

## **Binary for Linux - ISUP**

### **Release Notes for Version 3.04**

#### **1 Overview**

This release introduces the ability to configure timers to support the full range of timer values as specified by ITU-T Q.764 and provides support for the “End of optional parameters” parameter in the ITX message for French ISUP. It also corrects several minor problems as described below.

The software is backwards compatible with the previous release.

#### **2 New functionality**

##### **2.1 Maximum timer value increased**

The ISUP timer values have now been increased such that any timer may now be configured up to a maximum value of 17 minutes therefore allowing the full range of timer values to be configured. Previously, the maximum value for any timer was 506 seconds.

##### **2.2 French ISUP (SSURF): Support for “End of optional parameters” in ITX message**

The “End of optional parameters” parameter is now supported in the ITX message.

#### **3 Faults cleared**

##### **3.1 Release cause in re-transmitted REL messages**

When the REL message must be re-transmitted due to timer T1 expiry, the cause value in the re-transmitted REL messages is no longer modified. Prior to this release, the cause value was set to “NORMAL, UNSPECIFIED(31)” in the re-transmitted REL messages.

##### **3.2 Circuit is not returned to IDLE after T27 expiry**

For incoming continuity tests, if a circuit must be reset due to timer T27 expiry and following receipt of a RLC message the circuit is now returned to the IDLE state and is available to accept new calls. Prior to this release, following the receipt of the RLC, the circuit was not returned to the IDLE state and REL indications were sent to the user.

### **3.3 Bad calling party number parameter is not detected**

The calling party number parameter may be received with only two octets in length i.e. no address digits and if the odd/even indicator bit is incorrectly set (indicating an odd number of digits), this condition is now correctly handled.

Previously, in such cases, additional random digits would have been included in the calling party number parameter and sent in the IAM to the user.

### **3.4 UK ISUP: RSC message is not sent**

For UK ISUP based applications, affecting only single circuit resets, when the user sends a Circuit Group Supervision Control (0x7703) message to reset a single circuit, an RSC message is now passed to the network.

### **3.5 ISUP Timers expiring too early**

ISUP timers are now expiring at the correct time. Previously, (since V3.02), all ISUP timers were expiring a few seconds before the expected expiration time (e.g. four seconds too early if num\_tscan field of ISP\_MSG\_CONFIG is set to 10). The timers expired at the correct time only in case num\_tscan was set to 1.

Dialogic  
17-Jun-04

## **Binary for Linux - ISUP**

### **Release Notes for Version 3.05**

#### **1 Overview**

A new mechanism has been added to ISUP to detect failure of individual host applications and initiate circuit group blocking to the network. This ensures that the network does not attempt to use these 'dead' circuits for in-bound calls. The mechanism is optional and when selected requires a minor modification to the host-based application in order to respond to a 'heartbeat' message. This release also corrects a minor problem related to missing ISP\_MSG\_CGSC\_IND messages.

This release is fully backwards compatible with the previous release.

#### **2 New functionality**

##### **2.1 Detection of failed host applications**

###### **2.1.1 Overview**

A new feature has been added to the ISUP module to allow detection of failed (or inactive) host applications and initiate circuit group blocking to the network. This ensures that the network does not attempt to initiate calls on circuits for which there is no active application and calls would consequently fail.

The use of this feature requires the user application to respond to a new message CAL\_MSG\_HEARTBEAT that is periodically issued by the ISUP module. In the event that no response is received within a pre-determined time the ISUP module will initiate hardware circuit group blocking to the network.

The feature is optional and is activated by setting bit 9 in the <options2> parameter of the ISUP\_CFG\_CCTGRP command. When the bit is set heartbeat messages will be generated and sent to the user\_id configured for the circuit group. If the option is not set, automatic blocking of circuits will not be performed for the circuit group and heartbeat messages will not be sent to the user application.

###### **2.1.2 Operation**

When the feature is activated the ISUP module will periodically send a heartbeat message, CAL\_MSG\_HEARTBEAT, 0x7718, to the user application, to determine status. A single heartbeat message will be sent every 30 seconds regardless of the number of circuit groups configured per host application. The application must respond by confirming the message (using the confirm\_msg() function instead of releasing the message using relm()).

If the user application fails to respond to a heartbeat message within 3 seconds the ISUP module will consider the application to be unavailable and out of service. Circuit groups associated with the application and for which autoblocking is configured will be hardware blocked and a blocking message sent to the network (CGB).

Once circuit groups have been blocked, ISUP will continue to send heartbeat messages with the **UIHB\_FLAGS\_CGRPS\_BLOCKED** flag (bit 0) set to a value of 1.

Following recovery, the application should indicate that it is again available and in service by responding to a subsequent heartbeat message.

### 2.1.3 CAL\_MSG\_HEARTBEAT message

This message is issued by the ISUP module as a heartbeat to determine availability of a particular user application as identified by module\_id and instance.

MESSAGE HEADER		
FIELD NAME		MEANING
type		<b>CAL_MSG_HEARTBEAT</b> (0x7718)
id		0
src		ISUP module ID
dst		User Application module ID
rsp_req		Sending layer's bit must be set
hclass		0
status		0
err_info		0
len		64
PARAMETER AREA		
OFFSET	SIZE	NAME
0	2	<b>user instance id</b>
2	2	<b>state</b>
4	2	<b>flags</b>
6	58	Reserved for future use – set to zero

**user instance id** – the User ID.

**state** – the status of the user application.

Value	Meaning	Description
0	Unconfigured	No circuit groups have been configured.

1	Down	The user application is unavailable and out of service. The circuit groups have been hardware blocked.
2	Up	The user application is available and in service.

**flags** – sets by the ISUP module.

Bit	Mnemonic	Description
0	UIHB_FLAGS_CGRPS_BLOCKED	If set in the heartbeat message from the ISUP module, this indicates to the user, that the ISUP circuit group(s) have been blocked.

### 3 Fault cleared

#### 3.1 Missing ISP\_MSG\_CGSC\_IND

In previous software release, if a MTP\_RESUME was received while the ISUP module was still processing MTP\_PAUSE, no ISP\_MSG\_CGSC\_IND was sent by the ISUP module for the MTP\_RESUME. This error has now been corrected.

Dialogic  
15-Sep-04

## **Binary for Linux - ISUP**

### **Release Notes for Version 3.06**

#### **1 Overview**

This release corrects a number of minor issues as described below.

This release is fully backwards compatible with the previous release.

#### **2 New functionality**

None.

#### **3 Fault cleared**

##### **3.1 ANSI CGB with range field set to zero**

For ANSI operations only, the ISUP module now handles receipt of CGB and CGU messages and the corresponding acknowledgement messages with the range field set to zero.

Prior to this release, when such messages were received this caused the received message e.g. CGB to be subsequently discarded and a maintenance event was also reported indicating that a message was received for an incorrect range.

##### **3.2 Handling of first MTP Resume message**

The ISUP module now supports an additional bit in the option field of ISP\_MSG\_CONFIG (ISPF\_1ST\_RESUME=0x2000). The module will generate ISP\_MSG\_CGSC\_IND messages on reception of the first MTP\_RESUME if both ISPF\_1ST\_RESUME and ISPF\_GSPS bits are set. Previously, the module did not generate ISP\_MSG\_CGSC\_IND messages on reception of the first MTP\_RESUME.

##### **3.3 Reset and blocking scenario**

In previous software release, if a RSC request was followed by a BLO request, the user application did not always get the BLA. This error has now been corrected.

##### **3.4 Unblock request on idle circuits**

When the user sends a CSGC\_REQ to unblock a single circuit in the IDLE state, a maintenance event, ISP\_MSG\_MAINT\_IND, 0x070a,

with status CCm\_BLS\_Bad\_CGU (0x3e) is now reported to indicate that this is unexpected. Previously, no indication was reported to inform the user application of this event.

Dialogic  
28-Oct-04

## **Binary for Linux - ISUP**

### **Release Notes for Version 3.07**

#### **1 Overview**

This release corrects a number of minor issues as described below.

This release is fully backwards compatible with the previous release.

#### **2 New functionality**

None.

#### **3 Changes**

##### **3.1 SSURF : End of optional parameters in TXA message**

The 'End of optional parameters' parameter is now supported in the TXA message. In versions of SSURF where optional parameters may be included in this message this could cause the TXA message to be subsequently discarded.

##### **3.2 ANSI : Format of CGBA**

The CGBA message is now sent in the same format as the CGB, i.e. with a range = 0 if the CGB had a range = 0.

Dialogic  
17-Nov-04



## **Binary for Linux - ISUP**

### **Release Notes for Version 3.08**

#### **1 Overview**

This release introduces the ability to trace configuration and heartbeat messages and provides support for a new circuit group option that determines the Location value in the Release message generated by ISUP. This release also corrects a number of minor faults as described below.

This release is fully backwards compatible with the previous release.

#### **2 New functionality**

##### **2.1 Heartbeat and configuration traces**

Two new bits have been added to the “non-primitive trace mask” field in the ISP\_TRACE\_MASK message, ISPNPM\_HRTBT(0x8000) and ISPNPM\_CONFIG(0x10000), to trace respectively heartbeat messages (CAL\_MSG\_HEARTBEAT, 0x7718) and configuration messages (ISP\_MSG\_CONFIG, 0x7700).

The ISUP module can now handle an ISP\_TRACE\_MASK message at any time, even if received before ISP\_MSG\_CONFIG.

If the ISUP module receives an ISP\_TRACE\_MASK message, with the ISPNPM\_CONFIG bit set, after it received an ISP\_MSG\_CONFIG message, the configuration information stored in the ISUP module is sent to the trace module as a trace message (MGT\_MSG\_TRACE\_EV, 0x0003) containing an ISP\_MSG\_CONFIG.

##### **2.2 Location value in Cause parameter**

A new per circuit group option, ISPX1GOP\_LOC\_LPN (bit 10) has been added to determine the Location value in the Release message e.g. on timer T6 expiry.

When ISUP must release the call (to the user), if the circuit group ISPX1GOP\_LOC\_LPN option is set, a Location value of “*LPN, private network serving the local user (1)*” will be indicated in the Cause parameter. Otherwise, if this option is not set, a Location value of “*RPN, private network serving the remote user (5)*” will be indicated.

*NOTE: This option has been superseded in subsequent releases by a more generic mechanism and should therefore not be used in new designs.*

### **3 Faults cleared**

#### **3.1 Receipt of Heartbeat message on recovery**

In previous software releases, ISUP was unable to process heartbeat responses from a recovered user application, the result being that circuits remained in the blocked state. This has now been corrected.

#### **3.2 Response required bit in Heartbeat message**

The response required field is now set in the Heartbeat message (0x7718) allowing confirmation messages to be returned.

#### **3.3 T38 circuit group option**

Timer T38 (waiting for Resume) is now correctly handled and will now only be initiated if the per-circuit group ISPX1GOP\_T38 (bit 5) option is set. Previously, the timer T38 was initiated regardless of the option setting.

#### **3.4 Custom parameter mechanism**

The custom parameter mechanism now allows the user to select any of the existing supported variants as the base variant when configuring a custom variant. In previous software releases only ITU could be specified as the base variant – selecting any other variant could have caused the system to become unstable.

#### **3.5 Incorrect handling of RLC under abnormal release condition**

When ISUP must release a call under abnormal conditions e.g. on timer expiry, if the user sends REL followed by RLC, the RLC is no longer passed to the network. In previous releases, the user RLC was passed to the network and Release indications were also sent to the network to indicate that an RLC from the network was required to idle the circuit.

### **3.6 RLC does not idle circuit**

In previous software releases when the user sent a reset request for a single circuit and before the reset was acknowledged by RLC, if ISUP subsequently received and acknowledged a reset (RSC), from the network, then the RLC message in response to the user circuit reset request was ignored and ISUP continued to send RSC to the network.

This issue has been resolved such that, in the described condition, ISUP will correctly identify the RLC from the network as a response to the user circuit reset request and ISUP will return the appropriate circuit to the idle state.

Dialogic

03-Nov-05

Revised 28-Jun-06

## **Binary for Linux - ISUP**

### **Release Notes for Version 3.09**

#### **1. Overview**

This software release provides support for extended location values in the release cause and corrects the handling of the National Forward Call Indicator (link by link) parameter in UK ISUP.

The new per circuit group options allow the full range of location values to be provided in the cause when ISUP generates a release (see section 2.1 for further details).

This release is backwards compatible with V3.08 but it is recommended that the ISPX1GOP\_LOC\_LPN per circuit group option from that release should no longer be used as the enhanced location value functionality in this release provides equivalent functionality.

#### **2. New functionality**

##### **2.1 ISUP location values**

The ISUP library now supports the full range of location values in the cause parameter when the ISUP module generates a release. The user must configure the required location value using the new per-circuit group options, ISPX1GOP\_SET\_LOC (bit 11) and ISPX1GOP\_LOC (bits 12 -15) of the <ext\_1\_options> field in the Configure Circuit Group Request message at run-time as follows:

<b>Bit Number</b>	<b>Mnemonic</b>	<b>Description</b>
10	ISPX1GOP_LOC_LPN (Reserved)	For new applications, this option should be set to zero.
11	ISPX1GOP_SET_LOC	Used in conjunction with ISPX1GOP_LOC to set the location value to be indicated in the cause parameter.  If set to 1, the location value in the cause parameter will be determined by the 4-bit ISPX1GOP_LOC option.  If not set, the location value is set to a value of 5 - "Private network, remote user (RPN)"

Bit Number	Mnemonic	Description
12-15	ISPX1GOP_LOC	<p>Sets the location value to be indicated in the cause parameter during call release.</p> <p>The following cause location values are defined:</p> <p>0x00 - "User (U)"</p> <p>0x01 - "Private network, local user (LPN)"</p> <p>0x02 - "Public network, local user (LN)"</p> <p>0x03 - "Transit network (TN)"</p> <p>0x04 - "Public network, remote user (RLN)"</p> <p>0x05 - "Private network, remote user (RPN)"</p> <p>0x07 - "International (INTL)"</p> <p>0x0a - "Beyond interworking point (BI)"</p> <p>0x0c - "Reserved"</p> <p>0x0d - "Reserved"</p> <p>0x0e - "Reserved"</p> <p>0x0f - "Reserved"</p>

### 3. Other changes

#### **UK ISUP: National Forward Call Indicator(link-by-link) parameter**

For UK ISUP, a length of one octet may now also be specified for the optional National Forward Call Indicator (link-by-link) parameter in the IAM.

In previous releases, a one-octet National Forward Call Indicator(link-by-link) parameter was not supported and if received caused the parameter to be discarded from the message. Discarding the parameter did not prevent the call from being setup.

Dialogic  
04-Apr-06  
Revised 22-Jun-06

## **Binary for Linux - ISUP**

### **Release Notes for Version 3.10**

#### **1. Overview**

This release corrects the handling of timer T4 that caused UPT messages to be sent intermittently instead of at intervals of T4 and the receipt of MTP-STATUS with status "Remote user unavailable" indicating "unknown" which prevented new outgoing calls to be setup.

This release is fully backwards compatible with the previous release.

#### **2. Changes**

##### **2.1 Outgoing calls fail after receipt of MTP-STATUS**

A remote user is deemed to be 'unavailable' when ISUP receives a MTP-STATUS message with status "Remote user unavailable" indicating "unknown". If subsequent messages are received from the remote user, the remote user is deemed to be 'available' once again and outgoing calls to the remote user are allowed.

In previous releases, following the reception of messages from the remote user part, new calls to the unavailable remote user part were prevented and subsequently released with cause #38.

##### **2.2 Handling of timer T4**

Timer T4 is now handled correctly such that when the per-circuit group ISPX1GOP\_SEND\_UPT option is enabled, if no response is received from the remote user, ISUP will now re-send UPT messages to the remote user at intervals of T4 when timer T4 expires.

In previous releases, although the User Part Unavailability procedure was started i.e. the UPT message was sent and timer T4 was started, subsequent indications of UPT were sent intermittently.

Dialogic  
22-May-06

## **Binary for Linux - ISUP**

### **Release Notes for Version 4.00**

#### **1 Overview**

This release is based on V3.08 and is functionally equivalent to that release (it does not include functionality released in subsequent V3.xx releases although that functionality will be included in subsequent V4.xx releases). This release is developed for use with the SS7 Development Package for Linux V5.00 or later. It cannot be used with earlier development packages.

Customers who wish to make use of the Long Message support offered in V5.00 of the development package should upgrade to this release of software (Long Message support is required for SCCP Segmentation). Other customers need not upgrade.

#### **2 Changes**

##### **2.1 Use of Linux shared object**

This release makes use of shared object version of the GCT library included in V5.00 of the development package. The module has not been changed to support Long Messages itself but it does permit the module to be used in an environment where Large Messages are being used.

Dialogic  
10-Mar-06

## **Binary for Linux - ISUP**

### **Release Notes for Version 5.01**

#### **1 Overview**

This release adds support for Bearer Independent Call Control protocol (BICC) and ISUP'2000. Both modes are configured using the per-group variant handling mechanism. The use of BICC requires a new software license (IMN SS7SBHSTBICC).

In addition, this release also provides support for extended location values in the release cause, corrects the handling of the National Forward Call Indicator (link by link) parameter in UK ISUP, corrects the handling of timer T4 that caused UPT messages to be sent intermittently instead of at intervals of T4 and the receipt of MTP-STATUS with status "Remote user unavailable" indicating "unknown" which prevented new outgoing calls to be setup and support for multiple MTP3 module IDs in ISUP.

The new per circuit group options allow the full range of location values to be provided in the cause (see section 2.1 for further details).

These release notes should be read in conjunction with the ISUP Programmer's Manual Issue 13 (or later).

This release is the first generally available release since V4.00 but it is recommended that the ISPX1GOP\_LOC\_LPN per circuit group option from that release should no longer be used as the enhanced location value functionality in this release provides equivalent functionality.

#### **2 New functionality**

##### **2.1 ISUP'2000**

This release adds support for the 2000 version of the ISUP protocol (ISUP'2000 as defined in ITU-T Recommendations Q.761 – Q764 and Q.765.5. To use ISUP'2000, the 'variant' field in the Configure Circuit Group Request message should be set to ISPGVAR\_ITU2000.

When configured for ISUP'2000 operation, ISUP supports the Subsequent Directory Number message as detailed below. This primitive is used by the application to convey subsequent directory number address digits to the network when overlap signalling is employed. It applies only to ITU-T operation and is not used for ANSI operation.



Primitive	Message type	Value		Use
Subsequent Directory Number	SDM	67	0x43	Subsequent directory number digits for overlap signalling

The message takes one mandatory parameter (Subsequent Number) and one optional parameter (Message Compatibility Information) as detailed in the ISUP Programmer's Manual.

The following additional parameters as defined in Q.1902.3 are now supported:

Parameter Name	Value		Length	
Automatic rerouting	0x8e	150	1	2
Called directory number	0x1ed	493	2	18
Calling geodetic location	0x81	129	8	255
Calling party geodetic velocity information	0x83	131	4	255
CCNR possible indicator	122	0x7a	1	1
Coding decoding processing	0xa5	165	1	255
Global call reference	0xa4	164	6	255
HTR information	0x82	130	2	18
Inter nodal traffic group identifier	0xa3	163	1	255
Network routing number	0x84	132	1	18
Number portability forward information	0x8d	141	1	255
Original Called IN number	0x7f	127	2	18
Pivot capability	0x7b	123	1	1
Pivot counter	0x87	135	1	1
Pivot routing backward information	0x89	137	1	255
Pivot routing forward information	0x88	136	1	255
Pivot routing indicators	0x7c	124	1	1
Pivot status	0x86	134	1	1
Query on Release Capability	0x85	133	1	1
Redirect backward information	140	0x8c	1	255
Redirect forward information	139	0x8b	1	255
Redirect status	0x8a	138	1	1

## 2.2 Bearer Independent Call Control (BICC)

The ISUP module provides support for the Bearer Independent Call Control (BICC) protocol (as defined in ITU-T Recommendations Q.1902.1 – Q.1902.5 and Q.765.5 ) and for the Signalling Transport Converter (MTP3/M3UA STC) layer (as defined in ITU-T Recommendation Q.1901. BICC-specific configuration is detailed in Appendix A.9 of the ISUP Programmer's Manual issue 13.

The software licence for BICC is part number SS7SBHSTBICC. BICC capability is licensed as a superset of ISUP so users with an

appropriate BICC licence are able to use all ISUP variants whilst users with an ISUP license can use all variants except BICC.

BICC is based on ISUP'2000. All messages supported on ISUP'2000 are also supported on BICC, with the exception of the following: Blocking, Blocking Acknowledge, Continuity Check Request, Loop back acknowledgement, Overload, Pass-along, Unblocking, Unblocking acknowledgement, User part available, User part test.

All parameters supported on ISUP'2000 are also supported on BICC with the exceptions of the following parameters: Circuit assignment map, Coding decoding processing, Connection request, Signalling point code.

In addition, the following parameter defined in Q.1202.3 section 6.35 is supported in BICC:

Parameter Name	Value		Length	
<b>IN service compatibility</b>	<b>0xa2</b>	<b>162</b>	<b>1</b>	<b>255</b>

Refer to Section 9.7.8 in ISUP Programmer's Manual issue 13 for further details about the BICC Application Transport mechanism.

Two new error event indications , ISPe\_APM\_LOW (10) and ISPe\_NO\_APM (17), have been added to the ISP\_MSG\_ERROR\_IND Message. In addition new maintenance event indications (values 63 .. 71) have been added to the ISP\_MSG\_MAINT\_IND message. For further details refer to the ISUP Programmer's Manual.

## 2.3 ISUP/BICC timers

Timers may now be configured to run without expiring by setting the required timer value at run-time to 0. In previous releases, setting a timer to 0 was unspecified operation and typically caused the timer to expire after approx 10 minutes.

## 2.4 ISUP location values

The ISUP library now supports the full range of location values in the cause parameter. The user must configure the required location value using the new per-circuit group options, ISPX1GOP\_SET\_LOC and ISPX1GOP\_LOC (bits 11 -15 of the <ext\_1\_options> field in the Configure Circuit Group Request message) at run-time as follows:

Bit Number	Mnemonic	Description
10	ISPX1GOP_LOC_LPN (Reserved)	<p>Sets the location value, "LPN" or "RPN", to be indicated in the cause parameter during call release.</p> <p>If set to 1, the location value will be set to "0x01= Private network, local user (LPN)".</p> <p>If not set, the location value will be set to "0x05 = Private network, remote user (RPN)".</p> <p><b>Note:</b> For new applications, this option should be set to zero. Users are advised to use options ISPX1GOP_LOC and ISPX1GOP_SET_LOC instead. This option is retained for backwards compatibility.</p>
11	ISPX1GOP_SET_LOC	<p>Used in conjunction with ISPX1GOP_LOC to set the location value to be indicated in the cause parameter.</p> <p>If set to 1, the location value in the cause parameter will be determined by the 4-bit ISPX1GOP_LOC option.</p> <p><b>Note:</b> If enabled, this option will override any value set by the ISPX1GOP_LOC_LPN option.</p>
12-15	ISPX1GOP_LOC	<p>Sets the location value to be indicated in the cause parameter during call release.</p> <p>The following cause location values are defined:</p> <p>0x00 - "User (U)"  0x01 - "Private network, local user (LPN)"  0x02 - "Public network, local user (LN)"  0x03 - "Transit network (TN)"  0x04 - "Public network, remote user (RLN)"  0x05 - "Private network, remote user (RPN)"  0x07 - "International (INTL)"  0x0a - "Beyond interworking point (BI)"  0x0c - "Reserved"  0x0d - "Reserved"  0x0e - "Reserved"  0x0f - "Reserved"</p>

Note: If none of the above options are set then the module will use a location value of 0x05 - "Private network, remote user (RPN)".

## **2.5 Support for multiple MTP3 module IDs**

If the configuration associates a number of network contexts to the same destination point code, the ISUP module may now discriminate from which network context messages are received from and handle indications pertaining to a particular network context by its MTP module ID (specified at run-time on a per-circuit group basis). This means that only notifications associated with a particular MTP3 module (or network context) will be sent by ISUP without impact to operation concerning other network contexts configured in the system. For example, if two network contexts (0 and 1) are configured with the same destination point code and an MTP-PAUSE was received from Network Context 0, only indications associated with that network context will be indicated and all new calls for that destination will be blocked. In previous releases, this was not supported and if an MTP-PAUSE was received, this would affect all networks contexts associated with the same destination point code.

It should be noted that in order make use of this functionality, the module ISPF\_GSPS option (bit 6), in the Configure Request message (0x7700) must be enabled.

## **3 Other changes**

### **3.1 UK ISUP: National Forward Call Indicator(link-by-link) parameter**

For UK ISUP, a length of one octet may now also be specified for the optional National Forward Call Indicator (link-by-link) parameter in the IAM.

In previous releases, a one-octet National Forward Call Indicator(link by link) parameter was not supported and if received this caused the parameter to be subsequently discarded from the message. Discarding the parameter did not prevent the call from being setup.

### **3.2 Outgoing calls fail after receipt of MTP-STATUS**

A remote user is deemed to be 'unavailable' when ISUP receives a MTP-STATUS message with status "Remote user unavailable" indicating "unknown". If subsequent messages are received from the remote user, the remote user is deemed to be 'available' once again and outgoing calls to the remote user are allowed.

In previous releases, following the reception of messages from the remote user part, new calls to the unavailable remote user part were prevented and subsequently released with cause #38.

### **3.3 Handling of timer T4**

Timer T4 is now handled correctly such that when the per-circuit group ISPX1GOP\_SEND\_UPT option is enabled, if no response is received from the remote user, ISUP will now re-send UPT messages to the remote user at intervals of T4 when timer T4 expires.

In previous releases, although the User Part Unavailability procedure was started i.e. the UPT message was sent and timer T4 was started, subsequent indications of UPT were sent intermittently.

Dialogic  
27-Jul-07

## **Binary for Linux - ISUP**

### **Release Notes for Version 5.05**

#### **1. Overview**

This is the first release since V5.01 and adds an option to enhance compatibility with ISUP variants where no optional parameters are defined within the INR message.

#### **2. Changes**

##### **2.1 Support for INR messages with no optional parameters**

When the per-circuit group option, ISPX1GOP\_NO\_EOOP (0x00080000, bit 19) is enabled, this will cause the INR message to be transmitted to the network without the End of Optional Parameters octet or the optional part pointer. This option should only be enabled for ISUP variants where no optional parameters are permitted in the INR message.

The default behaviour of the module is to add the End of Optional Parameters octet to the end of messages (where optional parameters are possible) when no optional parameters are present.

Dialogic  
01-Aug-08

## **Binary for Linux - ISUP**

### **Release Notes for Version 5.06**

#### **1. Overview**

This release corrects the handling of the BICC Application Transport parameter if it is received with no data present in the EAI field.

#### **2. Changes**

##### **2.1 BICC: Zero length EAI field in Application Transport parameter is rejected**

In previous releases, zero length data EAI fields in the Application Transport parameter caused the received IAM message to be rejected with maintenance event status CCm\_APP\_len\_err\_2 (0x42). The handling of this parameter has now been corrected to accept zero length data EAI fields.

Dialogic  
23-Oct-08

## **Binary for Linux - ISUP**

### **Release Notes for Version 5.07**

#### **1 Overview**

This release enhances support for German ISUP, adds support for CUG calls, adds support for Forward CPG messages and corrects the handling on reception of user RLC following local release. The release also adds support for CUG calls and corrects the handling of the reception of user RLC following user REL.

Additional new functionality includes support for configurations with a SIF length longer than 272 octets. This can be used, for example, with SIGTRAN systems using BICC over M3UA.

If configuring the extended SIF length support then the s7\_mgt utility contained in the Development Package for Linux V5.11 or later must be used. In addition, the system must be configured with an appropriate number of large message structures (LMSGs). See the Development Package documentation and release notes for further details.

This release is backwards compatible with the previous release.

#### **2 New functionality**

##### **2.1 Enhance support for German ISUP**

This release extends support for German ISUP. When this variant (ISPGVAR\_GER, 0x03) is selected in the Configure Circuit Group Request (ISP\_MSG\_CNF\_GRP, 0x7701) message, the following additional parameters may now be used in the IAM message:

##### **ITU parameters**

- Call diversion treatment indicators
- Call offering treatment indicators
- Called IN number
- Conference treatment indicators
- CCSS
- CCNR possible indicator
- Display information



## German ISUP specific parameters

Parameter Name	Parameter Value				Mandatory /Optional Parameter	Length		Message used
	German ISUP		API			Min	Max	
	Hex	Dec	Hex	Dec				
NP.FF  [Nationaler Parameter in der IAM]	0xff	255	0x1f8	504	Optional	1	1	IAM
NP.SSP  [Nationaler Parameter für den Service Switching Point]	0xf5	245	0x1f9	505	Optional	1	2	IAM
NP.UKK  [Nationaler Parameter für die Ursprungskundenkennug]	0xfc	252	0x1fa	506	Optional	1	3	IAM

### 2.2 Auto reject CUG calls

A new per-circuit group option, ISP1GOP\_NOCUG (0x00100000, bit 20), has been added to the 'ext\_1\_options' field in the Configure Circuit Group Request (ISP\_MSG\_CNF\_GRP, 0x7701) message.

If this option is enabled, this will cause incoming calls to be automatically released with cause #29 when the 'Closed user group call indicator', in the Optional Forward Call Indicators parameter, is set to "closed user group call, outgoing access not allowed".

### 2.3 Extended SIF length support

The module can now be configured to accept and output longer SIF lengths. This is necessary to support configurations which require a SIF length longer than the normal 272 octet limit.

The module configuration parameter 'max\_sif' can now be set to longer sizes than the 272 (and 64) octet sizes previously recommended. The max\_sif parameter can be set to values of up to 4200 octets, but this will be too large for most networks and typically a smaller value should be selected, e.g. 544 octets. The max\_sif parameter limits the maximum size of message that can be sent to the network. Messages to and from the User Application are limited only by the size of the message structure.

A new Software Event code is added for the ISP\_MSG\_ERROR\_IND message –

Status		Mnemonic	Id	Parameter 1	Parameter 2	Description
18	0x12	ISPe_NO_MSG	0	0	0	The pool of long messages has been exhausted. If this event occurs then correct operation of the module is not guaranteed.

This event will occur when the module cannot allocate a long message structure (LMSG). The user should consider re-configuring the GCTLOAD module to make more LMSGs available.

*Note: No event is reported when there are no short GCT messages (since a short GCT message would be required to report the event).*

When the module formats messages for the network layer, it will check that the message length does not exceed the 'max\_sif' value. If the message would exceed the max\_sif length the module will discard parameters until the message fits (as per the ISUP specification). The first time parameter discard happens (after module configuration) a Maintenance Event Indication (ISP\_MSG\_MAINT\_IND) will be sent,

Status		Data	Mnemonic	Description
72	0x48	0	CCm_GEN_Param_discard	Parameters have been discarded from a message sent to the network layer due to message size limitations. This event will only be reported once.

The event is reported only once to avoid overwhelming the Maintenance module with these events.

## 2.4 No release on CUG allowed

Now allows CUG calls be conveyed provided that the Closed user group call indicator, in the Optional Forward Call Indicators parameter, is not set to "closed user group call, outgoing access not allowed".

## 2.5 Support for reception of Forward CPG

Support for the reception of a CPG in the forward direction can be enabled using the option ISPX1GOP\_IC\_CPG in the ext\_1\_options field of the Circuit Group Request configuration message (0c7701).

### **3 Changes**

#### **3.1 Receipt of user RLC following local release**

In previous releases, if it is determined that an incoming call must be locally released for instance if user to user service requests are not supported in the IAM and if ISUP subsequently receives an RLC in response from the User (instead of REL), the received RLC is no longer conveyed to the network. Under such conditions, on reception of the user RLC, this message is now ignored and a REL will be sent with the corresponding release cause to the network.

#### **3.2 Receipt of user RLC following user REL**

ISUP now guards against the sending of a User RLC, to the network, immediately after sending User REL. Previously, if received the RLC from the User was conveyed to the network.

Dialogic  
20-Mar-09

## **Binary for Linux - ISUP**

### **Release Notes for Version 5.08**

#### **1. Overview**

This release enhances the ISUP application heartbeat mechanism so that it can be used in conjunction with BICC which does not support the concept of hardware blocking.

It also adds circuit utilisation measurements for ISUP circuit groups and support for 8-bit SLS values for use with 24-bit Point Codes. The release also includes enhancements to the operation of management resets to ensure circuits are fully returned to the idle state irrespective of the operational state of the application.

#### **2. New Functionality**

##### **2.1 Application Heartbeat for BICC**

Prior to this release, when the ISUP heartbeat timer expired ISUP would send a hardware-blocking message to the remote signaling point for each affected circuit group. As BICC does not support hardware-blocking the functionality has been modified such that on heartbeat timer expiry for BICC circuit groups will send a circuit group reset message followed by maintenance-blocking message.

##### **2.2 Circuit Group Statistics**

ISUP now gathers a number of call completion and circuit occupancy statistics on a per circuit group basis which can be read on-demand by the user and optionally reset. The following statistics are gathered:

- Number of Incoming call attempts
- Number of Outgoing call attempts
- Number of Incoming calls answered
- Number of Outgoing calls answered.
- Total call duration of completed calls.
- Maximum number of circuits active at one time.

These statistics can be assessed using the following new ISUP message:

MESSAGE HEADER		
FIELD NAME		MEANING
type		ISP_MSG_R_GRP_STATS (0x6719)
id		GID
src		Sending module_id
dst		ISP_TASK_ID
rsp_req		Sending layer's bit must be set
hclass		0
status		Set to 1 to reset the measurements or 0 to leave measurements unmodified
err_info		0
len		32
PARAMETER AREA		
OFFSET	SIZE	NAME
0	1	version – must be set to zero.
1	3	Reserved
4	4	period – The measurement period.
8	4	ic_attempt – Incoming call attempts
12	4	og_attempt – Outgoing call attempts
16	4	ic_answered – Incoming calls answered
20	4	og_answered – Outgoing calls answered
24	4	duration – Total accumulated call duration for completed calls in the group
28	4	max_device – Maximum number of devices busy at one time

### **3. Other Changes**

#### **3.1 Management Reset**

Operation of Circuit Group Supervision Management Reset requests has been enhanced to ensure that circuits are fully returned to the idle state irrespective of the operational state of the application.

Previously the circuit was not returned to the idle state until a valid RLC had been received from the application for any circuits that had been carrying active calls prior to the reset. Under normal operating conditions this was fine however it could lead to issues in situations where the reason for the management reset was that the application had crashed or had been restarted. Under such conditions the application would not have generated the RLC. The new mode of operation will ensure that in this scenario the restarted application can immediately start receiving calls.

#### **3.2 8-bit SLS**

This release introduces optional support 8-bit SLS values for use in US networks. Selection of 8 bit SLS values is achieved using a new per circuit group option, ISPX1GOP\_SLS8 (bit 22, 0x00400000), in the ext\_1\_options field of the ISP\_MSG\_CNF\_GRP message. This is bit 22 of the <options2> parameter in the ISUP\_CFG\_CCTGRP command in config.txt.

When ISUP has been configured for 24 bit point codes and the ISPX1GOP\_SLS8 option has been set ISUP will set the SLS to the 8 least significant bits of the CIC otherwise it will set the SLS to 5 bits.