

Dialogic® DSI Development Package for Windows Release Notes

Document Reference: RN001DPK

Publication Date: September 2016

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Release 6.5.0

1 Overview

This is a feature release which includes updates to board drivers for use with later versions of the Windows Operating System. The release also includes support for increased capacity (up to 1 million) concurrent dialogues in TCAP, MAP and IS41.

In addition the release contains several enhancements to protocol modules and utilities including additional MAP and IS41 services, additional SCCP GTT functionality and other OAM enhancements.

This release also contains a number of updates and corrections as detailed below.

This is the first full release since 6.4.5 and it is fully backwards compatible with that release.

1.1 Applicability

This release is suitable for all users.

When using DSI signaling boards on Windows 8 and Windows Server 2012, or later, users will need to use this release or later.

This release has been verified with:

- Windows 8.1 (32 bit kernel)
- Windows Server 2012 R2 (64 bit kernel)

This release should be used in conjunction with the following updated user documentation:

Dialogic® DSI Protocol Stack – TCAP Programmer’s Manual, Issue 14,
Dialogic® DSI Protocol Stack – MAP Programmer’s Manual, Issue 22,
Dialogic® DSI Protocol Stack – M3UA Programmer’s Manual, Issue 10,
Dialogic® DSI Protocol Stack – INAP Programmer’s Manual, Issue 13,
Dialogic® DSI Protocol Stack – IS41 Programmer’s Manual, Issue 9.

1.2 Resolved Customer Issues

The following customer issue is resolved in this release: IPY00116450, IPY00116444, IPY00117734, IPY00117714 and IPY00116792

2 New Functionality

2.1 Support for later Operating Systems

To facilitate installation on supported versions of Windows 8.1 and Windows Server 2012 R2 the device drivers for Dialogic® DSI Network Interface Boards included in this release of the Development Package are all signed with an SHA-2 certificate.

2.2 TCAP, MAP and INAP - Extended Dialog Support

This release offers the ability to use more than 64k concurrent when using TCAP, MAP and INAP protocols. The new capability requires the use of a per-protocol extension licenses. In addition users will need to make changes to the API as detailed in the relevant Programmer's Manuals in order to address a wider range of dialogues. The maximum number of dialogs supported is 1,048,576.

The Extended Dialogue Id format can be used by all users but the ability to configure greater than 64K dialogs requires new licenses for TCAP, MAP and INAP (in addition to the regular TCAP, MAP and INAP license).

Item Name	Product Description	Part No.
SS7SBHSTTCAP-EXT	TCAP Extension Host Protocol License	852-887
SS7SBHSTMAP-EXT	MAP Extension Host Protocol License	852-888
SS7SBHSTINAP-EXT	INAP Extension Host Protocol License	852-889

s7_mgt can be used to configure extended TCAP operation by appropriate configuration of the <base_ogdlg_id> <nog_dialogues> <base_icdlg_id> <nic_dialogues> parameters in the TCAP_CONFIG command.

Extended dialogue ID support is enabled by setting bit 16 in the <options> field of the TCAP_CONFIG command, bit 10 in the <options> field of the MAP_CONFIG command and bit 5 in the <options> field of the INAP_CONFIG command.

See the *TCAP, MAP and INAP Programmer's Manuals* for further details.

When using Extended Dialogues, s7_mgt will configure the TCAP local transaction ID to use 4 bits for instance, 20 bits for dialogue reference and 8 bits for sequence number.

Without Extended Dialogs, s7_mgt will use 4 bits for instance, 16 bits for dialogue reference and 12 bits for sequence number. In both cases the maximum number of TCAP hosts is 16.

2.3 INAP API – Extended Dialogue Support

New functions have been added to the INAP API to support extended dialogue use. The new functions use a 32 bit Dialogue ID (in contrast to the existing functions which use a 16 bit Dialogue ID. New users should all use the new functions which are prefixed IN_EXT_xxx. Refer to the header file for further information.

2.4 IS41 – LocationRequest service support

This release adds support for the IS41 service 'LocationRequest'. For full details refer to *IS41 Programmer's Manual*.

2.5 MAP – Support Update Device Configuration Service

The release adds support for the proprietary MAP V3 service Update Device Configuration (UDC). The UDC service uses Op Code = 242 (0xf2) and Application Context Object ID: 1.2.826.0.1249.58.1.1.3.3. For further detail refer to the *MAP Programmer's Manual*.

2.6 MAP – Provide Subscriber Information

This release enhances support for the Provide Subscriber Information service in line with MAP specification 3GPP TS 29.002 V8.12.0. For full detail refer to the *MAP Programmer's Manual*.

2.7 SCCP – Multiple Global Title Translation Tables

This release introduces the concept of multiple Global Title Translation Tables which allows the SCCP user to select a different SCCP routing plan on a per dialogue basis.

Selection of the Translation Table is performed using a new integer parameter RIID (Routing Indicator Identifier) which takes a value between 1 and 65535 and acts as a token to identify the table. The RIID parameter is optional and can be used when configuring GT Translation, and when configuring a Remote Signaling Point. Refer to the *SCCP Programmer's Manual* for further details.

This release allows the TCAP user to select on a per-dialogue basis which SCCP Global Title Translation Table will be used. Further information is available on request.

2.8 SCCP – Rebalance of Class 0 Traffic

This release introduces the ability for Connectionless Class 0 SCCP traffic to be evenly balanced towards a Remote Signaling Point through regeneration of the SLS in a cyclic manner. The option can be selected on a per-RSP basis by setting bit 6 in the `ssr_flags` field of the `SCP_MSG_CNF_SSR` message when configuring the Remote Signaling Point.

2.9 SCCP – SSR Availability Events

This release adds to SCCP generation of an event to the maintenance module each time the status of a sub-system resource (eg LSS, RSP, RSS) changes to 'allowed' or 'prohibited'.

The event is conveyed in a new SSR Maintenance Indication message `SCP_MSG_SSR_MAINT_IND` (0x0764). The message is decoded by `s7_log` and optionally also logged to `syslog`.

Generation of SSR Maintenance Indications is active by default but can optionally be disabled by setting bit 9 of the `<options2>` parameter in the `SCP_CONFIG` command (or setting bit 9 of the `'ext2_options'` field in the `SCP_MSG_CONFIG` message if using message-based configuration).

When an SCCP Sub-System resource is configured, the previously unused `id` field in the message header is now used to identify the SSR. It is stored within SCCP and used as the `'id'` field within any SSR Maintenance Indications.

2.10 MAP - Dialog Idle Timeout parameter

This release adds a parameter that allows the MAP user to set Dialog Idle Timeouts for individual dialogs. Previously MAP users could only set an Idle Timeout for all sent dialogs by configuring a default Idle Timeout for the TCAP module.

The MAPPN_dlg_idle_timeout parameter (755, 0x2f3) can be set for MAPDT_OPEN_REQ, MAPDT_DELIMITER_REQ or MAPDT_OPEN_RSP primitive types in MAP_MSG_DLG_REQ messages. The parameter value is passed directly to the TCAP module which manages the timeout, for details of Dialog Idle Timeout operation refer to the *TCAP Programmer's Manual*.

2.11 M3UA – Additional Traffic Measurements

This release adds four new messages for gathering measurements from the M3UA module. These include per association traffic measurements and per module traffic measurements and peak utilization measurements (both per-association and per module) which capture the peak transmit and receive traffic rates and link utilization of the previous 5 minute, one hour and one day intervals. Refer to the *M3UA Programmer's Manual* for further information.

2.12 IS41 – Support for TC-NOTICE-IND

IS41 now supports receipt of the TC_NOTICE_IND message and conveys it to the user as follows:

- a) If IS41 has just send a request to TCAP, initiated by the user and is in the 'INIT' state, the Notice message causes IS41 to attempt to close the dialog. It sends a U-ABORT to TCAP with Abort Reason=User Defined and it sends OPEN_CNF to the IS41 user, with Result=Refused, Provider Reason=Node Not Reachable and a new Report Cause parameter.
- b) If IS41 is in any state other than 'INIT', it sends a NOTICE_IND message to the IS41 user and the dialog remains open (the user may then choose to abort the dialog). The NOTICE_IND to the user is sent a Problem Diagnostic parameter=IS41PD_message_not_delivered and a new Return Cause parameter.

A new parameter IS41PN_report_cause (value 0x70) is added to the IS41 module. Report Cause may be returned in NOTICE_IND or OPEN_CNF messages sent to the IS41 User. The parameter has length one octet and defined the 'Return Cause' value defined by SCCP T1.112.3. Return cause is only defined when a UDTs is received or generated by SCCP. The cause is then return via TCAP in a NOTICE_IND message to the IS41 module.

A new value (3) for the Problem Diagnostic parameter (IS41PN_prob_diag) is added for this release IS41PD_message_not_delivered

This value is returned via the parameter when a NOTICE_IND is sent to the IS41 User due to a TC_NOTICE_IND being received from TCAP.

A new value (8) for the Provider Reason parameter (IS41PN_prov_rsn) is added for this release to indicate Node not Reachable. This value is returned via the parameter when a OPEN_CNF is sent to the IS41 User due to a TC_NOTICE_IND being received from TCAP.

3 Other Changes

3.1 GCTLIB – 64 Bit Application (IPY00118036)

This release corrects operation of the 64 bit version of the GCTLIB library which potentially resulted in the user's application failing to interface correctly with the DSI message passing environment. The issue was encountered when the internal shared memory is allocated a base address that is greater than 4Gbytes.

3.2 SCCP - Dynamic Global Title Configuration

This release allows dynamic Global Title Configuration to preserve the sequence in which entries in the table are used irrespective of the sequence in which they are added. The 'id' field in the SCP_MSG_GTT_ADD is used to order the entries with the lowest value always used first. Duplicate 'id's are still permitted but these will be stored in the table in the order they are received.

3.3 SCCP – GLST Congestion

This release includes enhancements to operation of Global Title Load Share Table routing to respect the congestion status of remote signaling points and avoid sending traffic towards more heavily congested destinations.

3.4 SCCP – Ending RSP when RSS attached

The SCP_MSG_END_SSR message has been changed so that attempts to end a Remote Signaling Point (RSP) that has a Remote Sub-System (RSS) attached to it are rejected using status refused using either SCPE_BAD_ID (0x01) or SCPE_BAD_PARAM (0x06) depending on whether the message had any parameters defined. All RSSs that have the same point code as a RSP must be ended before that RSP can be ended.

3.5 SCCP – RSP using LPC

The SCP_MSG_CNF_SSR message has been changed so that attempts to a configure Remote Signaling Point (RSP) with a point code equal to the Local Point Code, as defined in the SCP_MSG_CONFIG message, are rejected using status SCPE_BAD_PARAM.

3.6 TCAP – Support for Routing Indicator ID (RIID)

This release allows the TCAP user to select on a per-dialogue basis which SCCP Global Title Translation Table will be used. Further information is available in the *TCAP Programmer's Manual*.

3.7 TCAP – Options to disable aborts to network

This release adds three user options to selectively prevent generation of Abort messages to the network. They are configured using the 'ext_flags' field of TCP_MSG_CONFIG message as follows:

Bit 13, if set, prevents dialog idle aborts being sent to network
Bit 14, if set, prevents internal aborts being sent to network
Bit 15, if set, prevents user aborts being sent to network

3.8 TCAP – Operation Timer Expiry

TCAP now optionally generates a maintenance event on unexpected expiry of an operation timer. This feature is enabled by setting bit 28 in the <options> field of the TCAP_CONFIG command in config.txt. s7_log will report TCPEV_INV_TIMEOUT.

3.9 TCAP –Component Resource Management

This release corrects a fault that could cause TCAP module component resources not to be freed when the dialogue was closed. The fault occurred in certain states when receipt of an SCCP message caused at least 3 Rejects to be sent to the TCAP User and the dialogue remained open.

3.10 TCAP – Handling multiple Network Contexts

This release changes the TCPF_SEND_TCAP_VER option to be valid on a per-Network context basis. It also includes corrections to ensure consistent usage of Network context (NC) in situations where multiple NCs are in use.

In all cases the NC is assigned at the point the dialogue is created and remains fixed throughout the dialogue. This ensures that the per-NC options are appropriately used at all times during the dialogue.

On receipt of an SCCP message for an active dialogue containing a conflicting NC value the message is discarded and a maintenance event generated TCPEV_SCCP_NC_MISMATCH (12).

This release ensures that the options TCPF_DLGRP and TCPF_SEGMENTATION operate on a global, per-module basis and are not influenced by per Network Configuration messages.

This release corrects a problem that, when operating with multiple Network Contexts at the TCAP level, potentially caused incorrect formatting of a reject component sent to the network. The issue occurred when the PDU format (bit 1 of the 'flags' field) in the per-NC configuration) was different to the value configured for NC=0.

3.11 TCAP –Error message format

This release corrects the coding of the TCP_MSG_ERROR_IND message when reporting TCPSWE_BAD_MSG so that the 'message type' is now conveyed in the 'param1' field.

3.12 TCAP – Tolerate Result with no parameter data

This release tolerates reception from the network of Result-L or Result-NL components containing SEQ and Op Code fields but no parameter data (ref Q773, Table 16).

3.13 TCAP – APDU Protocol Version data length

This release explicitly checks the length of the TCAP Protocol Version as contained in the APDU part of the message received from SCCP and if invalid considers it as a syntax error. The length should be 2 octets for ITU-T operation and 1 octet for ANSI operation.

3.14 TCAP – Primitive type validation

TCAP now validates the primitive type octet against the component parameter in messages received from the user and discards invalid combinations reporting the error to management.

3.15 TCAP – Selective Tracing

The TCAP module now generates selective trace messages when certain software or maintenance events are reported.

3.16 MAP – Options to Control Default TCAP QoS

This release adds two new global MAP options to control the default value for the Quality of Service (QoS) parameter sent to TCAP (when QoS is not explicitly specified by the MAP user). They use the 'options' field in the MAP_MSG_CONFIG message.

Bit 8, when set, causes the 'Return on Error' field to be set by default.

Bit 9, when set, causes Sequence Control to be disabled by default (selecting Class 0 operation).

3.17 MAP – Update Location Ellipsis (IPY00116450)

For previous releases the Update Location service did not always capture unexpected / unsupported parameter data from a received message and pass it in the MAPPN_ellipsis parameter to the MAP User. This has been corrected for and the MAPPN_ellipsis parameter now returns all unexpected / unsupported parameter data received for the top level (UpdateLocationArg) table of the operation. As a consequence of this correction, when using the MAPPN_ellipsis parameter to insert formatted ASN.1 data into the Update Location Invoke message, the data will be inserted at the end of the message that is sent to TCAP.

3.18 MAP – User Error codes (IPY00116444)

For previous releases when TCAP Reject components were received with Invoke problem codes of 'Initiating Release' or 'Resource Limitation', incorrect DSI MAP User Error codes were reported to the MAP User via the MAPPN_user_err parameter. This has been corrected so the correct errors are now reported – MAPUE_initiating_release (38) and MAPUE_resource_limitation (37).

3.19 MAP – Prevent orphan TCAP Aborts

This release prevents inappropriate generation of Abort messages to TCAP for a dialog that had yet to be started in TCAP.

3.20 MAP – Generation of TC-U-ABORT

This release corrects an issue when generating a TC-U-ABORT (as a result of receiving an invalid BEGIN from TCAP) to ensure that the TC-U-ABORT contains only the intended parameters. Previously additional parameters from the BEGIN were also included.

3.21 MAP – Receipt of empty CONTINUE (IPY00117734)

When the first backwards message received is an empty CONTINUE there are no service components to send to the application. To allow the application to determine that there are no service indication messages (and consequently no DELIMIT to follow), in this situation MAP will now include a new parameter in the MAP-OPEN-CNF message to indicate that there are no service indication parameters to follow.

The new parameter is designated MAPPN_cpt_indicator (756), it has a single octet data field and the data octet is set to value zero to indicate that there is no service indication messages (and no DELIMIT) to follow.

3.22 IS41 – OPEN_RSP supports dest/orig address

IS41 now allows the user to optionally specify destination address (IS41PN_dest_address) and/or origination address (IS41PN_orig_address) in the IS41DT_OPEN_RSP primitive using the IS41_MSG_DLG_REQ message.

3.23 IS41 – Originating Request containing IMSI

This release corrects the handling of received Origination Request messages to ensure that if the MSID contains IMSI but not MID then the message is still accepted.

3.24 IS41 – Prevent orphan Aborts to TCAP

On receipt of OPEN_REQ directly followed by U_ABORT_REQ, both from the user, IS41 will now simply close the dialogue (rather than sending an orphan UABORT to TCAP).

3.25 IS41 – Selective Tracing enabled by default

IS41 selective tracing is now enabled by default. For further detail refer to the *IS41 Programmer's Manual*.

3.26 M2PA – Congestion Recovery

This release provides a correction to the operation of M2PA to ensure that it correctly recovers from the congested state. Previously, when operating with multiple congestion levels selected, it was possible for a link to get stuck in the congested condition with congestion level 2 or 3. This happened on receipt of an acknowledgement that acknowledged multiple messages.

3.27 M2PA –Link Deactivation takes Association Down

Operation of M2PA has been enhanced so that if the link is deactivated at the MTP3 level then M2PA will proactively take down the underlying SCTP association. It does this by detecting when a link has been left in the Out Of Service state for a period of 10 seconds.

3.28 M3UA – Licensed Throughput calculation

This release includes minor corrections to the calculation of the number of octets transmitted for the purpose of throughput based licensing. In addition the payload octets are no longer counted in the case that it is not possible to send the message to the network.

3.29 SCTP/SCTPD –Protocol Changes

SCTP now includes the error cause supplied by the SCTP_MSG_ABORT (0x728c) message in the 'Abort Association' (ABORT) chunk.

On failure of an association's active transport address, SCTP will check the remaining transport addresses and mark the association as closed if none are active.

On receipt of unexpected TSNs, SCTP will generate an event report to management (SCTP_EVT_HIGH_TSN (0x02) or SCP_EVT_LOW_TSN (0x03)).

3.30 RMM – Protocol Changes

This release corrects an error with RMM which potentially caused MTP-PAUSE messages from the partner RMM being reported to the local RMM user as MTP-RESUME.

This release corrects an error which could result in RMM failing to synchronize routes with the partner RMM from startup.

3.31 s7_mgt –LAS/SG Configuration (IPY00116792)

This release corrects an issue to allow both Local Application Servers and Signaling Gateways within the same config.txt file.

3.32 s7_mgt – Global Title Load Share Tables

This release allows the configuration of SCCP Global Title Load Share Tables (GLSTs) using config.txt. Further detail is available in the *Software Environment Programmer's Manual*.

3.33 s7_mgt - ISUP Circuit Group Management Id

This release allows the user to select the global maintenance and management module for ISUP circuit groups rather than using the per circuit group configuration values.

This feature is activated by using the config.txt command Configuration Module Options Set command (CNOPS), and setting MODULE=S7_MGT and setting bits 16 and 17 in the OPTIONS parameter. For example:

```
CNOPS:MODULE=S7_MGT,OPTIONS=0x00030000;
```

Bit 16: When set to one 'maint_id' is set to the global maintenance module and 'maint_inst' is set to zero. The global maintenance module is 0xef by default or the value specified in the MAINT_MOD_ID command.

Bit 17: When set to one 'mngt_id' is set to the global management module and 'mngt_inst' is set to zero. The global management module is 0xef by default or the value specified in the MGMT_MOD_ID command.

3.34 s7_mgt – Multiple M3UA AS in Dual Mode

s7_mgt now supports configuration of up to four instances of RMM to support operation of multiple (up to 4) Local Application Servers (LAS) running above M3UA. Further details are available on request.

3.35 s7_mgt –TCAP Incoming Dialogues

This release includes a correction to ensure that the number of TCAP incoming dialogues is correctly configured in all cases.

3.36 s7_mgt – Support for 256 M2PA Links

s7_mgt now supports the configuration of up to 256 M2PA links.

3.37 INTU – Extended Dialogue support

The INTU utility has been enhanced to support the use of Extended INAP Dialogues. To enable this option the user should bit 15 in the INTU command line options field.

3.38 INTU – Compile definition changes

The INAP API no longer uses the 'IN_LMSGGS' conditional compilation to define two sets of functions. The API functions used when 'IN_LMSGGS' was defined are now always used (Large Message support).

Dialogic
14-Sep-16

Release 6.4.5

1 Overview

This is a maintenance release which adds new capabilities for MAP and M3UA protocols and support for DoCoMo protocol variants as an extension to the existing Japan capabilities

The release also includes corrections and changes as detailed below and is fully backwards compatible with the previous release.

This is the first full release since 6.4.2 and it is fully backwards compatible with that release.

1.1 Applicability

This release is applicable for all users.

The following User Documentation updates are applicable to this release of the Development Package:

Dialogic® DSI Components - Software Environment Programmer's Manual, Issue 15

Dialogic® DSI Protocol Stacks – SCCP Programmer's Manual, Issue 10

Dialogic® DSI Protocol Stacks – TCAP Programmer's Manual, Issue 13

Dialogic® DSI Protocol Stacks – MAP Programmer's Manual, Issue 19

Dialogic® DSI Protocol Stacks – SCTP Programmer's Manual, Issue 6

Dialogic® DSI Protocol Stacks – M3UA Programmer's Manual, Issue 9

Dialogic® DSI Protocol Stacks – DTS User Guide, Issue 10

1.2 Resolved Customer Issues

The following customer issue is resolved in this release: IPY00102391, IPY00102763, IPY00116461, IPY00115211, IPY00116450, IPY00116444 and IPY00102645.

2 New Functionality

2.1 MAP - CurrentSecurityContext data added to SendIdentification service

The MAP-SEND-IDENTIFICATION service has been updated and is now compliant with MAP specification 3GPP TS 29.002 v9.4.0. The request parameters are unchanged but the following optional parameters have been added to the response:

KC for GSM

CKSN for GSM

GSM Security Context Ellipsis

CK for UMTS

IK for UMTS

KSI for UMTS

UMTS Security Context Ellipsis

For full details refer to the MAP Programmer's Manual.

The MAP-SEND-IDENTIFICATION service now correctly processes received response data if the AuthenticationSetList data is received in one TCAP message and the CurrentSecurityContext data is received in another.

2.2 MTP3 – DoCoMo operation for Japan

This release adds support for MTP3 Japanese DoCoMo operation and adds a new configuration option (Bit 25 of the <options> field of the MTP_CONFIG command) specifically for DoCoMo operation.

To select DoCoMo operation users should ensure that bits 10, 11, 20, 21 and 25 are all set in the <options> field of the MTP_CONFIG command.

2.3 SCCP – Support for Japan DoCoMo operation

This release enhances support for Japanese DoCoMo operation and adds a new configuration option specifically for DoCoMo operation. The new option is bit 4 in the <options2> parameter in the SCCP_CONFIG command when using config.txt or bit 4 in the 'ext2_options' field of the SCP_MSG_CONFIG message.

2.4 SCCP – GTT Separator Character configuration

This release allows the user to choose which character is used as a GTT separator character. Previously the fixed value 0x0e was used which prevented the use of character 0x0e in the Global Title itself. This release allows any value in the range 0x0a .. 0x0f to be used as the separator character for GTT configuration purposes.

Configuration of the separator character is achieved when using config.txt by setting the GTTSEP option using the CNOPS command as follows:
CNOPS:MODULE=SCCP,GTTSEP=0x0a; The CNOPS command must appear prior to any SCCP_GTT_PATTERN, SCCP_GTT_ADDRESS or SCCP_GTT commands in the configuration file.

2.5 SCCP – Global Title Load Share Table Statistics

The message SCP_MSG_R_GLST_STATS (0x6756) has been added to allow user to obtain usage statistics for configured Global Title Load Share tables.

2.6 M3UA – Support for 384 Associations

When used in conjunction with SCTP/SCTPD, this release increases the maximum number of SCTP Associations from 256 to 384. Users with licenses that support 384 or more link equivalents can now use up to a maximum of 384 associations.

2.7 MST – Monitoring Diameter Messages

The capability of the SIGTRAN monitoring tool (MST) has been enhanced to support monitoring of SCTP based Diameter traffic. To invoke this capability the user should set bit 8 in the 'stn_mask' when configuring the MST Tap.

3 Other Changes

3.1 SSDH –SS7HD Congestion Recovery (IPY00116461)

This release corrects an issue where following system congestion the interface to the SS7HD board did not always recover correctly resulting in outgoing messages getting 'stuck' within SSDH.

3.2 ISUP – Reset Circuits

This release modifies ISUP behavior so that on reception of a circuit reset or group circuit reset from the network ISUP will now send a release with clearing cause value 41 (temporary failure) rather than the previous of 31 (normal unspecified).

3.3 BICC – Auto-Blocking

This release corrects operation of the BICC protocol so that ISUP correctly re-asserts blocking following receipt of a single circuit reset from the network on a locally blocked circuit by issuing a CGB message. Previously blocking was not re-asserted in this case.

3.4 SCCP – Event Report Limiting

To avoid excessive reporting of identical Maintenance Events (SCP_MSG_MAINT_IND) and Software Events (SCP_MSG_ERROR_IND) that can reduce system throughput, SCCP now issues a maximum of 10 event indications for an event type over any one minute interval. Further events during the interval are suppressed.

3.5 SCCP – Additional Diagnostics

SCCP now generates Selective Trace messages when certain Software Events or Maintenance Events occur. This contains the message that caused the software or maintenance event to occur.

SCCP tracing has been enhanced to support tracing of messages broadcast to the partner instance and error messages.

SCCP will now generate a Maintenance Event with event_code=18 (SCPEV_CO_NOT_CONFIGURED) if a Connection Request message (SCPPT_N_CONNECT_REQ) is received from the SCCP User but Connection Oriented operation has not been configured.

When configuration or management messages are rejected due to having insufficient length of data in the parameter area the status value is now set to value 11 (SCPE_BAD_MSG_LEN).

3.6 SCCP – Confirmation Messages

When confirming messages, SCCP will now issue the confirmation message after processing the original message (previously some confirmation messages were issued prior to processing).

3.7 SCCP – GTT Backup Routing

This release adds the ability on a per GTT translation for Connectionless messages that cannot be routed to be passed to the partner SCCP module using the SMB broadcast mechanism for routing. The option is enabled by setting bit 0 in the 'gtt_options' field when configuring the GTT translation. Further details are available on request. When this option is enabled SCCP will additionally send heartbeat messages to the partner SCCP in order to determine whether it is operational.

3.8 SCCP – Source specific GTT

This release allows configuration of different GTT tables for messages arriving from the Network and the User. The feature is enabled by an additional parameter in the message based GTT configuration message. Further details are available on request.

3.9 SCCP – Passing MTP label to SCCP LSS

The release adds the ability for Connectionless Messages to optionally pass the received MTP3 label to the Local Sub-System in the existing SCPPN_MTP_SIO_LABEL parameter. The feature is enabled by setting bit 5 in the 'ssr_flags' field of the SCP_MSG_CNF_SSR message.

3.10 TCAP - Event Indication Messages

The TCAP Maintenance Event Indication and Software Event Indication messages have been enhanced to include a 12 octet parameter area for additional diagnostic information as defined in the *TCAP Programmer's Manual*.

3.11 TCAP – Tracing TCAP Management messages

The ability to trace management messages has been added to the TCAP module.

3.12 TCAP/MAP – Sending NC to TCAP

This release corrects a fault where Network Context (NC) is not sent to TCAP after the user sends a MAP_MSG_DLG_REQ, MAP-OPEN-REQ message with a NC parameter (MAPPN_NC). This only happened when the user doesn't send any Service Requests (MAP_MSG_SRV_REQ), but follows the MAP-OPEN-REQ with a MAP-DELIMITER-REQ message. This release corrects the fault and will include a TCAP NC parameter in the TCAP BEGIN message if no TCAP Invokes were sent (the TCAP Invoke message is normally used to pass NC). The NC parameter is only passed to TCAP if its value is non-zero (the default NC).

TCAP now correctly processes NC if received in a Dialog request.

3.13 MAP –User parameters > 255 octets (IPY00115211)

This release supports larger parameter lengths for two parameters (MAPPN_siginfo 2560 octets and MAPPN_ellipsis 500 octets) which exceed the previous 255 octet limit. In order to use parameters over 255 octets in length the MAP User must use the MAP Code Shift mechanism. Further information is available on request.

3.14 MAP – Merged Components

When Not Last (NL) components are received by the MAP module, the parameters are decoded and saved until the final Last component (L) is received. Then the saved parameters are combined with the latest parameters. For this release a maximum parameter length test is performed after merging. If the resultant parameter length exceeds the maximum allowed for the parameter, a service provider error is reported to the MAP-User and, if Not Last, a reject sent to the network.

3.15 MAP – Update Location Ellipsis (IPY00116450)

For previous releases the Update Location service did not always capture unexpected / unsupported parameter data from a received message and pass it in the MAPPN_ellipsis parameter to the MAP User. This has been corrected for and the MAPPN_ellipsis parameter now returns all unexpected / unsupported parameter data received for the top level (UpdateLocationArg) table of the operation. As a consequence of this correction, when using the MAPPN_ellipsis parameter to insert formatted ASN.1 data into the Update Location Invoke message, the data will be inserted at the end of the message that is sent to TCAP.

3.16 MAP – User Error codes (IPY00116444)

For previous releases when TCAP Reject components were received with Invoke problem codes of 'Initiating Release' or 'Resource Limitation', incorrect DSI MAP User Error codes were reported to the MAP User via the MAPPN_user_err parameter. This has been corrected so the correct errors are now reported – MAPUE_initiating_release (38) and MAPUE_resource_limitation (37).

3.17 INAP – User control of TCAP Idle Timeout

This release allows the INAP user to optionally control the TCAP Idle Timeout on a per dialogue basis.

A new parameter (INAPPN_dlg_idle_timeout 0x20) is defined for use in the INAP_MSG_DLG_REQ message when the primitive type is INAP-OPEN-REQ (1), INAP-OPEN-RSP (0x81) or INAP-DELIMIT-REQ (3).

The parameter is a 1 or 2 octet value which contains the timeout value in seconds. When the two octet version of the parameter is used the first octet is the most significant value.

When using the INAP API library, the dialogue Idle Timeout parameter can be set using the IN_set_dialogue_param() call for OPEN, DELIMIT or OPEN RESPONSE dialog primitives together with the new parameter INDP_dlg_idle_timeout.

3.18 SCTP/SCTPD – Path Selection (IPY00102645)

This release corrects an issue handling the situation where a lack of heartbeat on the active path is detected. The previous release would send a message on the failed path before resending on the correct alternative path. This release uses the alternative path as soon as the heartbeat failure is detected.

3.19 M2PA – Link Recovery

This release makes small changes to M2PA to ensure consistent operation on link restoration.

M2PA now does not attempt to establish the SCTP association until the first Start request is received from MTP3.

M2PA no longer generates SIB on Out of Service links.

3.20 M2PA – Japan Support

This release enhanced M2PA to support operation in Japanese networks. To invoke this feature, bit 4 should be set in the M2PA per-link options. When using `s7_mgt` this is achieved using a new `M2PA_OPTIONS` parameter for the `SNLSI` command as follows:

```
SNLSI:SNLINK=n, ... M2PA_OPTIONS=0x0010;
```

The range of timer values supported by M2PA has been increased to allow operation in networks such as DoCoMo in Japan.

3.21 RSI – Enhanced Diagnostics

This release includes updates within RSI to proactively detect a failure of communications between RSI and `RSI_LNK` and generate an event `MGT_MSG_EVENT_ID (0x008)` to the management module (`0xef`) for logging in the maintenance log. RSI also reports lost heartbeat responses using the same mechanism. The status value in the event report is set to `0xe1 .. 0xe4` for 1 .. 4 consecutive missed heartbeats respectively and `0xe5` in the event of failure to communicate with `RSI_LNK`.

3.22 s7_log – Daily rolling logs (IPY00102391)

This release corrects an issue with `s7_log` when using the `-r` option (to create a new log file each day) which prevented new daily log files being created after the end of a month until the log file size limit was reached. After a new file was created based on the size limit the daily rolling log would again be created.

3.23 s7_mgt – Multiple RAS with same DPC

This release allows M3UA to be configured with multiple associations connecting to the same remote Destination Point Code (DPC). This is achieved by adding a Local Application Server (LAS) parameter to the `SNRAI` command to ensure that each Remote Application server (RAS) has a unique combination of DPC and LAS. The full syntax of the `SNRAI` command is as follows:

```
SNRAI:RAS=,[DPC=,][RC=,][NASP=,][TRMD=,][SNMP=,][LAS=];
```

3.24 s7_mgt - SNLINK command validation

`s7_mgt` will now detect and reject `SNLINK` commands which specify the same host IP address and port information as previously configured `SNLINK` commands. Previously this configuration would have been accepted, but was not valid within SCTP.

3.25 s7_mgt –SCCP LSS Management Id

This release allows SCCP to be configured to send state change indications for concerned entities to the local sub-system (instead of to the configured SCCP management module). This is achieved by setting bit 0 in a new parameter (mgt_flags) for the SCCP_SSR command in config.txt. The full syntax for the command is now:

```
SCCP_SSR <ssr_id> LSS <local_ssn> <module_id> <flags>  
          <protocol> [<mgt_flags>]
```

3.26 s7_mgt – Support for 256 RAS (IPY00102763)

This release increases the maximum number of Remote Application Servers (RAS) that s7_mgt can configure from 64 to 256 to allow the full capacity of M3UA to be used.

3.27 dsistat –IPv6 Support

The dsistat utility has been enhanced to support display of IPv6 addresses.

Dialogic
24-Jul-14

Release 6.4.2

1 Overview

This is a feature release of the Dialogic® DSI Development Package for Windows which adds support for additional PCIe signaling and media boards, enhances MAP and M3UA protocol capabilities and introduces IPv6 support for the RSI interface.

The release adds 'signaling only' support the Dialogic® DSI SS7LD Network Interface Board and adds 'combined media and signaling' support for the Dialogic® HMP Interface Boards when used in conjunction with Dialogic® PowerMedia™ HMP 3.0 Windows Service Update 343 and later. The supported boards are DNI2410TEPE2HMP, DNI1210TEPE2HMP, DNI610TEPE2HMP and DNI310TEPE2HMP although users should note that only the latest versions of the boards are supported (see below).

MAP protocol operation is enhanced to include support for more recent services and parameters as detailed below and in the latest *MAP Programmer's Manual*.

M3UA is enhanced to support additional run-time license capacities, a greater number of destinations (4096) and support for multiple Local Application Servers (LAS).

RSI is enhanced to support operation in IPv6 networks.

The release includes further changes and corrections as detailed below. This is the first full release since Release 6.3.0 and it is fully backwards compatible with that release.

1.1 Applicability

This release is applicable for all users.

This release is validated for use with Windows Server 2008 (32 and 64bit) and Windows Server 2008 R2 (64bit). The SS7LD driver is 64 bit only.

The following User Documentation updates are applicable to this release of the Development Package:

Dialogic® DSI Components - Software Environment Programmer's Manual, Issue 14

Dialogic® DSI SS7LD Network Interface Board Programmer's Manual, Issue 3

Dialogic® DSI Protocol Stacks - MAP Programmer's Manual, Issue 19

Dialogic® DSI Protocol Stacks - M3UA Programmer's Manual, Issue 9

Dialogic® DSI Protocol Stacks - Sigtran Monitor Programmer's Manual, Iss. 6

Dialogic® DSI Protocol Stacks - DTS User Guide, Issue 10

Users should note that the shared library installation directories are now c:\DSI\32 and c:\DSI\64 (previously c:\DSI\LIB32 and c:\DSI\LIB64 respectively).

1.2 Resolved Customer Issues

Updates to resolve the following customer issues are included in this release: IPY00099532, IPY00100565, IPY00100673, IPY00100800, IPY00101131, IPY00102013 IPY00102308 and IPY00102115.

2 New Functionality

2.1 Signaling support for SS7LD Board

This release adds support for the Dialogic® DSI SS7LD Network Interface Board. It includes a new binary `ssdl.exe`, new drivers and a new code file `ss7.dc7` (V2.01) specifically for use with SS7LD boards. The driver is only for use with 64 bit operating systems.

This board is a Full Height, Half Length PCIe form factor and can support up to 16 SS7 signaling links running at 64kb/s, 56kb/s or 48kb/s. This board is a PCIe replacement for the existing Dialogic® DSI SPCI Network Interface Board.

This software can be used in conjunction with the following part numbers which either represent a board or a bundle of board with software license.

Note: Users should note that operation under Windows is only possible when using later versions of these boards as detailed in the table below.

Board Type	Description	Supported Hardware Versions
SS7LDH4Q	SS7LDH4, PCI Express, 4 T1/E1, 4 LSL	310-944-54 or greater revision part numbers
SS7LDL2C1KQ	Kit, SS7LDH4 & SS7SBLDISUP1K License	310-945-53 or greater revision part numbers
SS7LDL4C2KQ	Kit, SS7LDH4 & SS7SBLDISUP2K License	310-946-53 or greater revision part numbers
SS7LDL4C4KQ	Kit, SS7LDH4 & SS7SBLDISUP4K License	310-947-53 or greater revision part numbers
SS7LDH4L8C4KQ	Kit, SS7LDH4 & SS7SBLDISUP4K8L License	310-958-52 or greater revision part numbers
SS7LDH4L16C4KQ	Kit, SS7LDH4 & SS7SBLDISUP4K16L License	310-960-50 or greater revision part numbers

Note: The SS7LD board is not licensed for HMP operation. Users wishing to use combined media and signaling should purchase the appropriate DNIxx10TEPE2HMP board (see below) and a DSI software license.

Full details of the operation of the SS7LD Board are provided in the *Dialogic® DSI SS7LD Network Interface Board Programmer's Manual, Issue 3* and the *Dialogic® DSI Software Environment Programmer's Manual, Issue 14* which should be read in conjunction with these release notes.

2.2 Combined HMP media and SS7 signaling operation

This release adds the ability to run SS7 signaling links on the same board as Dialogic® HMP Software to support combined media and signaling operation on a single board.

This software can be used in conjunction with Dialogic® HMP Interface Boards and Dialogic® PowerMedia™ HMP 3.0 Windows Software (Service Update 343 and later). The supported boards are DNI2410TEPE2HMP, DNI1210TEPE2HMP, DNI610TEPE2HMP and DNI310TEPE2HMP.

Note: Users should note that operation under Windows is only possible when using later versions of these boards as detailed in the table below.

Board Type	Description	Supported Hardware Versions
DNI2410TEPE2HMP	Octal Span T1/E1 Digital Network Interface Board for Host Media Processing Software, onboard echo cancellation, 6/6 RoHS compliant, half-length, standard-height PCI Express	306-427-54 or greater revision part numbers
DNI1210TEPE2HMP	Quad Span T1/E1 Digital Network Interface board for Host Media Processing Software, onboard echo cancellation, 6/6 RoHS compliant, half length, standard-height PCI Express	306-428-53 or greater revision part numbers
DNI610TEPE2HMP	Dual Span T1/E1 Digital Network Interface board for Host Media Processing Software, onboard echo cancellation, 6/6 RoHS compliant, half length, standard-height PCI Express	306-484-52 or greater revision part numbers
DNI310TEPE2HMP	Single Span T1/E1 Digital Network Interface Board for Host Media Processing Software, onboard echo cancellation, 6/6 RoHS compliant, half-length, standard-height PCI Express	306-483-52 or greater revision part numbers

2.3 MAP - NotifySubscriberDataModified service

Support for the MAP NotifySubscriberDataModified service has been added in accordance with the MAP specification 3GPP TS 29 002 version 10.3.0 (Release 10). The service is MAP-V3 only as defined in the specification.

2.4 MAP – ProvideSubscriberLocation service

Support for the MAP ProvideSubscriberLocation service has been extended to include additional parameters. The implementation is now compatible with the MAP specification 3GPP TS 29 002 version 10.3.0 (Release 10).

2.5 MAP – ‘Additional Roaming Not Allowed Cause’

New MAP V3 services error parameters have been added in support of the ProvideSubscriberLocation service. Additionally the new error parameter ‘Additional Roaming Not Allowed Cause’ is now supported.

These new error parameters are enabled for use by all MAP-V3 services supported by the MAP implementation that use the applicable error codes.

2.6 MAP - EPS-AuthenticationSetList data

Support for EPS-AuthenticationSetList data as used by the SendAuthenticationInfo service has been added to the response in accordance with the MAP specification 3GPP TS 29 002 version 9.4.0 (Release 9). Two additional parameters have been added to the request for the same service: numberOfRequestedAdditional-Vectors and additionalVectorsAreForEPS. The parameters for both changes are only required for MAP-V3 Application Contexts as defined in the specification.

2.7 MAP - UpdateGPRSLocation, CancelLocation and PurgeMS to MAP Release 8

The implementation of the following MAP services has been extended to support all the parameters detailed in MAP Release 8 as detailed in 3GPP TS 29.002 v8.18.0:

MAP-UPDATE-GPRS-LOCATION
MAP-CANCEL-LOCATION
MAP-PURGE-MS

2.8 MAP - CurrentSecurityContext data added to SendIdentification service

The MAP-SEND-IDENTIFICATION service has been updated and is now compliant with MAP specification 3GPP TS 29.002 v9.4.0. The request parameters are unchanged but the following optional parameters have been added to the response:

KC for GSM
CKSN for GSM
GSM Security Context Ellipsis
CK for UMTS
IK for UMTS
KSI for UMTS
UMTS Security Context Ellipsis

For full details refer to the MAP Programmer's Manual.

The MAP-SEND-IDENTIFICATION service will correctly process received response data if the AuthenticationSetList data is received in one TCAP message and the CurrentSecurityContext data is received in another.

2.9 M3UA – Routing Key Management

This release adds support for the Routing Key Management (RKM) procedures when operating as an ASP. M3UA will send REG_REQ and DREG_REQ messages and handle the respective REG_RSP and DREG_RSP responses. Further details are available on request.

2.10 M3UA – Multiple Local AS support

This release supports the configuration and operation of multiple Local Application Servers (LAS). Changes to the configuration model now enable up to 4 LASs to be defined. Each LAS can be active across one or more shared associations with traffic distinguished by Routing Context (RC).

A peer IPSP or SGP would typically have an entry in its routing table for each LAS with a 1:1 mapping of routing key to LAS. For each routing key a RC is defined which accompanies the traffic on the association, to identify the LAS-server relationship to which it belongs. Previously all traffic was received by the single LAS and then distributed based on SI to the user parts. With Multiple LAS, traffic for a particular routing key from the peer SG or RAS is treated separately and when it arrives at the ASP it is distributed to the correct LAS, based on the RC. Each LAS-server relationship may be activated or deactivated independently of any other.

This new functionality can be configured using `s7_mgt` using the "LAS" parameter in place of the "AS" parameter in the `SNAPI` and `SNLBI` commands. The RC value should now be specified on the `SNLBI` command.

When used with configurations that include MTP User protocols such as ISUP or MAP, LAS1 will be configured with the appropriate Service Indicator and Module ID automatically. For all other LAS values the `MTP_USER_PART` command should be used. `s7_mgt` does not configure protocols which run above LAS2, LAS3 and LAS4.

To define the service indicator and the module ID of the application or module to process messages for a specific LAS, the `MTP_USER_PART` command should be used.

LAS ID value	Network Context Value	Default M3UA Module ID
1	NC0	0xd2
2	NC1	0xd6
3	NC2	0xd7
4	NC3	0xd8

For example:

```
MTP_USER_PART NC0 05 0x2d
MTP_USER_PART NC1 05 0x3d
MTP_USER_PART NC2 05 0x6d
MTP_USER_PART NC3 05 0x5d
```

To send traffic for additional LAS' the following lines need to be present in the `system.txt` file, to send messages to the correct module ID.

LOCAL	0xd2		* M3UA module
REDIRECT	0xc2	0xd2	* Management task
REDIRECT	0xd6	0xd2	* M3UA LAS2/NC1
REDIRECT	0xd7	0xd2	* M3UA LAS3/NC2
REDIRECT	0xd8	0xd2	* M3UA LAS4/NC3

The CNOPS and CNNCI commands now support multiple network contexts. The optional "NC" parameter can be used to identify the M3UA network context for which the remaining parameters apply. The M3UA network context is linked to the LAS as described in the table above. If the "NC" parameter is omitted the configuration applies to NC 0/LAS 1.

```
CNOPS:MODULE=M3UA,MOD_ID=0x6d;
CNOPS:MODULE=M3UA,MOD_ID=0xfd,NC=1;
```

2.11 M3UA – Support for 4096 Routes

This release increases the number of M3UA routes supported to 4096.

2.12 M3UA – Additional Licenses

This release adds support for new capacity licenses for 8, 384, 512 and 768 equivalent links.

2.13 rsi - IPv6 Support

This release adds support for connections between RSI clients and servers over IPv6 networks and for the destination address to be specified as a hostname.

Configuration of an IPv6 link is achieved via the updated rsicmd utility which now accepts an IPv6 address (or hostname) on the command line.

For a server connection, the IP address parameter is currently ignored and a socket is opened to allow a connection on the specified port via the hosts IPv4 or IPv6 address.

For a client connection, the IP address parameter should either be an IPv4 address (in a.b.c.d format), an IPv6 address (in abcd:1234::5678 format as per RFC5952) or a hostname (eg rsihost.example).

In the case of a hostname which resolves to multiple IP addresses (both IPv4 and IPv6), RSI will resolve the name once and will then attempt to connect to the server (over an IPv4 or IPv6 connection as appropriate) to each resolved address in turn until a connection is made.

3 Other Changes

3.1 ISUP - 8 Bit SLS Operation

This release corrects generation of 8 bit SLS values when using bit 22 of the ext_1_options field for Circuit Group Configuration (ISPX1GOP_SLS8).

3.2 ISUP - Circuit group supervision message type handling (IPY00100673)

On receipt of a Circuit Group (Un)Blocking message or acknowledgement containing an invalid 'Circuit Group Supervision Message Type Indicator' field, ISUP will now generate a Confusion Message with 'cause' set to 110.

3.3 ISUP - BICC Timer Configuration (IPY00100565)

Previously when a BICC variant circuit group was configured, ISUP incorrectly overwrote any user-configured timer values in the associated timer table. This has been corrected so that user-configured timer values are preserved.

3.4 ISUP – Local Reset followed by IAM

This release corrects ISUP operation in the case where an outgoing circuit group reset is immediately followed by an outgoing IAM message before a response is received from the network. Previously ISUP correctly released the call to the application but failed to follow up with a 'Circuit Idle' indication when the response to the GRS was eventually received from the network.

3.5 ISUP – Call Answered Measurements

This release allows the point at which a call is considered 'answered' for measurements purposes to optionally be set to be the point at which generation or reception of the Address Complete message takes place (rather than the Answer or Connect message). This is applicable in situations where the period between ACM and Answer is considered significant for measurements purposes.

This option is activated by setting bit 15 in the <options> field in the ISUP_CONFIG command in config.txt.

3.6 SCCP – Round-robin routing using Load Share tables

This release adds an SCCP global title load share table option to provide round robin selection of point codes. This option is bit 1 of the 'options' field of the SCP_MSG_GLST_ADD message. When set to 1, successive messages are sent to the next available destination point code in a round-robin manner (irrespective of the SLS value in the message). When set to zero the SLS value is used to determine route selection.

3.7 SCCP – Generating UDTs or SST response using RSP pc_mask

This release corrects operation when generating UDTs or an SST response towards a point code where the configured RSP (Remote Signaling Point) is identified by a pc_mask (rather than an explicit match of the point code). This ensures that the National Indicator is appropriately set from the configured RSP data.

3.8 SCCP – Routing label format in API_MSG_TX_REQ id

SCCP can now optionally indicate the routing label format in the id field of API_MSG_TX_REQ messages. This is achieved when using config.txt by setting bit 2 in the <options2> parameter of the SCCP_CONFIG command. For message-based configurations set bit 2 (SCPX2F_PC_SIZE) in the 'ext2_options' field of the SCP_MSG_CONFIG message.

When enabled the id field in the API_MSG_TX_REQ message will be set to 0 for 14-bit, 1 for 24-bit and 2 for 16-bit point codes.

3.9 SCCP – Increased number of GTT Tables

The maximum number of Global Title Translation (GTT) tables that can be allocated has been increased from 9 to 50. Each GTT table supports a single unique combination of Translation Type, Numbering Plan, GT Indicator and Nature of Address Indicator. The new release supports up to 50 such unique combinations.

3.10 SCCP – Connection Oriented Tint timer expiry (IPY00102308)

When the Connection Oriented end connection Tint timer expires, the connection is now placed in the idle state. Previously it was incorrectly placed in a Maintenance Blocking state.

3.11 TCAP - Maximum instance now 255 (IPY00100800)

TCAP now supports instance values in the range 0 to 255. When using config.txt, the TCAP instance is configured using the <tcap_inst> parameter in the TCAP_CONFIG command.

3.12 TCAP – Unnecessary use of large messages

TCAP now only attempts to allocate large messages when the payload exceeds 320 bytes. Previously, when large messages were available TCAP would allocate them in places where it was not necessary.

3.13 TCAP – Use of maximum incoming dialogs

This release corrects an issue that prevented TCAP working correctly when configured for maximum (65535) incoming dialogs and zero outgoing dialogs.

3.14 TCAP – Dialog Idle Timer (IPY00102013)

This release corrects a fault with the TCAP Dialogue Idle Timeout which previously resulted in timeouts greater than 6,553 seconds expiring early.

3.15 MAP - Correction to use of Ellipsis parameter in Dialog messages

When the MAP user specifies MAPPN_dest_ref and MAPPN_orig_ref parameters together with MAP-V1 application context parameter in a MAP-OPEN-REQ message, the MAP module automatically sends a Begin Subscriber Activity (BSA) component to TCAP. Previously if the user also included the MAPPN_ellipsis parameter in the message the MAP binary could terminate. This issue has been corrected.

3.16 MAP - Formatting of Abort sent to TCAP

This release correctly formats the UABORT send from MAP to TCAP upon receipt of an invalid or unknown DialogID in a message from TCAP.

3.17 MAP - Discarded 'NotLast' Components (IPY00102115)

This release corrects an issue that previously could cause parameters received in a 'NotLast' Result response message from TCAP to be discarded. This fault only occurred when the response was received in two or more parts and parameter data was decoded for a 'NotLast' component and no parameter data was decoded for the 'Last' component.

3.18 MAP - MWD-Set Parameter

This release allows the MWD-Set parameter to be defined for an Absent Subscriber error response for the MAP V1 SendRoutingInfoForSM service.

3.19 MAP - Decoding of SendRoutingInfo Response

For previous releases the processing of received MAP V3 SendRoutingInfo response data would discard valid data if no data was received for any of the parameters defined under the 'ExtendedRoutingInfo' table. In this case the next valid data field in the response message was incorrectly discarded. This has been corrected in this release.

3.20 M3UA – Max SIF Length

A new parameter enables the size of Signaling Information Field (SIF) in outgoing transfer requests to be checked to ensure that the maximum SIF within the network is not exceeded. The maximum SIF length is set using the max_sif parameter within the M3U_MSG_CNF_NC (0x72c4) message.

3.21 M3UA - Ignore Network Appearance

Presently the use of the Network Appearance (NA) parameter may be enabled or disabled. When enabled, the parameter is sent and received in M3UA DATA and SSNM messages and when present in a received message it must match a NA configured on the association.

An option to ignore the NA in received messages has been added for situations where the peer is sending NA but rejects NA in messages it receives. Therefore DSI M3UA may be configured without NA and to ignore any NA it receives.

The option is configured by setting bit 8 (M3UOP_ASSOC_IGNORE_NA) in the association options in the M3U_MSG_CNF_ASSOC (0x72c1) message.

3.22 M3UA - Audit of Congested Destinations

This release allows the user to disable M3UA auditing of congested destinations. Typically the auditing should be disabled for ITU-T type operation. The option is controlled by bit 4 of the M3UA options, either in the 'options' field of the M3U_MSG_CONFIG message or by setting the M3UA options using the CNOPS command in config.txt. The bit should be set to 1 to disable auditing – for example:

```
CNOPS:MODULE=M3UA,OPTIONS=0x0010;
```

3.23 M3UA – Trace bit for Transfer Requests

A new trace event bit M3U_EVTI_SS7_TX_REQ (bit 16) has been added to the input event mask to enable tracing of MTP-TRANSFER-REQ messages received from the user part.

3.24 M3UA – Updated header file definitions

Some M3UA message types and parameter names have been renamed in order to better reflect their usage. For example the message M3U_MSG_CNF_INT_NA (0x72c4) has been renamed M3U_MSG_CNF_NC to reflect that it is used to configure Network Context parameters. In all cases the original definitions are retained for backwards compatibility.

3.25 M3UA – 8-bit SLS values with 5-bit rotation

This release corrects the operation of SLS rotation to ensure that when operating with 8-bit SLS values and 5-bit SLS rotation the most significant bits of the SLS are preserved rather than being set to zero.

3.26 M3UA – DPC added to AS indications

This release adds the affected point code to the M3UA AS active and inactive indication messages M3U_MSG_AS_ACT_IND (0x02e0) and M3U_MSG_AS_INACT_IND (0x02e1). When using s7_log the point code is automatically decoded.

3.27 M3UA – MTP label format in RX indications

M3UA now provides an indication of the MTP3 label format (or point code size) in the id field of the API_MSG_RX_IND message. This allows the user part module to determine the format of the MTP3 routing label contained within the message.

Option	Value	Description
MTPFR14	0	MTP label contains 14-bit point code
MTPFR24	1	MTP label contains 24-bit point code
MTPFR16	2	MTP label contains 16-bit point code

3.28 MST – Prevent excessive event indications

To avoid excessive reporting of identical events that can reduce system throughput, MST now issues a maximum of 5 event indications for any event type over a 10 minute period. Further events during the 10 minute period are suppressed.

A count of all events (including suppressed events) is maintained within MST and may be read and optionally reset using a new message `MST_MSG_R_ERROR_STATS` (0x6e51) as documented in Sigtran Monitor Programmer's Manual Issue 6.

3.29 MST – Unrecognised SCTP payloads

Messages for SCTP payloads other than M2PA, M3UA or SUA are now discarded without generating event reports or selective traces. These messages (eg H.248) are now counted in the 'Unknown format' counter of the MST Module statistics message.

3.30 MST – Monitor M2PA SNMM and SNTM messages

This release adds two new values for use in the `ss7_mask` parameter in the MST TAP configuration message (`MST_MSG_CFG_TAP`). These values allow receipt of MTP3 Signaling Network Management (SNM) and Signaling Network Test and Maintenance (SNT) messages when monitoring the M2PA protocol as follows:

Bit 5 is used to enable receipt of SNM messages

Bit 6 is used to enable receipt of SNT messages

3.31 DTC/DTS Operation

Operation of DTC/DTS (for use with the Dialogic® DSI SS7G41 Signaling Server in SIU mode) has been enhanced to reduce the need for application intervention to recover from transient failures of the IP network. Operation of `s7_mgt` has been enhanced to support additions to the `DTC_CONFIG` command and a new `DTS_SERVER` command. The functionality is detailed in *DTS User Guide, Issue 10*.

3.32 s7_mgt – Route Status Indications

On completion of the configuration sequence, `s7_mgt` now requests MTP3 and M3UA to indicate route status to all user parts. This ensures that SCCP (which assumes that RSPs are active unless told otherwise) is proactively informed of any destinations that are not accessible and avoids possible mismatch in route status between the user part and the transport layer.

3.33 s7_log – Increased Precision Timestamps

This release supports finer granularity in timestamps generated by s7_log. Selecting the -tp command line option will cause timestamps to show microsecond resolution as follows: YYYY-MM-DD hh:mm:ss.uuuuuu

3.34 s7_log – Additional Decode (IPY00099532)

s7_log provides additional decode of certain messages as follows:

The DPC contained in M3UA AS active and inactive indication messages M3U_MSG_AS_ACT_IND and M3U_MSG_AS_INACT_IND is decoded.

Decode of MTP_MSG_LINK_CONG message now correctly reports congestion status.

TCAP Maintenance Events TCPEV_DLG_TIM_TIMEOUT and TCPEV_EXCESSIVE_DLG_ABORTS are now decoded.

Maintenance Event MGT_MSG_LIC_EVENT message is not decoded.

When decoding the M3U_MSG_NOTIFY_IND message, s7_log now only displays the ASP identifier when present in the message. Previously "ASP=0" was displayed when the ASP identifier was not present.

s7_log will now log messages traced from the MTP3 to MTP2 interface on the SPCI board to the PCAP log file. These messages are of type SS7_MSG_TX_REQ and were not previously mapped to PCAP format.

3.35 s7_play – Handling of missing newline (IPY00101131)

This release corrects an issue which could result in s7_play failing to correctly process a message when the line is not terminated by a newline character ('\n').

Dialogic
07-Jun-13

Release 6.3.0

1 Overview

This is a feature release which includes protocol updates to SCTP, SCCP, MAP, TCAP, M3UA and MST and enhanced status reporting through gctload. Further changes and corrections are included as detailed below.

This release is the first GA release since Release 6.2.3 and is fully backwards compatible with that release.

NOTE: Dialogic recommends that the complete Development Package is used when upgrading from a previous release. If this is not possible users should note that licensed protocol binaries from the 6.3.0 (and later) releases will not work with versions of the gctlib shared object library prior to the 6.3.0 release. If a user needs to use a 6.3.0 (or later) licensed binary in conjunction with an earlier release of the Development Package then it is essential to also install and use the gctlib shared library from the 6.3.0 (or later) Development Package.

1.1 Applicability

This release is applicable for all users.

The following User Documentation updates are applicable to this release of the Development Package:

Dialogic® DSI Components - Software Environment Programmer's Manual, Issue 10

Dialogic® DSI Protocol Stacks - SCCP Programmer's Manual, Issue 9

Dialogic® DSI Protocol Stacks - TCAP Programmer's Manual, Issue 12

Dialogic® DSI Protocol Stacks - MAP Programmer's Manual, Issue 16

Dialogic® DSI Protocol Stacks - M2PA Programmer's Manual, Issue 4

Dialogic® DSI Protocol Stacks - M3UA Programmer's Manual, Issue 7

Dialogic® DSI Signaling Software - Sigtran Monitor Programmer's Manual, Issue 5

Dialogic® DSI Network Interface Boards- SPCI Programmer's Manual, Issue 7

Dialogic® DSI SS7HD Board - Programmer's Manual, Issue 11

Dialogic® DSI Protocol Stacks - DTS User Guide, Issue 9.

This release includes an updated ss7.dc4 code file (V5.12) for use with the Dialogic® SS7HD Network Interface Board. The release notes for the code file are available separately.

This release includes an updated SNMP M3028_6_2 MIB package (V2.02) which includes support for the Dialogic® DSI SS7G41 Signaling Server.

1.2 Resolved Customer Issues

Updates to resolve the following customer issues are included in this release: IPY00091767, IPY00094595 and IPY00099532.

2 New Functionality

2.1 GCTLOAD – Enhanced Status reports

This release includes updates to gctload to provide additional information when run with the -t option to provide status reports. All status reports now include the date and time in the output.

The gctload -t1 output now includes additional measurements which may optionally be reset by the user using the command "gctload -t1r" which will display the current values and then reset the new measurements. The new measurements are the maximum number of messages allocated in each partition since reset and the number of congestion events since the last reset. In addition the time of the last congestion onset and the time of maximum message allocation (since reset) are both displayed.

The gctload -t1 output now also indicates whether there are time limited licenses in use within the system.

The gctload -t3 output has been modified and now includes the process id of the last process to read from the message queue.

A new gctload -t4 option has been added to list all host software licenses current in use and in the event that the license is time limited it shows the expiry date for the license.

2.2 SCCP – Per-RSP Configuration of SIO/SSF

To allow use of different Sub Service Field (SSF) values across a network, SCCP now allows optional configuration of the Service Indicator Octet (SIO) on a per RSP basis. When using s7_mgt for configuration, this is achieved using the new optional parameter <ssf> in the SCCP_SSR command:

```
SCCP_SSR <ssr_id> RSP <remote_spc> <flags> <pc_mask> [<ssf>]
```

Note: The use of multiple SSF values requires appropriate capabilities in the underlying MTP3 link set configuration.

2.3 SCCP – Disable UDTs generation on routing failure

A new option allows the user to prevent SCCP from automatically generating a UDTs/XUDTS response when it is unable to route a message. When using s7_mgt for configuration, this is achieved by setting bit 1 in the <options2> field of the SCCP_CONFIG command.

```
SCCP_CONFIG <local_spc> <ssf> <options> [<options2> [<partner_id>  
<instance>] ]
```

Note: The <options2> field was previously called <management_options> the operation of bit 0 remains unchanged from previous versions.

2.4 SCCP - Connection Oriented Configuration

s7_mgt now supports configuration of SCCP Connection Oriented operation using config.txt.

Connection Oriented operation is activated by setting bit 31 in the <options2> parameter of the SCCP_CONFIG command. This will result in s7_mgt using the fixed configuration values detailed in the *Software Environment Programmer's Manual*.

2.5 SCCP / M3UA – Support for 16 bit Point Codes

SCCP can now be configured to operate with 16 bit Point Codes as used in Japan. This mode of operation is selected by setting bit 15 of the 'ext_options' parameter in the SCCP Module Configuration message (SCP_MSG_CONFIG) or setting bit 31 in the <options> field of the SCCP_CONFIG command in config.txt. When using 16 bit point codes, users should ensure that compatible options are selected for the MTP3 or M3UA layers.

M3UA can now be configured to operate with 16 bit point codes for use in Japan. This option is selected by setting the SS7MD parameter to ITU16.

2.6 SCCP – Segmentation/Re-Assembly for XUDTS

This release extends segmentation and re-assembly functionality to include XUDTS messages. SCCP now handles segmentation and re-assembly for XUDTS messages in the same manner as XUDT messages.

2.7 TCAP - Include TCAP Version in outgoing messages

This release adds an option to force the TCAP module to include TCAP Protocol Version information in the messages it sends to SCCP. The TCAP Version information sent for ITU identifies Q.771-5 1997 (and 1993) specifications and for ANSI T1.114 1996.

2.8 TCAP - Option to stop sent address being replaced by received address

This release adds an option to force TCAP to always use the original Called Party Address throughout an outgoing dialogue rather than allowing it to be replaced by the address received in the first response received from the far end. To activate this feature, bit 11 of the <options> parameter in the TCAP_CONFIG command should be set to 1.

2.9 MAP - CHECK-IMEI V3 Request Parameter made Optional

Some proprietary implementations of the CHECK-IMEI service do not include the 'RequestedEquipmentInfo' parameter. In order to allow compatibility with these implementations, the MAP module has been changed so that the MAPPN_requestedequipinfo (515) parameter is no longer mandatory for the MAP V3 CHECK-IMEI request operation.

2.10 MAP – Additional parameters for SMSC services

Support for the following parameters has been added within MAP:

Parameter	Mnemonic	Value (dec)	Value (hex)
Additional Alert Reason Indicator	MAPPN_add_alert_reason_ind	586	0x24a
SM Delivery Not Intended	MAPPN_sm_deliv_notintended	587	0x24b
IP SM GW Indicator	MAPPN_ip_sm_gw_ind	588	0x24c
IP SM GW Delivery Outcome	MAPPN_ip_sm_gw_deliv_outcome	589	0x24d
IP SM GW Absent Subscriber Diagnostic SM	MAPPN_ip_sm_gw_abs_sub_diagsm	590	0x24e

The parameters are used within the following services; full details are contained within the MAP Programmer's Manual:

SendRoutingInfoForSM service (MAP v3)
 InformServiceCentre service (MAP v3)
 ReportSMDeliveryStatus service (MAP v3)
 ReadyForSM service (MAP v3)

2.11 M3UA - Audit for Congested Destinations

This release extends the destination audit mechanism to include periodic auditing of a congested destination following receipt of SCON from a Signaling Gateway.

2.12 MST – Management Events and Selective Tracing

MST generates a Selective Trace indication whenever a formatting error is detected within the received packet. This release introduces additional, more specific, reasons for the formatting error and generates an additional event report to the management module when a formatting error occurs. The event report uses a new message MST_MSG_EVENT_IND (0x0e4c)

Generation of Selective Tracing and Management Event Indications is, by default, enabled however this release adds the ability to enable or disable both on a per event basis using a new message which sets the selective trace mask (MST_MSG_SELTRACE_MASK (0x5e50).

Both new messages are documented in *the Sigtran Monitor Programmer's Manual*.

2.13 MST – Long Message Support

This release supports the ability to pass messages containing between 321 and 4200 payload octets to the user without truncation. Previously messages were truncated at 320 octets. The new functionality is enabled by setting bit 0 in the 'options' field of the MST configuration message (MST_MSG_CONFIG). Users must also ensure that sufficient long messages are created using the NUM_LMSGs command in the system.txt file.

2.14 MST – License Capacity Alarm

In the event that the actual data throughput through the MST module exceeds an onset threshold of 80% of the licensed capacity the module will generate an alarm using the MGT_MSG_LIC_EVENT message with 'event_type' set to value 4 (Throughput Alarm) and 'event_indicator' set to value 1 (Alarm Active). When the throughput reduces below an abatement threshold (40% of the licensed capacity) the clearing of the alarm is indicated by the same message but with the 'event_indicator' set to value 0 (Alarm Inactive).

2.15 s7_log - Daily log files

A new option has been added to s7_log for use when rolling log files are enabled to cause a new file to be started the first time a new event is logged each day. This functionality is enabled by adding the new -r option (in conjunction with the -n option). This behavior applies to both text and PCAP format log files. For example:

```
s7_log -filename.log -n10 -r -s10000
```

3 Changes

3.1 GCTLIB - GCT_pending_msgs()

This release changes the operation of the GCT_pending_msgs() function to ensure that the DSI environment is up and running before attempting to access it. Previously a segmentation fault was possible if an application called GCT_pending_msgs() when gctload was not running.

3.2 GCTLIB - REDIRECT

The operation of the REDIRECT command has been corrected so that redirection only applies when messages are being sent and does not impact or modify the input queue that a receiving module reads from.

3.3 MTP2 - Configurable trace_id

The SS7HD board now supports MTP2 tracing to the alternative <trace_id> as specified using the TRACE_MOD_ID command in config.txt.

3.4 SCCP –Connection ID allocation

The method of allocating incoming SCCP Connection ID's for Connection Oriented operation has been enhanced so Connection ID's will cycle through the full range of values before reusing previous values.

3.5 TCAP - Receipt of TCAP Abort

A fault has been corrected where, under certain conditions, received TCAP Abort messages were reported to the TCAP User as P-ABORT rather than U-ABORT.

3.6 TCAP - User Information in P-ABORT-IND

TCAP, when operating in ITU-T mode, has been enhanced to report User Information from a received TC-P-ABORT Dialogue Portion to the user in the 'TCPN_USER_INFO' parameter which is now optional for this message. Previously User Information was only reported for TC-U-ABORT.

3.7 MAP - Selective Tracing enabled by default

Selective Tracing within MAP, as documented within the MAP Programmer's Manual, is now enabled by default for all events. If required the MAP_MSG_S_SELTRACE_MASK message can be used to modify which events are selectively traced.

3.8 MAP - GPRS Node Indicator parameter support

MAP services SendRoutingInfoForLCS and SubscriberLocationReport now support the GPRS Node Indicator parameter, MAPPN_gprs_node_ind (123).

3.9 MAP - Correction to Ellipsis parameter processing

Unrecognised parameters in received MAP messages are stored in the MAP Ellipsis parameter (MAPPN_ellipsis). This release corrects a problem (for some services including CHECK_IMEI) that previously caused only the first unrecognised parameter to be stored. A potential problem with ellipsis parameter formatting has also been corrected.

3.10 MAP - TC-REJECT parameters passed to user

On receipt of a valid TCAP REJECT component from the network, MAP now uses two new parameters to pass additional TCAP component data to the MAP user for diagnostic purposes.

MAPPN_tcap_rej_problem_code (584) contains the Problem Code (0 to 7) of the REJECT component and MAPPN_tcap_rej_problem_type (585) contains the Problem Code tag that was used (0x80 to 0x83). The interpretation of the problem code value is dependent on the tag used.

Reception of a valid REJECT component will cause a MAP-NOTICE-IND dialog message or a MAP-SERVICE-CNF message (with error parameter) to be sent to the MAP-User. In both cases the two new parameters will now be returned in the messages. For the MAP-NOTICE-IND message, the existing parameter MAPPN_invoke_id (14) will now also be returned with the new parameters to identify the component referenced by the REJECT (MAPPN_invoke_id is already returned by the MAP-SERVICE-CNF message).

3.11 MAP - ASN.1 indefinite length termination octets being returned in ellipsis data

When MAP encounters unrecognised data in received messages, it is returned to the MAP-User in the Ellipsis parameter. In the previous releases where the unrecognised data has been encoded using ASN.1 indefinite length encoding, it is possible for length termination octets 'EOC' (two 0x00 octets) to be returned at the end of the Ellipsis parameter data. This release corrects the fault. Ellipsis parameter data will not be incorrectly terminated by indefinite length encoding termination octets.

3.12 MAP - Begin Subscriber Activity with single address

For previous releases if the MAP-User specified only one of MAPPN_dest_ref (2) and MAPPN_orig_ref (4) parameters, sending of the BEGIN-SUBSCRIBER-ACTIVITY (BSA) service would be attempted and fail with MAPSWE_TX_FMT_ERR being reported. This has been corrected so that if only one of the parameters is present, it is ignored and the BSA component is not sent.

3.13 MAP - MAPPN_unk_sub_diag in MAP NOTE-MM-EVENT service

MAP now allows the optional parameter MAPPN_unk_sub_diag (61) to be used in the response for the MAP NOTE-MM-EVENT service when a User Error of 'Unknown Subscriber' is returned.

3.14 MAP - User and Provider Errors supported for all services

MAP now allows the error parameters MAPPN_user_err (21) and MAPPN_prov_err (22) in all MAP services that return a response to the MAP-User.

3.15 MAP - Accept MAP Refuse PDU from a TCAP P-ABORT

This release detects and decodes User Information contained in received P-ABORT-IND messages. If the information is for a MAP-Dialogue PDU with Refuse Info reason = 'invalidDestinationReference' or 'invalidOriginationReference', the module will send a MAP-OPEN-CNF message to the MAP-User setting the appropriate MAPPN_refuse_rsn and with MAPPN_result = 'dialogue refused' (1).

This results in a received MAP Dialogue Refuse PDU being reported to the MAP-User in the same way, whether reported by TCAP as a P-ABORT or a U-ABORT.

3.16 MAP - Reports timeout on Abort from TCAP

The TCAP module has an option (TCPF_DLG_TIM_ABORT) that will automatically abort dialogues after a timeout period. MAP has been updated to recognise these aborts and close the associated MAP dialog. When this happens MAP will send a MAP-DIALOGUE-IND, MAP-P-ABORT-IND message to the MAP-User with the new provider reason (MAPPN_prov_rsn) = MAPPR_idle_timeout (7).

3.17 MAP - Diagnostic corrected when L_REJECT received

An invalidly formatted response message causes TCAP to send an L_REJECT message (problem code = Badly Structured Component) to MAP and MAP will then send a MAP-NOTICE-IND message with a problem diagnostic (MAPPN_prob_diag) to the MAP-User. Previously MAP reported the problem diagnostic 'Response Rejected by Peer' (1) with the Notice message. This has been corrected for this release to report the problem diagnostic 'Abnormal Event Received from Peer' (2).

3.18 MAP - ASN.1 BIT STRING encodings

This release ensures that sufficient parameter octets are available to convey the maximum amount of ASN.1 BIT STRING encoded data required by the MAP specifications. Previously some parameters only supported a single octet which was insufficient.

The MAPPN_mwd_status parameter (which is the only parameter encoded/decoded within the MAP module) now always sends six ASN.1 BIT STRING encoded bits but will support receipt of three, four or six bits of validly formatted ASN.1 BIT STRING data.

3.19 SCTP/SCTPD - Detection of path recovery

This release improves detection of SCTP path failure and restoration in a multi-homed environment. It corrects an issue which in specific circumstances resulted in failure to detect path recovery. Previously if path failure was detected by lack of acknowledgement to a DATA element and no subsequent DATA elements were transmitted then path recovery was not detected. Transmission of a subsequent DATA element cleared the issue.

3.20 SCTP/SCTPD - Receipt of INIT on an active association

This release corrects operation upon re-initialisation of an SCTP association that has not been closed (i.e. receipt of an INIT whilst association is active) which previously caused the module to fail.

3.21 SCTP/SCTPD - Tracing received messages

This release includes the ability to trace data messages sent from SCTPD to SCTP. The functionality can be enabled by setting the DATA_REQ (bit 5) in the ip_evt_msg parameter within the SCTP_MSG_TRACE_MASK message (0x5285)

3.22 SCTP/SCTPD – TSN Event Indications

This release adds support for additional diagnostic event indications using the new Sctp_Msg_Event_Ind (0x029e) message. The message status value will include the Event Type value as shown below.

Event type	Value	Description
SCTP_EVT_UNEXP_EVENT	1	The retransmission list is invalid for the association
SCTP_EVT_HIGH_TSN	2	Invalid SACK received with a TSN higher than the expected range
SCTP_EVT_LOW_TSN	3	Invalid SACK received with a TSN lower than the expected range

3.23 Sctp - Long Heartbeat Memory Leak

This release corrects an issue where a received Heartbeat message in excess of 300 bytes would cause a memory leak within the Sctp association and eventually lead to association failure requiring module restart.

3.24 Sctp / s7_log - Event Indications

Sctp now generates event indications to management whenever the state of an association or a path within an association changes. The messages (Sctp_Msg_Status_Change, Sctp_Msg_Network_Status & Sctp_Msg_Cong_Status) are identical in format to the messages documented within the Sctp Programmer's Manual which are issued to the Sctp user. The events are fully decoded by the updated s7_log binary.

3.25 M2PA – Link Configuration Defaults

The M2PA Link Configuration message (M2P_Msg_Link_Config) now allows timer values and congestion thresholds to be set to their default value by setting the corresponding field in the message to zero. Default values are defined in the M2PA Programmer's Manual Issue 4.

3.26 M2PA – Timer Operation

This release corrects an issue with M2PA timers that could cause incorrect timer duration. In addition T3 operation has been corrected so that on expiry (during the proving period), the alignment cycle is aborted and the links goes into the Out Of Service state.

3.27 M2PA – Link Statistics Duration Counters

Minor corrections have been made to the generation of duration values (stats_duration & cong_duration) in the M2PA Read Statistics Request (M2P_Msg_R_Stats).

3.28 M2PA – Message retrieval

This release includes a correction to ensure that all messages can successfully be retrieved following a link failure. Previously messages received from MTP3 after a link had failed were not buffered and could not be retrieved.

3.29 MST – Recovery from lost connection

The algorithm used for in-sequence message delivery has been corrected to ensure immediate recovery following loss of an association.

3.30 MST – Measurements and Event Indications

A number of minor corrections have been made to the MST statistics gathering mechanism and event indications as follows:

Within the MST_MSG_R_STATS messages, any non-SCTP traffic is now counted as 'Unsupported Protocol' rather than 'Badly Formatted'.

Within the MST_MSG_R_THR_STATS message, if the 'version' field is set to an invalid value the message will be rejected with status set to MSTE_BAD_PARAM (0x06).

Within the MST_MSG_R_ASSOCIATION_STATS message, calculation of the 'association_uptime' has been changed to be the total accumulated in service time since the statistics were last reset (rather than the time since last being out of service).

Within the MGT_MSG_LIC_EVENT message, the 'protocol_type' is now correctly set to the value 5 (LICMOD_MST) to allow the recipient to determine the source of the event.

3.31 s7_mgt - Board Failure Diagnostics

s7_mgt now forwards SSD event notifications (MGT_MSG_EVENT_IND and MGT_MSG_DIAG_IND) to module_id 0xef (REM_API_ID) to allow the events to be trapped by s7_log.

3.32 s7_mgt - HSL <data_rate>

In previous releases, s7_mgt would incorrectly configure the system where the MTP_LINK or MONITOR_LINK commands for HSL links omitted the <data_rate> parameter. Where the <data_rate> parameter is omitted, information from the LIU_CONFIG command will now be used.

3.33 s7_mgt - INAP_FE command

In previous releases, the INAP_FE command did not configure the module ID for the local FE correctly. s7_mgt will now use the module ID of the LSS associated with the SSN which is encoded in the <sccp_address> parameter.

3.34 s7_mgt - MTP3 with alternate module ID

This release corrects a problem, when the CNOPS command was used to configure an alternative module_id for the MTP3 module, but the link activation request message was sent to the default module ID for MTP3.

3.35 s7_log – Additional decode (IPY00099532)

s7_log now fully decodes the MGT_MSG_LIC_EVENT message.

When decoding the M3U_MSG_NOTIFY_IND message, s7_log now only displays the ASP identifier when present in the message. Previously "ASP=0" was displayed when the ASP identifier was not present.

s7_log will now log messages traced from the MTP3 to MTP2 interface on the SPCI board to the PCAP log file. These messages are of type SS7_MSG_TX_REQ and were not previously mapped to PCAP format.

3.36 s7_log – Filename format

s7_log now allows the format of the filename for rotating log files to optionally keep the '.log' extension as the last part of the filename so that the format is maint.2.log (instead of maint.log.2). This is activated by including the -x option on the command line.

3.37 s7_log – Partial Messages Logged to File

s7_log now avoids splitting a message across two files when operating with file rotation enabled. As a result files will typically be a few bytes less than the configured maximum length.

3.38 s7_play – module_id configuration

s7_play now allows the module_id that it uses for its input queue to be modified dynamically during execution of a playback file. A new "R" command can be used within the playback file to configure the module_id that s7_play uses for subsequent message reception. The command takes a single 16 bit parameter designated -m as follows:

```
R-m002d
```

3.39 s7_play – Waiting forever

This release prevents s7_play waiting forever for a response to a message that it failed to send. In the event that during execution of the "W" command GCT_send() fails, s7_play now reports an error and terminates.

3.40 dsistat - M3UA, TCAP & LIU Status (IPY00094595)

dsistat has been enhanced to report TCAP resource and TCAP dialog status. Handling of the id value for when requesting the status of an M3UA Remote Server has been corrected and additional LIU measurements for bit errors and code violations are displayed.

3.41 dsitrace - M3UA Tracing

The default trace mask for M3UA used by dsitrace has been modified to trace API_MSG_TX_REQ and API_MSG_RX_IND messages. Previously the input and output mask were by default set to 0 requiring a user to always specify which messages should be traced.

3.42 MTU – More messages to send flag

This release includes a correction within the MTU example application for the setting of the 'more messages to send' flag when sending an SMS. In addition there is a correction to the address setting in the TP-OA parameter.

3.43 MTR - AnyTimeInterrogation

The MTR example application in the User Part Development package has been updated to include support for the MAP AnyTimeInterrogation service.

Dialogic
15-May-12

Release 6.2.3

1 Overview

This is the first generally available release of the Development Package for Windows since V6.01. Users should refer also to the 6.2.0 release notes which describe the significant changes to consolidate all the functionality of the previous Development Package together with all Host Protocols binaries, all board code files and the User Part Development Package (UPD) into a single distribution.

This release is a maintenance release containing new M3UA and INAP API features and updates to TCAP and MAP functionality. The release also includes other changes and corrections as detailed below.

The following User Documentation updates are applicable to this release of the Development Package:

Dialogic® DSI *Software Environment Programmer's Manual*, Issue 9
Dialogic® DSI SS7 Protocol Stack – *MAP Programmer's Manual*, Issue 15

1.1 Applicability

This release is suitable for all users.

This release is generally backwards compatible with the previous release, however, INAP API library users should read the section on Ellipsis handling and note the corrected AIN tags.

1.2 Resolved Customer Issues

Updates to resolve the following customer issues are included in this release: IPY00093295.

2 New Functionality

2.1 INAP API - New AIN protocol services

This release adds three new services (ResourceClear, TerminationAttempt and SendNotification) for the AIN protocol - GR-1299-CORE. Further details on the parameter coding for these services is available on request.

2.2 M3UA - SLS Rotation – 8 bit option

The 'options' field of the M3U_MSG_CNF_INT_NA message has been extended to support a new option which allows full 8 Bit SLS rotation. Bit 0 should be set to one to activate SLS rotation. When SLS rotation is activated, 'options' bit 1 is set to one to select 8 bit SLS rotation or set to zero for default SLS rotation based on MTP label format.

When using config.txt for configuration the 'options' field is set when configuring a Network Context using the OPTIONS parameter of the CNNCI command. When using the OPTIONS parameter the ROTATION parameter is no longer required and must not be used.

The revised syntax of the CNNCI command is as follows:

```
CNNCI:ss7md=<variant> [,options=<options>];
```

2.3 M3UA - Selective Tracing

M3UA operation has been enhanced to automatically generate a trace of any received message that results in generation of an M3U_MSG_M3U_EVENT (0x02ee) event indication. The trace is intended to assist with problem diagnosis and is sent to the trace module id (0xef by default but may be configured with the TRACE_MOD_ID <trace_id> command)

3 Changes

3.1 Software Installation

The following changes have been made to the Development Package installation process:

The example system and protocol configuration files have been renamed 'example_system.txt' and 'example_config.txt' respectively. This is change intended to prevent customer modified configuration files getting deleted when the package is updated.

The installation process automatically updates the Windows PATH environment variable to include the LIB32 sub-directory.

3.2 Support for Windows Remote Desktop

Previously the DSI software would not interoperate with the Remote Desktop Service. For example, this limitation would prevent a Windows Remote Desktop client from querying the DSI environment ('gctload -t1'). This limitation has been removed.

3.3 s7_mgt – Global Title with ITU 24 Bit point codes

This release corrects an issue that previously prevented Global Title configuration when using 24bit ITU-T format point codes.

3.4 TCAP - ASN.1 non-minimal length encodings

The TCAP specification Q.773 states that when ASN.1 encoding messages, length encodings should use as few as possible octets, e.g. encodings such as 0x8174 and 0x820074 should both be sent as 0x74. Previously the TCAP module would reject received network messages that did not conform to this rule. This restriction has been relaxed to accept messages that use ASN.1 non-minimal length encoding. Outgoing messages are always encoded in accordance with the TCAP specification using the minimal length for ASN.1 lengths.

3.5 TCAP - Overlength outgoing messages

In the event that a message exceeds the maximum size for transmission to the network, TCAP will now discard the whole message and abort the dialogue. Previously in some situations just the dialogue portion was discarded resulting in a malformed message being sent to the network.

3.6 TCAP - Abort with User Abort Information

When sending an ITU-T TCAP Abort message containing the User-Abort-Information parameter, any additional dialogue portion is discarded to ensure valid formatting of the outgoing message.

3.7 MAP - Maximum size of user UESBI data

To align with the MAP specification, the maximum size of UESBI data has been reduced (from 128 to 16 octets). This affects the MAPPN_uesbi_ia and MAPPN_uesbi_iub parameters.

3.8 MAP – Additional error codes

MAP now supports the following user error codes:

MAPUE_unknown_MSC (3)
MAPUE_no_handover_number_available (25)
MAPUE_subsequent_handover_failure (26)
MAPUE_forwarding_failed (47)

3.9 MAP - Missing mandatory parameters in user response data

MAP now checks for missing mandatory parameters when the MAP-User enters response data. For previous releases it was only request data that was checked for missing mandatory parameters. The check now applies to both request and response primitive entry using the MAP_MSG_SRV_REQ message. Reporting of missing parameters is unchanged (from request checking): a MAPSWE_USER_MAND_MISSING error is reported in a MAP_MSG_ERROR_IND message and the number of the first mandatory parameter not found is given in the parameter data.

3.10 MAP – Handling of segmented Result components

In the event that reassembly of partial response data fails (for TCAP segmentation using TC-RESULT-NL and TC-RESULT-L messages), instead of simply discarding the previously stored data, MAP will abort the affected InvokeID.

If abort occurs after a TC-RESULT-NL message, U-CANCEL is sent to TCAP, followed by MAP_CNF with a Provider error to the MAP-User and finally a U-REJECT to TCAP. Aborts that occur after a TC-RESULT-L message will just send the MAP_CNF message with Provider error. The Abort may be caused by parameter format checks or exhaustion of the buffer space. Exhaustion of the buffer space is also reported using MAPSWE_TC_RESULT_NL_TOO_BIG.

In addition this release modifies the processing of the SendParameters service so that response data received in multiple messages (one or more TC-RESULT-NL messages followed by a TC-RESULT-L) is correctly handled.

3.11 MAP – Invalid user-supplied Invoke id in response

If MAP receives an unknown Invoke ID in a response primitive in the MAP_MSG_SRV_REQ message, a software event report will now be generated. The event report uses the MAP_MSG_ERROR_IND message with error code MAPSWE_USER_INVOKE_ID_UNKNOWN (27) with the id field set to the UserDialogID and the first Diagnostic code set to the invalid InvokeID. MAP will also optionally generate a selective trace message with trace reason code MAPt_user_invoke_id_unknown (16).

3.12 INAP API - Correction to certain AIN tag values

Three tag values, used for existing AIN services have been corrected as follows:

Parameter	Affected AIN Services	Previous TAG	Corrected Tag
AINPN_GenericName (551)	AnalyzeRoute	0xa1	0x9f, 0x21
AINPN_TriggerInformation (24)	InfoAnalyzed, InfoCollected	0x9f, 0x21	0x9f, 0x81, 0x21
AINPN_AMABillingFeature (65)	AnalyzeRoute, Disconnect, SendToResource	0x9f, 0x3a	0x9f, 0x58

3.13 INAP API - Ellipsis processing for CAMEL protocols (IPY00093295)

For this release, decoding of ellipsis has been changed for CAMEL services that define additional parameters following the ellipsis. For these services any unknown data in a received message will always be placed in the ellipsis parameter as if it was located at the end of the message. The following services are affected by this change:

- CAP v2 InitialDP
- CAP v3 InitialDPSMS
- CAP v3 InitialDPGPRS
- CAP v3 ApplyChargingReportGPRS
- CAP v4 EstablishTemporaryConnection
- CAP v4 Connect
- CAP v4 InitialDPSMS
- CAP v4 InitialDPGPRS
- CAP v4 ApplyChargingReportGPRS

3.14 INAP API - IN_decode_error() AIN op code handling

The API function IN_decode_error() now correctly supports operation codes greater than 256 which is particularly important for AIN operations where operation codes are always greater than 256. Previously only the least significant 8 bits were recovered.

3.15 INAP API - Indefinite length termination in Ellipsis parameter data

In the previous release, any unrecognised parameter data in a component being decoded was returned in the Ellipsis parameter. If the message included indefinite length termination octets (two zero value octets) these could be added to the Ellipsis parameter if recovered as part of unrecognised parameters. For this release, indefinite length termination octets are not returned in the ellipsis parameter.

3.16 M3UA - Management error messages

Management error messages received from an M3UA peer contain a range of 'Tags', some of which were erroneously being rejected. The module has been updated to accept all tags that can be present. In addition the range of error codes allowed has also been extended.

3.17 M3UA - MBM local traffic mode

A backwards compatibility issue for systems where MBM configuration messages are still used has been rectified. The issue affected systems using message based configurations where the 'local traffic mode' was set using the MBM_MSG_CFG_AS (0x72f7) message. The traffic mode was not sent in ASP-ACTIVE requests to the peer, but has now been rectified.

3.18 M3UA - Multiple 'DOWN' indications

In the previous release M3U_ASS_STATUS_DOWN indications were repeated during association activation until the remote end became active. In this release a single 'DOWN' indication will be generated when the association is activated, and any retries will not be reported.

3.19 s7_mgt - Max links for Diva boards

The s7_mgt limit on the number of signaling links supported on DIVA Signaling boards has been increased from 4 links to 64 links.

Dialogic
29-Jun-11

Release 6.2.0

1 Overview

This release is a feature release containing new functionality and changes to the overall structure of the Development Package. The release adds SNMP capability for boards and host protocol software and includes several protocol updates and corrections as detailed below.

This release consolidates all the functionality of the previous Development Package along with all Host Protocols binaries, all board code files and the User Part Development Package (UPD) into a single distribution. All host-based software binaries take the same binary release number using a new three-part release designation – “Release x.y.z”.

This is the first release since V6.01 and incorporates the first release of all host based protocols subsequent to the following (Changes since these releases are documented in these release notes):

MTP3 V5.05
ISUP V7.03
TUP V4.01
SCCP V5.03
TCAP V6.03
MAP V4.04
IS41 V4.01
INAP V5.02
M3UA V7.01
M2PA V3.02
SUA V1.06
MST V1.04
INAP API Library V5.06

Release notes for the board code files are contained in separate documents and can be downloaded from the web-site. The following code files are included as part of this Development Package:

ss7.dc3 V1.16
monitor.dc3 V1.06
ss7.dc4 V5.09

The following User Documentation updates are applicable to this release of the Development Package:

Dialogic® DSI – *Software Environment Programmer’s Manual* Issue 8
Dialogic® DSI SS7 Protocol Stack – *MAP Programmer’s Manual*, Issue 14,
Dialogic® DSI SS7 Protocol Stack – *TCAP Programmer’s Manual*, Issue 11,
Dialogic® DSI SS7 Protocol Stack – *SCCP Programmer’s Manual*, Issue 8,
Dialogic® DSI SS7 Protocol Stack – *M3UA Programmer’s Manual*, Issue 6,
Dialogic® DSI Protocol Stacks *SNMP User Manual*, Issue 2.

This release is backwards-compatible with previous release however users should note the following:

1. The root installation directory is now C:\DSI (previously it was C:\SEPTTEL)

2. Certain host binaries no longer contain `_nt` within the filename so filenames will need to be modified in `system.txt` (See section 2.1 below for further details).

1.1 Applicability

This release is suitable for all users, as a result of consolidating all software into a single package it simplifies installation and maintenance.

1.2 Resolved Customer Issues

Updates to resolve the following customer issues are included in this release: IPY00091767 and IPY00092143

2 New Functionality

2.1 Enhanced Development Package Structure

The Development Package for Windows has been enhanced to include, in a single distribution, all the software required by board and host software users of the Dialogic® DSI SS7 Boards and Dialogic® DSI Protocol Stacks.

The Development Package now includes all host protocol binaries (located in the HSTBIN directory), board code files (located in the DC directory) and the example software from the User Part Development Package (located in the UPD directory). This allows users to update multiple components within a single installation cycle.

As part of this change, all host based software now uses a three part release number in the form "Release x.y.z" to uniquely identify the software version. The new format replaces the Vx.yy format used previously and aligns with the format used on other Dialogic® Products. Furthermore all host based binaries that form part of this distribution have the same release number.

For example:

```
DSI gctload Release 6.2.0 (Build 1030)
Part of the Dialogic(R) DSI Development Package for Windows
Copyright (C) Dialogic Corporation 1994-2011. All Rights
Reserved.
```

In order to provide common binary names across different operating systems and therefore simplify use and documentation, the names of a number of host binaries have changed so that they no longer include the `_nt` designation. Users will need to modify existing system.txt file accordingly in order to use the new filenames (and possibly to use the new directory names).

tick_nt.exe becomes tick.exe
tim_nt becomes tim.exe
mtp3_nt.exe_inx6 becomes mtp3.exe
isup_nt.exe becomes isup.exe
tup_nt.exe becomes tup.exe
sccp_nt.exe becomes sccp.exe
tcap_nt.exe becomes tcap.exe
map_nt.exe becomes map.exe
is41_nt.exe becomes is41.exe
mst_nt.exe becomes mst.exe

To facilitate common system.txt syntax across all operating systems, GCTLOAD now automatically appends the '.exe' suffix to the filename specified in the FORK_PROCESS command (unless a suffix is explicitly specified already). Therefore users should avoid including the '.exe' suffix in the system.txt file.

In order to remove ambiguity, the DSI shared objects are now located in sub-directories: 'LIB32' for the 32 bit libraries and 'LIB64' for the 64 bit libraries.

The name of the Windows Service has been changed to 'Dialogic DSI Startup Service'.

The default installation directory has changed to C:\DSI.

The distribution is in the form of a single self extracting binary named DPKWIN.EXE. Full installation instructions are contained in the *Software Environment Programmer's Manual*.

2.2 SNMP Support

This release adds SNMP support for boards and protocols to the Development Package.

The Dialogic® Distributed Structured Management Information (DSMI) Simple Network Management Protocol (SNMP) Agent provides SNMP monitoring functionality for the Dialogic® DSI Development Package.

Dialogic® DSMI SNMP software supports SNMP V1, V2 and V3 reporting the state and events for Dialogic® DSI SS7 Boards and Dialogic® DSI Protocol Stacks through use of SNMP traps as well as queries from a SNMP manager.

The Dialogic® DSMI MIBs are distributed within c:\DSI as a compressed, ZIP file: dsi-mibs.zip.

For details of the DSMI SNMP MIBs supported, events, SNMP traps and configuration refer to the *Dialogic® DSI Protocol Stacks SNMP User Manual*.

2.3 User Part Development Package

The example software and configuration files within the User Part Development (UPD) package have been updated and changed to simplify use. This release features new and updated configurations which all use the DSI s7_mgt configuration utility rather than message based scripts, making the configuration process more complete and easier to follow.

The UPD provides users with an easy way to try out various DSI protocols and also provide developers with example source code on which they can base their own applications.

In addition the User Part Development Package Makefiles have been updated to simplify the build process should users wish to rebuild the samples. A number of issues in the sample source code have been resolved and all the binaries rebuilt.

2.3.1 New Functionality

M3UA configurations have been added for MTU, MTR and CTU – this allows users to use M3UA directly without having to first convert the previous M2PA offering.

The INTU code has been updated to recognise CAPv4 and CAPv4 for IMS Application Contexts.

MTU/MTR now support additional MAP services including USSD services, MT Forward SMS and SRI for SMS.

2.3.2 Usage Instructions

Prebuilt binaries for all examples are supplied within the Development Package. These can easily be rebuilt (to produce 32bit binaries by default or 64bit binaries by using the 64bit flag) using the 'makeall.bat' file as follows.

```
makeall.bat clean
makeall.bat
Or
makeall.bat clean
makeall.bat 64bit
```

2.3.3 Running UPD samples

From within the UPD RUN directory select the directory for the concerned sample, and then the configuration type (M3UA, MTP or M2PA) and CONFIG, CONFIG_1 or CONFIG_2.

For M3UA and M2PA configurations – in the config.txt file change the IP addresses to match the local and remote systems.

For MTP configurations – ensure the board type, codefile and board interface task are correct for the host system within the config.txt and system.txt files.

From within the same directory run gctload and then the sample itself - unless it is started ('forked') within system.txt.

For detailed information on running each sample, refer to the relevant UPD sample user guide.

Note: The development package contains the latest version of the configuration files which may differ from those given in the user guides.

2.4 Reading number of pending messages

The ability to read back the number of outstanding messages queued on a message queue has been added. This can be achieved using a command line option for gctload or programmatically using a new function GCT_pending_msgs() contained within gctlib.

To use gctload the user should run a second instance of gctload using the -t3 option as follows, this will list the number of queued messages on each local message queue:

```
gctload -t3
LOCAL 0x10: 5 messages queued.
LOCAL 0x20: 0 messages queued.
```

Alternatively the function GCT_pending_msgs can be used to programmatically return the number of messages currently queued on a single named local message queue. The function prototype is:

```
int GCT_pending_msgs(unsigned int module_id)
```

The function returns a positive integer indicating the number of messages currently queued on message queue, module_id or a negative integer on error.

2.5 SCCP – Ability to receive messages for any DPC

This release adds the ability for local sub-systems to receive Connectionless SCCP messages irrespective of the DPC contained within the message. This is achieved by a run-time configuration option associated with the Local Sub-System (LSS) which allows received messages for any DPC not explicitly configured to be sent to that LSS.

This functionality is enabled when configuring a LSS by setting bit 4 (SSRF_ANY_PC) in the ssr_flags parameter of the SCP_MSG_CNF_SSR (0x7741) message. When using config.txt this is achieved by setting bit 4 in the <flags> field of the SCCP_SSR command.

Note: This new functionality does not apply to messages associated with Connection-Oriented operation.

2.6 RSI - Link Statistics

This release adds the ability to read back measurements from the RSI module on a per link basis. It is necessary to run the new RSI and RSI_LNK binaries to support this functionality.

A new message RSI_MSG_R_LNK_STATS (0x6f87) has been defined for this purpose. Full details are available on request.

The measurements can also be read using the updated version of the dsistat command line management utility using the following command syntax:

```
dsistat RSIL STATS 0
```

For full command syntax run dsistat with the -h option.

2.7 MST - Enhanced Tracing Capabilities

This release adds support for tracing of messages and events received and generated by MST. Tracing is enabled at run-time by setting Trace Masks using a new message MST_MSG_TRACE_MASK. Further details are available on request.

In addition, MST will also automatically report any badly formatted messages received from the network using the Selective Trace mechanism.

3 Other Changes

3.1 GCTLOAD - Environment Verification

To prevent run-time errors due to incorrectly configured systems GCTLOAD has been updated to always verify that the host operating system has sufficient system resources to support the DSI environment specified in system.txt. GCTLOAD will terminate if the system resource verification fails.

Previously GCTLOAD only verified the host operating system's system resources if the 'VERIFY' command was present in system.txt.

3.2 MAP - Message generation after MAP-NOTICE-IND and/or TC-U-REJECT

For previous releases, MAP was not correctly handling some situations that required MAP-NOTICE-IND messages to be sent to the user and/or U-REJECT to be sent to TCAP and the dialog was left in an inappropriate state. MAP should either close the dialog and send a MAP-CLOSE-IND message or move to a next state and send the user a MAP-DELIMITER-IND message. This release ensures that it is correctly handled.

3.3 ISUP - Circuit Group Measurements

For previous releases, the ISUP circuit group measurement period was not being initialized to the current time when a group is configured. As a consequence the measurement period for circuit groups which were dynamically added was set incorrectly. This has been corrected.

3.4 SCTP - Bundled chunks (IPY00091767)

This release corrects the handling of multiple SCTP chunks in a single message to ensure that all chunks are correctly delivered to the user. Previously if more than ten chunks were received bundled in a single SCTP message, delivery to the user was not guaranteed.

3.5 M2PA – Throughput Licensing

Prior to this release the M2PA throughput licensing mechanism incorrectly calculated the number of received octets. This has been corrected.

3.6 M3UA - Heartbeat

M3UA now supports the ability to turn on heartbeats at the M3UA level. This capability is not usually required as the underlying SCTP protocol has its own heartbeat mechanism. For further information refer to the *M3UA Programmer's Manual*.

3.7 M3UA - Network Appearance Removal

Prior to this release M3UA would only process a M3U_MSG_UNMAP_NA (0x72cd) message for M3UA links 0-3. This has been corrected and now works for all M3UA links.

3.8 M3UA - Link Deactivation

Operation of the message M3U_MSG_DEACT_ASSOC (0x72cf) which causes an association to shutdown has been changed back to the pre V7.00 operation such that an SCTP_MSG_ABORT (0x728c) is sent to SCTP to requesting an immediate shutdown. This ensures more deterministic behavior.

3.9 M3UA - DAVA causes crash

A problem within M3UA that potentially could cause the binary to crash upon reception of DAVA (Destination Available message) from an SGP has been corrected.

3.10 MST - Traffic Filtering

The TAP configuration message (MST_MSG_CFG_TAP) has been updated to allow monitored traffic to be filtered according to the SS7 event mask (ss7_mask) and SIGTRAN event mask (stn_mask) parameters.

Bit 0 of the 'options' field in the MGT_MSG_CFG_TAP configuration message now serves the following function: When set, traffic will be monitored if it meets selection criteria within both the SS7 event mask and the SIGTRAN event mask. When bit 0 is not set traffic will be monitored if it meet at least one selection in one of the masks.

3.11 MST - M3UA Message Parse Error

Previous releases incorrectly calculated padding bytes following variable length parameters when recovering received M3UA messages. This resulted in some lost messages and an incrementing count in the 'Bad Format' of the per-module statistics. This fault, which typically only impacted messages containing the optional 'Correlation ID' parameter, has been corrected.

3.12 s7_mgt – SCTP Retransmission Counts

s7_mgt now allows the user to modify various SCTP retransmission limits at configuration time using the SNSLI command in config.txt.

Three new parameters are added: RTXI (max_retx_init), RTXD (max_retx_data) and RTX B (max_retx_heartbeat). The values can be set in the range 1 .. 20. If omitted the parameter is set by s7_mgt to 2.

The full syntax of the SNSLI command is as follows:

```
SNSLI:SNLINK=,IPADDR=,[SG=,][SS7MD=,][IPADDR2=,][IPADDR3=,]  
[IPADDR4=,][HIPADDR=,][HIPADDR1=,][HIPADDR2=,][HIPADDR3=,]  
[HIPADDR4=,][HPORT=,][PPORT=,][SNEND=,][SNTYPE=,]  
[M2PA=,][M2PA_VER=,][HPORT=,][PPORT=,][RTXI=,]  
[RTXD=,][RTXB=];
```

3.13 GCTLIB –Segmentation Fault (IPY00092143)

This release corrects an issue that could potentially result in a segmentation fault when executing GCT_xxx() functions when using GCT_link() and GCT_unlink() to dynamically attach and detach from the DSI environment.

Typically only specialized applications make use of GCT_link()/GCT_unlink() so the majority of deployments are unaffected by this issue.

3.14 rsi_Ink - Process Remains Running

This release corrects an issue that, when running the DSI software as a Windows service, would result in the rsi_Ink.exe processes remain running after the stopping the Window's Service.

Dialogic
31-Jan-11

Release Notes for V6.01

1 Overview

This is the first release since V5.08 and this is a major release which adds support for the latest Windows® operating systems Windows® 7 and Windows Server® 2008 R2 and increases the level of support for some Windows® Vista configurations.

This release also includes enhancements to s7_mgt associated with configuration of the latest M3UA release and a TXA binary to allow Dialogic® DSI User Part software to be used in conjunction with Dialogic® TX Series SS7 Boards.

The release introduces three new command line management utilities to simplify control of, and status gathering from, protocol modules and activation of trace masks

This release includes further enhancements as detailed below including the ability for s7_log to create multiple rolling log files when configured to create PCAP format logs.

The release is fully backwards compatible with the previous release.

1.1 Applicability

All users are advised to upgrade to this release when convenient, however users of Windows® operating systems later than Windows Server® 2003 must install this Development Package for correct operation.

1.2 Resolved Customer Issues

Updates to resolve the following customer issues are included in this release: IPY00081954 and IPY00081819.

2 New Functionality

2.1 Support for Windows® 7 / Windows® Server 2008 R2

This release offers full support for the latest Windows® operating systems including Windows® 7 and Windows® Server 2008 R2 as well as increasing the level of support for several earlier operating systems including Windows® Vista, Windows® XP and Windows Server® 2003.

The release includes signed 32 bit and 64 bit device drivers for Dialogic® DSI SPCI Network Interface Boards and Dialogic® DSI SS7HD Network Interface Boards.

The appropriate device drivers are installed during the installation procedure.

2.2 s7_mgt - M3UA Configuration - Default Routes

The SNRTI command which is used to configure SIGTRAN routes now has a new optional OPTIONS parameter to allow existing and future per-route options to be selected within config.txt at run-time.

The content of the OPTIONS parameter is used to populate the <options> field in the M3UA Route Configuration message M3U_MSG_CNF_ROUTE. Initially the main use of this parameter is to designate the route as a 'Default Route'.

Bit	Mnemonic	Meaning
0	M3UOP_ROUTE_ASSUME_AVAIL	Assume route always available
1	M3UOP_ROUTE_LOADSHARE	Loadshare across all servers in the route
2	M3UOP_ROUTE_DEFAULT	Default Route

If the OPTIONS parameter is omitted then s7_mgt will default to using the value 0x0002 to provide full backwards compatibility with the previous release. Example usage of the new parameter is as follows:

```
SNRTI:SNRT=1,DPC=200,OPTIONS=0x0004;
```

2.3 Management Utilities – dsictrl, dsistat and dsitrace

This release includes three new management utilities (dsictrl, dsistat & dsitrace) to assist the user when performing management functions from the command line.

dsictrl allows control of MTP links, Sigtran links, LIUs and ISUP circuit groups using a command line interface.

dsistat allows status and measurements to be easily extracted from individual protocol modules using a command line interface.

dsitrace allows trace masks for individual protocol modules to be conveniently set using a command line interface.

For a full syntax listing run the tool with the -h option.

2.4 TXA binary to run DSI User Parts above TX Series Boards

This release includes a binary – TXA – which allows host-based Dialogic® DSI User Part protocols to be run above the Dialogic® TX Series SS7 Boards. This is of particular use for existing users of deployed TX Series boards that may wish to run MAP, INAP or IS41 protocols in conjunction with host-based TCAP and SCCP above MTP3 running on the TX Series board.

Refer to User Guide: Running DSI User Parts Over Dialogic® TX Series SS7 for full information.

2.5 s7_log - Rolling PCAP Log files

The ability for s7_log to generate capacity limited rolling log files has been extended to include PCAP format log files.

When generation of PCAP log files is activated using the `-p` option, whenever either of the two options `-s` or `-n` are activated the PCAP log file will automatically be in the form of multiple, capacity constrained files with a numeric suffix.

2.6 **s7_mgt - SIGTRAN Link Auto-Activation**

`s7_mgt` has been updated to allow automatic activation of Sigtran associations to be disabled by the user if not required. The new optional `AUTOACT` parameter of the `CNSYS` command should be set to `'N'` to disable auto-activation of Sigtran associations. For example:

```
CNSYS:IPADDR=192.168.1.20,AUTOACT=N;
```

3 Other Changes

3.1 **s7_log – Preservation of previous log file**

`s7_log` has been updated to create a backup of the existing log file, if one exists, with the filename `<logfile_name>.old`. For example, if `s7_log` is configured to capture its output to the log file, `'log.txt'` and it detects an existing copy of `'log.txt'` then `'log.txt'` will be renamed `'log.txt.old'` and a new `'log.txt'` file will be created.

NOTE: This functionality is applicable only when `s7_log` is configured to use a single log file and does not apply when either the `-s` or `-n` options are used to create multiple rolling log files.

3.2 **s7_mgt – GTT Configuration (IPY00081954)**

In previous versions, when configuring an ITU Global Title Translation with the Global Title Indicator set to `"0100"`, on occasions bit 8 of Octet 3 of the Global Title was incorrectly set to `'1'`. This bit will now always be set to `'0'`.

3.3 **s7_mgt – M3UA Configuration with OPC**

In previous releases when using `s7_mgt` to configure M3UA systems if the `OPC` parameter was used then the RC will fail to come into service. This has been corrected.

3.4 **GCTLIB - Thread Initialisation (IPY00081819)**

In previous releases an error could occur if multiple threads of an application tried to initialise the GCT environment at the same time. This has been corrected.

3.5 **s7_log – PCAP Timestamp Incorrectly Reported**

In previous releases the timestamps recorded in the PCAP log incorrectly reported the sub-second value. This has been corrected.

Dialogic
10-Feb-10

Release Notes for V5.08

1 Overview

This release contains enhancements to the inter-process communication mechanism which significantly increase system throughput in both single and multi-core processor deployments. The release also includes enhancements or corrections to SCTP and the management utilities s7_log and s7_mgt as detailed below.

The release is fully backwards compatible with the previous release.

NOTE: This release is no longer compatible with the statically linked Host Protocol binaries, or the statically linked Development Package binaries provided with Development Package V4.03 or earlier.

1.1 Applicability

All users should upgrade to this version of the Development Package to gain significant improvements in performance.

1.2 Resolved Customer Issues

Updates to resolve the following customer issues are included in this release:

IPY00080025, IPY00080200, IPY00080425, IPY00080945, IPY00081008 and IPY00081077.

2 New Functionality

2.1 Performance enhancements for Multi-Core Processors

The underlying inter-process communication mechanism has been enhanced to have less dependency on global system-wide resources in order to better exploit the capabilities of multi-core processor architectures.

As a result, significant performance gains in terms of system throughput are achieved. Systems based on multi-core processors are able to fully utilise the additional cores whilst even single core processors achieve increased throughput.

NOTE: The Multi-Core Optimizations utilise processor instruction sets found in Intel 80486 and later processors. In the unlikely event that an older processor type is in use, this development package can still be used but users should first contact Dialogic for additional configuration requirements.

2.2 SS7HD board failure diagnostics

The SSDH module has been extended to provide additional diagnostic information upon the detection of a SS7HD board failure. The SSD_MSG_STATE_IND message has been extended by the addition of two fields in the parameter area. Full details are provided in the Dialogic® DSI SS7HD Network Interface Boards Programmer's Manual, Issue 10.

2.3 s7_mgt – Activating SLS Rotation for M3UA

s7_mgt is capable of activating SLS rotation in accordance with T1.111.5 within M3UA. To achieve this the ROTATION attribute must be set for the appropriate network context as shown below:

```
CNNCI:SS7MD=ANSI,ROTATION=Y;
```

3 Other Changes

3.1 MBM – End Resources

Previous releases of MBM did not generate a confirmation message for the MBM_END_RSP and MBM_MSG_END_AS messages. This fault has been corrected.

3.2 s7_mgt – M3UA Service Indicators

Previous releases of s7_mgt use a fixed configuration for M3UA Service Indicators such that ISUP (SI=5) and SCCP (SI=3) were always configured. This could cause problems if all the module message queues were not processed.

s7_mgt now configures an Adjacent Application Server or Signaling Gateway in M3UA (M3U_MSG_CNF_SERVER), using only the Service Indicators and Module IDs for the protocols present in the config.txt configuration file.

If the M3UA-user protocols are to be configured later using messages then the MTP_USER_PART command should be used to configure the service indicator and module ID of that protocol.

3.3 s7_mgt – DTC Destination Module Id (IPY00080200)

Previously s7_mgt configured DTC to route messages directly to the SCCP module Id rather via the DTS module Id. s7_mgt will now correctly configure DTC to route messages via DTS.

3.4 s7_mgt – Monitor Links (IPY00080425)

Previous release of s7_mgt would not correctly configure monitoring links if the MONITOR_LINK command occurred before the MTP_LINK command in config.txt. This restriction has been removed.

3.5 s7_mgt – M2PA Links (IPY00080945)

Previous releases of s7_mgt incorrectly processed the value of the SIGTRAN Signaling Link Initiate Command's (SNSLI) 'M2PA' parameter. This has been corrected.

3.6 s7_mgt – 32 bit Network Appearances (IPY00081008)

Previous releases of s7_mgt would reject a Network Appearance value where the most significant bit (bit 31) was set. This has been corrected allowing any 32 bit value to be used.

3.7 s7_mgt – More than 16 TCAP instances

Previous releases of s7_mgt always configured TCAP to use 4 bits in the transaction_id to identify the TCAP instance. This prevented use of more than 16 TCAP instances in a single system.

3.8 s7_mgt – Global Title Address Limitations

Previous releases of s7_mgt limited global title addresses to 8 octets or less. This has been corrected.

3.9 s7_mgt – SCCP and TCAP Trace Module Id

This release supports setting the trace_id for SCCP and TCAP to the value specified in the TRACE_MOD_ID command (subject to using a version of SCCP and TCAP that supports the configurable trace_id). In previous releases this command was not supported for SCCP or TCAP protocols so the default value of 0xef was used.

3.10 s7_log – PCAP Corruption (IPY00081077)

Previous releases of s7_log created corrupt PCAP log files when capturing trace event messages (SS7_MSG_RX_IND, API_MSG_TX_REQ and API_MSG_RX_IND) from a module. This resulted in WireShark displaying corrupt packages and has now been corrected.

3.11 s7_play – Response Messages (IPY00080025)

The previous release of s7_play did not release response messages requested by the 'Wait for response' playback command. This has been corrected.

3.12 SCTP Congestion Control

The congestion control mechanism in previous releases of the SCTP binary limited maximum throughput to 1,800 messages/s per association. This restriction no longer exists.

Dialogic
03-Nov-09
Revised 22-Dec-09

Release Notes for V5.07

1 Overview

This release extends the Development Package to support both 32 bit and 64 bit applications.

The release also addresses a number of minor issues as detailed below.

This release is backwards-compatible with previous release.

2 New Functionality

2.1 Support for 64 bit Applications

The standard Dialogic® DSI Development Package for Windows contains binaries, drivers, libraries and DLLs that are all built for 32 bit operation. The Binaries, libraries and DLLs (but not drivers) can also be run on 64 bit systems using the WOW (Windows on Windows) emulation however this requires that the user's application is also built in 32 bit mode. This potentially prevents users from exploiting some of the benefits of a 64 bit environment.

Extensions from Dialogic allow users to build 64 bit applications that can correctly co-exist beside the standard 32 bit binaries and run on a 64 bit system.

For full details refer to the Dialogic® Distributed Signaling Interface Components - Software Environment Programmer's Manual, Issue 7.

2.2 Optional M3UA Routing Context support

This release includes updated MBM and s7_mgt binaries which support configurations of M3UA systems which don't use Routing Contexts. This affects the SIGTRAN Local Application Server Initiate (SNAPI) and SIGTRAN Remote Application Server Initiate (SNRAI) commands. In both cases the Routing Context (RC) parameter is now optional. The revised syntaxes are below.

Syntax

```
SNAPI: AS=,[RC=,][OPC=,][SS7MD=,][TRMD=];
```

```
SNRAI: RAS=,DPC=,[RC=,][SS7MD=,][NASP=];
```

Examples

```
SNAPI:AS=1,SS7MD=ITU14,TRMD=LS;
```

```
SNRAI:RAS=1,DPC=555;
```

2.3 Local IP address control for SCTP Associations

The SCTP modules have been updated to support the configuration of IP addresses on a per-association basis. This allows associations to use some, all or none of the available local IP addresses. The local host IP addresses to be used for the association can be configured using an updated SNSLI command in the config.txt file. Up to four addresses can be specified per association using the parameters HIPPADDR, HIPPADDR2, HIPPADDR3 and HIPPADDR4.

Syntax

```
SNSLI:SNLINK=,IPADDR=,SG=,[HIPADDR=,][HIPADDR2=,][HIPADDR3=,]
      [HIPADDR4=,][SS7MD=,][IPADDR2=,][IPADDR3=,][IPADDR4=,]
      [HPORT=,][PPORT=,][SNEND=,][SNTYPE=,][M2PA=][M2PA_VER=];
```

Example

```
SNSLI:SNLINK=2,IPADDR=172.28.148.40,HIPADDR=192.195.185.20,
      HPORT=2906,PPORT=2906,SNEND=S,SNTYPE=M3UA;
```

If no HIPPADDRx addresses are specified in this command then the association will default to using the IPADDRx addresses specified in the CNSYS command.

2.4 <options> parameter for SNRLI command

A new optional parameter <options> has been added to the SNRLI command within the s7_mgt module allowing for run-time options to be added in the future without the need to further modify the command syntax. The <options> parameter is a 32 bit field and defaults to zero if not specified. The contents of this parameter are passed to the M3UA module at run-time.

The full syntax of the SNRLI command is as follows:

```
SNRLI:SNRL=,SNRT=,SG=,[OPTIONS=];
```

2.5 ISUP - maximum SIF length

A parameter has been added to the ISUP_CONFIG command which allows the user to specify the maximum SIF length to be used when sending messages to MTP3 or M3UA. The revised syntax for the command is:

```
ISUP_CONFIG <res1> <res2> <user_id> <options> <num_grps>
            <num_ccts> [<partner_id> [<max_sif>]]
```

If this parameter is not set the default value of 272 will be used. When setting this parameter the <partner_id> must also be present or set to zero.

3 Other Changes

3.1 Unwanted MGT_MSG_NTP_SYNC messages

Previous releases of the s7_mgt module would send an MGT_MSG_NTP_CONFIG message to each SS7HD Signaling Processor irrespective of whether MONITOR_LINKS are configured to use time stamping. From this release the message is only sent to a Signaling Processor if monitor links are configured to use time stamping.

Dialogic
19-Dec-08

Release Notes for V5.06

1 Overview

This is a maintenance release which increases the maximum message length supported by the Sigtran SCTP module and offers support for config.txt configuration of SCCP and TCAP in dual chassis deployments. The release also addresses a number of minor issues as detailed below.

This release is backwards-compatible with previous release.

2 New Functionality

2.1 Increased message-length support for SCTP

In this release the SCTP module has been enhanced to offer support for longer payload messages that exceed the normal MTP2 limit of 272 octets. SCTP is now capable of sending and receiving payload messages with up to 4200 bytes in the parameter area of the message.

Use of this feature requires that the software environment is appropriately configured so as to have a pool of 'Long Messages' using the NUM_LMSGs command in sxstem.txt. For full details relating to the capabilities and usage of Long Messages refer to the Dialogic® Distributed Signaling Interface Components - Software Environment Programmer's Manual, Issue 7. If for any reason (e.g. exhaustion of the Long Message pool) the SCTP module is unable to allocate a message with sufficient capacity to store the received message then a management event indication MGT_MSG_EVENT_IND (0x0008) with status set to SCTP_RX_DISCARD (0xf0) is sent to the SCTP module's management module.

From this release, the s7_mgt module configures the SCTP module's management module to be the value specified in the MGMT_MOD_ID command with a default value of 0xef.

Check the release documentation to determine whether the SCTP user module (e.g. M2PA, M3UA or SUA) supports Long Messages.

The per-association statistics message (SCTP_MSG_R_STATS) has been extended by the addition of an rx_discard field to count any discarded incoming messages. The new field 'rx_discard' is offset 49, size 4 in the parameter area of the message. The new message length is 53 bytes.

2.2 config.txt configuration of dual chassis SCCP and TCAP

The ability to distribute the protocol stack over two separate chassis allows users to realise systems that appear to the network as a single point code whilst achieving fault tolerance in the event of a chassis failing.

See the Application Note: Enabling Dual Chassis Fault Tolerance with Dialogic® Signaling Boards for a description of how such a configuration can be used.

This release adds the ability to configure SCCP and TCAP in such configurations by extending the SCCP_CONFIG and TCAP_CONFIG commands. The full syntax of these commands is described in the SS7HD Programmer's Manual. The modifications to these commands are detailed below:

```
SCCP_CONFIG <local_spc> <ssf> <options>
           [<management_options> [<partner_id> <instance>]]
```

<partner_id> specifies the module_id of the partner SCCP module.

<instance> [range 0 - 15] which specifies the instance of SCCP running on this system.

NOTE: In order to use the <partner_id> and <instance> parameters the user must also provide the <management_options> parameter.

```
TCAP_CONFIG <base_ogdlg_id> <nog_dialogues> <base_icdlg_id>
            <nic_dialogues> <options> <dlg_hunt>
            [ [<addr_format>] <partner_id> <tcap_inst> ]
```

The new parameters <partner_id> and <tcap_inst> are used as follows:

<partner_id> specifies the module_id of the partner TCAP module.

<tcap_inst> [range 0 - 15] which specifies the instance of TCAP running on this system.

3 Other Changes

3.1 AMI with Zero Code Suppression

In previous releases configuration of a T1 interface using AMI with Zero Code Suppression (ZCS) line coding did not maintain transparency of the timeslot for SS7 signaling links. ZCS is now disabled for any timeslots containing SS7 signaling links.

3.2 Monitoring 56/48kb/s links on SS7HD Boards

A correction has been made within the s7_mgt module to ensure that monitoring of 56kb/s and 48kb/s links is correctly set up on SS7HD boards.

3.3 PCAP Support for MTP3 running on-board

The PCAP logging functionality provided by the s7_log module has been extended to support configurations where the MTP3 module is running on the board.

3.4 Support for mixed M3UA Link Types

In previous releases support for Remote Application Server (RAS) and Signaling Gateway (SG) links was only possible if unique Identifiers were used for the RAS and SG parameters. This has been resolved.

3.5 Restriction on IPSP Links removed

In the previous release of the s7_mgt module only 4 M3UA links could be configured. This restriction has now been removed and it is possible to configure up to 64 links.

3.6 Parameter format restrictions in MMI commands

In earlier releases, the s7_mgt module could give unexpected results if spaces were used in numeric parameters (e.g. 0x7fff ffff). Configuration commands with spaces in the middle of strings are now rejected.

3.7 Unprintable ASCII characters

In previous releases of the s7_mgt module, if the module were configured to print the parameter area of a message which included unprintable characters, these were sent to the terminal. In this release unprintable characters such as control codes are replaced with an asterisk "*".

3.8 MBM Reliability Improved

In earlier releases the MBM module could occasionally, in certain configurations, fail to initialise correctly. This problem has been resolved.

3.9 Non-appearance of Device Driver in Device Manager

A problem has been identified with the software for the SPCI board that prevented the board's driver interface being displayed in the Device Manager on Windows® XP and later platforms.

This problem has been resolved for systems where the board is present at install time. However, if the board is not present at install time the problem can be resolved by starting the driver interface at a command prompt using the command:

```
Net start Septel
```

After rebooting the interface will be displayed as expected.

3.10 SS7HD Board Information

Previous releases could report out of date board information in multi-board configurations using hot swap functionality. This problem has now been resolved.

3.11 Running software as a Windows® service under Windows® Vista

When running software as a Windows® service under Windows® Vista the instructions set out in the section 'Running software as a Windows® service' in the Software Environment Programmer's Manual (U10SSS) must be followed. However an additional file 'gctlib.dll' must be copied from the development package install directory to the windows system32 directory prior to installation of the service.

Dialogic
26-Sep-08

Release Notes for V5.05

1 Overview

This is the first full release of the Dialogic® SS7 Development Package for Windows® since V5.02.

This release adds support for the Dialogic® SS7HDE High Density PCI Express Signaling Board.

This release of the SS7 Development Package for Windows adds support for the configuration of M3UA association's Network Appearance into the s7_mgt binary. A new command has been introduced to allow users to specify the period of certain Sigtran timers.

The S7_LOG module has been extended to output a PCAP-formatted log file. This will allow a third party application to analyse packets.

Other improvements are included in this release, as described below.

Except for some minor changes to configuration messages outlined below, the release is fully backwards compatible with the previous release.

2 New Functionality

2.1 Support for SS7HDE Signaling Board

This release includes support for the SS7HDE Signaling Board. Full details of the operation of the SS7HDE Board are provided in the Dialogic® SS7HD Programmer's Manual, Issue 8.

2.2 Support for Windows® Vista

This release of the SS7 Development Package for Windows® includes support for Windows® Vista.

NOTE: It is important to follow package installation as described in the "Software installation for Windows" section of the SS7HD Programmer's Manual.

NOTE: On driver installation, a warning message is generated indicating that the driver has not been digitally signed by Microsoft. This warning may be ignored without impacting system functionality.

2.3 PCAP output for s7_log

To invoke this new functionality the new -p command line parameter should be used to specify the filename of the log file. Full details are provided in the Dialogic® Distributed Signaling Interface Components - Software Environment Programmer's Manual Issue 7.

2.4 s7_play Commands

The command set supported by the s7_play module has been extended. Commands may now be issued that require the module to pause until a specified message or response is received. Full details are provided in the Dialogic® Distributed Signaling Interface Components - Software Environment Programmer's Manual Issue 7.

2.5 Support for Network Appearance added to s7_mgt

The existing "SNSLI" command has been modified to configure an optional Network Appearance parameter. The parameter added takes the form: "NA="

When set the value of the NA parameter serves as the default Network Appearance for a M3UA Application Server and is transmitted to Remote Application Servers or Signaling Gateways as appropriate. The NA parameter is not applicable for M2PA operation.

SNSLI:

```
SNLINK=,SNTYPE=M2PA,IPADDR=,[SNEND=,][IPADDR2=,]
[HPORT=,][PPORT=,][M2PA=,][M2PA_VER=,][NA=];
```

For example:

```
SNSLI:SNLINK=1,SNTYPE=M3UA,IPADDR=111.112.113.200,NA=1;
```

The NA parameter may take values in the range 0 to 2,147,483,647 (0x7fff ffff).

2.6 Sigtran timer configuration

A new command, CNTOS, has been added to the set supported by the s7_mgt utility. This allows the user to set the values of timers to be used in the SCTP and M2PA protocols. Refer to Dialogic® SS7 Protocols Programmer's Manual, Issue 7 for SIGTRAN Host Software for details.

2.7 Configuration of management and maintenance module ids

The values specified in the configuration commands that the s7_mgt utility sends to the Host Protocol modules are not always convenient. These have been revised in this release. Full details are provided in the Dialogic® SS7HD Programmer's Manual, Issue 10.

2.8 s7_mgt - Number of SCCP SSRs

The number of SCCP sub-system resource commands that the s7_mgt utility supports has been increased from 16 to 512.

2.9 s7_mgt -Number of routes

The number of MTP_ROUTE commands supported by the s7_mgt utility has been increased from 128 to 4096.

2.10 s7_mgt - Non-consecutive links

In earlier releases of the Development Package, if the config.txt file contained MTP_LINK commands with non-consecutive link reference numbers, the configuration commands generated by the s7_mgt utility would be rejected by the MTP3 module. In this release the commands are not rejected.

2.11 Notify message for void config.txt message

If configured, the s7_mgt utility now generates a Notify message even if the config.txt file does not contain any configuration commands.

2.12 Non-circuit examples added to config.txt

Additional configuration commands have been added to the configuration file config.txt. These demonstrate how the s7_mgt binary can be used to configure non-circuit protocols.

2.13 Reporting number of Signaling Processors on SS7HD boards

The SSDH module reports the number of boards configured in response to the SSD_MSG_BOARD_INFO message. In earlier releases, the module would only respond to this message once the board had been reset. In this release it responds to the message at any time after initialisation.

This allows users to query the number of Signaling Processors available on an SS7HD board before the codefile is downloaded.

See the SS7HD Programmer's Manual for details of this message.

2.14 Configuration of Sigtran Links by s7_mgt

The s7_mgt module passes dimensioning parameters to the M2PA and M3UA modules in the appropriate configuration message. In previous releases fixed values were used for these dimensioning parameters.

From this release the values are set according to the number of links that have been configured.

The maximum number of links that s7_mgt is capable of configuring has also been increased, as shown in the table below:

Dimensioning parameter	Previous Value	Revised Maximum
Sigtran Links	32	64
M3UA Local servers	32	64
M3UA Remote Application Server Lists	32	64
M3UA Bindings	32	64
M3UA Routes from	32	64
M2PA Links	8	64

3 Other Changes

3.1 SSDH Geographic Addressing Support

In earlier releases of the Development Package, geographic addressing switch settings were not supported. This support has now been added.

3.2 GEN_MSG_MOD_IDENT for SSDS and DTC

The GEN_MSG_MOD_IDENT message may be used to request a Revision Identifier for a module. Support for this message has been added to the SSDS and DTC modules.

NOTE: The Core Revision Identifier is returned by this message. This is not the same as the Binary version that is reported, for example, by the `ssds -v` command line parameter.

3.3 SSDH Hot Swap Support

In earlier releases of the Development Package, Hot swap settings were not supported. This support has now been added and a single board maybe hot swapped at a time.

3.4 Number of streams configured for M2PA

In previous releases of the `s7_mgt` utility, the command used to configure SCTP associations for M2PA links specified that 32 streams should be used. In this release only two streams are configured.

3.5 Use of SCPF_SMB flag in SCCP_MSG_CONFIG message

In previous releases of the `s7_mgt` utility, the SCPF_SMB flag was being set although SMB operation is not currently supported by the `s7_mgt` utility. In this release this flag is no longer set.

3.6 SCTP Init chunk with variable parameters

In previous releases of the SCTP module, receipt of an INIT chunk with variable parameters (which are not listed in Section 3.3.2 of RFC 2960) resulted in failure of the SCTP module. In this release they are correctly handled.

3.7 Comments in MMI commands

In earlier releases MMI style commands containing comments were rejected by the `s7_mgt` utility. In this release these commands are processed normally.

3.8 Correction to Device Driver Installation

Previous releases of the Development Package contained a problem in the device driver installation scripts which could prevent more than two signaling boards from being correctly configured. This problem affected the SPI and SS7HD signaling boards and has now been resolved.

3.9 Flush output to screen

In earlier releases, in configurations where multiple binaries are passing their output to a single file handle (e.g. s7_mgt and ssdh passing their output to STDOUT) the output would not appear in SSH console.

In this release, the output pipe is flushed after each write and the output appears.

Dialogic
14-Mar-08
Revised 20-Mar-08