TLA6400 Series Logic Analyzers Declassification and Security Instructions

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Tektronix

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Preface

This document helps customers with data security concerns to sanitize or remove memory devices from TLA6400 Series Logic Analyzers.

These products have data storage (memory) devices and data output devices (USB ports). These instructions tell how to do the following:

- Clear or sanitize the memory devices
- Clear or sanitize an instrument that is not functioning

Products

The following Tektronix products are covered by this document:

- TLA6401 and all options
- TLA6402 and all options
- TLA6403 and all options
- TLA6404 and all options

Related Documents

Refer to the following service-related documents available on the Tektronix Web site at www.tektronix.com/manuals or to the TLA Documentation CD that is available with your product:

- *TLA6400 Series Logic Analyzer Installation Manual (Tektronix part number, 077-0632-xx)*
- *TLA6400 Series Service Manual (Tektronix part number, 077-0638-xx)*

Terms

The following terms may be used in this document:

- **Clear.** This removes data on media/memory before reusing it in a secured area. All reusable memory is cleared to deny access to previously stored information by standard means of access.
- **Erase.** This is equivalent to clear.
- **Instrument Declassification.** A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment. Declassification procedures include memory sanitization and memory removal, and sometimes both.
- **Media storage/data export device.** Any of several devices that can be used to store or export data from the instrument, such as a USB port.
- **Nonvolatile memory.** Data is retained when the instrument is powered off.
- **Power off.** The instruments have a “Standby” mode, in which power is still supplied to the instrument. For clearing data, putting the instrument in

Standby mode does not qualify as powering off. For these products, you must remove the power source from the instrument.

- **Remove.** This is a physical means to clear the data by removing the memory device from the instrument. Instructions are available in the product Service Manual.
- **Sanitize.** This eradicates the data from media/memory so that the data cannot be recovered by other means or technology. This is typically used when the device will be moved (temporarily or permanently) from a secured area to a non-secured area.
- **Scrub.** This is equivalent to sanitize.
- **User Accessible.** User is able to directly retrieve the memory device contents.
- **User-modifiable.** The user can write to the memory device during normal instrument operation, using the instrument interface or remote control.
- **Volatile memory.** Data is lost when the instrument is powered off.

Clear and Sanitize Procedures

Memory Devices

The following tables list the volatile and nonvolatile memory devices in the standard instrument and listed options. Detailed procedures to clear or sanitize these devices, if any, are shown following each table.

Terminology

The following terms are used in the tables in this section:

- User data – Describes the type of information stored in the device. Refers to waveforms or other measurement data representing signals connected to the instrument by users.
- User settings – Describes the type of information stored in the device. Refers to instrument settings that can be changed by the user.
- Both – Describes the type of information stored in the device. It means that both user data and user settings are stored in the device.
- None – Describes the type of information stored in the device. It means that neither user data nor user settings are stored in the device.
- Directly – Describes how data is modified. It means that the user can modify the data.
- Indirectly – Describes how data is modified. It means that the instrument system resources modify the data and that the user cannot modify the data.

Table 1: Volatile memory devices

Type and min. size	Function	Type of user info stored	Backed-up by battery	Method of modification	Data Input method	Location	User accessible	To clear	Process to sanitize
DIMM 4 GByte	Microprocess system memory	User data, user settings	No	Directly	Written by processor system	Motherboard	Yes	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
DRAM 4 MByte	Firmware execution code (68360)	User settings	No	Indirectly	Written by processor system	Interface Board	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
DRAM 4 MByte	Acquisition data transfer (VXI FPGA)	User data	No	Indirectly	Written by processor system	Interface Board	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.

Table 1: Volatile memory devices (cont.)

Type and min. size	Function	Type of user info stored	Backed-up by battery	Method of modification	Data Input method	Location	User accessible	To clear	Process to sanitize
DDR2 128 MByte	Firmware execution code (IXP430)	User settings	No	Indirectly	Written by processor system	Interface Board	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
DDR2 1 GByte	Holds active acquisition data	User data	No	Indirectly	Firmware operations	Acquisition board TLA6401	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
DDR2 2 GByte	Holds active acquisition data	User data	No	Indirectly	Firmware operations	Acquisition board TLA6402	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
DDR2 3 GByte	Holds active acquisition data	User data	No	Indirectly	Firmware operations	Acquisition board TLA6403	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
DDR2 4 GByte	Holds active acquisition data	User data	No	Indirectly	Firmware operations	Acquisition board TLA6404	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
ASIC 16 Kb	Firmware execution code (ADG402)	User settings	No	Indirectly	Written by processor system	Interface Board	No	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.

Table 2: Nonvolatile memory devices

Type and min. size	Function	Type of user info stored	Method modification	Data Input method	Location	User accessible	To clear	To sanitize
Removable hard disk drive	Holds instrument operating system and application software. Holds all user-storable data such as waveforms, measurement results, and instrument settings.	User data, user settings	Indirect	Firmware operations, user input	Side panel	Yes	Acquire a full memory length acquisition of noise (no signal attached to the input). Erase the hard drive with commercial erasure software. Reinstall Microsoft Windows using the OS Restore procedure in the TLA6400 Series Installation Manual (Tektronix part number 077-0632-xx). Reinstall the instrument software using the supplied recovery disk. (See page 5, *Clear the Hard Disk Drives*.)	Remove the hard dsik drive. Store the removed hard disk drive in a secure area.
Flash 8 MByte	Stores BIOS	None	Indirect	Firmware operations	Motherboard	No	Load new BIOS from vendor website.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
CMOS 64 Mbit	Configurable BIOS parameters	None	Indirect	Firmware operations	Motherboard	No	Remove Battery	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
Flash 16 MByte	Stores instrument firmware (68360)	None	Indirect	Firmware operations	Interface board	No	Load new firmware. See installation manual.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
Flash 8 MByte	Stores instrument firmware (IXP430)	None	Indirect	Firmware operations	Interface board	No	Load new firmware. See installation manual.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

Table 2: Nonvolatile memory devices (cont.)

Type and min. size	Function	Type of user info stored	Method modification	Data Input method	Location	User accessible	To clear	To sanitize
Flash 2 MByte (512 X 8)	Stores model number and instrument serial number	None	Indirect	Firmware operations	Interface board	No	Load new firmware. See installation manual.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
NVRAM 128 KByte	Stores instrument serial number and calibration constants.	None	Indirect	Firmware operations	Acquisition board	No	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
EPROM 8 KByte	Stores front panel keyboard code	None	None	Factory configuration	Interface board	No	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
PROM 16 Mbit	Contains FPGA images for instrument control	None	None	Factory configuration	Interface board	No	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
PROM 4 Mbit	Contains FPGA image for instrument control	None	None	Factory configuration	Interface board	No	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
Flash 32 KByte	Stores power controller code	None	None	Factory configuration	Front panel board	No	Not applicable, does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

Clear the Hard Disk Drives

If your organization's security protocols allow the use of software to purge or sanitize hard drives, use commercial software to erase free space on the hard drive before sending the instrument out for upgrades or repair. Follow the instructions that come with the software to ensure that the erasure of sensitive data from the hard drive complies with your organization's security protocols.

Media and Data Export Devices

The following table lists the data export devices in the standard instrument and listed options. Detailed procedures to disable these devices, if any, are shown following the table.

Table 3: Media and data export devices

Type and min. size	Function	Method of modification	Data Input method	Location	Process to disable
DVD drives	Store and transport data	Directly	User writeable	Side panel	Drive can be disabled. (See page 7, *Disable the CD-RW Capability*.)
USB host port (supports removable USB flash drive)	User storage of reference waveforms, screen images, and instrument setups	Directly	User writeable	Front and rear of instrument	Files can be deleted or overwritten on the instrument or a PC. The USB ports can be disabled. (See page 6, *Disable the USB Capability*.)
LAN Ethernet connector	Transfer data	Directly	N/A	Rear panel	Ethernet port can be disabled. (See page 7, *Disable the LAN Ethernet Connectors*.)
RS-232 ports		Directly		Rear panel	The RS-232 ports can be disabled. (See page 7, *Disable the RS-232 Ports*.)
Teklink	Remote control of instrumentation systems	Indirectly	N/A	Rear panel	TekLink can be disabled. (See page 8, *Disable the TekLink Port*.)
Analog outputs	Provides an analog copy of signals from the device under test	Directly	From device under test	Side panel	N/A. Outputs cannot be disabled.

Disable the USB Capability

Complete the following steps to disable the USB capability of the instrument:

1. Connect a PS2 mouse and a PS2 keyboard to the instrument before powering on (because USB will be disabled).
2. Press **Delete** on the keyboard during Boot Up to go to the BIOS configuration menu.
3. Go to **Chipset > South Bridge**.
4. Go to **USB Configuration**.
5. Set USB Ports 1 through 10 and USB Ports 12 through 14 to **Disable** (leave USB Port 11 at **Enable**).
6. Press **Esc** twice to return to the main menu.
7. Go to **Advance > USB Configuration**.
8. Set Legacy USB Support to **Disable**.
9. Set USB 3.0 Support to **Disable**.
10. Press **F4** and then select **Yes** to save and exit.

Tektronix recommends that you password-protect the BIOS by setting an Administrator password under the Security tab in the BIOS configuration.

Disable the CD-RW Capability

Complete the following steps to disable the CD-RW capability of the instrument:

1. Log on to the instrument as an administrator.
2. From the Windows Start menu, go to the **Control Panel**.
3. Select **Hardware and Sound**.
4. Click **Device Manager** to open the Device Manger window.
5. Expand the DVD/CD-ROM drives selection in the Device Manager window.
6. Right-click the drive and select **Disable**.
7. Restart the instrument to make the changes effective.

Tektronix recommends that you password-protect the Device Manger settings by setting an Administrator password under the Security tab in the BIOS configuration.

Disable the LAN Ethernet Connectors

Complete the following steps to disable the LAN Ethernet connectors on the instrument:

1. Log on to the instrument as an administrator.
2. From the Windows Start menu, go to the **Control Panel**.
3. Select **Hardware and Sound**.
4. Click **Device Manager** to open the Device Manger window.
5. Expand the Network adapters selection in the Device Manager window.
6. For both Gigabit Network connections, right-click and select **Disable**.
7. Restart the instrument to make the changes effective.

Disable the RS-232 Ports

Complete the following steps to disable the RS-232 ports on the instrument:

1. Press **Delete** on the keyboard during Boot Up to go to the BIOS configuration menu.
2. Go to **Advanced > NCT6776F Super IO Configuration**.
3. Go to the **Serial Port 1 Configuration**.
4. Set Serial Port to **Disable**.
5. Press **Esc** to go back a menu.
6. Go to the **Serial Port 2Configuration**.

7. Set Serial Port to **Disable**.
8. Press **F4** and then select **Yes** to save and exit.

Disable the TekLink Port

Complete the following steps to disable the TekLink port on the instrument:

1. Log on to the instrument as an administrator.
2. From the Windows Start menu, go to the **Control Panel**.
3. Select **Hardware and Sound**.
4. Click **Device Manager** to open the Device Manger window.
5. Expand the device category Network Adapters.
6. Double-click the Network Connection.
7. Click the General tab, and select Device Usage drop-down list.

Remove the Hard Disk Drive

To remove the hard disk drive assembly, refer to the TLA6400 Series Logic Analyzer Installation Manual.

All user-storable data is stored on the hard disk drive. Scrub the hard disk drive in a manner that meets local and any other security requirements that you have.

NOTE. *Before scrubbing the hard disk drive, make certain that you created OS Restore CD-ROMs. For more information, see Creating Operating System Restore CD-ROMs in the TLA6400 Series Logic Analyzer Installation Manual.*

After the hard disk drive has been scrubbed, reinstall the operating system and TLA application software.

Scrubbing the hard disk drive will not affect calibration of the instrument. You can completely erase or remove any secure data without affecting the calibration of the instrument.

Built-In Security Features

To secure the instrument setups or data, remove the hard disk drive and store it in a safe place.

If the hard disk drive has been removed and a new hard disk drive is installed, reinstall the operating system and the TLA application software. Refer to the *TLA6400 Series Logic Analyzer Installation Manual* for instructions for restoring the Microsoft Windows 7 Operating System and the TLA application software.

Troubleshooting

Clear or Sanitize a Nonfunctional Instrument

If your instrument is not functioning, perform the following actions and return the instrument for Tektronix for repair. Describe the initial problem with the product. Tektronix will install replacement parts and then repair and return the instrument.

Hard Disk Drive

Remove the hard disk drive before returning the instrument to Tektronix for repair.

CD-RW/DVD ROM Drive

Remove all CDs and DVDs. If it is not possible to remove the disk, you might need to remove the disk drive. Refer to your instrument service manual for instructions.

External Memory Devices

Remove any attached USB flash drive or external hard drives from the instrument before returning the instrument to Tektronix for repair.

Refer to your company's internal policies regarding handling or disposal of the external memory devices.

Recover from Clearing or Removing the Instrument Memory

If the hard disk drive has been removed and a new hard disk drive is installed, reinstall the operating system and the TLA application software.