Release Notes

Tektronix

**MTS400 Series
MPEG Test Systems**

071-1726-05

www.tektronix.com

Contacting Tektronix

Tektronix, Inc.
14200 SW Karl Braun Drive
P.O. Box 500
Beaverton, OR 97077
USA

For product information, sales, service, and technical support:
- In North America, call 1-800-833-9200.
- Worldwide, visit www.tektronix.com to find contacts in your area.

Release Notes

These release notes provide the following information:

- Document part numbers supporting this software release.

- Features in this software version.

- Installation and operational problems or behaviors that you might encounter while using the instrument and explanations of how you can minimize or eliminate the impact on instrument operation.

Introduction

Tektronix has redefined the MPEG analyzer with its ground-breaking MTS400 Series MPEG Test Systems and MTX100B portable analyzer options. Increased productivity is provided through many new technical features.

- The MTS430 is well suited for applications in research, development, and manufacturing test.

- The MTS400 is equally well suited for applications in broadcasting and network operations.

- The MTS4SA provides the MTS400 Series software applications for standalone use on PCs.

- The MTX100B with analysis options is ideal where portability is required.

A wide variety of applications simplify the complex tasks of creating transport streams for set top box design and manufacturing, as well as triggering and recording intermittent errors during live broadcasts.

The following information provides an overview of the MTS400 Series and MTX100B features:

- **IP Connectivity** – Acquires transport streams from the network interface for analysis and recording of streams over IP (internet protocol).

- **CaptureVu™** – Simplifies the task of triggering, recording, and analyzing events.

- **High Performance Engine** – Measurement throughput up to 400 Mbps.

- **Intuitive GUI** – A simple, yet powerful GUI (graphic user interface) provides real time analysis and recording, as well as deferred time analysis.

- **Languages** – Windows Unicode fonts provide regional language support.

- **Hardware/Interfaces** – 144 GB of storage, ASI up to 214 Mbps, fast Intel P4 processor, integrated XGA display and dual Ethernet ports for LAN support and GigE transport analysis.

- **Application Packages** – Analysis of Audio and Video Elementary Streams, Packetized Elementary Streams, Transport Streams, and Data Broadcasting Streams, as well as Multiplexing Audio, Video and Data Broadcasting Streams.

- **International Standards** – Support for MPEG-2, ATSC, DVB, and ISDB.

Related User Documentation

The following user documentation supports firmware version 1.3:

- *MTS400 Series Getting Started Manual* (English)
  Tektronix part number 020-2654-06
  (includes user documentation CD-ROM)

- *MTS400 Series Getting Started Manual* (Japanese)
  Tektronix part number 020-2655-04
  (includes user documentation CD-ROM)

- *MTS400 Series User Manual* (English)
  Tektronix part number 071-1507-03

- *MTS400 Series Specifications and Performance Verification Technical Reference* (English)
  Tektronix part number 071-1724-02

- *MTS400 Series Programmer Manual* (English)
  Tektronix part number 071-1725-01

Enhancements

- **H.264 Support in Multiplexer Application**
  Adds the ability to multiplex H.264 Elementary Streams that contain SEI (supplemental enhancement information) timing messages into a transport stream.

  The multiplexer also supports H.264 Elementary streams that do not contain SEI messages, but you must enter the bit rate manually. If you have access to the Tektronix MTS4EA application, this can be used to determine the bit rate.

- **ATSC Closed Caption Tests in TSCA**
  Closed Caption checking shows the user whether 608 or 708 closed captioning is signaled and/or present in a stream. It also tests whether PMT and EIT signaling is consistent with the actual Closed Captioning present within the video signal.

- **Real-Time Video Decode support in TSCA**
  Real-time video decode allows you to select a program from within a Transport Stream and view the decoded video. From this you can verify that the correct content is present in the stream at the right time and place. (You need to download the VLC Player from http://www.videolan.org/vlc/.)

- **New Video Thumbnail Views in TSCA**
  New video wall, summary and details views allow you to choose whether to view multiple channels' thumbnails simultaneously or to view detailed descriptions of one channel at a time.

- **Test / Event Occurrence Counts in TSCA**
  A historic perspective on the quality of service, rather than just a snapshot of the current status, is provided by displaying the number of times that a specific test failure or event has occurred, together with the current status of the test of event.

- **RTP Connectivity in TSCA**
  The TSCA can now be used with video over IP networks that use the RTP (Real−time Transport Protocol) protocol.

- **Enhanced IGMP Support in TSCA**
  The TSCA will now automatically issue an IGMP (Internet Group Management Protocol) Join command when connecting to multicast IP sessions and will issue an IGMP Leave command when analysis is stopped.

- **Addition of Packet Interarrival Time Graphs in TSCA**
  Cross Layer Timing gives you "at a glance" views of timing at the IP, TS and PES layers.

■ **RTP Metrics**
These metrics provide count and rate data for dropped packets and out of order packets.

■ **RTP and PIT Tests and alarms**
Triggering events based on IP layer measurements, (including CaptureVu), recording, and alarms. Integrated IP and TS layer testing, triggering and error logging.

Installation Issues (MTS400 and MTS430)

The following issues affect the installation of the MTS400 Series instruments and/or software:

Using the Correct Software Recovery Media

The serial number range assigned to the MTS400 Series instruments changed from B01xxxx to B02xxxx, and the software version changed from v1.0 to v1.1. The software number change was required only because of a hardware change; there were no changes to the software functionality. However, the software versions are not compatible between the two serial number ranges of the instrument. This issue does not affect the MTS400 Series standalone software.

⚠ **CAUTION.** *To prevent software problems on your MTS400 Series instrument, use the v1.0 recovery media only on instruments with a serial number of B01xxxx, and use the v1.1 recovery media only on instruments with a serial number of B02xxxx.*

For instruments with serial numbers B01xxxx, if you know or suspect that hardware changes have been made, look at the rear panel of the instrument for upgrade information labels. If a label states that the instrument has been upgraded to B02xxxx hardware, use the v1.1 recovery media to restore the software on that instrument.

Internal Error Dialog Box

After the files have been copied during installation, the instrument may report an internal error. Clicking OK will close the dialog box, and the installation will complete successfully.

Uninstalling the MTS400

When uninstalling the MTS400, a dialog box lists a number of DLLs that cannot be deleted from the registry. Clicking OK will close the dialog box, and the uninstall will complete successfully.

License Agreement Acceptance Follow-up

When the instrument is powered up for the first time, you must complete the Windows XP license and registration process, after which the instrument will automatically restart.

If the Found New Hardware Wizard opens after the system has restarted (see Figure 1), you must complete the wizard before the instrument will operate properly.

Perform the following steps to complete the Found New Hardware Wizard:

1. In the Found New Hardware Wizard window (see Figure 1), enable the **No, not this time** option.

2. Click **Next** to continue.

Figure 1: Found New Hardware Wizard page 1

3. On the second page of the wizard (see Figure 2), verify that **Install the software automatically (Recommended)** is selected. No installation CD or floppy disk is required.

4. Click **Next** to continue.

5. The wizard will search for the required drivers, as shown in Figure 3. When the drivers are found, the Next button will be enabled.
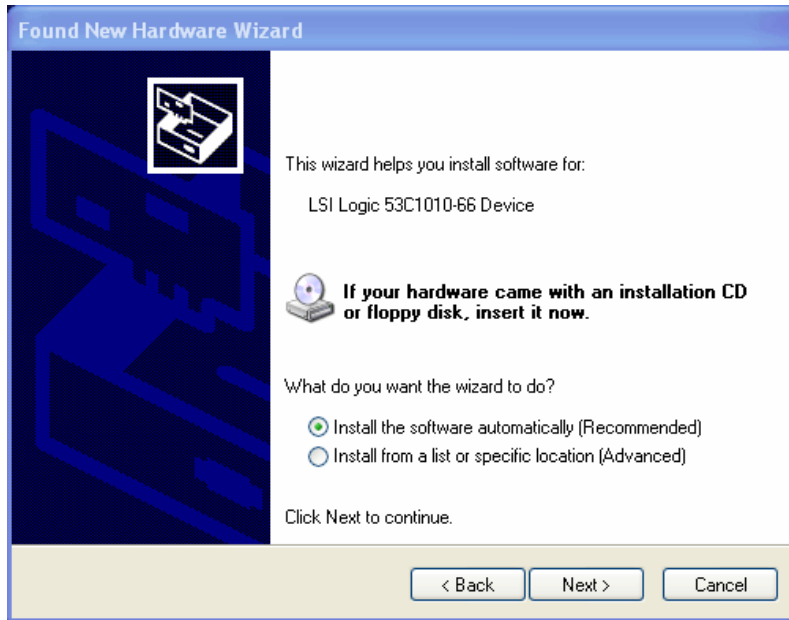
6. Click **Next** to proceed.
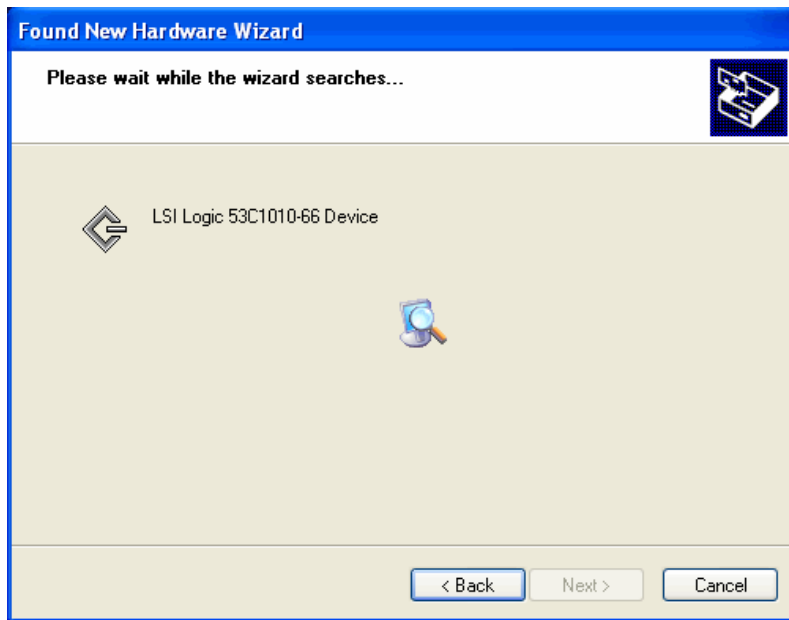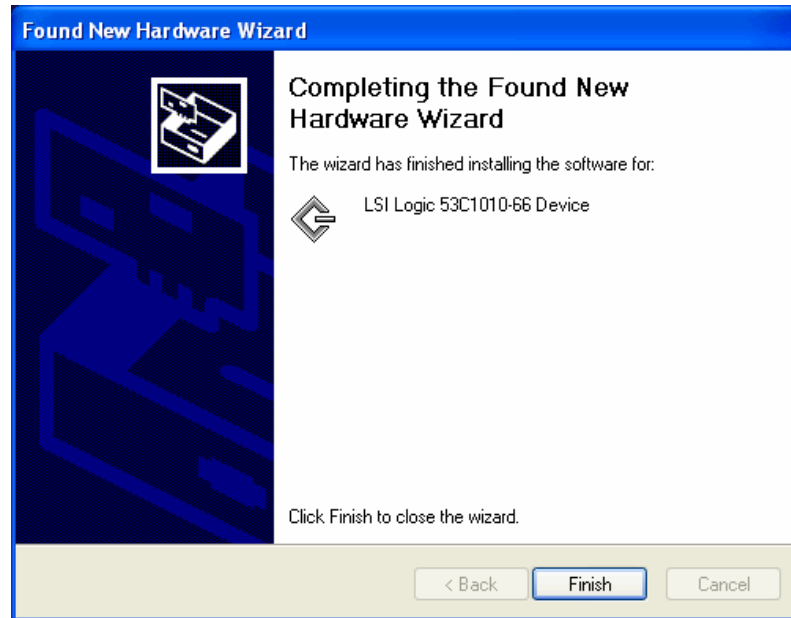
Figure 2: Found New Hardware Wizard page 2

Figure 3: Wizard searching for drivers

7. When the wizard dialog box shown in Figure 4 is displayed, click **Finish**.

8. Select **Restart** from the Start menu to reboot the MTS400 Series system. The Windows XP registration and hardware setup are complete.

Figure 4: Completing the wizard

Restoring the MTS400 and MTS430

The MTS400 Series System restore process is described in the *MTS400 Series Getting Started Manual* (071-1505-03).

Installation Issues (MTS4SA)

The following issue affects the installation of the MTS4SA software:

Windows NT   Installation of the MTS4SA is no longer supported on Windows NT.

Multiplexer   If the latest Multiplexer software is installed from the MTS4SA application CD-ROM, previously installed versions of the Multiplexer will no longer work.

MPEG Player Issues (MTS400 and MTS430)

Administrator Rights for Recording   The MPEG Player application allows you to record to RAM. You need local administrator rights on the machine to make a recording.

MPEG Player and TSCA Application Interaction   If the MPEG Player application is playing a stream near its maximum bit rate limit (214 Mbps simplex or 107 Mbps duplex), and you start the TSCA application, the instrument may display the message "Mega FIFO empty error" and the player application may stop. Once the TSCA has started, you can start playing the stream again.

A workaround is to ensure that the TSCA is started before playing a stream at high bit rates.

Transport Stream Compliance Analyzer Issues (MTS400, MTS430, MTS4SA and MTX100B)

Program Tree does not always Update Correctly   After deferred analysis has completed, occasionally the program tree might not display the program names even though they appear in the Summary View. If you switch from the Program tab to another tab, and then back again, the program names will appear.

Administrator Rights for IP Analysis   To perform real-time IP analysis, you need local administrator rights.

Lost Packets during Recording on IP Analysis on Low Specification PCs   On some low-specification PCs (with old network cards and slower hardware), if you record a stream that is being analyzed over IP, packets might be lost. This is because of the hardware dropping Ethernet frames.

Processing may become strained with Script Validation enabled in Real Time mode

If you enable Script Validation for Real Time Analysis, the TSCA might become strained. If this occurs, and script validation is required, disable the feature, make a recording in real time, and then perform a deferred analysis on the recording with the feature enabled.

RTP Analysis – TS Availability Error reported for 204 byte packet streams

When analyzing a 204 byte packet stream over RTP, the TS Availability test will activate at the start of the stream.

Analyzing RTP streams using UDP causes the TSCA to become overwhelmed

When you select an IP session to analyze from the "Edit IP Configuration" dialog box, the TSCA attempts to identify whether it is RTP or UDP, and automatically updates the "Use RTP" check box accordingly. If you manually clear the "Use RTP" and analyze a known RTP stream, this can cause the TSCA to become overwhelmed and data to be lost.

Streams transmitted over UDP may be recognized as RTP

It has been seen very infrequently that UDP sessions are detected as RTP in the "Edit IP Configuration" dialog box. This is due to specific byte patterns appearing in the transport stream. If this occurs, clear the "Use RTP" check box manually.

IP Packet Interarrival Timing

The TSCA uses WinPcap for IP input. WinPcap's timing is affected by the type of processor, hyper-threading and SMP. See the WinPcap change log (http://www.winpcap.org/misc/changelog.htm) for more details.

IP Packet timing measurements are based on timestamps averaged over a 40 ms period. You can define an integration period for the graphical display of average Packet Inter-Arrival Time.

Ethernet Packet Timestamp Smoothing

Under certain conditions of heavy network traffic, it has been noted that timestamping of Ethernet packets can be delayed within the network interface kernel mode driver.

To overcome this issue, an Ethernet packet arrival smoothing algorithm has been implemented in this release to ensure that erroneous jitter does not impact Transport Stream timing measurements. This algorithm results in smoothing of the PCR Arrival Interval and Overall Jitter measurements and their associated graphs when using the IP interface.

Transport Stream Compliance Analyzer Issues (MTX100B only)

Duplex Operation Not Supported

The TSCA can not be used to analyze streams using ASI, SMPTE or DVB Parallel inputs while the MPEG Player is running.

Buttons obscured on the Open dialog box after browsing for IP Session

When the MTX100B is viewed in its default screen resolution (800 x 600), the OK button may become partially obscured and the Cancel and Change buttons may disappear after creating or modifying an IP session configuration using the New or Edit buttons. You can still click the obscured OK button to start analysis, and click the X at the top right of the dialog box to cancel analysis.

It is recommended that you change the stream interpretation before clicking the New or Edit buttons.

These issues do not occur if the screen resolution is set to 1024 x 768.

Streams not detected when Time Stamping is switched off

Transport streams are not detected if time stamping is disabled using the Open dialog box check box.

Using VLC to decode audio causes system instability

The VLC Media Player can be used for real-time video decode but must not be used for audio decode. Audio decode can be disabled with the VLC Media Player using the following steps:

1. Select **Settings > Preferences...**.

2. Select **Audio** from the list on the left side of the Preferences dialog box.

3. Under General audio settings ensure that the **Enable audio** check box is selected.

4. Click **Save** in the Preferences dialog box.

If audio decode is not disabled, VLC can develop a memory leak that may result in the system instability.

ES Analyzer Issues (MTS400, MTS430, MTS4SA and MTX100B)

Only Partially Decodes 4:2:2 Profile@HighLevel File

4:2:2 Profile@HighLevel files are only partially supported by the ES Analyzer. It fails to correctly recognize the 0x82 Profile/Level type.

Presentation Order is Incorrect

Sometimes the Presentation Order chart does not present field encoded material in the correct order.

Multiplexer Issues (MTS400, MTS430, MTS4SA and MTX100B)

■ Elementary stream within other containers, such as *.h264, *.MP4, Fluxmux and others, are **not** directly supported.

■ Incomplete access units (for the last access unit), will be dropped during multiplexing.

■ On looping small files, the PAT and PMT table stop time resets to the start time. The repetition interval then becomes zero because there is only one occurrence in each of these table sections.

H.264 Specific Issues

■ Frame reordering is not supported in this release of the multiplexer. PTSs in the PES header are calculated without reordering.

■ On looping H.264 elementary streams, there may be Annex C violations reported on nominal removal times at loop points.

■ Bit rate auto-detection of non-SEI interlaced video is not supported.

■ Frame rates are fixed at 29.97 fps.

Security Patches (MTS400, MTS430 and MTS4SA)

The software has been verified with the following Microsoft Security Patches:

Microsoft Windows 2000 (Service Pack 4)   No patches.

Microsoft Windows XP Pro (Service Pack 2)

KB887742	KB899588	KB888113
KB905915	KB899591	KB891781
KB896424	KB883939	KB888302
KB900725	KB890046	KB885250
KB901017	KB896428	KB890175
KB905749	KB896358	KB873339
KB905414	KB896422	KB885836
KB904706	KB893086	KB885835
KB902400	KB893066	KB885884
KB899589	KB890859	KB834707
KB899587	KB890923	KB870669
KB896727	KB873333	KB893803
KB893756	KB867282	Q819696
KB896423	KB890047	KB912945

■■   **End of document**   ■■