Conquest Protocol Suite Software v7. 41. 14 Release Notes

Jan 22, 2009 .\_\_\_\_\_

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- System Requirements
- Installation
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#### **OVERVIEW:**

For more in-depth details about operation of your Analyzer please refer to User's Manual and the online help.

### SYSTEM REQUIREMENTS:

### Platforms Supported

Conquest Protocol Suite software supports the following Microsoft Windows platforms:

- Windows 2000
- Windows XP Windows Vista 32 bits
- Windows Vista 64 bits

USB connection is not supported under Windows NT. Users running this operating systems must connect to the analyzer with the Parallel Port.

# Minimum System Requirements

The following configuration is the required minimum for using Conquest Protocol Suite software as a viewer:
- Intel Pentium II 233 MHz, or equivalent

- 64MB of RAM 800x600 resolution, 16 bit color display
- Windows NT 4.0 SP6
- 100MB hard drive space installation partition, 10MB hard drive space on partition with Windows. Additional space is required for saved captures.

# Recommended System Requirements

The following configuration is the recommended minimum for using Conquest Protocol Suite software with the analyzer:

- Intel Pentium III 500MHz, or equivalent
- 128MB of RAM
- 1024x768 resolution, 16 bit color display
- Windows 2000 or later

- 200MB or more hard drive space for installation and saved captures, 50MB hard drive space on partition with Windows.
- USB 1.1 compliant port for analyzer connection

NOTE: Although you can use the same system as the analyzer host and the USB host, it is strongly recommended to use separate machines for the analyzer software(host system) and USB host(target system). There are no system requirements for the target system.

NOTE: The Parallel Port connection must be configured in Bi-directional, ECP, or EPP modes. Standard or Compatible modes are not supported. Please consult your system's BIOS for configuration options.

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#### INSTALLATION:

Please refer to the User's Manual for the details of Conquest Protocol Suite software installation.

### CD-ROM Installation

The installation application should load automatically unless AutoRun is disabled. If the application does not start, navigate to the CD-ROM and click on Setup.

In the Select Components screen select "Conquest Protocol Suite, USB Software, Version 7.41" Follow the on-screen instructions to complete the installation.

NOTE: For Windows 2000/XP/Vista users should not select "Driver files for Windows 2000/XP/Vista". This driver is automatically installed with the Conquest Protocol Suite software installation.

### Web Package Installation

Click on Conquest and follow on-screen instructions to complete the installation.

NOTE: Windows 2000/XP/Vista users must have administrator privileges to install the required device drivers.

NOTE: Do not connect the analyzer to the USB port until the software installation is complete.

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### **NEW FEATURES**

7.41

- Supported Audio spec. version 2.0

7.40

Added Licensing display.Added Some Web links to Download and Register Software Application.Apllication now called "Conquest Protocol Suite"

7.31

- No new feature.

7.30 - Supported Vista 32/64 bit. HTML Help. - Supported and updated following scripts: Updated HID scripts and added some more. Added IrDA script Added Remote NDIS Updated Video scripts Supported PID script Supported HUT script 7.20 - Supported Classic/Standard/Advanced Mode. 7.17 - No new feature. 7.16 - No new feature. 7.15 - No new feature. 7.14 - No new feature. 7.13 - Enabled external trig-output on data-length or data-matching for SBAE30A and SBAE30B. - Modified some warning messages for better clarity. 7.12 - Enabled Exerciser support on Conquest Series units. Improved find device function on Conquest and SBAE30B units.
 Updated Configuration Descriptor decode fields. - Improved TrigŎnOperatingCurrent function time interval. 7.10 - Added support for Conquest series products. - Updated VBUS and Operating Current trigger on set points. 6.40 - Changed SBAE sample file format to raw data
- speed up the saving of sample files for all products
- Speed up the Opening of sample files
- Speed up the Loading of making NCX layer Speed up the showing of HLD/NCX dialog After pressing OK button the NCX\HLD dialog, if at least one NCX check box is selected, NCX layer will be activated
- Increased import from sample file size for SBAE-30B series 6.30 - Support for LPT port on old SBAE Hardware - Supports Trigger on SE1 in Easy mode captures - Self-test feature enabled

- 6.20
- Updated Past messages from viewer to Advanced Host Exerciser/OTG Exerciser/Advanced Device Emulation Pages
- 6.00
- Support for SBAE-30B
- Modification in checking authorization due to DHCP server limitation
- Supported interpretation of other\_speed\_configuration descriptor(descriptor Type=0x07)
- 5.32 Beta
  - Added warning message box for Advanced Device Emulation
  - Updated all of CDC scripts
- 5.31
- No new features
- 5.30
- Added Status panel (It can be disabled from the View menu)
- Added TTL level support to non standard clock (In high speed mode only)
- Single Mode Operation, Suppressing Easy\Advance Modes
   Converting old projects (ACP, ECP, APP, EPP) to \*.cpr type
   HLD and NCX Dialogs are merged to one dialog
- Separated manual and External Setting Save as Default Project
- Exclude SOF and Keep Alive for Custom Transaction Auto Toggle mode for Advanced Device Emulation
- 5.20
- Timer/Event Counter in sequencer
- Software Protocol Errors enhancements
- Statistical Report of errors
   Search for protocol errors in the trace
   Attach/Detach from the host exerciser
- Trigger out signal in easy mode
- Capture or exclude custom transaction
- Larger loop value in Advanced Host exerciser Selective capture of first n bytes of data payload
- Programmable value for repeating a token in case of an error condition
- High Speed timing Analyzer Extraction
- Default Capture setting Data block import from clipboard
- CDC Decoding
- HID user-defined decoding
- Save\Load SBAE software setting
- Trace Viewer speedup
- Advanced Device Emulation Examples
- Custom project creation for mix of easy and advanced projects
- Vbus status report on SBAE-30
- Auto Toggle mode in Advanced Device emulation
- 5.1
- Added Truncated Transaction Protocol Error
- Manual trigger moved to trigger option drop down list as Page 4

Manual/External.

Speed up viewer display with Non-Control Transfer assignements

- Print and Print Preview:

- Fit To Page
- Printing of SMP files as they appear in the Viewer (supports "Hide Repeated Headers")

- Improvement of data report:

- Search: allow searching for a data block
- Based on Token packet type (Setup, In, Out)
- Based on Handshake (ACK, NAK, Stall, NYet)

- Histogram

- Statistical report X, Y Cursors.
- Save as Text
- Upper Level Protocol Decodes
  - Firmware class requests and descriptors

- SCSI MMC4- Bulk Only and CBI

- Still Image (command, data, response)
- Added Data Length box to Transactions and Splits

- Trigger on Data modified to trigger on:

- Data in a stream of data.Data in a stream of data when spread across multiple data packets.
- Payload size equal, smaller or larger than specified si ze
- Data Block

5.0

- Device Emulation, Advanced Mode
- Upper Level Protocol Decodes
  - Video Class
  - SCSI Block Command 2 Bulk Only
  - SCSI Block Command 2 CBI
  - Improved Endpoint assignment
- Advanced Host Exerciser:
  - Automatic SOF/Keep Alive generation
  - Data Blocks imported into Bulk Out transfers are partitioned into transactions based on desired MaxPacketSize
  - Transfer layer refresh option
- Trigger on Operating Current value
- Data Block expanded to support larger data

4.6

- Added Transfer Layer in Advanced Host Exerciser Import Transfer Layer from sample file/viewer
- Switchable big/little endian format display option in Upper Level Protocol Decodes
- Save raw NRZI data to text
- Added support for hex, ASCII, bin, in Easy Mode trigger on data edit box

4.53

- Added Protocol Error: Short Interpacket Delay

4.51

- Trigger on VBus voltage Level
- Upper Level Protocol Decodes:
  - SCSI (SPC-3) via Mass-Storage Class, Bulk-Only Transport (includes updated RBC(R10A) to support SPC-3 command set)
- Import device configuration from Scan Descriptor to Device Emulation

- Data format display in Little or Big Endian

- Support for Non-Standard clock in Device Emulation

- UDD scripts located in ".../Examples/UDD Script" directory are loaded automatically
- Support mouse scroll wheel in all viewers and Data Report

- Non-Standards clock speeds supported:

- High Speed: 400KHz - 8MHz

- Full/Low Speed: 1KHz - 100KHz, 400KHz - 8MHz

#### 4.41

- Decoding of Non-Control Transfers and assignment dialog
- ASL Script Generator and Editor utility
- Most Recently Used in File Menu Upper Level Protocol Decodes:

Class Requests decodes for Mass-Storage Class, Bulk-Only Transport (User-defined decode)

- Pre-defined and User-defined tabs combined in Upper Level Decodes dialog

### 4.32

- Still Imaging Class/PTP (User-defined decode)

#### 4.31

- Statistical Report
- VBus Droop measurement#
- Added extended External Clock range support for Full/Low speed\*

### 4.3

- Further time improvements on saving of large samples and search by Mneumonic
- CAPI for Easy Mode Analyzer & Host Exerciser
- Print Preview for sample files
- Non-standard and external clock for High Speed Analyzer and Host Exerciser'
- Save As Binary data export for Data Report

# 4.24

- Support for SBAE-30A
- Data Pattern Search improvements
  - Backwards and forwards search from X, Y, T cursors or sample start/end
    Supports "don't cares"
- Data packets payload length search Found data pattern highlight Search status, with ability to cancel while search is in progress Post-capture filter by endpoint
- Selective Save As Text
- Progress bar during sample load

# 4.2

- OTG Dual-Role Device Exerciser Advanced Mode\*
- Full/Low Speed Timing Analyzer\*Faster saving of large samples, Data Pattern Search, and Self-Test
- User Defined Decodes
- Quick activation menu for Device Emulation\* and OTG Exerciser\*
- Improved Self-Test
- Undo/Redo in Advanced Mode Host Exerciser

- Audio Class and CBI decodes (User Defined Decodes)

4.1

- Automatic bus speed detection\*
- Capture display enhancements:
   Compact View Hide All or Repeated Headers
   Grouping of SOFs, Keep Alives, Chirp

  - Updated tool tips
  - Idle time between packets/events
- Default Capture\*
- Upper Level Protocol Decodes:
   RBC(R10A) via Mass-Storage Class, Bulk-Only Transport
   HID Class
- Device Emulation\*:
  - High/Full speed mode
  - Test mode
  - String Descriptors
  - Independant Descriptors
  - Class Requests
  - Configuration, Alt Setting and Endpoint Class Descriptor data
  - Endpoint Loopback
- Decode of OTG Descriptor and Set Feature OTG selectors
- High Speed Test Mode

4.0

- Support for SBAE-30 and SBAE-20
- Upper Level Protocol Decodes:
  - SCSI(SPC-2) via Mass-Storage Class, Bulk-Only Transport ATAPI via Mass-Storage Class, Bulk-Only Transport

  - Hub Class Requests
  - Hub Class Notification Endpoint
  - Printer Class Requests
  - Communication Interface Class Requests
  - Communication Interface Class Notifications
  - Common AT command set via Communication Class Interface
  - PPP protocol via Communication Class Interface
     Bluetooth HCI Commands
     Bluetooth HCI Events

  - Bluetooth ACL Data Packets
  - Bluetooth SCO Data Packets
- Device Emulation\*
- OTG support\*
  - Capture of OTG protocols(HNP & SRP)
  - Trigger on OTG events(HNP, SRP, Session)
- VBus measurement\*
- Data Report: summary of data by device and endpoint Viewer GoTo X, Y, Trigger pointer or Packet/Transaction/Transfer Viewer Search Options
- - Search from X, Y, Trigger pointer
  - Search data pattern in Hex, Bin, or ASCII
- Trigger on Chirp sequence
- Print from X, Y, Trigger pointer or Packet/Transaction/Transfer
- Enhancements of capture display

\*not available on SBAE-20 #available only on SBAE-30A

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BUG FIXES

Fixed SCSI decode does not work if device responds with NYET rather than ACK to a CBW. Fixed SBAE/Conquest not processing the PING and NYET handshake properly. Fixed False triggering on HS transactions: it is alread fix in 7.40 Fixed Frame Length error trigger happened on the first recorded HS SOF without any reported errors in the recorded sample Fixed data not found errors in Statistical report point to valid transactions with present data packets Fixed CRC on 7byte data packets incorrect Fixed Spilt transaction trigger event caused recording of ACK and NYET packets only. Fixed SBAE-30 showed crc-16 errors not detected by Conquest and USBTracer 7.40 - Fixed second channel issue. 7.31 - Fixed Limited memory size issue in Conquest units. - Fixed Data toggle issue in SBAE-30 units 7.30 - Fixed HS capturing issue. 7.30 - Fixed Software Crashes When Scrolling a Large Trace - Fixed Conquest crash on large captures - Fixed WUSB HWA DWA event decode is not added to HLD Dialog on installation. - Fixed some issues reported internally. - Fixed invalid protocol error in High Speed and Full Speed captures. - Fixed API issues - Fixed invalid Data toggle issue - Fixed Trigger on VBus problem. 7.17 - Fixed a crash in sample viewer (Right click crash on SOF groups). 7.16 - Fixed Copy/Past issue of ISO transaction from Viewer to Advanced Exerci ser. - Fixed Import from SMp to Advanced Exerciser issue. 7.15 - Fixed a crash on some old samples. 7.14 - Fixed some issues on Self-Test. - Fixed some issues on UMEM. 7.12 - Corrected issue with exerciser. 7.10 - Fixed bugs with OTG Exerciser. - Fixed bugs with SBAE20 Host Exerciser

Page 8

- 6.40
- Fixed SOF group when switching from viewer to advanced Host Exerci ser
- Fixed Self-Test problem with on board memories
- Fixed scroll stuck bug
- Disabled Device Address and Endpoint Number when selecting Trigger on Bus Error (SE1)
- 6.30
- Fixed operating current issues
- Fixed inrush current issues
- 6.20
- Fixed High speed Timing Analyzer Bug
- Fixed operating current issues
- 6.00
- Split Transaction software protocol error bug
- Some issues in multi selection objects in the viewer for Copy/Paste in viewer and Advanced Host Exerciser page
- Fixed some bugs in resizing capture projects and device emulation pages
- Supported Copy/Past/Undo/Redo/Search/Search Next/Search previous for Exerciser page of advanced host exerciser, OTG device emulation, and Advanced device emulation pages
- Fixed filtering option (check\uncheck items) bugs in View of main menu.
- Limited import from sample to advanced device emulation to 8 pages for new SBAE-30B boards
- Fixed blinking status bar while saving sample file
- 5.32 Beta
  - Fixed some issues in Advanced Device Emulation
- 5.31
- Fixed Run Time error dialog when opening HLD fields in some samples
- Fixed opened window bug showing in help menu
- 5.30
- HS device emulation bit stuff
- HS device emulation instability that leads to crash and unknown packets
- HS device emulation resume
- Device emulation CRC roll over
- HS device emulation connect/disconnect
- HS Host exerciser connect/disconnect
- Reset in the middle of large transfers in host exerciser HS Resume in host exerciser
- Fixed Authorization issues
- Authorization menu is enabled even after FPGA load. (Confi gurati on: Authori zati on)
- Fixed some issues when running Performance and Capture project at the same time
- Removed Advanced Host Exerciser SOF+Reset Message in High speed mode
- 5.20
- Fixed bit stuff bug of FS/LS Device Emulation mode in SBAE-30
- Fixed incorrect reporting of short inter packet delay protocol error
- Fixed some bugs in Easy/Advanced Device Emulation.
- 5.11

- Improvements in scrolling speed in the Viewer for some cases

5.1

- Display of stalled transactions when NCX is assigned.

- Fixes in Import from SMP Fixes for X cursor in Viewer
- Incorrectly interpreted of INQUARY request of SCSI SBC Bulk Only Fixed "unknown" interpretation of TEST\_UNIT\_READY command
- Solved Mass Storage MODE\_SENSE (6) decode bug in ASL scripts:
  - SCSI-SBC-Bulk Only.asl
- SCSI-SPC3- Bulk Only.asl
   SCSI-SSC- Bulk Only.asl
   Incorrect reporting of Frame Length protocol error
   Corrected data toggle check in High Speed mode of Advanced Host Exerciser
- Host Exerciser Locked up in certain conditions

5.02

- When adding Bulk Out transactions in Advanced Host Exerciser,
- all previous data packets were set to DataO Fixes for Correct Data Toggle and Check Data Toggle functions in Advanced Host Exerciser
- Endpoint size is reflected after changing it from Settings di al og

5.0

- Fixed wrong numbering in NCX assignment dialog

4.6

- Upper Level Decodes dialog allows assignment of two different protocols to In and Out endpoints with same endpoint number
- Added warning message when opening Capture projects on SBAE-20 saved with Auto Speed on SBAE-30 hardware

4.53

- Fixed mis-calculation of idle time in specific cases
- Fixed crash in saving and opening of sample files in some cases
- Fixed bug in when switching payload bit ordering between MSB and

4.51

- Resolved incorrect suspend current measurements with some devices (Note: Requires a hardware rework on existing units. Suspend current measurement done using Main Analyzer port not Inrush Port)

- Updated sample examples

Added few informative and warning messages to clarify certain Exerciser and Device Emulation requirements in some situations

4.41

- Data Report window froze under Windows XP
- Data Toggle Error when transactions with same endpoint number but different direction (for example, 0x01 In and 0x01 Out) have the same Data PID(for example, Data1). (Note: This issue is not resolved for Split Transactions)
- Incorrect value was shown for VBus measurement in chart mode

4.32

- Various bugs in UDD

4.31

- Various fixes in CAPI

- 4.3
- Allow reconnection of USB Host Interface after the cable is detached (Note: software must be reloaded if unit is also powered down)
- Scan Descriptor is disabled if unit is not authorized with Host Exerciser option
- Enabled inserting in the middle of Advanced Exerciser Program when importing or copy/pasting
- Print Preview enabled all toolbars after running Inrush
- USB device driver crashing the system under Windows XP SP1
   Crashing on Import Program from . SMP in Advanced Host Exerciser program when exerciser and . SMP speeds didn't match
   Corrected operation of radio buttons in Suspend Current dialog for SBAE-20 under Windows XP
- OTG Exerciser Program did notloop in High Speed
- 4.24
- Pulses on External Outputs before and after capturing
- Negative samples in Inrush Current curves adjusted to zero
- Fixed crashing on sample save in some cases for entire memory capture
- 4.21
- Corrected printing of samples with multiple descriptors
- Save As Text includes Interpret Data for standard descriptors
- 4. 2
- Corrected data toggling of Device Emulation Loopback endpoints Version 4.1 did not run on Windows NT
- Fixed crashing when copying/importing invalid samples into the Advanced Host Exerciser
   Allow assignment of Bulk-Only Mass Storage Protocols to
- a paired endpoint
- Corrected a minor decode bug in RBC and ATAPI protocols
- Fixed Self-Test with parallel port connection
- 4. 1
- Improved reconnection of USB Host Interface after the cable is detached
- Device Emulation\*:
  - Emulated device did not respond properly if two endpoints have the same endpoint number but different direction. For example, 0x01 In and 0x01 Out
  - Device responded with random data to unsupported request (e.g. Get String Descriptor)
- In some instances, Full speed traffic was captured with a random bit inverted, which resulted in incorrect data and CRC error
- 4.0
- Various Analyzer bugs for High-Speed capture
- Corrected Maximum Allowed values for current measurements
- Increase speed of scrolling in the viewer
- Corrected printing of viewer sample and current measurements
- In some instances, Packet and EOP duration times were shown as zero if format is set to Bit Time (Note: samples captured with earlier software may still exhibit this error)

   Copy/Import of High speed Reset into Advanced Exerciser now includes the Chirp duration time
- Advanced mode exerciser now correctly retries NAKed OUT transactions of the Status Stage of the Control Transfer
- Improved Suspend current measurement\*

\*not available on SBAE-20

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KNOWN ISSUES

Features not yet enabled

- Capture of High Speed traffic on Auxiliary Port\*

Known Issues

7.12

- Statistical reports Will take time

- Second Port sample files will save in object format

- Save As Filtered Data will save raw data based on filter selection to object format

A sample file cannot be opened that is already opened by SBAE software a warning message box will appear
 A sample file cannot be imported that is already opened with SABE software to Advanced Host exerciser a warning message box will appear

6.30

- Removed Unknown speed from hardware panel in SBAE-20 mode - Disabled trigger on Data pattern and data length in SBAE-20 mode

- CAPI is not supported for SBAE-30B

6.20

- SOF group can not pass from viewer to advanced Host Exerciser page in full speed mode
- By enabling second port, some times incorrect protocol errors appear.
- Full Speed OTG Exerciser issue: when press Request Session button once, the button is grayed out and can not press it again

6.00

- Self-Test has problem with on board memories (it is disabled in software)
- By enabling second port, some times incorrect protocol errors appear

There are some issues in advanced device emulation that are under fixing

- Partial data payload has problem with old SBAE-30 boards that are under fixing

- Some times triggered packets has wrong reported idle time

- Performance Analyzer has bad sample in simulation mode Software cause problem when Hardware is powered off or disconnected during dumping data or programming FPGA

5.31

- Some times triggered packets has wrong reported idle time.
- Data report has problem with some low speed packets.
   Performance Analyzer has bad sample in simulation mode.
- Software cause problem when Hardware is powered off or disconnected during dumping data or programming FPGA.
- Other-speed-Configuration & device-qualifier descriptors Page 12

are not supported yet.

- Data pattern search cannot find patterns in user-defined packets.
- Unexpected bit stuff in high Speed error of Device emulation.
   Retry when host return NAK doesn't work correctly

5. 11

- Autorefresh not functional when using non-standard clocks. All events must be adjusted manually
- When working with non-standard clock in High Speed the unit must be power cycled before it can be used at standard frequencies\*

- OTG Exerciser does not support non-standard clock

- Device Emulation\* & OTG Exerciser\*:

Device\_Qualifier, Other\_Speed\_Configuration descriptors are not yet supported
 OTG Exerciser only\*:

- Occasionally captures "Unknown" packets generated by OTG Dual-Role Device in High Speed
- Scan Descriptor and Easy Mode Find Device may not recognize devices behind a hub in certain cases

- Possible USB port issues experienced:

- Catalyst units unrecognized
- A packet captured in the middle of a Control Transfer that is unrelated to the Transfer(e.g. SOF) will break up the grouping of Transactions into Control Transfers in the viewer

Idle time is shown for the last item in the sample

- First line of data in Hide Repeater Headers mode has black text for all fields
- A packet captured in the middle of a Control Transfer that is unrelated to the Transfer(e.g. SOF) will break up the grouping of Transactions into Control Transfers in the viewer

#### Li mi tati ons

- Host Exerciser High Speed projects must start with Reset and at least one SOF
- Device Emulation: Synch Error and Bit Stuff errors are unavailable in High Speed

- The HS\_EOP field of High Speed packets typically shows extra bytes. This limitation that cannot be corrected Connecting a Full speed Device Under Test and Analyzer USB Host Interface to the same Host Controller or Hub, will result in capture of downstream communication of Analyzer with the Host. If this is undesired, please use separate target and host
- In some cases, the first and/or last items in the viewer will have protocol error(s) or corrupted packets. These are the result of capturing in the middle of bus traffic. These errors can be safely ignored
  Suspend current is not accurately measured below 50uA

Non-Control Transfer decoding assumes transfers are terminated with zero-length data packets or data packets with payload less then wMaxPacketSize.

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TECHNI CAL SUPPORT

For quick answers to common questions, visit the USB FAQs on the GetCatalyst.com web site.

For technical assistance, please use the contact information below:

Conquest Classic and Standard Edition Support - (For Conquest Standard & Classic USB users only)

Product support is available via email only (conquestsupport@lecroy.com) 1-2 business days response time

Conquest Advanced and Pro Edition Support

Unlimited product support via telephone 408-727-6600 or email (psgsupport@lecroy.com) Priority response during normal business hours 1 business day response time

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#### CONTACT INFORMATION

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