



Release Notes

v8.6.2 for 96x Multi-Channel Test Unit

This document describes a new software release (v8.6.2) for the 96x. This software supersedes Version 7.10.19 and is available now.

NEW FEATURES

1. **Added PCM Span Monitor function** — The monitored parameters are listed below:

Loss Of Signal	Backgrd. Block Error
Alarm Indication Sig	Errored Second(s)
Loss Of Frame Align	Severely Errored Sec.(s)
Frame Error	Available Time(s)
CRC Error	Unavailable Time(s)
BPV (code violation)	Total Time
Errored Block	

2. **G.168 Test Suite**
 - a. Added new tests: 2c, 9b, and 9c
 - b. Added parametric testing capability by adding min, max and step size for selected test parameters
3. **IP Video Quality Monitor Test** — Selectable as an RTP Monitor test. Analyzes the RTP video packets traversing an IP network and derives a set of measurement reports that can be used to predict, with high correlation, the end-user-perceived video quality.
4. **Fax Test** — Added new EVM (Error Vector Magnitude) measurement. EVM is a parameter that characterizes how good a (or how bad) the modulation quality is. Also added new SER (Symbol Error Rate) measurement. These parameters are available only on 96x FAX RECEIVE and FAX MONITOR functions. Note that the FAX MONITOR function is only available in 2-Wire analog ports configured for Bridge Mode.
5. **CLI (command language interface)**
 - a. Added new command (tone23) to support the 23-Tone test
 - b. Added new "intcfg" command to configure and view current interface parameters. This command mimics the Windows GUI interface capabilities, including individual adjustment of 4-wire analog transmit and receive levels.
 - c. The "time" command has new display and parameters to enable NTP, set update period, specify NTP servers, etc. for automatic time syncing to network time servers
 - d. The test "start" and "stop" commands now have an "-m" option to support call setup in manual mode
 - e. The -rn (resource number) parameter now accepts an arbitrary set of channel numbers (for example, channels 1-5, 7, 9, 12-15). This capability is now in the start, stop, deltest, bertcntl, and all test create commands.
 - f. The intfc command can now report a large number of PCM statistics per ITU Recommendation G.826. The following optional parameters are now available:
 - [-stats] Interface Statistics (Optional)
 - [-statc] Interface Statistics, csv format (Optional)
 - [-statlfn] Interface Statistics, set log filename (Optional)
 - [-statlfr] Interface Statistics, set log freq (-1=None, 0=Each Event, >0 every n seconds (Optional) -1 to 2147483647
 - [-statr] Interface Statistics, reset (Optional)

- g. Now supports use of "cd \" to move directly back to the root directory
- h. The "unit" command now has "-alarm1" and "-alarm2" parameters to specify what monitored parameters trigger alarm conditions. When an alarm is declared, it will activate the correct rear panel alarm contacts and cause the front panel Power/Status LED to blink. Below is a list of available sensor types and fixed allowable values:

- TEMP — temperature above 65 degrees C
- FAN1 — fan 1 speed below 250 RPM
- FAN2 — fan 2 speed below 250 RPM
- 3V — 3 volt power outside [3.135,3.465] volts
- 5V — 5 volt power outside [4.75,5.25] volts
- POWER — power is on (other elements ignored)
- NONE — disable the alarm (default)

The alarm1 and alarm2 parameters specify a comma separated list of unit physical parameters which will trigger the alarm when the physical parameters are out of their normal range. For example, to trigger alarm 2 on temperature or power problems use:

unit -alarm2 TEMP,3V,5V

- i. Send/Measure Tone Function — (CLI) Added PVIT as a selectable signal type

6. For HTML & CLI, added a permissions-based structure to control user access to sensitive commands.

- a. Created four (4) privilege levels:
 - 1) admin Generic admin privileges
 - 2) configinterface Allows test access interface configuration
 - 3) webmultitest Allows multiple test start, stop, and delete and multiple schedule disable and delete
 - 4) upgrade Allows FTP access to a special 'Flash' memory directory for software upgrades
- b. Added support for four (4) new 'user groups', each with a unique set of the above privileges:

User Group	Privilege Levels
1. Admin	admin, configinterface, webmultitest
2. Power User	configinterface, webmultitest
3. Craft User	<none> (prohibited from all sensitive commands)
4. Upgrader	upgrade

See **APPENDIX A** at the end of this document for a list of CLI commands whose access is affected by Privilege Levels.

- c. Enhanced the 'useradd' command to designate what 'group' a *new* user is in
- d. Added a new command (usergrp) to change the group designation of an *existing* user
- e. At startup, an older system without "groups" will have the user groups created. The "admin" user will be assigned to the ADMINISTRATOR group and all other users will be assigned to the POWERUSER group.

f. **Associated Web (HTTP) Interface Changes**

- 1) There is now a new 'users' page that allows an 'admin' user to add and delete users, as well as change the 'usergroup' associated with a user
 - a) Lists all current users and every active TELNET and WEB session
 - b) Users can be added and deleted
 - c) User groups and passwords can be changed
 - d) Sessions can be killed (except for your own session)
 - e) Users without PV_ADMIN can only see themselves and their own sessions
 - f) User's (even the administrator) can't change their own group
- 2) When displaying the "Interface Status" page, a user must have the WEBMULTITEST privilege to see the 'multi-test' selection boxes
- 3) When displaying the "Current Test" page, a user must have the WEBMULTITEST privilege to see and use the 'Schedule Test' button

7. **HTML (Web) Interface**

- a. Added Web pages to configure PVIT and MOIP tests
 - b. Added a Web page to allow a user to configure the unit without resorting to the CLI "unit" command
 - c. Added new Web page to support the 23-Tone test
 - d. Added to the "unit" configuration screen, new display and parameters to enable NTP, set update period, specify NTP servers, etc. for automatic time syncing to network time servers
 - e. Added "Make Manual Call" and "Disconnect Manual Call" buttons to support call setup and tear down in manual mode
 - f. Added Echo Sounder to the selection list of available tests
 - g. Added Remote Audio to the selection list of available tests
 - h. Added 'Reset Counts' buttons on the Unit Status Web page, allowing a user to reset the "# In Use", "# Attempts", and "# Failures" test counters. The top button resets all the counters for all interfaces.
 - i. Added Full Rate BERT HTML mode: Added a special mode for the HTML client to display "Full Rate BERT" span mode. Add a new group so users can be directed to this span display. In this display mode the interface HTML page shows a combination of the span status and configuration along with a single BERT test covering the span. Span is assumed to be in Clear Channel mode.
8. IP impairment generator — added adjustable jitter generation capability
9. The Windows GUI will now let a user manually specify the T38-SIP message's SDP portion. The SDP portion of a T38-SIP-INVITE looks like the following:

```
v=0
o=...
s=...
c=...
t=...
m=image 20005 udptl t38
a=T38FaxVersion:0
a=T38MaxBitRate=14400
a=T38FaxFillBitRemoval:0
a=T38FaxTranscodingMMR:0
a=T38FaxTranscodingJBIG:0
a=T38FaxRateManagement:transferredTCF
a=T38FaxMaxBuffer:72
a=T38FaxMaxDatagram:300
```

a=T38FaxUdpEC:t38UDPRedundancy
a=T38VendorInfo:0 0 37

All the fields beginning with "a=..." are the T38 session attributes. All the numbers and strings behind the ":" sign are now completely under user control.

10. Added V.22bis modem emulation (analog only) and monitor (PCM). Useful for testing low speed data circuits to Ready Tellers, gas stations, home emergency and alarm systems, and house arrest systems. Includes 2400 Baud full duplex (QAM) and backward compatibility with V.22 (1200 Simplex).
11. Echo Generator test: Added logging function. Now logs the generator settings and time stamp of the first received call.
12. Added 55 Octet BERT pattern, in addition to the existing 55 DALY pattern
13. The HTML (Web) interface is now a purchase option

ENHANCEMENTS

1. **New configuration (.cfg) file administrative commands** — The following "unit" command options have been created in addition to the existing "-loadcfg" and "-savecfgas" options:
 - a. "-loadfact" – load config from factory defaults (Optional)
 - b. "-savecfg" – save config to current or new file (Optional)
 - c. "-autosave" – toggles auto save of config files off and on (Optional) off, on
2. **HTML (Web) & CLI Interface**
 - a. (Web only) The "unit" configuration page now shows reboot progress when config changes require a reboot
 - b. (Web only) Audio spectrum analysis graphics added for 23 Tone Test and Send/Measure Tone test
 - c. Now allows a user to edit the BERT pattern
 - d. (CLI only) When a single test is viewed with 'tests if# rn#' the test configuration parameters are now displayed
3. Results Logs can now be set with a check mark to include test configuration info & interface configuration info
4. The following SIP call extensions are added:
 - a. RFC 3262 PRACK support for 1xx provisional response
 - b. RFC 4028 "keep-alive" support using the "UPDATE" message
5. For many tests, added an option to specify logging only the final test result
6. The 23-Tones test is now available in monitor and dual monitor mode
7. Echo Sounder — The Windows GUI now has a "Sort by Delay" check box which allows a user to force the GUI to present detected echoes in order of increasing delay (shortest echo first), rather than decreasing level (loudest echo first).
8. For RTCP Monitor, SIP Monitor, T.38 Monitor, and V.90 Modem Monitor, the Windows GUI will now include the interface and channel number in the automatically generated log file name.
9. Updated G.168 tests to meet requirements in ITU-G.168 2007

CORRECTIONS

1. 105 tests are enabled and disabled properly
2. 10X Responder configuration dialog enables and disables feature correctly
3. SDP parameters for (SIP Call)T.38 Fax Tx are now settable from the configuration dialog
4. RTP one-way delay is now reported correctly in the results log
5. When performing a large volume of SIP calls, you could encounter a high number of SIP call-connection failures. This no longer happens.
6. When running a director or responder test on an analog port, click stop. The resource goes on hook and the test stops but the test status says: Stopped(Call connected). This no longer happens.
7. Do a Manual connect on an IP interface and the selected test starts at connect. It should wait for the user to start the test. Fixed.
8. The results log doesn't contain a header if first call fails. Fixed.
9. SIP monitor can create illegal log filename, resulting in an error message: "Unable to start logging -- can't open log file....." This no longer happens.
10. PESQ results log formatting defect: The results column just to the right of "Jitterbuffer (ms)" has a title "Packet Size (ms)Noise NF" which appears to be a joining of "Packet Size (ms)", and "Noise NF". Fixed.
11. SIP call, advanced tab update: The dialog is now arranged in the following manner:

RFC-3662 Support (PRACK)	Selection Yes/No
RFC-4028 Send Keep Alive (UPDATE)	Selection Yes/No If Yes, enable timeout entries
Send Update Session expires (min) :	
Requested Expiration Time (min):	
Number of "BYE" or "Cancel" commands upon disconnection:	
12. 4-Wire analog TX level adjustment limited to 0 to -1. Fixed.
13. In 4-Wire metallic analog, on the VF Test tab, the displayed frequency and level within the graph area are of the receive signal. It should be the transmit signal parameters. Fixed.
14. HTML (Web interface) Send/Measure Tone Display Problems
 - a. In Firefox v2.0.0.10, no axis nor axis labeling is visible. Fixed.
 - b. In Microsoft Internet Explorer v6.0 w/SP2, the bottom of the displayed page only shows the top part of the graph. And, there is no scroll bar. Fixed.
15. (Windows GUI) On the 'home' screen, there is a button labeled button "Delete Span/Unit". What it really does is to remove the entire unit from the current config file. It has been more clearly renamed to "Delete Unit"
16. The 23-Tone test
 - a. graphs the level and envelope delay results, but does not log them. Fixed
 - b. The 23-Tone test is logging 'garbage' results on the first and second lines (all data columns) of the first test in a series of repeating tests. Fixed

17. When performing a high volume of SIP calls, a user could encounter many SIP call-connection failures. Fixed.
18. Now, when you go from Channel view to Span view, the highlighted channel matches the channel view number.
19. DS0 BERT
 - a. When the BER test is configured for transmit only, the results fields are now cleared and remain blank while in transmit only mode.
 - b. DS0BERT Lockup When Changing PCM30 to PCM31. Fixed.
20. IP Impairment Generator Dual Direction Impairment Problem – When an IP address is specified in the configuration of one of the flow's, the impairment generator will only insert requested impairments in one direction, even though the dual direction radio button is selected. Fixed.
21. RTP Monitor 1-Way Delay Fails to ID Signal Source IP – In the RTP Monitor One-Way Delay test, the One-Way Delay log does not report the IP addresses of the signal source and destination. Fixed.
22. When running a director or responder test and you click stop, the resource goes on hook and the test stops but the test status says Stopped(Call connected). Fixed; now says Stopped().
23. In Manual mode, a test defined with a finite duration doesn't stop: The test status displays "Error: Test won't stop!(Call UP). Fixed.
24. When you configure a SIP call and associated test (i.e. SMOS, PESQ, Send/Measure Tone, etc) there are two tabs in "Log To:" configuration screen: the "SIP Call" tab, and the test tab, which has the name of the selected test. The GUI allows you to name the SIP Call log, but does not allow you to click on the test tab to customize its log filename. Fixed.
25. The ISDN messages were being logged to the "C:\Program Files\Sage Instruments\960" directory instead of the "C:\Program Files\Sage Instruments\960\results" directory. Fixed.
26. When an Echo Generator window is 'detached', then the test is subsequently restarted, the window doesn't update. Fixed.
27. G.168 Logging – Having a comma in the test name adds an extra column, causing misalignment of test results to column titles when imported into Microsoft Excel. Fixed.
28. Echo Generator — Inconsistent Out of Range Handling for Data Entry: The min and max values for delay and level are all treated differently. Some fields automatically set to max or min while others spawn a message. Fixed. Now, when an out of range value is entered, attempting to save the setting causes an audible alert, makes it revert to the appropriate max or min value, makes it blink for a second, then leaves it highlighted in reverse video.
29. Under the SIP Call set up screen, Advanced tab, RFC 3262 is misspelled as RFC 3662. Fixed.
30. T.38 Tx default setting for "2nd Invite" should be deselected and T.38 Rx should have "2nd Invite" selected as a the default. Fixed.
31. Any attempt to "Log Text Messages" on an ISDN D-channel results in a slight pause, then an "abnormal program termination" message. Fixed.
32. In CLI mode, when you use the "-txlevel" parameter to modify the fax transmit level, you get the error message: "Invalid parameter: invalid numeric value -txlevel". Fixed.

33. In HTML mode, the "Max Uptime" value is being reset to 0 whenever web server starts. Fixed.
34. In HTML mode, after configuring send measure tone, the display shows text overlapping. Fixed.
35. The CLI mode accepts and processes a Fax test command, even though the Fax Test option is not enabled. This results in a log file filled with lines like:

03/04/2008 11:44:27 SW Error: SpanProxy::GetISDNNumId invalid numId=2

Incorrect CLI prompt text encouraged input of incorrect value. Fixed text, formatted to make clearer and added user input checking
36. When using Microsoft Internet Explorer, the calendar is cut off on the right hand side when you try to set the date. Fixed.
37. In 2-Wire Dry mode: With a direct connection between Analog interface 1 and 3 or 2 and 4 the reported One-Way Delay is 509 ms instead of 0 ms. A direct connection from 1 to 2 or 3 to 4 reports the expected 0 ms delay. Fixed.
38. DS0 BERT: The inject error feature is grayed out when in TX Only mode. You should be able to inject errors when transmitting. It is available in RX Only mode where it should be grayed out. Fixed.
39. When using a 2-wire metallic analog interface and ERL, SRL-Low, or SRL-High are selected to be transmitted, the software connects the 960B's internal Return Loss bridge circuit to make the Return Loss measurements. However, when a user wants to do Single Frequency Return Loss tests by selecting tones of various frequencies, the 960B does NOT connect the Return Loss bridge circuit. Fixed.
40. In CLI mode, when configuring one PCM span for dual-monitor mode, the system does not automatically configure the mating span to monitor mode, too. Fixed.
41. The SIP MONITOR feature does not catch the out-going SIP message during the REGISTRATION stage. Fixed.
42. When MoIP detects ADPCM codec (in voice mode), and then calculates the E-model number based on that, the result is erroneous because the table entry for ADPCM is wrong (the Ie, equipment value). Fixed.
43. MoIP can occasionally report an impossibly huge number for packet loss. Fixed.
44. On analog interfaces, the TL102 test reports "No tone, abort" even though there was a successful test with results. Fixed.
45. Users have observed some incompatibility issues between Sage's FAX-TX test (in V.17 mode) and various super G3 FAX receiver machines. Fixed.
46. When calculating E-model score, the full round-trip echo delay value was used instead of half that delay. Fixed.

APPENDIX A — Additional Information Related to User Groups

Affected CLI (Command Language Interface) Commands

Command	Constraint
bertcntl	ADMIN privilege required for resource owned by another user
bertpat	ADMIN privilege required to modify the patterns
date	ADMIN privilege required to change date
deltest	ADMIN privilege required to delete a resource owned by another user
intfc	ADMIN privilege or CONFIGINTERFACE privilege
kick	ADMIN privilege to kill a session
passwd	ADMIN privilege required to change another user's password
remctrl	ADMIN privilege to initiate remote control mode
start	ADMIN privilege required to start a resource owned by another user
stop	ADMIN privilege required to stop a resource owned by another user
time	ADMIN privilege required to change time
unit	ADMIN privilege required to make unit changes
user	ADMIN privilege required to display users. The Group to which the user belongs is displayed along with the user name.
useradd	ADMIN privilege required to add a user. Also, a Group parameter must now be specified. Choices are: ADMINISTRATOR, POWERUSER, CRAFTUSER, or UPGRADER
userdel	ADMIN privilege required to delete a user. The Admin account can now be deleted (by another Administrator).
usergrp (NEW)	ADMIN privilege required to change the group to which a user belongs
warmstart	ADMIN privilege required to initiate a reboot