Technical Support
TECHNICAL NOTE

# TECHNICAL NOTE TN-1058-SR

## T1722 SMM Software V7.10

26 July 2005

**Applicability** T1722 Site Management Module (SMM)

# 1. Introduction

This release of SMX software has some new features for the T1541 V4.00 node.
It has been released to operate in conjunction with T1510/T1511 CCM or T1711 CMMs fitted with the new releases of Min V7.07 and Modem V7.01

# 2. New Features

**Extended validation information.**
Version 7.10 of the SMX software contains extended validation information for use with v4.00 of the T1541 Node.
There are 4 extra validation bits for each MPT1327 ident, consuming 512kB of the SMM's RAM. The addition of this data has meant that the total number of billing records the SMM can contain has been reduced to 4096. The first bit is used to determine whether the radio is allowed to make interfleet calls. The second bit is used to determine whether a 'not home' or 'busy' radio's call should be forwarded to the node. The last two bits are currently not used.

**Emergency calls ignore inactivity timeout.**
It is now possible for emergency calls to ignore the channel timeout for inactivity. This feature can be set in the control parameters, and is enabled by default.

**Call diversion on busy party.**
If this feature is enabled, a call to a busy party can invoke a diversion to another party.

**Call diversion on not home party.**
If this feature is enabled, a call to a party that is not home can invoke a diversion to another party.

**Inter-fleet call barring.**
This feature allows the system administrator to bar a unit from making interfleet calls.

# 3. Issues Resolved

**The following issues have been resolved between SMX V7.08 (test trial) and SMX V7.10.**

**Channel Jammed not correctly reported to Node.**
The SMM was incorrectly checking the channel mode instead of the hardware status when trying to detect if the receiver was jammed.

**ACKV Q=0 given in response to RQX.**
If a FOACSU call with the called party ringing, and the caller sends RQX to cancel, the system returned ACKV Q=0. It should return ACK Q=1. The system subsequently and correctly sends AHYX to cancel the called party ringing. The radio therefore gave an UNAVAILABLE display (ie 'NOT HOME') instead of CANCELLED.

**Long call duration timers may not have been accurate.**
When the call duration was set to 5 minutes for an intersite outgoing PABX call, the call timed out after only 4 minutes and 12 seconds.

**DAS ports failing during a call could produce unexpected results.**
If an audio port was reset during an incoming local phone call, the call should have closed with call end reason 45 (DAS port failed). The call did not close, and the end reason did not indicate that a failure had occurred. If the phone port was reset during an outgoing local phone call, the call should close with call end reason 45 (DAS port failed). The call closed, but the call end reason does not indicate that a failure had occurred.

**CWID was only sent for the first 4 minutes.**
If the CWID interval was set to greater than 4 minutes, the CWID was only sent for the first 4 minutes. After that time, no CWID was sent.

**Problem with rotating traffic channel.**
The rotating traffic channel algorithm exhibited an issue where the following statements were true:
- Traffic channel rotation was enabled;
- Temporary traffic mode was enabled;
- The control channel was not the lowest numbered channel.

**MST transmissions failed when the LEN of the last segment = 1**
In version 7.04 - 7.07 of the SMX software, for a 2 segment, 3 segment or 4 segment MST, the last DCW sent contains the wrong information in the MST, if the last segment had a LEN = 1. Single segment messages work correctly.

**Call queuing statistics were not collected**
The site collects statistics into 15 minute blocks which contain:
- The average number of traffic channels during this period.
- The number of seconds traffic channels were in-use during this period.
- The number of calls made during this period.

The statistics should have also contained the number of seconds calls were queued waiting for a traffic channel to become available at this site. This statistic was incorrectly always set to zero rather than indicating the queuing time.

**Low forward power input should not cause channel withdrawal.**
The SMM currently withdraws any channel that has reported an alarm on its low forward power or high reverse power inputs. This behaviour has been changed so that an alarm on the low forward power input does not cause a channel withdrawal. The change is so the alarm inputs can be used

for alternative uses with different alarm levels.

**An Intersite MST of two segments or more would fail.**
Intersite MST transmissions would fail if they consisted of two or more segments. The called party was left in a waiting state, but the calling party was successfully acknowledged.

**Rotating traffic channel problem.**
In the case where one partition uses a channel subset of higher-numbered partition, radios that were using the higher-numbered partition could get 'trapped' on the subset of channels. For example:

Partition 1: Idents 0001-0999, Channels 4-5.
Partition 2: Idents 1000-5000, Channels 1-23.

Radios using partition 2 would get 'trapped' using channels 4-5 until such time as these channels were all busy. They will then go back to using channels 1, 2, 3, and get 'trapped' on channels 4 and 5 again.

**ACKT not sent correctly for group diversions.**
If radio A called radio B which was diverted to group G, then the ACKT sent back to radio A would always be a IPFIXI diversion. We only sent an IPFIXI diversion if the group was interprefix. This is specified in the MPT spec, and allows the calling party A to know if the diverted call is a group call. The same issue also occurred if a radio called a group that was diverted to an individual party.

**Repeat Massaging Mode (RMM)**
When the SMM received a message with the same RMM number as the last message, it didn't resend the last message. Instead, it sent the next message in the queue, and appended the expected RMM number.

**Rejection of a local call by a Do Not Disturb radio did not invoke divert on busy party.**
When a radio rejected a local call because it is in quiet mode, the call was not diverted to the busy-party destination.

**An answered FOACS call would still time out for the call answer timeout**.
When the b-party answered a FOACS call, the radios were sent to the traffic channel. If neither party then transmitted, the calls would timeout after the call answer timeout, rather than the call inactivity timeout.

**A faulty channel was brought into service via a low forward power alarm.**
A channel that has previously had a high-reverse or low-forward/high-reverse alarm was brought into service again when a low-forward power alarm occurred by itself.

**Intersite status calls queued for busy party had zero queuing time.**
An intersite status call queued for busy party had an answer time of zero in the billing record. It should have shown the actual number of seconds that the radio was waiting to send the status message.

**Intersite SDM calls queued for busy party had zero queuing time.**
An intersite SDM call queued for busy party would have an answer time of zero in the billing record. It should have shown the actual number of seconds that the radio was waiting to send the SDM message.

**SMX does not use a channel with a low forward power failure.**

Site 7 is meant to indicate to the node when a CMM has a low forward power alarm, but can still be used for calls, or as a control channel. The channel was indicating it is active, but not allocated any calls.

**Control channel rotation is not correct.**
If some of the channels were disabled from being the control channel using the NMT, the remaining channels should have become the control channels for the period of the reassignment timeout. During testing, it was discovered that one of the remaining channels actually spends longer as the control channel. For example, on a 4 channel site where channels 2 and 3 are disabled with a 15 second reassignment timeout, channel 1 will become the controller for 15 seconds, but channel 4 will then become controller for 45 seconds.
If, however, the disabled channels were turned off (or have failures), the other channels would become controllers for the correct amount of time.

**A MST followed by a SST can fail.**
If an intersite SST was made after a MST call, the SST call could sometimes fail. The intersite message relating to the SST contained data from the previous MST call. This caused problems for the SST call.

**Multi-site group MST calls could fail at the originating site.**
If a multi-site MST group call is made, radios on the originating site may not have received the message.

# 4. Known Issues and Limitations

**Line reversal improvements**.
For outgoing intersite phone call (cleared by the radio), line reversals should be used to determine that the call has been answered. When the line reversal occurs, the ringing time should be calculated and recorded in the billing record. Currently it is always 0.

**Intersite FOACS answered calls are not marked as answered.**
In an intersite FOACS call, which is answered by the b-site party, the a-site is not informed that the b-party has actually answered the call. This means the a-site still times out for call answer timeout and doesn't mark the call as answered.

# 5. Compatibility

This software requires channel controller software Q1711MIN version 7.04 or greater to operate correctly.

This software is compatible with SMM Bootloader (Q1722BLD) software versions 1.00 and 1.01.

This software is compatible with the T1541 Node Controller/Network Management Terminal (Q1541NC/Q1541NM) versions 2.1.6 or greater.

This software is **not** compatible with the T1772 Network Management Terminal (Q1772NMT).

This software is **not** compatible with version 5 or 6 series software running

on the same site, although it will inter-operate with other sites running version 5 or 6 software.

This software is **not** compatible with the T1520 Site Control Unit, T1720 Site Control Unit or T1721 Site Management Module. It will only operate with the T1722 Site Management Module.

# 6. Issuing Authority

| | | | |
|---|---|---|---|
| **Name and Position of Issuing Officer** | Jeff Northcott<br>Senior Technical Support Engineer | | |
| **Confidentiality** | Confidential – This message or document contains proprietary information intended only for the person(s) or organisation(s) to whom it is addressed. All Recipients are legally obliged to not disclose Tait technological or business information to any persons or organisations without the written permission of Tait. | | |
| **Distribution Level** | Tait Only | | |
| **Document History** | Original Release | 26 July 2005 | JN |