ICTS Release Notes

Prototype 6.02

June 21, 2005

Known Problems and Limitations

1. Serial Modem Mux switch test case will fail on platform with dedicated COM port.
2. Tcl 8.4.x will cause ICTS load rfc1319.dll package fail, so only tcl 8.3.x supported.
3. The SIOPROXY and SIOTRANS transport may become unsynchronized while sending requests to micro-controllers that are not Baseboard Management Controllers (BMC).
4. Some tests perform cold resets of the BMC and other IPMI micro-controllers. A cold reset can cause the operating system and the BMC to get out of sync in storing the current state of the machine, particularly with respect to the ACPI state. To resume normal ACPI operation, reboot the system after completing your testing.
5. The Help->Tests cascade menu contains too many items to display; this will be fixed in a future release. In the meantime, you can access the same help information via the cascade menus for the various tests under the Test pull-down menu.
6. Loading child test individually through the ICTS Test-->Load Menu generates the trace error. Instead of this load the Parent Test for the required child test and then run the Child individually by selecting it.
7. Serial Interface session does not get reinitiated using command tool. If the current Serial Session gets a timed out condition, then further command sent using Command Tool over Serial Interface would show incorrect completion code. (Mostly 0xC1), since the new session is not opened.
8. Saving User configurations alerts the menu sequence. The Order of the tests in Main Test Menu of ICTS gets changed at the next Launch of ICTS when the User Configurations are saved.
9. Where timing issues are not specified in the IPMI specification ICTS tests and tools may return failures, because of time out limitations. The tools in the folder tests\cfgtools can adjust Response timeout and Retries.
10. The Serial Interface requires SMS interface to work successfully, and can't be set as a standalone Interface.
11. The Command Compliance Report requires SMS or I2C Interface for successful generation.
12. The Dependency for 'Get BT Interface Capability' is not yet implemented in Command Compliance Report. This command presently will display as 'Unknown' under the column 'Matches IPMI Specs' in CCR.
13. Currently the serial-modem tests related to PPP/UDP and TAP are not implemented. When run, they display the "N/A" message and return without doing any testing.
14. With the Servers having only one COM Port shared between BMC and System, running the 'Set Serial Modem Mux' test on SMS interface using this COM Port, breaks the interface. This causes all further test to return as fail or Untested because of the transport errors on SMS.
15. Master Write-Read I2C only allows up to 31 bytes, but should be 34.
16. Lost packets will fail the Serial/Modem Interface (Terminal Mode) test cases. The transport Layer cannot recover from this packet loss very well
17. An ambiguity exists for the test case, "Establish TM-Session." It's not clear whether MD2 and MD5 authentication should be supported for establishing a terminal mode session.
18. LOCTRANS only supports 32 bytes maximum data length

History

06/25/2005 ICTS Prototype 6.02, based on FTF ICTS Edition 1.46
10/30/2004 ICTS Prototype 6.01, based on FTF ICTS Edition 1.46
09/09/2004 ICTS Prototype 5.07, based on FTF ICTS Edition 1.46

12/12/2003 ICTS Prototype 5.06, based on FTF ICTS Edition 1.46
04/15/2003 ICTS Prototype 5.05, based on FTF ICTS Edition 1.46
01/15/2003 ICTS Prototype 5.04, based on FTF ICTS Edition 1.46
10/11/2002 ICTS Prototype 5.03, based on FTF ICTS Edition 1.46
06/28/2002 ICTS Prototype 5.02, based on FTF ICTS Edition 1.46
02/08/2002 ICTS Prototype 5.01, based on FTF ICTS Edition 1.41
01/18/2002 ICTS Prototype 5.00, based on FTF ICTS Edition 1.41
01/09/2002 ICTS Prototype 4.02, based on FTF ICTS Edition 1.40
11/07/2001 ICTS Prototype 4.01, based on FTF ICTS Edition 1.37
06/01/2001 ICTS Prototype 3.02, based on FTF ICTS Edition 1.11
09/26/2000 ICTS Prototype 3.01, based on FTF ICTS Edition 1.10

Highlights of recent changes

Highlights of changes from ICTS prototype 6.01 release 6.02
1. Bug fixing for test cases
> Set LAN Configuration Parameters
> Get LAN Configuration Parameters
> Get Serial/Modem
> Serial-Modem Connection Active (Ping)
> Get BMC Global Enables command fail
> Get Channel Cipher Suites IPMI- Get Channel Cipher Suites
> Get System Interface Capabilities
> Get PEF Capabilities
> Arm PEF Postpone Timer
> Get Last Processed Event ID
> Get SEL Info
> Add SEL Entry
> Clear SEL
> Get SDR Repository Info
> Reserve SDR Repository
> Get SDR
> Clear SDR Repository
> Set Serial/Modem Configuration Command
> Set Channel Security keys command fails in ICTS
> Set Auxiliary Log Status
> Suspend BMC ARPs
> Set Auxiliary Log Status command fails
> Suspend BMC Arps command fails
> Set BMC Global Enables Command
2. IPS updated and added for test suites:
    a) Serial Port Sharing
    b) RMCP+ and Payload support commands
    c) Cipher suite support commands
3. RMCP+ transport fix pad bytes determining issue.

Highlights of changes from ICTS prototype 5.07 release 6.01
1. Implement test suites covering new IPMI2.0 specified commands as following:
    a) RMCP+ and Payload support commands
    b) F/W firewall commands
    c) SOL support commands
    d) Cipher suite support commands
2. Enhanced test cases for IPMI2.0 enhanced commands as following:
    a) Get Channel Authentication Capabilities
    b) Set/Get LAN Configuration

Highlights of changes from ICTS prototype 5.06 release 5.07
3. Enhanced the ICTS framework to support test cases for IPMI2.0 platforms.

a) Modified the LAN transport to support the RMCP+ protocol defined in the IPMI 2.0 specification.
b) Updated the Command Tool command structures and added new IPMI 2.0 commands
c) Enhanced the CCR to support IPMI 2.0 platforms.
d) Updated existing test cases to be compatible with the IPMI 2.0 enhanced commands.
4. Code scrubbed to remove all the hard-coded BMC slave address references and replace them with a solution that allows BMC slave addresses other than only 0x20.
5. Fixed threshold data error in Get/Set Sensor threshold test cases.
6. Fixed issues in Set/Get LAN Configuration test cases
   a) undeclared variable : original_values
   b) invalid subnet mask in test case
   c) unprintable character for communicate string
7. Fixed Syntax error in PetAcknowledge.tcl.
8. Fixed Test data error for Set Sensor Event Enable test case.
9. Fixed IMBAsyncMessageProcess() issue that caused BGetDeviceID.tcl to fail

Highlights of changes from ICTS prototype 5.05 release 5.06
1. Added Interface Protocol/functional Tests as listed below
   a. TAP functional Test
   b. PPP/UDP interface protocol Test
   c. Functional Conformance Test Report
2. Fixed ICTS expects channel 0(IPMB) to enable by default in "Enable Message channel receive" command test
3. Fixed ICTS restrict the modal and nonmodal bits to 0 in "Get SDR Info" command test
4. Fixed ICTS don't restrict EvMRev to be 0x03 or 0x04 in "Set BMC Global Enables" command
5. Fixed Timeout and Retry issue for ICATRANS
6. Fixed "Set Sensor Event Enable" set reserved bit error.
7. Fixed "Get Last Processed Event ID" problem for handle 0x81 return code
8. Fixed tcl trace error in PEF_lib.tcl
9. Fixed assume target support all kinds of authentication issue
10. Fixed command tool output error for "Get ACPI Power State" command
11. Fixed not accept 0xCC return code for "Get BMC Global Enable"
12. Fixed test result determination error for "Suspend BMC ARP" test case
13. Fixed assume support Event Message Buffer full interrupt issue for "Get BMC Global Enables"
14. Fixed send byte code order error for Set/Get LAN Configuration Parameters tests
15. Fixed IPMB not available issue for Set/Get PEF Configuration Parameters tests
16. Fixed not handle 0x82 issue for Alert Immediate test
17. Add 5 minutes delay after Enter SDR update mode.
18. Fixed use offset 0 to test SEL reservation cancel error
19. Fixed issue caused by Add SEL Entry with type 3
20. Fixed error detected PEF or Alert support issue
21. Fixed error check return length for Get Device SDR Info test for static population
22. Fixed TCL trace error for "Get Device SDR" test
23. Fixed not handle write protect of FRU issue
24. Fixed assume "Set and get sensor hysteresis" command as mandatory issue
25. Fixed test result inconsistent when run test case in group and run in separately

Highlights of changes from ICTS prototype 5.04 release 5.05
1. Added Interface Protocol/functional Tests as listed below
   SMIC interface protocol tests
   BT interface protocol tests
   LAN interface protocol tests
   Serial/Modem Terminal Mode tests
2. Fixed IOSTRANS encoding error
3. Fixed ICATRANS not send data error during use trawsend
4. Fixed Command Tool response data format error for Get Session Info command
5. Fixed CCR send satellite controller BMC command error.
6. Fixed "set/get Auxiliary status" test case error
7. Fixed "get sensor event enable" test case error
8. Fixed "Get Device SDR" test case error
9. Fixed "Get SDR info" test case error

10. Fixed "Set LAN configuration" test case error
11. Fixed "Enable Message Channel Receive" test case error

Highlights of changes from ICTS prototype 5.03 release 5.04
1. Added Interface Protocol/functional Tests as listed below
   KCS interface protocol tests
   SMBus interface protocol tests
   ICMB interface protocol tests
   Serial/Modem Basic Mode tests
   Serial/Modem Com Port Sharing functional tests
   Serial/Modem Active Message functional tests
   Serial/Modem Connection Mode auto detect functional tests
2. Fixed repeat Alert Immediate Test cause trace error
3. Fixed response length check issue of Get Device SDR Info command
4. Fixed set/get chassis capabilities test error
5. Fixed set/get event enable issue
6. Fixed sending generate ID issue cause Platform test fail using LAN

Highlights of changes from ICTS prototype 5.02 release 5.03

1. Fixed response length mismatch issue of "Get Device SDR" command
2. Resolved boot disable problem when driver installed
3. Fixed local transport response timeout issue

Highlights of changes from ICTS prototype 5.01 release 5.02

7. Added ICTS Tests for new Commands from IPMI1.5 Appendix G as listed below
   New PEF Commands
   a. New Serial-Modem Commands
   b. New LAN Device Commands
   c. New Chassis Commands
   d. New SEL Commands
   a. One new ICMB Command
8. Completed Dependency Matrix and added the same to Command Compliance Report. With this all the dependencies for deciding if a command is optional or mandatory are handled.
9. Added Controller Firmware Revision in the Headers of CCR for traceability later.
10. Fixed Problem of some of the earlier Tests which required SMS Interface, whereas they could be run on I2C as well.
11. Resolved problem in Partial Add SEL Entry Test, where it was incorrectly doing new reservation for each Partial Add.
12. Fixed issue of commands being sent over SMB Interface, for controllers other than BMC.
13. Fixed problem of incorrect request formatting of ICMB Command 'Set Bridge Proxy Address"
14. Fixed Issue where the ICTS SEL Test was not accounting for SEL Space of more than 64K, and was causing failures.

Highlights of changes from ICTS prototype 5.00 release 5.01

1. Resolved transport issues in ICMB and SIO.
2. Disabled CCR until completed.
3. Resolved problem of session establishment failures in Serial Interface.
4. Added Status Indicator To CCR.
5. Resolved problem in LAN Interface to recover the original settings for privilege level after running CCR.
6. Added Explicit check for completion code 0xC1 for session-based channels, in CCR.

Highlights of changes from ICTS prototype 4.02 release 5.00

1. Added CCR to Pre-checker Menu and added modifications in the CCR format.
2. Changed extension of CCR from .hdl to .txt.
3. Added changes for Support to run ICTS Tests on SMB Interface.

Highlights of changes from ICTS prototype 4.01 release 4.02

4. Added changes for support with TCL/Tk version 8.3.0 through 8.3.9.
5. Added new feature of generating Command Compliance Report (CCR) on all the available Interfaces.
6. Added changes for support to run ICTS tests on LAN Interface.
7. Added changes for support to run ICTS tests on Serial Interface using Direct Connect Mode.

Highlights of changes from ICTS prototype 4.00 release 4.01 (interim build for internal use only)

1. Upgrading ICTS to support platform IPMI1.5 while retaining support on IPMI1.0 Platforms.
2. Changed tests to be generalized to run on any of previously supported interfaces.
3. Added Changes to provide a consistent formatting of verbose data for firmware commands in a compact format.

Highlights of changes from ICTS prototype 3.02 release 4.00

1. Added new transports and command library for IPMI 1.5 so that ICTS can be started using batch files in three modes:
   a. ICTS load test for IPMI 1.0 only.
   b. ICTSDEV load test for IPMI 1.0, and CmdTool for manual testing.
   c. ICTSDEV5 load CmdTool for manual IPMI 1.5 testing.
2. Added SIOPROXY.EFI program.
3. Added a Local driver for Windows Whistler† for Itanium™ brand.
4. Updated installation prompt for Windows† 2000.
5. Added driver for PCI90 card support.
6. The dynamic link library imbapi.dll could not be found after running ICTS. This has been address by not making the default transport.
7. Added time out change to sioproxy service so time out before getting a response when a command is sent to the BMC that goes over the IPMB should pass.
8. Addressed Platform Event test only sends the same data so the SEL never grows.
9. Addressed IPMB connection disrupts other tests.
10. Added fix for the command "Get Device ID" which was failing on the platform not implementing IPMB.
11. Startup problem in Help->About was resolved which was occurring due to missing variable ICTS_version after saving user configuration. The fix for problems in test "Get device ID" due to missing version was confirmed.
12. The test case "Reset Watchdog timer" was writing zeros on reserved bits in "Timer Use" Byte causing error. This has been fixed.
13. The problem for ICMB test " Get Proxy Address" has been resolved in firmware.
14. The illegal character in tgtglobl.tcl was removed.
15. In the Test "Delete SEL Entry", the check on completion code was modified to check other possible completion codes.
16. Updated code to match the ICMB Version 1.0 Revision changed to 1.2.
17. In "IPMB Retry Test", the comparison of log counts in SEL after sending the Event messages was incorrect. This has been fixed.
18. Fixed the problem in IPMB Request Response test, which was displaying a failure even when passed.

Highlights of changes from ICTS prototype 3.01 release 3.02

1. Addressed problem of ISA90 NT driver hangs IPMB communication, but IPMB connection disrupts other test is still a problem.
2. Increased Delays after Cold Reset commands, to avoid the possible failures.
3. Modified Get/Set Chassis capabilities test to accommodate the receipt of 7th optional byte.
4. Changed the disabling method for IPMBTRANS and ICMBTRANS using NONE instead of empty quotes.

5. Modified the ACPI System and Device Power states, corresponding to IPMI 1.0 Rev 1.1
6. Modified Returns to support CC return value for set ACPI Power States.
7. Modified Returns to check completion codes CD, CD, CE and FF for Set Sensor Event Enable command.
8. Added Minimum length check for data returned by Get bridge statistics command to avoid the TCL trace failure.

Highlights of changes from ICTS prototype 3 to prototype 3.01

12. Base on the FTF ICTS Edition 1.10
13. Addressed the problem that ICTS is assuming the password to enter manufacturing test mode is no password. There are now parameters added, ADDMICRO add additional micros for CmdTool; and MFGTESTONPASS to associate a micro and the password to enter manufacture test on mode.
14. Moved set variable ICTS_version to I_user.tcl file, so version can be updated by only changing this variable.
15. Adapted SDR testing to accommodate system with modal SDR testing. Fundamentally this requires checking if the enter SDR update mode command is implemented and if so, switching into SDR update mode when executing Get SDR, Add SDR, Partial Add SDR, Clear SDR Repository, and Exit SDR Repository Update mode commands. As per the IPMI specification, commands that use a reservation id are given a reservation id of zero when in SDR update mode.
16. Corrected TCL coding in set sensor types and set sensor types tests.
17. Corrected a TCL coding error in Exit SDR Update mode that made the test erroneously report a failed result.
18. Changed the Reserve Device SDR Repository test to execute a partial SDR read command with a non-zero offset and with a length shorter than any SDR records. The first change was to ensure that a reservation id is required and the second is to avoid complications that could arise from reading short SDR records.

Configuration

After installing the ICTS, you must configure the ICTS by doing these steps:
1. Check that the Tcl/Tk interpret has been installed on your PC. If not, install it. The Tcl/Tk version should be 8.3.0 through 8.3.9. The use of different versions will cause unpredictable behavior.
2. Create the following system environment variables to specify the path of ICTS and Tcl/Tk interpret/.

Variable	Options/Values	Description
ICTSROOT		Your ICTS directory name. Please use an 8.3 filename format (xxxxxxxx.yyy) instead of a long file/directory name.
ICTSSHELL		Your Tcl/Tk interpret name such as wish83.exe.
ICTSTRANS	SIOTRANS LOCTRANS (default) NONE	The transport you want to use for IPMI testing using the KCS/SMIC interface or SMS interface. If you don't specify an option, the default value is LOCTRANS. To disable ICTSTRANS, set it to NONE. LOCTRANS works only on Windows NT† 4.0/2000.
ICTSCOM	COM1 COM2 COM3 COM4	The serial port used in the SIOTRANS mode. If you select LOCTRANS, this variable will be ignored.
ICTSMODE	NORMAL (default) DEVELOPER	The ICTS mode you want to use. If set to NORMAL, the ICTS runs in the NORMAL mode, and the user cannot develop a self-test case. If set to DEVELOPER, the ICTS runs in the DEVELOPER mode, and the user can run the ICTS test case and also develop a self-test case.
IPMBTRANS	ICATRANS	The transport you want to use for IPMB testing using the I2C interface. To disable the IPMB interface, unset the IPMBTRANS environment variable by executing: set IPMBTRANS=NONE
IPMBPORT	0x310	ISA default port etc.
	0	Port First PCI card determined by the system.
	1	Port Second PCI card determined by the system.

Variable	Options/Values	Description
ICMBTRANS	ICMBTRANS	The transport you want to use for ICMB testing. To disable the ICMB interface, unset the ICMBTRANS environment variable by executing: set ICMBTRANS=NONE
ICMBCOM	COM1 COM2 COM3 COM4	The serial port to be used in the ICMBTRANS mode.
SMBTRANS	SMBTRANS	The transport you want to use for SMBus testing using the I2C interface. To disable the SMBus interface, unset the SMBTRANS environment variable by executing: set SMBTRANS=NONE
SMBPORT	0x310 0 1	ISA default port etc. Port First PCI card determined by the system. Port Second PCI card determined by the system.
IOSTRANS	IOSTRANS	The transport you want to use for Serial/Modem testing. To disable the IOS interface, unset the IOSTRANS environment variable by executing: set IOSTRANS=NONE
IOSCOM	COM1 COM2 COM3 COM4	The serial port to be used in the IOSTRANS mode.
IOLTRANS	IOLTRANS	The transport you want to use for LAN testing. To disable the LAN interface, unset the IOLTRANS environment variable by executing: set IOLTRANS=NONE
IOLPORT	XXX.XXX.XXX.XXX	The IP address of the target.
IOLOPT	<-option> <value>...	The IOLTRANS options. These options can be catenated in one string to set the IOLOPT variable. The LAN transport implements partial word completion on the parameters, so a sub-string of the option name or value can be provided if it is non-ambiguous. For instance "-priv admin" would be translated as "-privlev administrator". Refer to Following table for IOLOPT option and value setup.

Configuration Option	Request Data	Mode	Notes
-protoVer	[1.5|2.0]	1.5/2.0	This option is only writable via topen. This is indirectly set using the startup batch file and defining IOLOPT. Otherwise, it is read-only. When set to 1.5, the transport is operating per the IPMI 1.5 specification. When set to 2.0, it is communicating according to RMCP+ specifications.
-password	<password string>	1.5/2.0	The password the transport will use to calculate the authentication code in the session header. This option will zero extend or truncate the password to 16 bytes if needed.
-username	<user name string>	1.5/2.0	The username the transport will use to connect to the target.
-authtype	[none|straightpw|md2|md5]	1.5	The authentication type to use to establish the session. One of the strings listed to the left must be passed to this option.
-rakpAuth	[none|hmac_sha1|hmac_md5]	2.0	Sets the authentication algorithm used for RMCP+ session establishment.

-privlev	[callback|user|operator|admin]	1.5/2.0	The maximum Privilege Level the transport will request when connecting.
-managesession	[0|1]	1.5	Turns on/off the thread in the transport that occasionally pings the target and automatically reestablishes sessions if lost.
-timeout	<timeout value in ms>	1.5/2.0	Defines how long the transport will wait for a response for a given packet before resending it.
-retries	<number of retries>	1.5/2.0	The number of times to retry a packet after the initial packet doesn't receive a response.
-sessionSeqNum	<new sequence number>	1.5/2.0	This is the "inbound" sequence number from the BMC's perspective. Typically, this value should not be set unless testing this value is being done.
-sessionId	<new session ID to use>	1.5/2.0	This forces the transport to update the session ID in the session header without performing any additional steps. This value is also not typically changed, and the transport handles this value automatically.
-reconnect	[0|1]	1.5/2.0	Determines if the transport will assume a session is lost when a response is not received and attempt to connect a new session. Default is set to 0 (off).
-debug	<value 0+>	1.5	If set to >0, this causes the transport to send error, warning, and status messages to the FTF main window.
-payloadType	[ipmi_msg|sol|oem|open_sess_req|open_sess_rsp|rakp_1|rakp_2|rakp_3|rakp_4]	2.0	Sets the payload type field value in the RMCP+ session header.
-portNum	<integer>	1.5/2.0	Sets the management port value. Defaults to 623 in accordance with the IPMI specifications.
-sessActive	Read only [1|0]	1.5/2.0	Reports whether a session is currently active or not.
-sessMgrCount	Read only integer	1.5/2.0	Reports the current number of session manager objects instantiated in the transport.
-encryption	[none|aes_cbc_128]	2.0	Selects the RMCP+ encryption algorithm to use for the session.
-incrInbSeqNum	<integer>	1.5/2.0	Changes the sequence number for packets sent to the BMC. Used for testing only.
-integrity	[none|hmac_sha1|hmac_md5|md5]	2.0	Selects the RMCP+ integrity algorithm.
–lookupMode	[user_priv|name_only]	2.0	User_priv means both the request username and privilege will be used to lookup password key. This option value can be used combine with null username to enable "role only" login

Nam_ only means user name alone is used to look up password key. Privilege level option is acts as a 'Maximum request privilege level' as in IPMI1.5 |

Examples: set ICTSROOT=C:\ICTS
          set ICTSSHELL=C:\TCL\bin\wish83.exe
          set ICTSTRANS=SIOTRANS
          set ICTSCOM=COM1
          set ICTSMODE=DEVELOPER

3. If you select SIOTRANS mode, you will need to connect a null modem cable between the host machine and the target machine. Then run sioproxy.exe on the target machine. Please see the user manual for details.
4. If you select ICATRANS mode, first install on the host machine the ICA90 ISA or PCI90 PCI card from Calibre UK Ltd. (this is one type of I2C communication card; see http://www.calibreuk.com/i2cgen.htm for details). The ICA90 or PCI90 card's SDA, SDL, and GND lines must be connected to the SDA, SDL, and GND lines of the IPMB bus. See the ICA90 or PCI90 documentation for connector and signal details.
5. If you select ICMBTRANS mode, the RS232/RS485 converter model 485019TB from B&B Electronics or equivalent should be used. For hardware details refer to http://www.bb-elec.com. The converter's TD(A), RD(A) pins must be wired together and connected to Tx/Rx(-) wire of the ICMB cable, and the TD(B), RD(B) pins must be wired together and connected to Tx/RX(+) wire of the ICMB cable.
6. If you select SMBTRANS mode, first install on the host machine the ICA90 ISA or PCI90 PCI card from Calibre UK Ltd. (this is one type of I2C communication card; see http://www.calibreuk.com/i2cgen.htm for details). The ICA90 or PCI90 card's SDA, SDL, and GND lines must be connected to the SDA, SDL, and GND lines of the SMBus bus. See the ICA90 or PCI90 documentation for connector and signal details.
7. If you select IOSTRANS mode, a null modem cable can be used to connect between host machine and target machine. Also you should use direct connect on the target machine.
8. If you select IOSTRANS mode, a null modem cable can be used to connect between host machine and target machine. Also you should use direct connect on the target machine. Otherwise two modems and two phone lines can be used or other test setup.
9. To start the ICTS, run the batch file bin\icts.bat (for normal mode), bin\ictsdev.bat (for developer mode), or bin\ictsdev5 (for developer mode IPMI 1.5) from the ICTS root directory.

Tips

- To uninstall IPMI, run the setup script (`setup.tcl`) as follows:

  ```
  wish83 setup.tcl uninstall
  ```