Binary for Solaris - M2PA

Release Notes for Version 2.00

1. Overview

This is the first release since V1.01. It is the first release to introduce support for the RFC version of M2PA and is developed for use with the SS7 Development Package for Solaris V3.00 or later. It cannot be used with earlier development packages.

Customers who wish to make use of the Long Message support offered in V3.00 of the development package should upgrade to this release of software (Long Message support is required for SCCP Segmentation). Other customers need not upgrade.

Note: A configuration change must be made to the Link Configuration Options parameter on existing systems to achieve backwards compatibility.

2. New Functionality

2.1 Use of Solaris shared object

This release makes use of shared object version of the GCT library included in V3.00 of the development package. The module has not been changed to support Long Messages itself but it does permit the module to be used in an environment where Long Messages are being used.

2.2 RFC Support

A new link option, M2PA_LCFG_VER_9 (bit 2) has been added to the M2PA Link Configuration message, M2P_MSG_CNF_LNK (0x7221), to select between the Draft Version 9 support and RFC support. By default, (ie. this bit is set to zero) links will comply with the RFC specification; this is a change from the previous release. For compliance with the Draft Version 9 specification this bit should be set to 1.

Dialogic
31-May-06

Binary for Solaris - M2PA

Release Notes for Version 2.01

1. Overview

This release introduces new functionality to improve the performance of message retrieval and fixes three issues.

This release is backwards compatible with the previous release.

2. New Functionality

2.1 Retrieval Rate

The rate at which M2PA transmits retrieved messages to it's user is now configurable on a per link basis. If the M2P_LCFG_RTVL_RATE option (bit 3) is set in the M2P_MSG_CFG_LINK then the new parameter 'rtvl_rate' is used to set the number of messages per timer tick that are generated. If this parameter is set to zero then no gapping is used. It is recommended that this is set to zero for new applications.

The 'rtvl_rate' parameter has the following offset and size as defined in the m2pa_inc.h file.

M2PMO_CNF_LNK_rtvl_rate	44
M2PMS_CNF_LNK_rtvl_rate	2

2.2 GCT Buffering

Messages held in the M2PA transmit buffers now use a MSG from the systems GCT MSG pool. This may use up to 1024 messages per link depending on the limit set in the link configuration message. When deciding on an appropriate limit for the system this should be considered.

NOTE: When using this version of the library in a system the demands on the GCT environment will be different from before. Consideration should be made concerning increasing the number of GCT MSGs allocated on system startup.

3 Faults Cleared

3.1 Error indicator during link alignment

In the previous release the T3 and T4 timers used in link alignment were not always cancelled when they should have been. This occasionally resulted in an M2P_MSG_ERROR_IND message being

generated with error code M2P_ERR_TIM_START and sent to Layer Management.

This problem has been fixed in this release of the binary.

3.2 Sequence Number Wrap around

When the 24-bit forward sequence number wraps around from it's maximum value back to zero M2PA may fail. Failure was dependant on the occupancy of the transmit buffer so did not always occur. When M2PA did fail the binary needed to be restarted.

This problem has been fixed in this release of the binary.

3.3 OOS indication on association establishment

RFC4165 mandates that after association establishment M2PA sends a Link Status message indicating the link is out of service. This was not previously being generated, instead the first link status message generated was an alignment message once a request had been made to bring the link into service. While this did not prevent the link from being brought into service it did represent a non-compliance to the specification and has been corrected.

Dialogic
26-Jul-07

Binary for Solaris - M2PA

Release Notes for Version 3.01

1. Introduction

This release provisions for new license models offering increased flexibility in the range of purchasable throughput and association capacity offered. This allows the user to better match the needs of the protocol license used to the scale of the system. In addition, to aid customers in using the new licenses, the module supports Throughput Monitoring functionality.

This release also includes a change in the licensing mechanism to support new format license tokens in license files and corrects a number of outstanding faults as detailed below.

This release is the first full release since V2.01 and is backwards compatible with that release.

2. New Functionality

2.1 New Licenses

A range of new licenses are now offered allowing users to determine the level of throughput to be supported in any specific deployment. The full range of currently available M2PA licenses and the capability of each are detailed in the table below.

These new licenses replace the old SS7SBHSTM2PA licence which continues to support 8 associations with no throughput limiting

Dialogic Part Number	Description	Throughput	Max Associations	TDM Link Equivalents at 0.6 Erlang
G09-005-01	SS7SBHSTM2PAU	312kb/s	4	4
G10-005-01	SS7SBHSTM2PAS	1,232kb/s	16	16
G11-005-01	SS7SBHSTM2PAR	2,464kb/s	32	32
G12-005-01	SS7SBHSTM2PAL	4,920kb/s	64	64
G13-005-01	SS7SBHSTM2PAK	9,840kb/s	128	128
G20-005-01	SS7SBHSTM2PAJ	19,680kb/s	256	256

2.2 Capability Licensing

This release introduces a new licensing scheme to allow use of the M2PA module for different size systems. Different licences support up to a certain number of SCTP associations and a specified traffic throughput.

Throughput is calculated using the payload content of the API_MSG_TX_REQ and API_MSG_RX_IND messages sent and received from the application above M2PA.

For licensing purposes the sum of the TX and RX direction is used. Other parameters or messages not listed above do not count towards the totals. For management and monitoring purposes individual sums of TX and RX are maintained.

To support management of these new capabilities, new messages have been added as detailed in this section.

2.2.1 Configure M2PA Module

Synopsis:

Sent to the M2PA module to configure global parameters. When using s7_mgt this message will be sent automatically.

Message Format:

MESSAGE HEADER	
FIELD NAME	**MEANING**
type	**M2P_MSG_CONFIG** (0x7220)
id	0
src	Management Entity
dst	M2PA Module
rsp_req	Used to request a confirmation
hclass	0
status	Non zero on error
err_info	0
len	16

PARAMETER AREA		
OFFSET	**SIZE**	**NAME**
0	1	mngt_mod_id
1	1	trace_mod_id
2	2	max_links
4	2	req_throughput
6	10	reserved

Description:

This message must be the first message sent to the module to configure the module wide settings.

Parameters

mngt_mod_id

Module ID for the Management Module.

trace_mod_id

Module ID for the Trace Module.

max_links

Maximum number of Associations the module will be required to handle.

req_throughput

Maximum throughput requested from the module in Kbytes/s.

Note: For backwards compatibility if the old module configuration is submitted then the throughput will default to the maximum licensed.

2.2.2 Request Licensing State

Synopsis:

Sent by Layer Management to request the current license state.

Message Format:

MESSAGE HEADER	
FIELD NAME	**MEANING**
type	**MGT_MSG_R_LIC_STATUS** (0x6f22)
id	0
src	Layer Management
dst	M2PA Module
rsp_req	Set appropriate response required bit
hclass	0
status	Set to 1 if module not enforcing licensing
err_info	0
len	56

PARAMETER AREA		
OFFSET	**SIZE**	**NAME**
0	4	Version
4	4	Licensed Protocol
8	4	Licensed Throughput Rate
12	4	Licensed Links
16	4	Licensed Sessions
20	4	Licensed Options
24	4	Configured Throughput Rate
28	4	Configured Maximum Links
32	4	Configured Maximum Sessions
36	4	Configured Options
40	4	Current Throughput Credit
44	4	Current Active Links
48	4	Current Active Sessions
52	4	Cong State

Parameters

The version and Licensed protocol parameters should be set by the user. The rest of the parameters are set but the module in the reply.

Version

Set to 0.

Licensed Protocol

Identifies the protocol being licensed. For M2PA set to 3.

Licensed Throughput

The throughput permitted by the installed license or licenses.

Licensed Links

The number of links or associations permitted by the installed license or licenses

Licensed Sessions

The number of simultaneous sessions or dialogs permitted by the installed license or licenses. Note: Not used by M2PA.

Licensed Options

Bit mask of M2PA specific functionality enabled by current licenses. See the '**Functionality options'** parameter of the M2PA_CONFIG message for definitions of individual bits.

Configured Throughput

The maximum throughput requested in the M2PA_CONFIG message.

Configured Maximum Links

The maximum number of links permitted as requested in the M3UA_CONFIG message.

Configured Maximum Sessions

The maximum number of concurrent sessions permitted as requested in the M2PA_CONFIG message. Note: Not used by M2PA.

Configured Options

Bit mask of M3UA specific functionality enabled by current licenses. See the '**Functionality options'** parameter of the M2PA_CONFIG message for definitions of individual bits.

Current Throughput Credit

The number of bytes that can be sent to or received from the network by M3UA before enforcement mechanisms are triggered.

Current Active Links

Number of links or associations currently configured.

Current Active Sessions

Number of circuits or dialogs currently in use. Not used by M2PA.

Throughput Congestion State

Value	State	Description
0	UNCONG	No throughput congestion indicatations have been raised or congestion has abated
1	CONG	Throughput congestion indications have been raised but congestion abatement has not yet occurred

2.2.3 License Event Indication

Synopsis:

Sent to Layer Management to indicate a license related event. In the case of throughput it indicates throughput congestion onset, abatement or the beginning of enforcement.

Message Format:

MESSAGE HEADER	
FIELD NAME	**MEANING**
type	**MGT_MSG_LIC_EVENT** (0x0f23)
id	0
src	Layer Management
dst	M2PA Module
rsp_req	0
hclass	0
status	0
err_info	0
len	8

PARAMETER AREA		
OFFSET	**SIZE**	**NAME**
0	4	Protocol Type
4	2	Event Type
6	2	Event Indication

Parameters

Event Type

Event type	
0	Undefined
1	Throughput
2	Link/Associations
3	Session/Dialog

Event Indications

Throughput Event Indications

Throughput Event indication	
0	ABATE
1	CONGESTION
2	ENFORCEMENT

Link/Associations

None currently defined

Session/Dialog

None currently defined

2.3 Throughput Monitoring

In order to enable monitoring of the system throughput the M2PA module has been extended to offer additional statistics including:

- Data Received from the Network (RX Data)
- Data Received from the user module to be sent to the network (TX Data)
- Combined Rate
- Peak Rates (RX Data/TX Data and Combined)
- Enforcement state and congestion counts

These can be determined using the message MGT_MSG_R_THR_STATS (0x6f21) shown below.

2.3.1 Request Throughput Statistics

Synopsis:

Sent by Layer Management to request the current throughput statistics.

Message Format:

MESSAGE HEADER	
FIELD NAME	**MEANING**
type	**MGT_MSG_R_THR_STATS** (0x6f21)
id	0
src	Layer Management
dst	M2PA Module
rsp_req	Set appropriate response required bit
hclass	0
status	Non zero to Reset
err_info	0
len	36

PARAMETER AREA		
OFFSET	**SIZE**	**NAME**
0	4	Version – Must be set to zero
4	4	Protocol
8	4	Time Period
12	4	RX Data
16	4	TX Data
20	4	RX_rate_peak
24	4	Tx rate_peak
28	4	Rate_peak
32	2	Congestion Count
34	2	Enforcement Count

Parameters

The version and Licensed protocol parameters should be set by the user. The rest of the parameters are set by the module in the reply.

Licensed Protocol

Identifies the protocol being licensed. For M2PA set to 3.

Time Period

Updated by the module to show the time since start-up or the last statistics reset. Units of 100ms.

RX Data

Amount of counted data, measured in Kbytes, received by the module from the network since the last statistics reset.

TX Data

Amount of counted data, measured in Kbytes, sent by the User module since the last statistics reset.

RX rate peak

The peak Rx data rate averaged over a rolling thirty second time window. Units of Bytes / Second.

TX rate peak

The peak Tx data rate averaged over a rolling thirty second time window. Units of Bytes / Second.

Rate peak

The peak data rate for both Tx and Rx data averaged over a rolling thirty second time window. Units of Bytes / Second.

Congestion Count

Number of times the congestion state has been entered since the last statistics reset.

Enforcement Count

Number of times the congestion state has been entered since the last statistics reset.

3. Other Changes

3.1 End User Licensing

This release adds support for a later release of the licensing software and consequently supports operation using ‘dialogic’ vendor id in license fields.

This release also provides enhanced license test operation which should provide a clear indication of the licenses present. This using the existing command line option ‘-Lt’. An example of this output is shown below:

```
./m2pa_sol –Lt –Lp./LIC
./m2pa_sol: Search in directory ./LIC and current directory for valid license
./m2pa_sol: Looking for:
        license M2PA_SOL_D:     License file does not support this binary.
        license M2PA_U_SOL_D:   License file does not support this binary.
        license M2PA_SMALL_SOL_D:       License file does not support this binary.
        license M2PA_REGULAR_SOL_D:     License file does not support this binary.
        license M2PA_LARGE_SOL_D:       License file does not support this binary.
        license M2PA_K_SOL_D:   License file does not support this binary.
        license M2PA_J_SOL_D:   Success
        alternative license M2PA_SOL:   License file does not support this binary.
        alternative license M2PA_U_SOL:         License file does not support this binary.
        alternative license M2PA_SMALL_SOL:     License file does not support this binary.
        alternative license M2PA_REGULAR_SOL:   License file does not support this binary.
        alternative license M2PA_LARGE_SOL:     License file does not support this binary.
        alternative license M2PA_K_SOL:         License file does not support this binary.
        alternative license M2PA_J_SOL:         License file does not support this binary.
./m2pa_sol: *** Success - 1 valid license files found ***
```

3.2 Slow license validation

Some users have experienced problems with slow license validation on certain platforms. Previous releases worked around this problem but required licenses to be reactivated. With this release the problem is corrected without the need to reactivate the license.

Dialogic
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