) knows different modes to decide which number is used for callback. This protocol is activated, when there is a call from a Windows95/NT client.

Up to now Mode 2 was implemented. In Mode 2 (callback to a user-defined number) the user is asked, when calling from a Windows95/NT client, to enter the callback number. This number is then used for callback.

From this release on the MS-CBCP was extended to Mode 3. Mode 3 uses a predefined number for callback.

Which mode is used (Mode 2 or Mode 3) depends on whether there is a predefined number assigned. When there is a predefined number, an entry in the `biboPPPDialTable` for this partner (*Direction: both or outgoing; Type: isdn or isdn_spv*), then

Mode 3 is used. When calling from a Windows95/ NT client the caller is asked in a dialog box to confirm the mode (Mode 3) respectively the callback number. With no number assigned callback is made using Mode 2.

Such it is ensured that a callback is either made using the user-specified or the predefined number.

The variable *CallBack* in the *biboPPPTable* can be set to *ppp_offered* or *enabled*. But you must notice that with the value set to *enabled* no authentication is made during callback.

Performance Enhancement

Release 4.8 Revision 6 contains additional internal performance enhancements that greatly reduce system load on systems supporting V.110. With these enhancements the system load on the BRICK has been reduced by 50% (compared to previous releases with the same throughput).

IP Filter for TCP State and ICMP Type

The filters for IP access have been enhanced.

ICMP Type

The filters can now be used to filter IP packets in dependence of the ICMP type.

In the *ipFiltertable* there is the new variable *icmptype*, which can be assigned the following values :
echoRep, destUnreach, srcQuench, redirect, echo, timeExcds, parmProb, timestamp, timestampRep, addrMask, addrMaskRep, dont_verify.

Setup Tool's Filters menu has also been changed. You can now define filters according to appropriate ICMP types using the Type field after setting the protocol field to "ICMP".



BinGO! Setup Tool		BinTec Communications GmbH
[IP][ACCESS][FILTER][ADD]: Configure IP Access Filter		bingo
Description	echo request	
Index	9	
Protocol	icmp	
Type	echo	
Source Address		
Source Mask		
Source Port	any	
Destination Address		
Destination Mask		
Destination Port	any	
SAVE		CANCEL
Use <Space> to select		

TCP Connection State

Filters can now be defined based on the state of an TCP Connection.

In the *ipFilterTable* there is the new variable *TcpConnState*, which can be assigned the following values:

dont_verify, established.

When this variable is set to *established*, this filter matches for TCP packets, which do not initiate a connection.

A typical application for this filter is to let packets pass through, which belong to connections that were initiated from inside, but discard all other TCP packets. This can be configured by the following rules:

1. rule: ALLOW (TCP/ established)
2. rule: DENY (TCP/ dont_verify)

The configuration in Setup Tool:



BinGO! Setup Tool		BinTec Communications GmbH	
[[IP]][ACCESS][FILTER][ADD]: Configure IP Access Filter		bingo	
Description	TCP established		
Index	10		
Protocol	tcp		
Connection State	established		
Source Address			
Source Mask			
Source Port	any		
Destination Address			
Destination Mask			
Destination Port	any		
SAVE		CANCEL	
Use <Space> to select			

New Trace Command Feature

The trace command has been enhanced. It is now possible to decode HOLD and RETRIEVE messages in the D-Channel.

Wildcards for Dialing Numbers

Similar to wildcards for the calling party's address in the *biboDialTable* for incoming calls, the variable *Number* now can also contain wildcards for outgoing calls. The wildcards for outgoing and incoming calls are defined as follows:

Wildcard	Example	Outgoing Calls	Incoming Calls
*	1234*	is ignored, e.g. 1234	matches zero or any string, e.g. 1234 or 123467
?	1234?	is replaced by 0, e.g. 12340	matches any single digit, e.g. 12349, 12347

Wildcard	Example	Outgoing Calls	Incoming Calls
[a-b]	123[5-9]	first digit in the range, e.g. 1235	denotes the range of possible digits to match, e.g. 1235, 1236
[^a-b]	123[^0-5]	range of digits not allowed, first possible digit inserted, e.g. 1236	denotes the range of excluded digits to match, e.g. 1236, 1237
{ab}	{00}1234	inserted for outgoing calls, e.g. 001234	optional string to match, e.g. 001234, 1234

The advantage is, that now you can use one entry for the variable *Number* for incoming and outgoing calls. For Example {0}91196790 will generate 091196790 for outgoing calls and will accept 091196790 and 91196790 for incoming calls as valid CLID.

Link Quality Monitoring

By the help of Link Quality Monitoring (LQM defined in RFC 1989) it is possible to exchange information within a PPP connection to draw conclusions about the underlying connection quality.

This information is typically transmitted periodically to the partner as so-called Link Quality Reports (LQR). The interval (Reporting Period) is agreed upon during the LCP negotiation.

Link Quality Monitoring can be useful to examine e.g. modem connections. (With unreliable modem connections it can happen that because of CRC errors no more data can be transmitted.)

For detailed information on the new feature Link Quality Monitoring see the section Detailed Feature Descriptions on page 11.

Bugfixes

Access Lists

- There was a bug in the access lists implementation concerning the following conditions:
 1. Filtering for source or destination ports.
 2. The action is deny
 3. The IP datagrams are fragmented.

Under these conditions fragments are discarded, though the ports of the complete datagram do not correspond to the ports defined in the filters.

This bug has been fixed.

Dynamic Shorthold

- When combining dynamic B-Channel Bundling with optimally making use of the charging intervals (by dynamic shorthold), there was the problem that, when reducing the bandwidth, the current charging intervals were not taken into consideration. This problem has been fixed. To optimize charges now the bandwidth is reduced by disconnecting a B-Channel only short before a new charging interval.

STAC Compression on Multilink PPP Interfaces

- According to RFC 1974 (*PPP STAC LZS Compression Protocol*) there are several check modes to keep the compressor and decompressor histories in synchronisation even in the absence of a reliable link to guarantee the sequential transmission of data.

In Release 4.8.3 it still happened that in rare cases, when *biboPPPCompression = stac* (RFC 1974, check mode 3) was used on MultiLink PPP interfaces the history re-synchronisation process sometimes came to a state where de-

compression histories were out-of-sync and user data could no longer be transmitted over the line.

This problem has been fixed in the current release.

Spaces in biboPPPLoginString

- There appeared problems in the login procedure configuration (especially for Compuserve users), when strings like passwords or login names were containing spaces. That was because spaces are used as internal flags to handle the login procedure.

To handle this problem blank spaces in strings, which are part of the variable *LoginString* in the *biboPPPTable*, must be preceded by a backslash as shown in the following example for the string “pass word”:

```
inx LoginString(rw)
```

```
00 "-d1 \n e: CIS\n D: name/go:pppconnect\n wor -d1 pass\ word\n PPP"
```

This must be considered, when the variable *LoginString* is configured via SNMP. In the Setup Tool no additional backslashes have to be entered, when configuring the items Host, User ID and Password in the menu [WAN][EDIT][ADVANCED][PROVIDER].

Setting Administration Status to Down

- When by “ifconfig down” or via the Setup Tool the variable *ifAdminStatus* was set to down for an active interface, the variables in the PPP accounting syslog message containing PPP connection information only had the value 0.

This problem has been solved. Now the syslog message contains the correct values.

Setup Tool

- When a PPP interface was resetted in the interface monitor in [MONITOR][INTERFACES][EXTENDED], there

could occur a reboot of the BRICK with large configurations.

This problem has been solved.

- When a default route was configured for a WAN partner interface in the [IP][ROUTING] menu or the SNMP shell and afterwards the [WAN][EDIT][IP] menu was opened again for this WAN Partner and left with SAVE, this default route was deleted.

This bug was fixed.

Detailed Feature Descriptions

Link Quality Monitoring

Because Link Quality Monitoring as described under Features is specified within LCP negotiation, i.e. before the authentication of the partner, for the configuration of incoming calls a distinction must be made between inband and outband identification.

In case of outband identification (CLID) and for outgoing calls the LQM is activated by setting the variable *biboPPPLQ-Monitoring* in the *biboPPPTable* to on.

For incoming calls identified inband (identification by the internal *biboPPPTable*) the variable *biboPPProfileLQMonitoring* in the *biboPPProfileTable* must be set to on.

After a successful LCP negotiation for every link of a temporary connection additionally to the entry in the *biboPPPLinkTable* a correlating entry in the *biboPPPLQMTable* is generated. Both entries can be uniquely assigned to each other by the *IFIndex* respectively the *CallReference* value.

The *biboPPPLQMTable* is a new table and is described in detail in the following.

biboPPPLQMTable:

inx	IfIndex(*ro)	CallReference(ro)	ReportingPeriod(ro)
	OutLQRs(ro)	OutPackets(ro)	OutOctets(ro)
	InLQRs(ro)	InPackets(ro)	InOctets(ro)
	InDiscards(ro)	InErrors(ro)	PeerOutLQRs(ro)
	PeerOutPackets(ro)	PeerOutOctets(ro)	PeerInLQRs(ro)
	PeerInPackets(ro)	PeerInOctets(ro)	PeerInDiscards(ro)
	PeerInErrors(ro)	LossedOutLQRs(ro)	LossedOutPackets(ro)
	LossedOutOctets(ro)	LossedPeerOutLQRs(ro)	LossedPeerOutPkts(ro)
	LossedPeerOutOcts(ro)		

The *biboPPPLQMTable* contains statistical information for each current PPP link on the system. Only the system can add or delete entries to this table.

Entries are created by the system each time a new PPP link was established and LQM was negotiated successfully.

Entries are removed by the system, when the corresponding PPP link is disconnected.

For detailed information on the meaning of the single variables see the MIB Reference on the BinTec Website at <http://www.bintec.de>

What Was New in Release 4.8.3

Release 4.8 Revision 3:

Released: 24.04.98

Features:

Bugfixes:

Detailed Description:

Features

No new features were added to system software release 4.8 Revision 3 on the BinGO! Refer to sections [Changes](#) and [Bugfixes](#) below for information regarding what's new in this release.

Changes

PPP

- **Reporting of Dynamically Assigned IP Addresses:**
In previous releases syslog messages were generated when a remote client was assigned an IP address from the BRICK's local IP address pool (*biboPPPIpAssignTable*).

If a host-route is configured on the BRICK for the calling client, the BRICK always retrieves the address from the host route before checking the address pool. If an address was assigned in this manner a syslog message was not generated. Beginning in release 4.8.3 syslog messages are generated for all IP address assignments regardless of the method used.

Bugfixes

IP

- In previous releases telnet sessions from the BinGO! to hosts supporting the "Telnet Data Encryption Option" (typically supported on BSD UNIX systems) was not possible. This problem has been fixed.
- In rare cases it wasn't possible to delete entries from the BinGO!'s *ipNatOutTable*. This problem has been fixed.
- If four WAN partners were configured, the BinGO! incorrectly reported "WAN partner limit reached!" when one (or more) connections were established and an at-

tempt was made to save the configuration information from Setup Tool. The configuration could however be saved from the SNMP shell without problems. This problem has been fixed.

IPX

- IPX WAN links that were configured using the setting “piggyback (only if link active)” in the **Send RIP/SAP Updates** field in Setup Tool’s [WAN Partners][EDIT][IPX] menu sometimes unexpectedly caused a system reboot when many changes occurred on the network and the WAN link had not been active for a long time. This problem has been fixed.

PPP

- **PPP Accounting:**
In previous releases setting the *IfAdminStatus* object to “down” for an interface that was in the up state sometimes resulted in syslog accounting messages containing incorrect data.

Before:

```
“dialup1: outgoing link closed, duration 0 sec,  
0 bytes received, 0 bytes sent, 0 charging units”
```

After:

```
“dialup1: outgoing link closed, duration 45 sec,  
2365 bytes received, 4347 bytes sent, 3 charging units”
```

- **STAC Compression on MultiLink PPP Interfaces:**
According to RFC 1974 (*PPP STAC LZS Compression Protocol*) there are several check modes to keep the compressor and decompressor histories in synchronisation even in the absence of a reliable link to guarantee the sequential transmission of data.

In rare cases, when *biboPPPCompression* = stac (RFC 1974, check mode 3) was used on MultiLink PPP interfaces the history re-synchronisation process sometimes came to

a state where decompression histories were out-of-sync and user data could no longer be transmitted over the line.

Although the frequency of this problem has been greatly reduced in release 4.8.3 we currently recommend using MS-STAC compression (*biboPPPCompression=ms_stac*) when the remote partner supports this method. If the partner interface does not support MS-STAC, please note that this problem only occurs when MultiLink PPP is configured; and even then only in rare cases.

SNMP

- A problem involving the *biboAdmLoginTable* has been fixed in revision 3. If a failed login attempt occurred on the BinGO! for a user that was defined in this table (either an incorrect password or no password at all was entered) the BinGO! automatically prompted with a new `login:` string. If the admin, read, or write user was then entered followed by the appropriate password, the BinGO! incorrectly started the command (*biboAdmLoginCommand*) configured for the user from the failed login instead of the SNMP shell session. This problem has been fixed.

Detailed Feature Descriptions

The most recent version of the *BinGO! User's Guide*, *Los Geht's* and *Getting Started*, as well as the *BRICK MIB Reference* has been updated to reflect System Software Release 4.8 Revision 3.

User documentation is available (in Adobe's PDF format) via BinTec's Internet web site at:

<http://www.bintec.de/ftp/bingo.html>.