Tektronix®

MTS4KUP Upgrade Kit
MTS4000, MTS4SAV3 and MTS4SA
MPEG Test Systems

Instructions

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Contacting Tektronix

Table of Contents

List of Figures

List of Tables

Important safety information

This manual contains information and warnings that must be followed by the user for safe operation and to keep the product in a safe condition.

To safely perform service on this product, additional information is provided at the end of this section. (See page vi, *Service safety summary*.)

General safety summary

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future reference.

Comply with local and national safety codes.

For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual.

The product is designed to be used by trained personnel only.

Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

Before use, always check the product with a known source to be sure it is operating correctly.

This product is not intended for detection of hazardous voltages.

Use personal protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

While using this product, you may need to access other parts of a larger system. Read the safety sections of the other component manuals for warnings and cautions related to operating the system.

When incorporating this equipment into a system, the safety of that system is the responsibility of the assembler of the system.

To avoid fire or personal injury

Use proper power cord. Use only the power cord specified for this product and certified for the country of use. Do not use the provided power cord for other products.

Ground the product. This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, make sure that the product is properly grounded. Do not disable the power cord grounding connection.

Power disconnect. The power switch disconnects the product from the power source. See instructions for the location. Do not position the equipment so that it is difficult to disconnect the power switch; it must remain accessible to the user at all times to allow for quick disconnection if needed.

Observe all terminal ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

The measuring terminals on this product are not rated for connection to mains or Category II, III, or IV circuits.

Do not operate without covers. Do not operate this product with covers or panels removed, or with the case open. Hazardous voltage exposure is possible.

Avoid exposed circuitry. Do not touch exposed connections and components when power is present.

Do not operate with suspected failures. If you suspect that there is damage to this product, have it inspected by qualified service personnel.

Disable the product if it is damaged. Do not use the product if it is damaged or operates incorrectly. If in doubt about safety of the product, turn it off and disconnect the power cord. Clearly mark the product to prevent its further operation.

Examine the exterior of the product before you use it. Look for cracks or missing pieces.

Use only specified replacement parts.

Use proper fuse. Use only the fuse type and rating specified for this product.

Wear eye protection. Wear eye protection if exposure to high-intensity rays or laser radiation exists.

Do not operate in wet/damp conditions. Be aware that condensation may occur if a unit is moved from a cold to a warm environment.

Do not operate in an explosive atmosphere.

Keep product surfaces clean and dry.   Remove the input signals before you clean the product.

Provide proper ventilation.   Refer to the installation instructions in the manual for details on installing the product so it has proper ventilation.

Slots and openings are provided for ventilation and should never be covered or otherwise obstructed. Do not push objects into any of the openings.

Provide a safe working environment.   Always place the product in a location convenient for viewing the display and indicators.

Avoid improper or prolonged use of keyboards, pointers, and button pads. Improper or prolonged keyboard or pointer use may result in serious injury.

Be sure your work area meets applicable ergonomic standards. Consult with an ergonomics professional to avoid stress injuries.

Use care when lifting and carrying the product. This product is provided with handles for lifting and carrying.

Service safety summary

The *Service safety summary* section contains additional information required to safely perform service on the product. Only qualified personnel should perform service procedures. Read this *Service safety summary* and the *General safety summary* before performing any service procedures.

To avoid electric shock.   Do not touch exposed connections.

Do not service alone.   Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect power.   To avoid electric shock, switch off the product power and disconnect the power cord from the mains power before removing any covers or panels, or opening the case for servicing.

Use care when servicing with power on.   Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

Verify safety after repair.   Always recheck ground continuity and mains dielectric strength after performing a repair.

Terms in this manual

These terms may appear in this manual:

⚠️ **WARNING.** *Warning statements identify conditions or practices that could result in injury or loss of life.*

⚠️ **CAUTION.** *Caution statements identify conditions or practices that could result in damage to this product or other property.*

Symbols and terms on the product

These terms may appear on the product:

- DANGER indicates an injury hazard immediately accessible as you read the marking.

- WARNING indicates an injury hazard not immediately accessible as you read the marking.

- CAUTION indicates a hazard to property including the product.

⚠️ When this symbol is marked on the product, be sure to consult the manual to find out the nature of the potential hazards and any actions which have to be taken to avoid them. (This symbol may also be used to refer the user to ratings in the manual.)

The following symbol(s) may appear on the product:

CAUTION Refer to Manual   Protective Ground (Earth) Terminal   Mains Disconnected OFF (Power)   Mains Connected ON (Power)   Standby

Kit description

This document provides instructions for performing hardware and/or software and option key upgrades on the following Tektronix products:

- MTS4000 MPEG Test System

- MTS4SAV3 MPEG Test System

- MTS4SA MPEG Test System

Covered upgrades The following MTS4KUP upgrades are covered by this document.

Table i: Covered software-only upgrades

MTS4KUP option	Description
CA	Add Closed Caption Analyzer for CEA608, CEA708, SCTE20/21 – Includes MTS4EAV7 locked to CC Analysis mode
ESS	Add standard ES analysis. Includes MTS4CC with all options and ES Analyzer
ESB	Add enhanced ES analysis – Includes MTS4EAV7 base software including AVC (single-user license only) and ES Analyzer
ESE	Add enhanced ES analysis – Includes MTS4EAV7 with all options including HEVC/H.265 (single-user license only) and ES Analyzer
FLT	Add floating license (all floating licenses include the same capabilities); for multiple licenses, order multiple Option FLT [1]
GEN	Add Stream Generation – Includes TS and ISDB-T/Tb Multiplexer, ISDB-T Remux, TS Editor, Make Seamless, Carousel Generator, and Tclips Test Streams; also includes HEVC stream generation capabilities
MXUP	Upgrade Multiplexer to include HEVC stream generation capabilities
PB	Add PES and T-STD Buffer Analyzers – Includes HEVC buffer analysis and PES with AVC, HEVC and E-AC3 codec analysis
PBUP	Upgrade Buffer Analyzer to include HEVC buffer analysis and upgrade PES Analyzer to include AVC, HEVC and E-AC3 codec analysis
TCMP	MTS4SAV3 only: Add real time and deferred time Transport Stream Compliance Analyzer, Carousel Analyzer, TS Cutter and MPEG-Player. MTS4SA only: Upgrade existing MTS4SA version 2.x software to MTS4SAV3 and add real time and deferred time Transport Stream Compliance Analyzer, Carousel Analyzer, TS Cutter and MPEG-Player.
PQ	Add Picture Quality Analysis Software, single and double ended – Includes PQASW with Option IP
VQ	Adds Video Quality Software, single ended – Includes VQS1000 with all options
V3	Upgrade existing MTS4000 or MTS4SA version 2.x software to MTS4SAV3

[1] Option FLT requires software version 3.3 or above to be installed.

Table ii: Covered hardware upgrades

MTS4KUP option	Description
ASI	Adds the Multiport ASI interface (four ports).
QB2	Adds the QAM B interface. (Requires Option ASI.)
DS2 [1]	Adds the Dual Input DVB-S/S2 interface supporting dual-port QPSK/8PSK or single-port 16APSK/32APSK demodulation.
S2 [2]	Adds the DVB-S/S2 interface supporting QPSK, 8PSK, 16APSK AND 32APSK demodulation. (Requires Option ASI.)
VS	Adds the 8VSB interface. (Requires Option ASI.)
10GS	Adds the 10GBASE-SR dual optical port 10Gb/s NIC. Includes short reach SFP+ modules (850 nm).
IPTV	Adds the IPTV Gigabit Ethernet Interface with 10/100/1000 Base-T RJ45 Electrical Port. (Requires Option ASI.)
	The following optical length input options are available for use with Option IPTV:
SX	Adds a 1000 Base-SX Short Wavelength Optical Port with LC Connector for IPTV Ethernet Interface (Multi Mode 850 nm).
LX	Adds a 1000 Base-LX Long Wavelength Optical Port with LC Connector for IPTV Ethernet Interface (Single Mode 1310 nm).
ZX	Adds a 1000BASE-ZX optical port with LC connector for IPTV Ethernet interface (single mode 1550 nm).

[1] Option DS2 requires software version 3.1 or above to be installed.

[2] Option S2 is no longer available and has been replaced by Option DS2. For convenience, the instructions for installing the Option S2 card are included in this document.

Kit parts lists

The following tables list the parts that are supplied with each upgrade kit.

NOTE. Due to Tektronix internal process limitations, some upgrades include a blank CD-ROM.

MTS4KUP CA
MTS4KUP ESS
MTS4KUP ESB
MTS4KUP ESE
MTS4KUP FLT

Quantity	Part Number	Description
1	N/A	MTS4000 OPTION KEY LABEL
1	N/A	CD FOR DONGLE UPDATE
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP GEN

Quantity	Part Number	Description
1	N/A	MTS4000 OPTION KEY LABEL
1	N/A	BLANK CD-ROM
1	020-2965-xx	TCLIPS MPEG TEST STREAMS DVD PACKAGE
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP VQ

Quantity	Part Number	Description
1	N/A	VQS1000 OPTION KEY LABEL
1	N/A	VQS1000 SOFTWARE LICENSE FOR MAIN CONCEPT AUDIO CODEX
1	N/A	BLANK CD-ROM
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP PQ

Quantity	Part Number	Description
1	N/A	PQASW OPTION KEY LABEL
1	N/A	BLANK CD-ROM
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP MXUP
MTS4KUP PB
MTS4KUP PBUP
MTS4KUP TCMP
MTS4KUP V3

Quantity	Part Number	Description
1	N/A	MTS4000 OPTION KEY LABEL
1	N/A	BLANK CD-ROM
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP ASI

Quantity	Part Number	Description
1	N/A	QUAD ASI/SDI ADAPTER CIRCUIT BD ASSEMBLY
1	N/A	MTS4000 OPTION KEY LABEL
1	N/A	BLANK CD-ROM
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS
8	210-1039-xx	WASHER, LOCK; 0.521 ID, INT, 0.025 THK, STEEL, ZINC FINISH
4	220-0497-xx	NUT, PLAIN, HEX; .5-28 X .562 HEX, BRS, NI (NICKEL) PLATED

MTS4KUP DS2

Quantity	Part Number	Description
1	N/A	DUAL INPUT DVB-S2 CIRCUIT BD ASSEMBLY
1	N/A	BLANK CD-ROM
4	210-1039-xx	WASHER, LOCK; 0.521 ID, INT, 0.025 THK, STEEL, ZINC FINISH
2	220-0497-xx	NUT, PLAIN, HEX; .5-28 X .562 HEX, BRS, NI (NICKEL) PLATED
1	335-3563-xx	LABEL, REAR PANEL, OPTION DS2
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP VS

Quantity	Part Number	Description
1	N/A	BASE BAND AND 8VSB CIRCUIT BD ASSEMBLY
1	N/A	BLANK CD-ROM
1	174-5135-00	CABLE ASSY; RF, BNC TO BNC; 75 OHM
1	174-6103-00	CABLE, ASSEMBLY
1	348-2003-00	BUMPER, RUBBER; CLEAR, 0.375 DIA X 0.200 H
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP QB2

Quantity	Part Number	Description
1	N/A	BASE BAND AND QB2 CIRCUIT BD ASSEMBLY
1	N/A	BLANK CD-ROM
1	174-5135-00	CABLE ASSY; RF, BNC TO BNC; 75 OHM
1	174-6103-00	CABLE, ASSEMBLY
1	348-2003-00	BUMPER, RUBBER; CLEAR, 0.375 DIA X 0.200 H
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP 10GS

Quantity	Part Number	Description
1	N/A	10G ETHERNET ADAPTER WITH SFP+ CONNECTIVITY CIRCUIT BD ASSEMBLY
1	N/A	BLANK CD-ROM
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP IPTV

Quantity	Part Number	Description
1	N/A	IPTV CIRCUIT BD ASSEMBLY
1	N/A	BLANK CD-ROM
1	174-5135-00	CABLE ASSY; RF, BNC TO BNC; 75 OHM
1	174-6103-00	CABLE, ASSEMBLY
1	348-2003-00	BUMPER, RUBBER; CLEAR, 0.375 DIA X 0.200 H
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP SX

Quantity	Part Number	Description
1	N/A	BLANK CD-ROM
1	131-7834-00	OPTICAL GIGABIT ETHERNET/FIBRE CHANNEL 850NM SFP, 1.25/1.0625GBAUD, 3.3V
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP LX

Quantity	Part Number	Description
1	N/A	BLANK CD-ROM
1	131-7957-00	OPTICAL GIGABIT ETHERNET/FIBRE CHANNEL 1310NM SFP SFF, 1.25/1.0625GBAUD, 3.3V
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP ZX

Quantity	Part Number	Description
1	N/A	BLANK CD-ROM
1	131-7958-00	OPTICAL GIGABIT ETHERNET/FIBRE CHANNEL 1550NM SFP, 1.25/1.0625GBAUD, 3.3V
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

Discontinued option

MTS4KUP S2   MTS4000 Option S2 is no longer available and has been replaced by Option DS2. For convenience, the parts lists for the discontinued option is shown below. The instructions for installing the Option S2 card are included in this document. (See page 51, *Hardware upgrade instructions*.)

Quantity	Part Number	Description
1	N/A	BASE BAND AND DVB-S2 CIRCUIT BD ASSEMBLY
1	174-5135-00	CABLE ASSY; RF, BNC TO BNC;75 OHM
1	174-6103-00	CABLE, ASSEMBLY
1	348-2003-00	BUMPER, RUBBER; CLEAR, 0.375 DIA X 0.200 H
1	075-1036-xx	MTS4KUP UPGRADE KIT INSTRUCTIONS
1	071-2179-xx	MANUAL, TECH; SMPLP; TEKTRONIX SUPPLEMENTAL INFORMATION SHEET FOR THE PEOPLES REPUBLIC OF CHINA; CHINA ROHS

MTS4KUP Upgrade Kit Instructions

Software application upgrade instructions

Many of the upgrades available for the MTS4000 are software only; there is no hardware to install. These software upgrades are also available for the MTS4SAV3.

Supported software application upgrades

The procedures for installing the software application upgrades are divided into the following sections:

MTS4000 and MTS4SAV3 applications

To install the MTS4000 and MTS4SAV3 application upgrades listed below, perform the procedure *Install the MTS4000 and MTS4SAV3 application upgrades*. (See page 8.)

MTS4KUP GEN	MTS4KUP PB	MTS4KUP TCMP [1]
MTS4KUP MXUP [1]	MTS4KUP PBUP [1]	MTS4KUP V3

[1] Requires MTS4000 installer version 3.1 or above.

MTS4EA applications

To install the MTS4EA application upgrades listed below, perform the procedure *Install the MTS4EA application upgrades*. (See page 17.)

MTS4KUP CA [1, 2]	MTS4KUP ESE
MTS4KUP ESB	MTS4KUP ESS

[1] Requires MTS4000 installer version 3.2 or above.

[2] Requires MTS4EAV7 version 7.1.3 or above.

PQASW application

To install the PQASW application upgrade listed below, perform the procedure *Install the PQASW application upgrade*. (See page 20.)

MTS4KUP PQ

VQS1000 application

To install the VQS1000 application upgrade listed below, perform the procedure *Install the VQS1000 application upgrade*. (See page 28.)

MTS4KUP VQ

Install the MTS4000 and MTS4SAV3 application upgrades

For all of the MTS4000 and MTS4SAV3 application upgrades listed below, it is recommended that you upgrade the MTS4000 or MTS4SAV3 software to the latest version.

MTS4KUP GEN	MTS4KUP PB	MTS4KUP TCMP [1]
MTS4KUP MXUP [1]	MTS4KUP PBUP [1]	MTS4KUP V3

[1] Requires MTS4000 installer version 3.1 or above.

⚠ *CAUTION. For hardware Option DS2, the software on the MTS4000 must be version 3.1 or above. To prevent upgrade problems, be sure to upgrade the MTS4000 software to version 3.1 before installing the Option DS2 interface card.*

This upgrade procedure has two parts:

■ Upgrade the MTS4000, MTS4SAV3 or MTS4SA (v2.x) software to the latest version of MTS4SAV3 (See page 9.)

■ Enter the new MTS4SAV3 license option key (See page 15.)

System requirements   If you are not installing the MTS4SAV3 software on a MTS4000 instrument, the computer hosting the MTS4SAV3 software needs to meet the following minimum requirements:

■ Processor speed > 2.5GHz

■ Intel or 100% compatible motherboard chipset

■ Microsoft Windows 7 or Windows 8.1, 64-bit operating system

■ 4 GB of RAM

■ 250 GB of available hard disk space for the applications and documentation

■ Additional space is required for storage of captured video streams

■ SVGA (800×600) resolution video adapter and monitor (XVGA (1024×768) or higher resolution recommended)

■ CD-ROM or DVD drive

■ Keyboard and Microsoft mouse or compatible pointing device

■ Video over IP Analysis option requires a standard Network Interface Card (NIC)

■ Detailed graphical displays provided by the next-generation compressed video analyzer (MTS4EAV7) require Microsoft Excel

Upgrade the MTS4000, MTS4SAV3 or MTS4SA (v2.x) software to the latest version

Perform the following steps to upgrade your existing MTS4000, MTS4SAV3 or MTS4SA (v2.x) software to the latest version:

NOTE. Your existing MTS4000 or MTS4SA software must be version 2.x or above to upgrade to the MTS4SAV3 software.

You do not need to uninstall your old MTS4000 or MTS4SA software. If the installation process detects an older version of the software, it is automatically uninstalled during the upgrade process.

1. Download the latest MTS4SAV3 software from the Tektronix Web site:

    a. Use your Web browser to access the Tektronix Web site (www.tek.com/downloads).

    b. Search for **MTS4SAV3**.

    c. Download the software to your MTS4000 instrument or to your PC.

2. If installed, remove your existing MTS4000 or MTS4SA USB software key (dongle) from the instrument or PC.

⚠ *CAUTION. To prevent installation problems, it is recommended that you remove the software key (dongle) from the instrument or PC before you install the software.*

3. Right-click the **MTS4000_Setup.exe** file, and select **Run as administrator** to start the software installation.

NOTE. You need to have administrator privileges to install the MTS4SAV3 software.

4. In the **Tektronix MTS4000** pop-up window, select the desired installation path. Click **OK** to continue.

5. The MTS4000 Setup Wizard opens and displays a Welcome screen.

NOTE. Depending on your Windows setup and security settings, the MTS4000 installation autostart may not launch. If necessary, you can use Windows explorer to locate and run the file MTS4000_setup.exe.

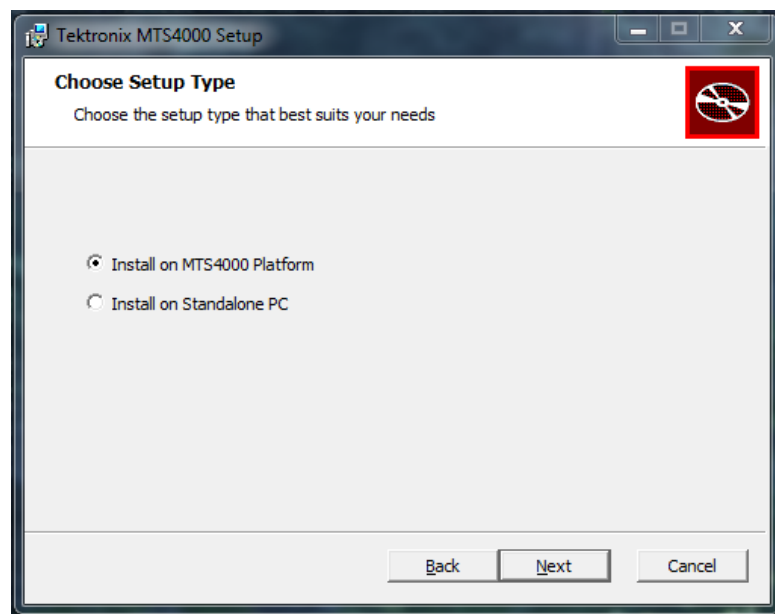**6.** In the installation Welcome screen, select **Next**.
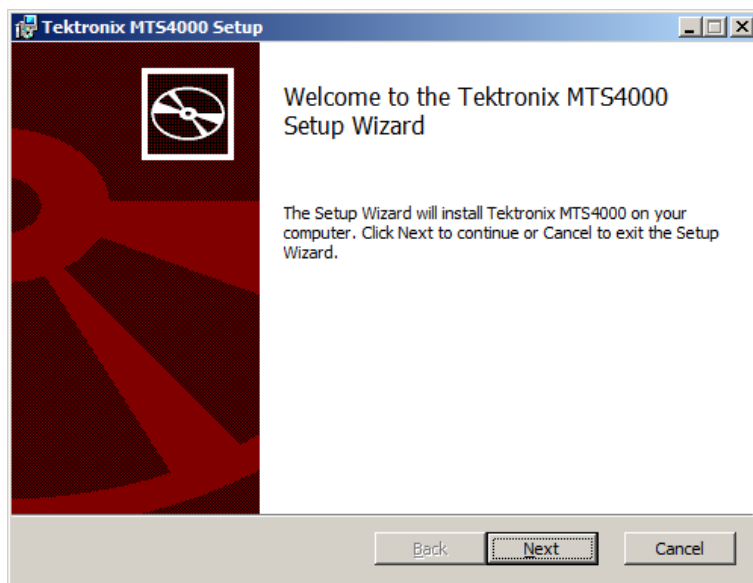
7. Read the End-User License Agreement. Accept the agreement and select **Next**.
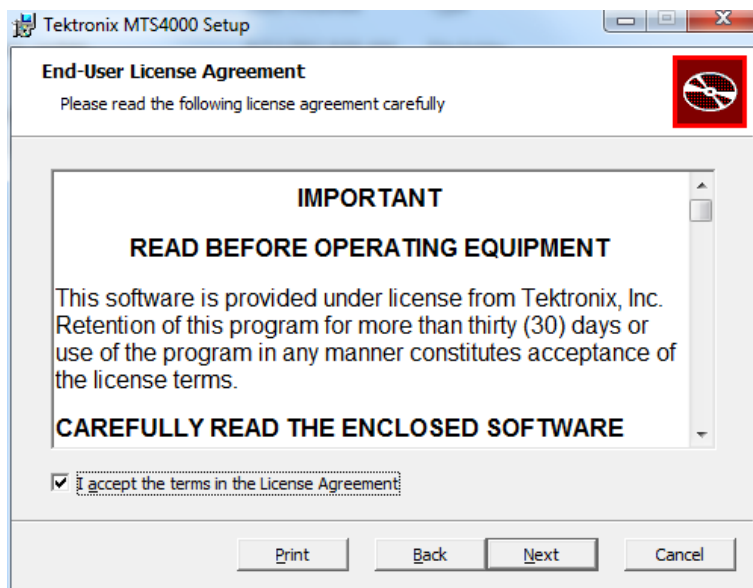
8. In the Choose Setup Type screen, you need to indicate if the installation is for a PC or for the MTS4000 platform.

    - Select **Install on MTS4000 Platform** to install the MTS4SAV3 software on your MTS4000 instrument.

    NOTE. When you select Install on MTS4000 Platform, all of the necessary drivers for the interface cards are installed.

    - Select **Install on Standalone PC** to install the MTS4SAV3 software on your PC.

9. Select **Next**.

10. In the Ready to Install screen, select **Install**.
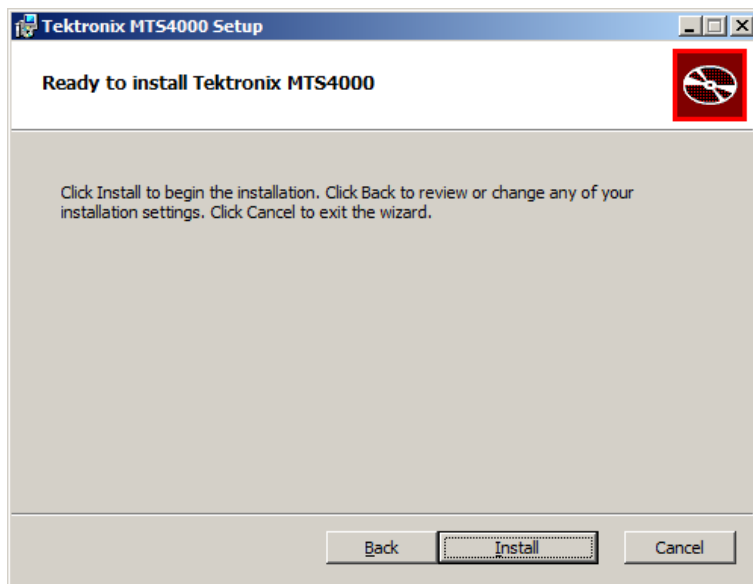
11. Allow the installation to proceed.

NOTE. A number of installation message boxes display during the installation process. Normally, no user intervention is required.

If the installation program detects your older version of the MTS4SA software, the software is automatically uninstalled.
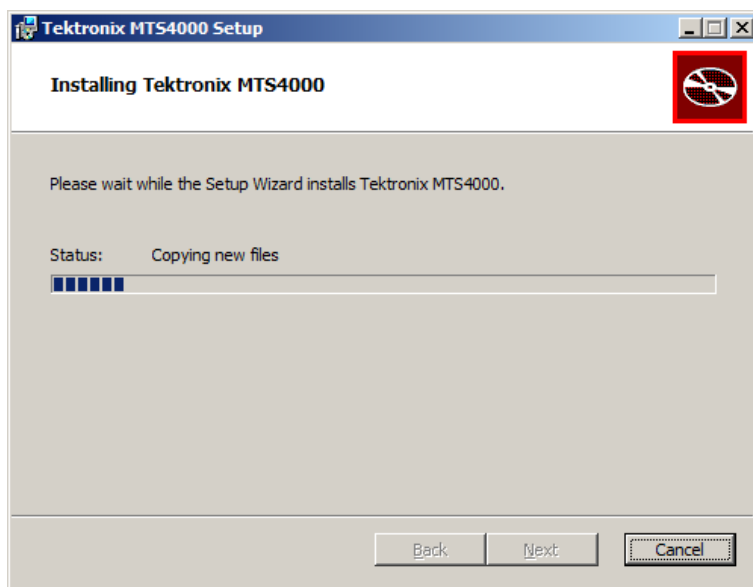
12. When the DESkey installer displays, select **Next** to proceed with the DESkey installation process. Depending on the Windows security settings, you may see a Windows Security message to install device software. Select **Install**.

NOTE. The DESkey installation is skipped if the MTS4000 installation process detects that the correct version of DESkey is already installed.

13. When the WinPcap installer displays, select **Next** to proceed with the WinPcap installation process.

NOTE. The WinPcap installation is skipped if the MTS4000 installation process detects that the correct version of WinPcap is already installed.
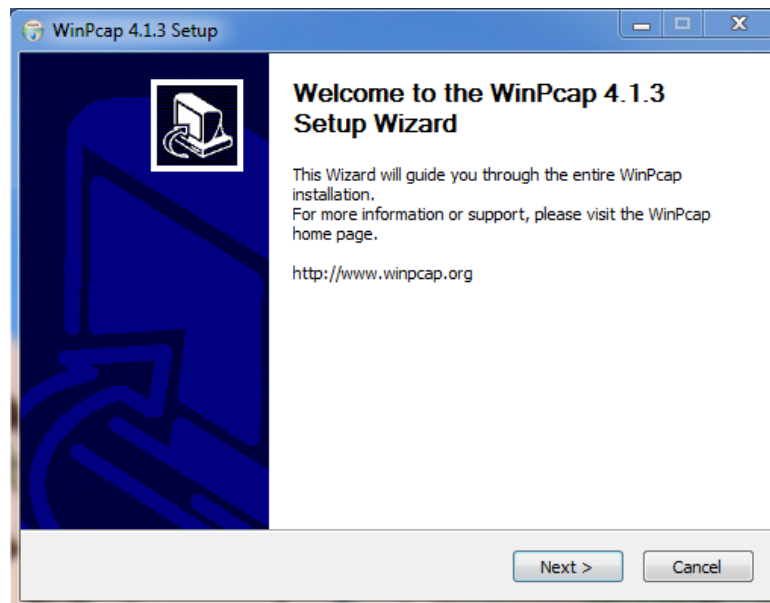
14. When installation completed screen displays, select **Finish**.
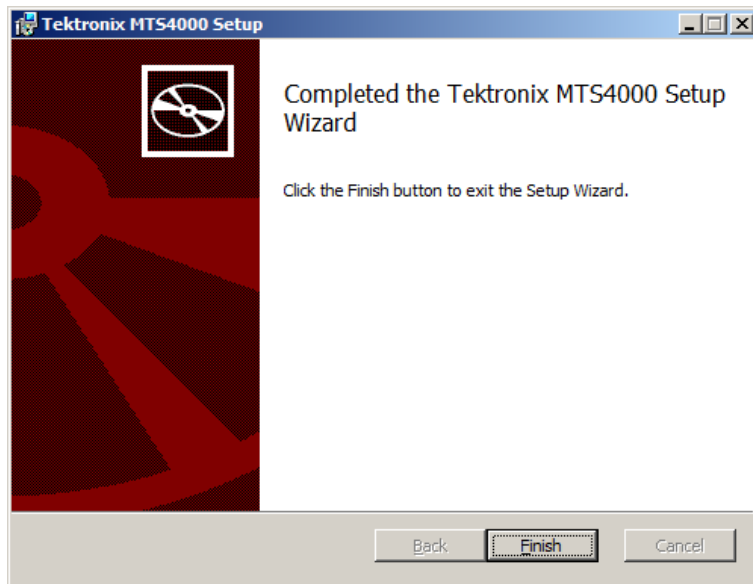
15. In the pop-up window, select to reboot your instrument or PC now.

NOTE. A reboot is necessary before entering the option key or using the applications.

**Enter the new MTS4SAV3
license option key**

⚠ **CAUTION.** *To prevent upgrade problems for Option TCMP upgrades, be sure to install the new software version before you enter the new option key. (See page 9, Upgrade the MTS4000, MTS4SAV3 or MTS4SA (v2.x) software to the latest version.)*

1. After the instrument or PC has restarted, install your existing MTS4000 or MTS4SA USB software key (dongle) into a USB port on the instrument or PC.

2. After the instrument or PC detects the software key (dongle), open the MTS4000 Option Key Wizard by selecting **Start > Programs > Tektronix MTS4000 > OptionKey Wizard**.
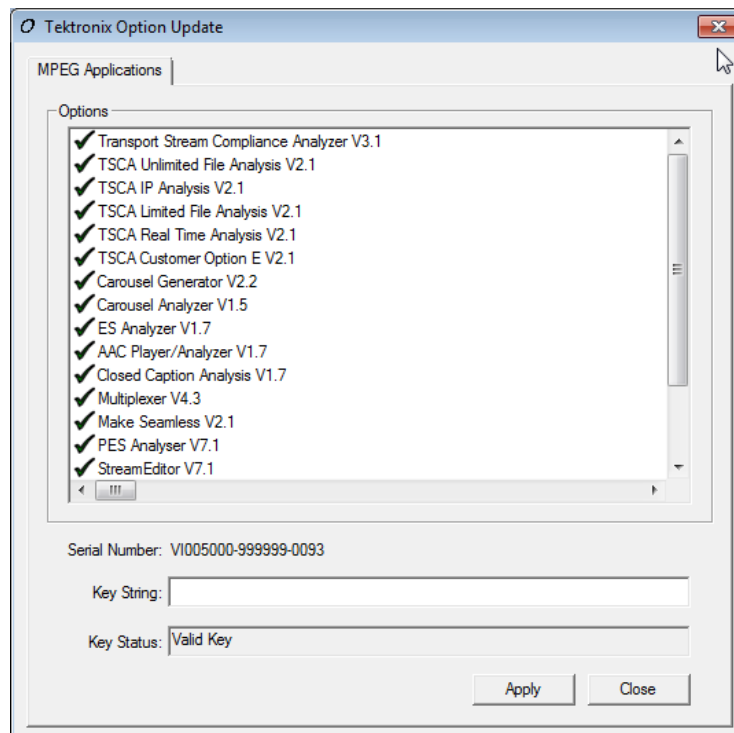
3. In the Tektronix Option Update dialog box, enter the Option Key String supplied with the upgrade kit in the Key String field.

4. Click **Apply**.

5. Check that the Key Status field reads **Valid Key**, which indicates the new option key string was accepted.

6. Inspect and verify the list of licensed options.

NOTE. Operational access to features is controlled by the licenses that are available on the software key. Applications and features can be installed, but will not be available unless the appropriate license has been obtained. Notification of these is provided when the product or additional licenses are purchased.

The software licensing for the MTS4EAV7, MTS4CC, and MTS4SAV3 Options CA, ESB, ESE and ESS applications is stored in the USB Dongle's memory. The specific name and version information for these applications do not appear in the Option Key Wizard panel shown above. To view version information for any of these applications, launch the desired application and use the Help > About menu.

The upgrade options for the MTS4EAV7, MTS4CC, PQASW and VQS1000 applications require separate licensing.
(See page 17, Install the MTS4EA application upgrades.)
(See page 20, Install the PQASW application upgrade.)
(See page 28, Install the VQS1000 application upgrade.)

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7. Close the Option Key Wizard.

8. The licensed MTS4SAV3 applications are now available in the Windows Start menu.

MTS4SAV3 user documents The following table lists the part numbers of the user documents supporting the MTS4SAV3 software. You can download these documents from the Tektronix Web site (www.tek.com/downloads).

Table 1: MTS4SAV3 product documentation

Title	Tektronix part number
Quick Start User Manual	071-2970-03 or later (English)
	077-0657-02 or later (Russian)
	077-0665-02 or later (Simplified Chinese)
	077-0666-02 or later (Japanese)
Analyzer Applications User Manual	077-0622-02 or later
Generator Applications User Manual	077-0623-02 or later
Carousel Applications User Manual	077-0624-02 or later
Release Notes	077-0627-01 or later

Install the MTS4EA application upgrades

For all of the MTS4EAV7 application upgrades listed below, it is recommended that you upgrade the MTS4EAV7 software to the latest version. For users with an MTS4000, the instrument was shipped with the MTS4EAV7 software installed.

MTS4KUP CA [1, 2]	MTS4KUP ESE
MTS4KUP ESB	MTS4KUP ESS

[1] Requires MTS4000 installer version 3.2 or above.

[2] Requires MTS4EAV7 version 7.1.3 or above.

This upgrade procedure has two parts:

■ Install the latest version of MTS4EAV7 software (See page 18.)

■ Enter the MTS4EAV7 license key string (See page 19.)

System requirements If you are not installing the MTS4EAV7 software on a MTS4000 instrument, the computer hosting the MTS4EAV7 software needs to meet the following minimum requirements.

The MTS4EA software will work satisfactorily on relatively modest PC systems (for example 800 MHz).

To decode and display CIF (Common Intermediate Format) video streams in real time the following minimum PC configuration is recommended:

■ Windows 7 or Windows 8.1, 64-bit operating system

■ Processor speed >2.5 GHz

■ Memory at least 4 GB RAM

■ Screen resolution at least 1152x864

■ 250 GB minimum hard disk space

When writing trace information to the hard disk, the limiting factor is the speed of the hard disk (regardless of the video standard), so the faster the better. Also, the video and Trace files can be large (hundreds of MB) so a large hard disk is needed:

■ Hard disk speed: at least - 7200 rpm

■ Hard disk size: as required for high-speed access to the video files to be analyzed plus Trace information

Trace file writing/RAM disk. The real limitation on speed is when the trace information is being written to disk. This is the slowest operation; roughly 2 MB to 4 MB of data are written per video frame for the more extensive trace functions. For H.265/HEVC video, if all of the options are selected, 800 MB to 1 GB of data are written per video frame.

For most customers, this is not a problem, but if you want to have the highest speed when playing video and writing the trace files, a RAM disk can be used. This uses some of the system memory to emulate a disk drive.

There are several software products that offer this functionality; search on the Internet for 'RAM disk'.

If a RAM disk is used, a memory configuration of at least 512 MB is recommended, with approximately 200 MB of RAM reserved for the RAM disk. This would allow a 200 MB Trace file to be saved on the RAM disk.

Install the latest version of MTS4EAV7 software

To install the latest version of the MTS4EA software on your own PC or MTS4000 instrument, perform the following procedure:

1. If your MTS4000 instrument or PC has an existing version of the MTS4EA software, uninstall the existing version of the MTS4EA software using the Microsoft Windows Control Panel before installing the new version.

2. Download the latest MTS4EAV7 software from the Tektronix Web site:

    a. Use your Web browser to access the Tektronix Web site (www.tek.com/downloads).

    b. Search for **MTS4EAV7**.

    c. Download the software to your MTS4000 instrument or to your PC.

3. Use Windows Explorer to view the download contents.

4. Double-click **setup.exe** to begin the installation process.

5. At the bottom of the window showing the readme file, click the **Install** button to start the installation.

6. In the MTS4A setup window, select **Local machine**, and then click **OK** to continue.

7. Follow the on-screen instructions as the installation continues. When finished, reboot the machine.

Install the MTS4EAV7 license upgrade

1. Check that the USB software key (dongle) is installed in one of the USB ports of the MTS4000 instrument or PC.

NOTE. Operational access to features is controlled by the licenses that are available on the software key. Applications and features can be installed, but will not be available unless the appropriate license has been obtained. Notification of these is provided when the product or additional licenses are purchased.

The software licensing for the MTS4EAV7, MTS4CC, and MTS4SAV3 Options CA, ESB, ESE and ESS applications is stored in the USB Dongle's memory. The specific name and version information for these applications do not appear in the Option Key Wizard panel shown above. To view version information for any of these applications, launch the desired application and use the Help > About menu.

2. Perform the dongle license upgrade:

⚠ *CAUTION. Option CA requires MTS4EAV7 software version 7.1.3 or above. For Option CA upgrades, be sure you have MTS4EAV7 software version 7.1.3 or above installed before you run the dongle license upgrade process.*

 a. Insert the CD, provided in the kit, into the CD/DVD drive.

 b. Navigate to the CD and display its contents.

 c. Copy the CD contents to a folder on your hard drive.

 d. Open the folder on your hard drive and double click the **remoteupdate.exe** file to update the dongle.

 e. Follow any on-screen instructions.

 f. When completed, remove the CD.

3. Peel the backing off of the Product Option Key label and apply it to the MTS4000 instrument or PC rear panel. Do not cover any existing labels.

MTS4EAV7 user documents

The following table lists the part numbers of the user documents supporting the MTS4EAV7 software. You can download these documents from the Tektronix Web site (www.tek.com/downloads).

Table 2: MTS4EAV7 product documentation

Title	Tektronix part number
Installation and Safety Instructions	071-3435-xx
User Manual	077-1134-xx
Tutorials	001-1650-xx
Release Notes	077-0898-xx

Install the PQASW application upgrade

The license key string supplied with MTS4KUP Option PQ enables the PQASW Picture Quality Analyzer application. For users with an MTS4000, the instrument was shipped with the PQASW software installed. For all PQASW application upgrades, it is recommended that you install the latest version of the PQASW software before you enter the license key string.

This upgrade procedure has two parts:

■ Install the latest version of PQASW software (See page 21.)

■ Enter the PQASW license key string (See page 26.)

System requirements   If you are not installing the PQASW software on a MTS4000 instrument, the computer hosting the PQASW software needs to meet the following minimum requirements:

■ Microsoft Windows 7 Professional (64-bit) or Windows XP Professional (32-bit) Operating System

NOTE. It is recommended that you install the PQASW software on a 64-bit system. The 64-bit installation includes a Fast Decoder for faster processing on a wider range of compressed file formats. The 32-bit installation cannot access the Fast Decoder.

■ Intel Core 2 Duo CPU or more

■ 1024 x 768 or higher resolution monitor

■ 2 GB RAM or greater

■ 1 GB free space on the hard drive for application storage; 50 GB or more free space recommended for data storage

Install the latest version of PQASW software

To install the latest version of the PQASW software on your own PC or MTS4000 instrument, perform the following procedure:

1. Download the latest PQASW software from the Tektronix Web site:

   a. Use your Web browser to access the Tektronix Web site (www.tek.com/downloads).

   b. Search for **PQASW**.

   c. Download the software to your MTS4000 instrument or to your PC.

2. If your MTS4000 instrument or PC has an existing version of the PQA software, uninstall the existing version of the PQA software using the Microsoft Windows Control Panel before installing the new version.

3. Determine whether your system is running the 32-bit or 64-bit version of Windows. This information can generally be found in the System Properties tabs of My Computer. Generally, if 64-bit is not specified under the System information, it is a 32-bit version. If you are not sure which version you have, contact Microsoft for specific details for your system.

4. Use Windows Explorer to view the download contents. Depending on your version of Windows, double-click the **32Bit** or **64Bit** folder to open it.

5. Double-click **setup.exe** to begin the installation process.

6. When the PQA installer splash screen appears, click **Next** to continue.
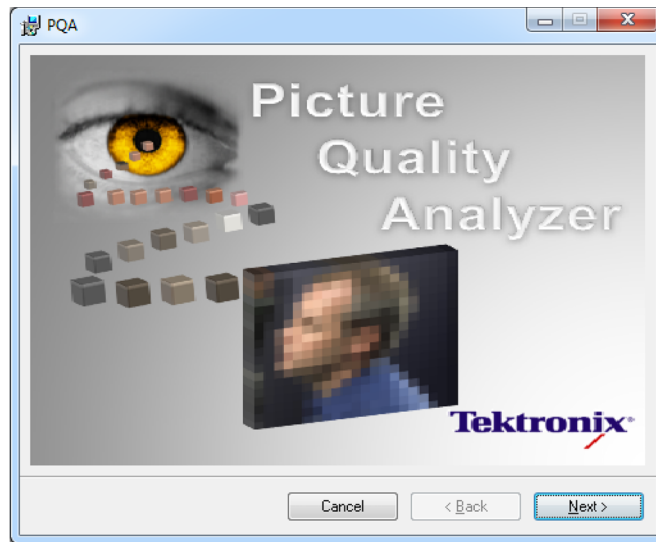
7. When the Setup Wizard welcome screen appears, click **Next** to continue.
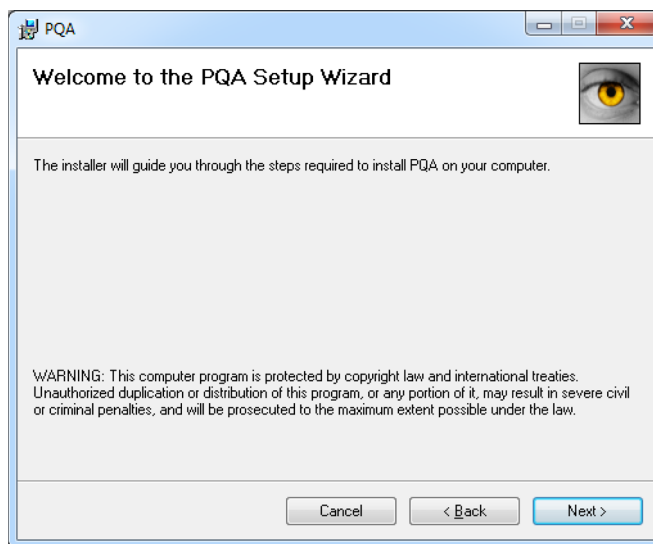
8. When the Select Installation Folder screen appears, click **Next** to continue using the default settings. You can also change the settings as follows:

- Use the Folder entry box or the Browse button to select a different installation location. Click the **Disk Cost** button to verify there is enough disk space available.

- Select **Just me** if you want the PQA software available to only you (the currently logged in user) instead of all users of the instrument.
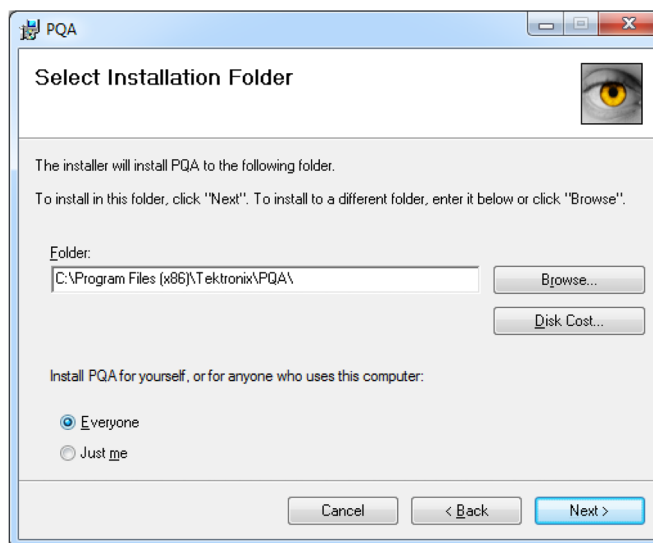
9. The License Agreement screen appears. After you read the license agreement, select **I Agree**, and then click **Next** to continue.

*NOTE. If you cannot agree to the software license, click **Cancel** to exit the installation process, and then contact Tektronix for more information.*
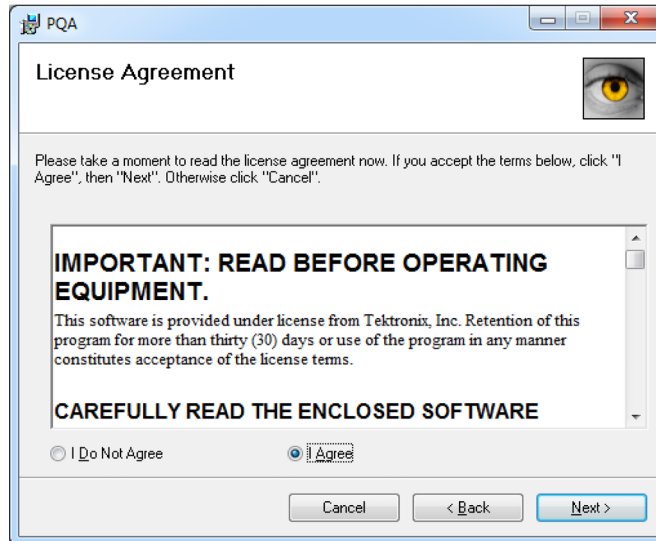
10. When the Confirm Installation screen appears, click **Next** to continue. You will see an Installing PQA screen with a progress bar.
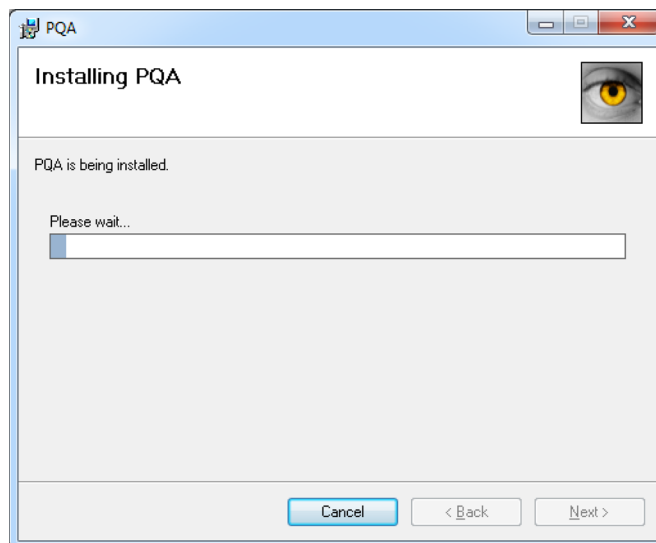
11. While the PQA installation progress bar screen is still open, a Setup Wizard welcome screen for the DK2 DESkey Drivers will open. Click **Next** to continue.

⚠ *CAUTION. Do not cancel the installation of the DESKey drivers. They are required by the PQA software.*
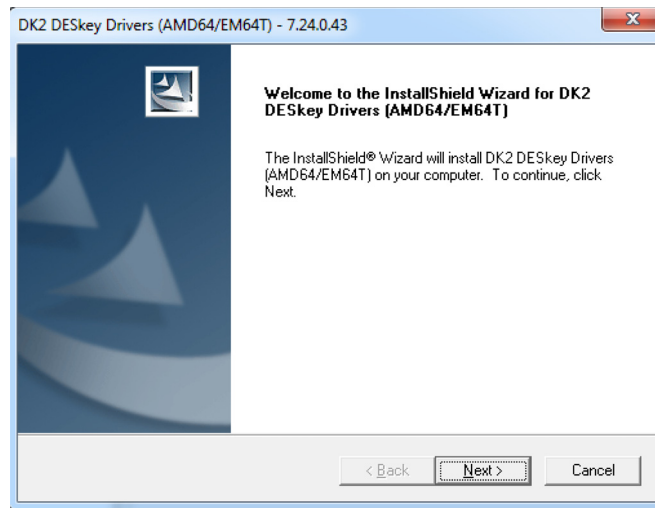
12. When the Setup Type screen appears, click **Next** to accept *This machine* as the default location for the DK2.
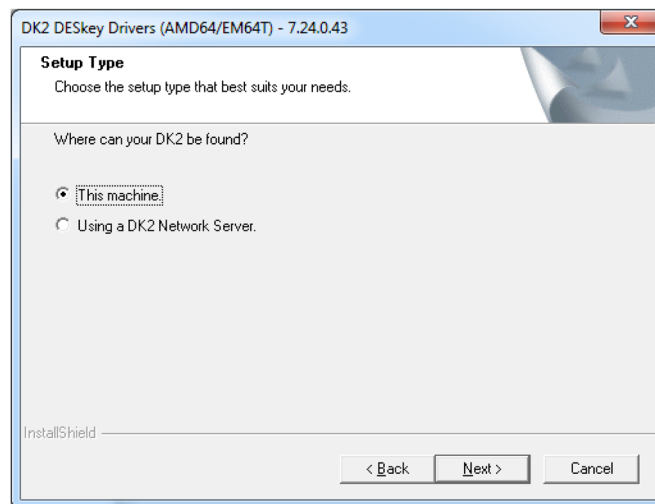
13. When the Windows Security screen appears, click **Install** to install the DK2 software.

14. When the Setup Complete screen appears, click **Finish**.
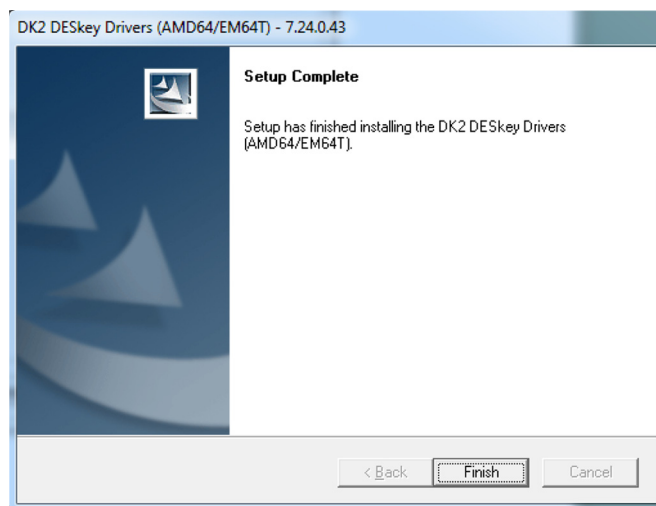
15. When the PQA product software installation is complete, the Installation Complete screen appears. Click **Close** to exit the Setup Wizard.
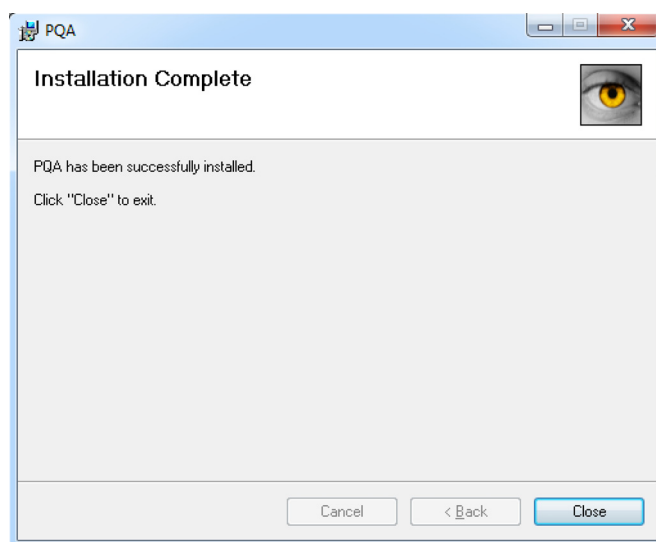
16. The following three icons should now be on the desktop: and a PQA Product Information icon on the desktop. The former and the latter allows you to access a You can now remove the Application Install disc from the DVD drive and store it in a secure location.

Icon	Description
Tektronix PQA	Double-click to launch the PQA software application.
PQA Product Information	Double-click to open a Tektronix Web site with links to PQA product information and documentation.
Tektronix PQA RunAsAdministrator	Double-click to run the PQA software using the standard user login (with no administrator privileges) without being prompted to enter the Administrator's password each time the PQA software is run from a standard user account.
	NOTE. To use the Run As Administrator icon from any user account, you must log into the Administrator account one time by double-clicking the icon and entering the password. After this initial Administrator login, this icon can be used to run the PQA software from any user account without being prompted to enter the Administrator password.

Enter the PQASW license key string

1. Verify that the **software key dongle** that came with your MTS4000 instrument or MTS4SAV3 software is installed in any USB port on your instrument or PC.

2. Double-click the PQA icon to start the software.

3. After the alert screen appears indicating that no PQA license is available, click **OK** to open the application.
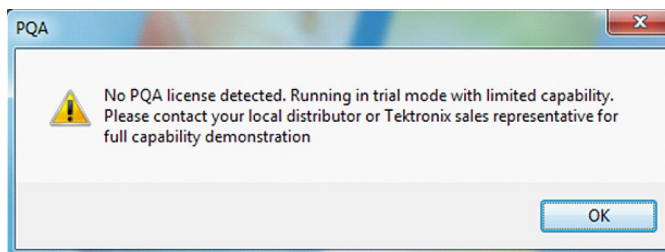
NOTE. After you reinstall the PQA software, the first time you run the program Windows 7 will display a User Account Control dialog box that asks "Do you want to allow the following program from an unknown publisher to make changes to this computer?" The Program name is displayed as PQUI.exe. Answer Yes to the dialog box. This dialog box is a feature of Windows 7 and is a normal response by the operating system.

4. Click **Help** > **License Manager** in the menu bar and the License Manager screen will appear.

5. Type in the option key in the **New Option Key** field.

6. Click **Apply**.

7. Click **Close**.

8. When the screen appears indicating that the application will now close, click **OK** and the application will close.

9. Double click on the Tektronix PQA icon to verify that the PQA software window opens successfully. The product software is now ready to use.

10. Peel the backing off of the PQA Product Option label and apply it to the MTS4000 instrument or PC rear panel. Do not cover any existing labels.

PQASW user documents   The following table lists the part numbers of the user documents supporting the PQASW software. You can download these documents from the Tektronix Web site (www.tek.com/downloads).

Table 3: PQASW product documentation

Title	Tektronix part number
Installation and Safety Instructions	071-3439-xx
User Manual	077-1137-xx
Measurement Reference	071-3440-xx
Release Notes	077-1140-xx

Install the VQS1000 application upgrade

The license key string supplied with MTS4KUP Option VQ enables the VQS1000 Video Quality Software application. For users with an MTS4000, the instrument was shipped with the VQS1000 software installed. For all VQS1000 application upgrades, it is recommended that you install the latest version of the VQS1000 software before you enter the license key string.

This upgrade procedure has two parts:

■ Install the latest version of VQS1000 software (See page 28.)

■ Enter the VQS1000 license key string (See page 29.)

System requirements

If you are not installing the VQS1000 software on a MTS4000 instrument, the computer hosting the VQS1000 software needs to meet the following minimum requirements:

■ Operating system: Microsoft Windows XP, SP3 or Windows 7

■ PC processor requirements: Xeon 5500 series (i7 based) quad-core processor or equivalent

■ Memory: 4 GB RAM minimum

■ Hard disk space: 250 GB minimum

NOTE. The VQS1000 application will run satisfactorily on a PC with the preceding specifications. However, some of the more intensive operations will benefit from using a more powerful PC.

Software applications. The Microsoft '.NET Framework 3.5 SP1' software library is required by the VQS1000 application. If it is not already installed on your computer, the VQNet application installer will automatically install this during the installation process.

Install the latest version of VQS1000 software

To install the latest version of the VQS1000 software on your own PC or MTS4000 instrument, perform the following procedure:

1. **MTS4000 instruments only:** Uninstall the existing version of the VQS1000 software using the Microsoft Windows Control Panel.

2. Download the latest VQS1000 software from the Tektronix Web site:

   a. Use your Web browser to access the Tektronix Web site (www.tek.com/downloads).

   b. Search for **VQS1000**.

   c. Download the software to your MTS4000 instrument or to your PC.

3. Use Windows Explorer to view the download contents.

4. Double-click **VQS1000_setup.exe** to begin the installation process. Follow the on-screen instructions to perform the installation.

NOTE. Several message boxes are displayed during the installation process. A reboot of your PC may be required.

If needed, Microsoft .NET Framework will be installed or updated on your PC automatically during the installation process.

5. When the final installation screen is displayed, the installation is complete.

Enter the VQS1000 license key string

1. Verify that the **software key dongle** that came with your MTS4000 instrument or MTS4SAV3 software is installed in any USB port on your instrument or PC.

2. Launch the VQS1000 software by selecting **Start > Tektronix > Tektronix VQS1000 Video Quality Test Suite**.

3. The first time the VQS1000 software launches, the License Management window opens.

4. In the License Management window, enter the license key string supplied with the upgrade in the **New Option Key** field and click **Apply**.

5. Close the License Management window to start using the VQS1000 application.

6. Peel the backing off of the VQS Product Option label and apply it to the instrument rear panel. Do not cover any existing labels.

VQS1000 user documents

The following table lists the part numbers of the user documents supporting the VQS1000 software. You can download these documents from the Tektronix Web site (www.tek.com/downloads).

Table 4: VQS1000 product documentation

Title	Tektronix part number
Quick Start User Manual	077-0489-xx
Online Help	077-0490-xx
Release Notes	077-0492-xx

Floating license upgrade instructions

There are two types of MTS4KUP Option FLT floating license upgrades as described below. Perform the appropriate procedure for your type of upgrade.

■ **Initial floating license installation.** If your existing MTS4000 or MTS4SAV3 system does not have Option FLT installed, perform the procedure *Initial floating license system installation*. (See page 30.)

■ **Upgrade to existing floating license system.** If your existing MTS4000 or MTS4SAV3 system already has Option FLT installed and you are adding one or more floating licenses to your system, perform the procedure *Existing floating license system upgrade*. (See page 44.)

Initial floating license system installation

Option FLT adds a floating license that enables you to use the MTS4000 analysis software on multiple computers connected to your network. The floating licence mechanism requires that the license server software be installed on the MTS4000 system or on a network machine.

NOTE. For MTS4000 system users, you do not have to install the license server software on the MTS4000 system. You can install the license server software on any machine on your network.

The floating license system uses a software key located on a license server or local machine to provide the license key. This means that in order to run the MTS4SAV3 software, you must have the MTS4000 software key installed on the computer or server running the software.

⚠ *CAUTION. The software key is very important as it contains the MTS4SAV3 license and therefore embodies the value of the MTS4SAV3 product. If the software key is lost, you will have to purchase another software key, which may be at full list price of the software.*

After you install Option FLT, your system will have a minimum of two floating licenses:

■ One license from your original MTS4000 system or MTS4SAV3 system

■ At least one license from Option FLT

If you ordered multiple Option FLT, then your system will have additional licenses.

Floating license server requirements

Note the following system requirements for the floating license server:

- The software key will require a USB connection on the remote server or local machine.

- If installed on a remote server, a license server process must be run on the server machine (this process has modest requirements for CPU load).

- If installed on a remote server, clients require TCP/IP access to the server (this could be provided via VPN between remote sites).

Floating license installation procedure

To install the floating license system, perform the following steps:

1. Install and the DK2 Network Server software on the server machine or the MTS4000 system. (See page 31, *Install and configure the floating license server software*.)

2. Install the MTS4SAV3 software and enter the software option key on all machines that will run the MTS4SAV3 software. (See page 35, *Install the MTS4SAV3 software and enter the software option key*.)

NOTE. For best system operation, all machines should run the same version of the MTS4SAV3 software (version 3.3 or above).

3. Configure the DK2 Network Client software on all client machines. (See page 41, *Configure the floating license client software*.)

Install and configure the floating license server software

The Option FLT floating license server hosts the software key, which contains one or more licenses. It is possible to have several license servers on the network, each with their own software key, forming a pool of licenses for the clients to use. It is also relatively easy to have a machine acting as both a server and a client.

NOTE. The license server software is not installed on the MTS4000 system as shipped from the factory. However, the server software is included in the latest MTS4SAV3 software package that you can download from the Tektronix website.

To allow a MTS4000 system or a server machine to act as a floating license server, perform the following procedure:

1. Select a server machine and connect the software key (either via the USB port or parallel port depending on software key type) that contains one or more floating licenses.

2. If already installed, uninstall the existing DESkey software:

NOTE. The DESkey software will already be installed if the MTS4SAV3 software was previously installed on the server machine. It is recommended that you uninstall the older version of the DESkey software and install the new version.

---

   a. On the server machine, open the Control Panel (Windows Start > Settings > Control Panel) and select the **Programs and Features** icon.

   b. Select **DK2 DESkey Drivers** and then click **Uninstall/Change**.

   c. Click **Uninstall** to proceed with the software removal.

   d. Close the Control Panel after the uninstall process is complete.

3. Install the new DESkey software:

   a. Download the latest MTS4SAV3 software from the Tektronix website to a directory on the server machine.

   b. Using Windows Explorer, locate and open the **DES** directory in the MTS4SAV3 software package.

   c. Run the program named **dnsrv32.exe**. During the installation process, accept the default entries.

   d. Run the program named **dk2wn32.exe**. During the installation process, accept the default entries.

   e. Reboot the server machine if requested to do so at the end of the installation process.

4. Configure the DESkey license server settings:

    a. On the server machine, open the Control Panel (Windows Start > Settings > Control Panel) and select the **DESkey** icon. This will show the DESkey Configuration dialog (the version numbers shown near the bottom may vary).

    b. Select the **DK2 / DK38** tab. As shown below, make the following selections:

        – Check the box for **Enable Bi-Tronics Compatibility**.

        – Check the box for **Show Window on ECP Activity**.

        – Check the box for **Enable Local DK2 Access**.

        – Check the box for **Enable Network DK2 Access**.

        – Check the radio button for **Search Local First**.
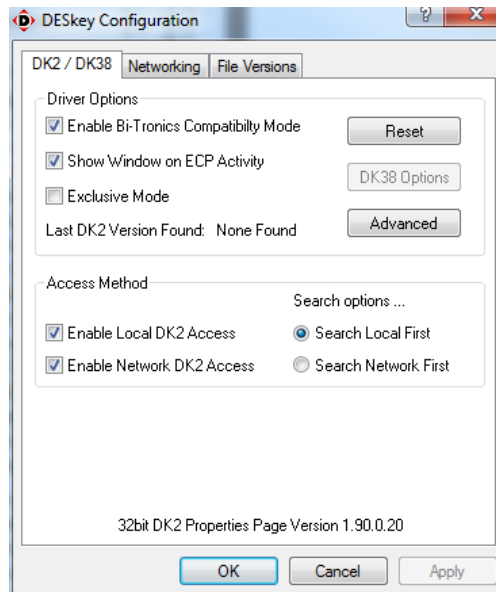
c. Select the **Networking** tab. The field at the bottom labeled Server Port Number shows the port to be used for communication with any clients; the default is 3029. Click the **OK** button to finish.
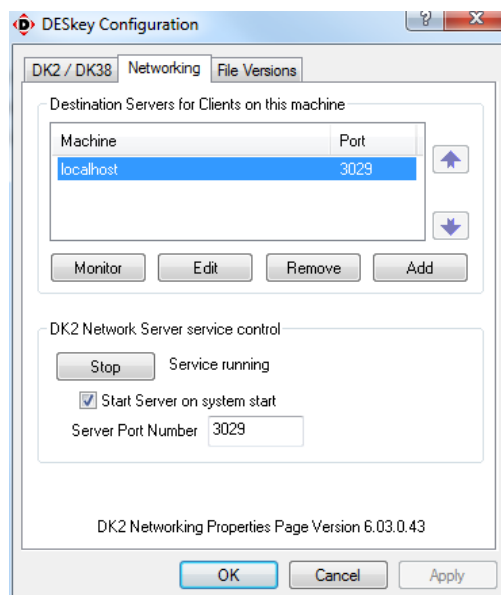
5. Make a note of the IP address of the floating license server machine. You will need the address when you configure the client machines.

Port 3029 blockage. Depending on the policy of your IT department, port 3029 may be blocked by the network firewall. In this case, you will need to consult your network administrator for another unrestricted port. After you obtain a valid port number, perform the following steps:

1. In the Networking tab, enter the new port number and click the **Apply** button.

2. If you get a prompt asking about restarting the server; select **Yes**. This will stop and restart the network server service using the new port.

3. When the port has been applied, click the **OK** button to finish.

NOTE. This does not cause the server to reboot; it only restarts the license server.

MTS4KUP Upgrade Kit Instructions

Install the MTS4SAV3 software and enter the software option key

For each client machine that will access the MTS4SAV3 software, you need to install the MTS4SAV3 software and enter the software option key

System requirements. The following minimum PC configuration is recommended for installing the MTS4SAV3 software:

■ Microsoft Windows 7 or Windows 8.1, 64-bit operating system

■ Processor speed >2.5 GHz

■ Memory at least 4 GB RAM

■ Screen resolution at least 1024 x 768

■ 250 GB minimum hard disk space

Software installation procedure. Perform the following steps to install the MTS4SAV3 software on the client machine:

1. If installed, remove the MTS4000 USB software key (dongle) from the USB port on the PC or floating license server.

⚠ *CAUTION. To prevent installation problems, it is recommended that you remove the software key (dongle) from the PC before you install the software.*

2. Download the latest MTS4SAV3 software package from the Tektronix website (www.tek.com) to a directory on the client machine.

3. Use Windows explorer to locate and run the file **MTS4000_setup.exe** in the software installation package. Be sure to right-click and select **Run as administrator**. The installation program will start and display a Welcome screen.

4. In the installation Welcome screen, select **Next**.
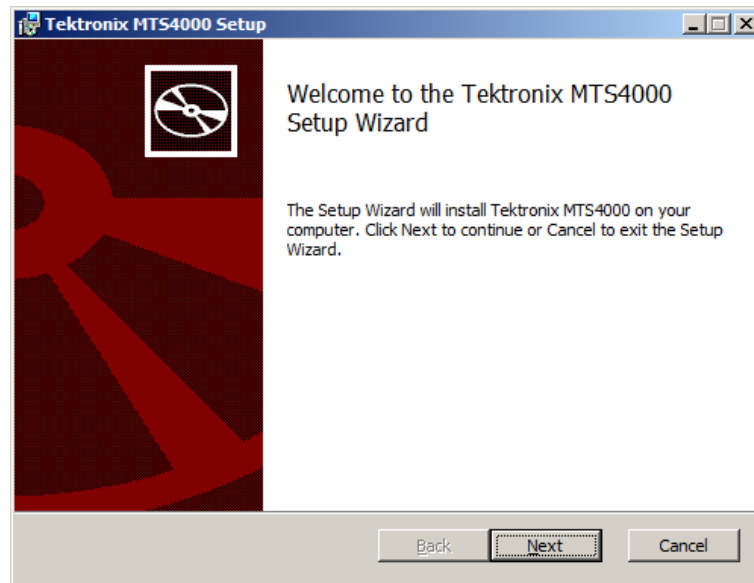
5. Read the End-User License Agreement. Check the **I accept the terms in the License Agreement** box and select **Next**.
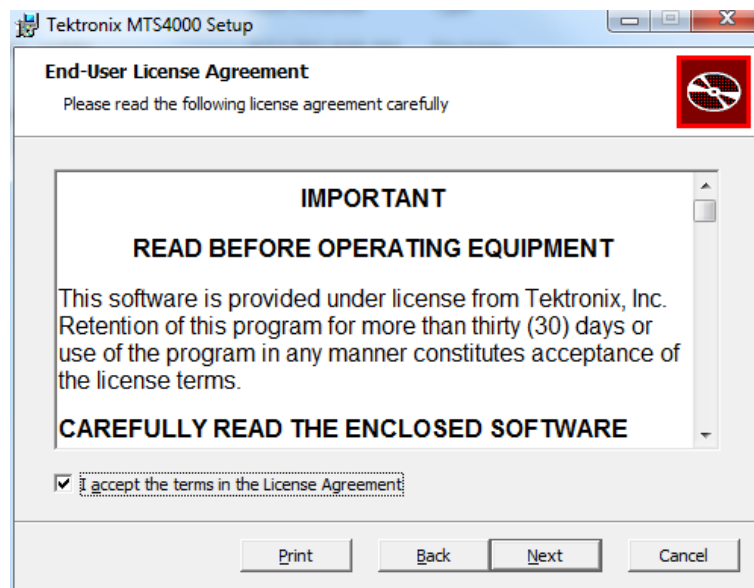
6. In the Choose Setup Type screen, select **Install on Standalone PC** to install the MTS4SAV3 software on your PC, and then select **Next** to proceed.
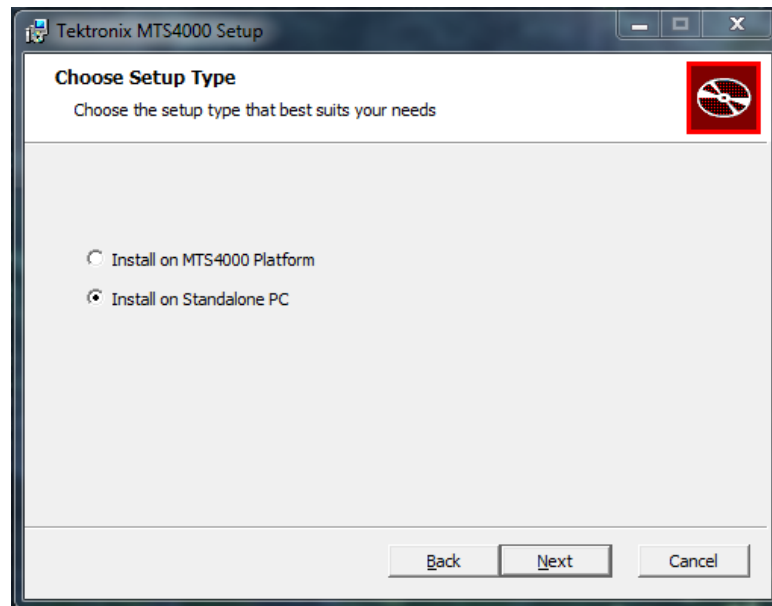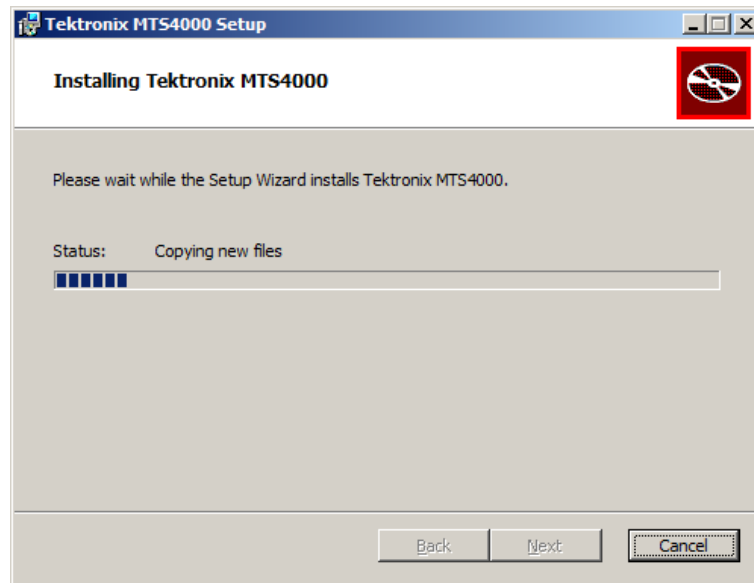

7. In the Ready to Install screen, select **Install**.

NOTE. A number of installation message boxes display during the installation process. Normally, no user intervention is required.

If the installation program detects an older version of the MTS4000 software, the software is automatically uninstalled.
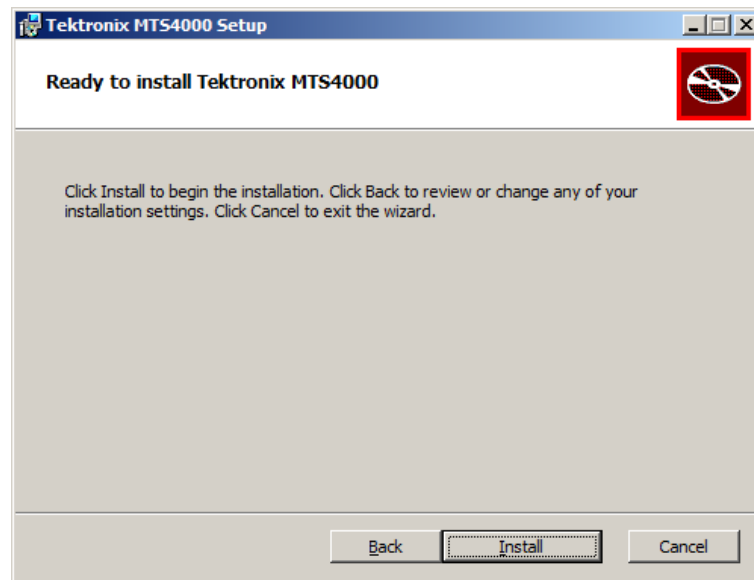
8. Allow the installation to proceed.

9. When the DESkey installer displays, select **Next** to proceed with the DESkey installation process. Depending on the Windows security settings, you may see a Windows Security message to install device software. Select **Install**.

The DESkey installation is skipped if the MTS4000 installation process detects that the correct version of DESkey is already installed.

10. When the WinPcap installer displays, select **Next**.
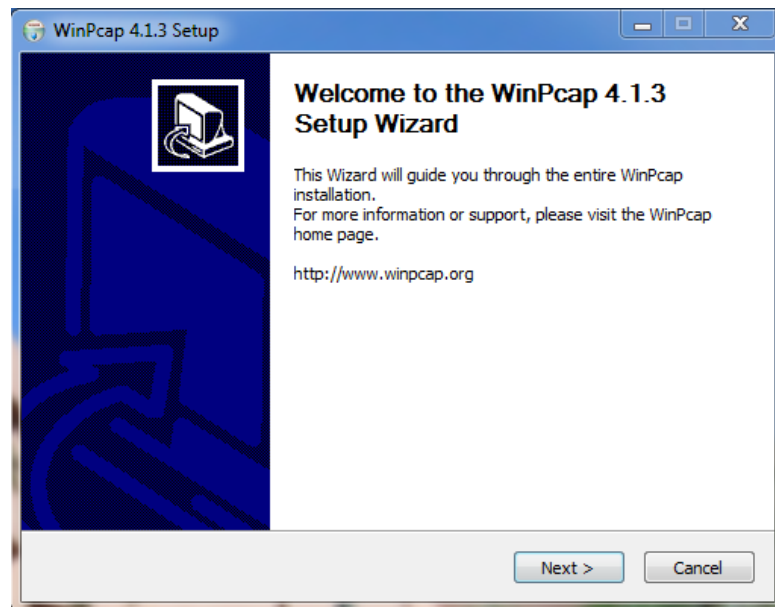
11. When installation completed screen displays, select **Finish**.
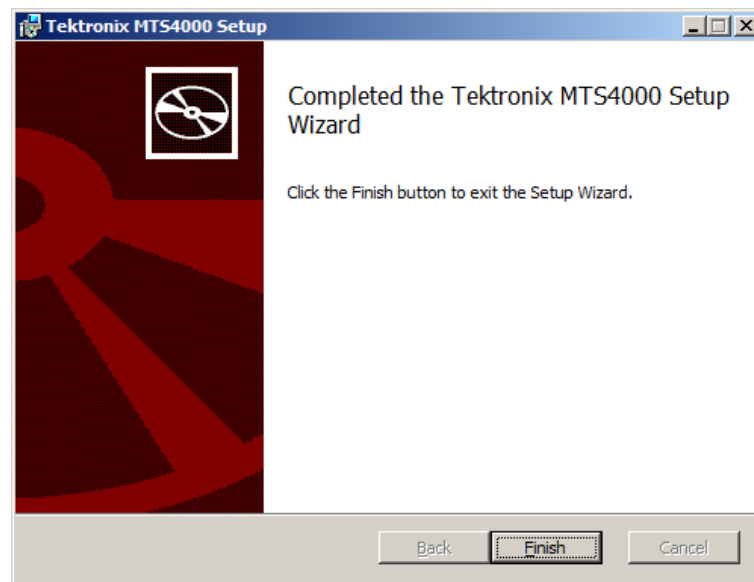
12. A reboot is necessary before entering the option key or using the applications. If the PC does not reboot automatically, manually reboot he PC.

13. After the PC has restarted, install the MTS4000 USB software key (dongle) in the USB port of the local machine or confirm that the software key has been plugged in and detected by the remote dongle server (Option FLT only).

14. After the PC detects the software key dongle, open the MTS4000 Option Key Wizard by selecting **Start > Programs > Tektronix MTS4000 > OptionKey Wizard**.

15. In the Tektronix Option Update dialog box, enter the Option Key String supplied with the installation documentation in the Key String field.
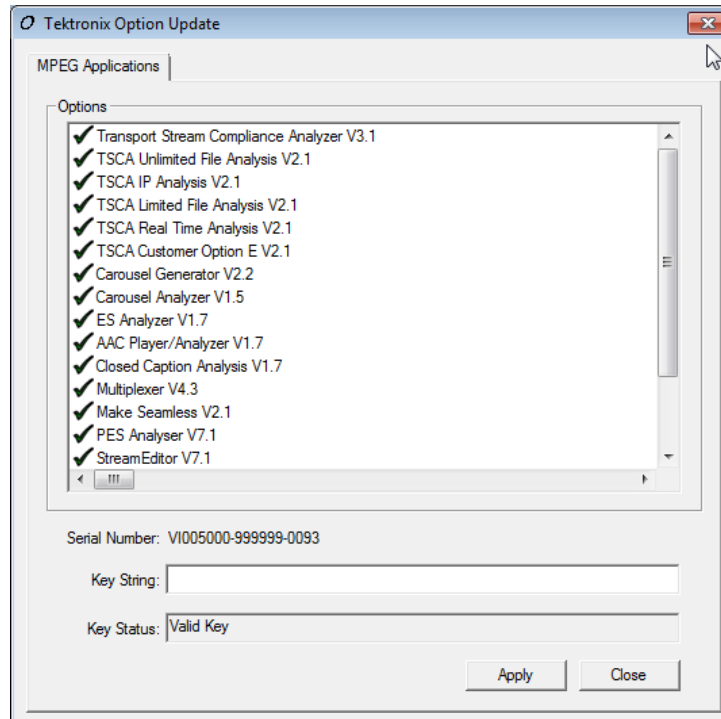
16. Click **Apply**.

17. Inspect and verify the list of licensed options.

NOTE. Operational access to features is controlled by the licenses that are available on the software key. Applications and features can be installed, but will not be available unless the appropriate license has been obtained. Notification of these is provided when the product or additional licenses are purchased.

18. Close the Option Key Wizard.

19. The licensed MTS4SAV3 standalone applications can now be started from the Windows Start menu or from the shortcuts in the desktop folders (Real Time Analyzers, Deferred Time Analyzers, Generators, Player, or Utilities).

**Configure the floating license client software**

For each client machine that will access the MTS4SA software, perform the following steps to configure the floating license client software:

NOTE. The floating license client software is automatically installed when the MTS4SAV3 software is installed.
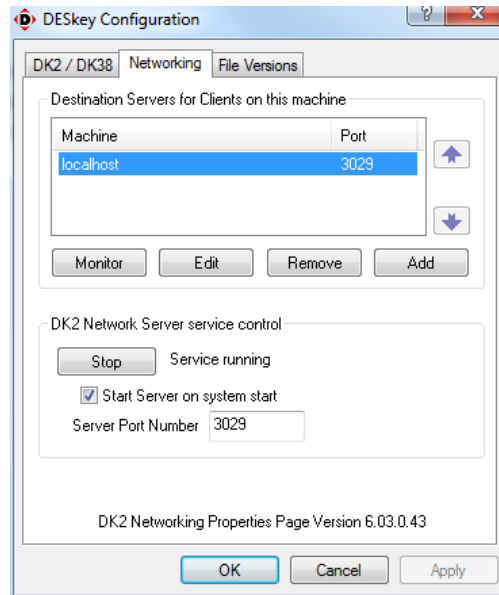
You will need to enter the IP address of the MTS4SAV3 floating license server machine in the steps below.


Perform the following steps to configure the DESkey license client settings:

1. On the client machine, open the Control Panel (Windows Start > Settings > Control Panel) and select the **DESkey** icon. This will show the DESkey Configuration dialog (the version numbers shown near the bottom may vary).

2. Select the **DK2 / DK38** tab. As shown below, make the following selections:

   - Check the box for **Enable Bi-Tronics Compatibility**.

   - Check the box for **Show Window on ECP Activity**.

   - Check the box for **Enable Local DK2 Access**.

   - Check the box for **Enable Network DK2 Access**.

   - Check the radio button for **Search Network First**.
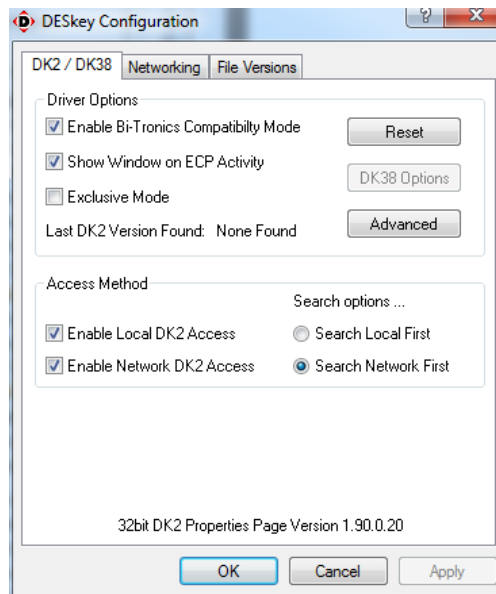
3. Select the **Networking** tab. The Destination Servers list should contain **localhost** as shown below.
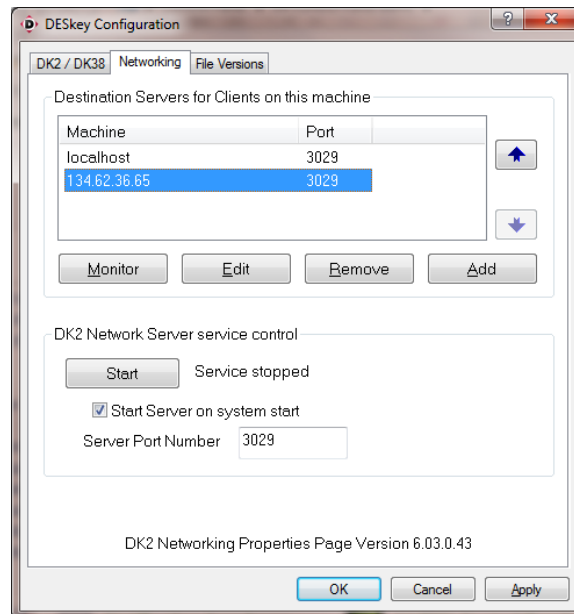

4. Click the **Add** button to open the **Add DK2 Network Server** dialog.
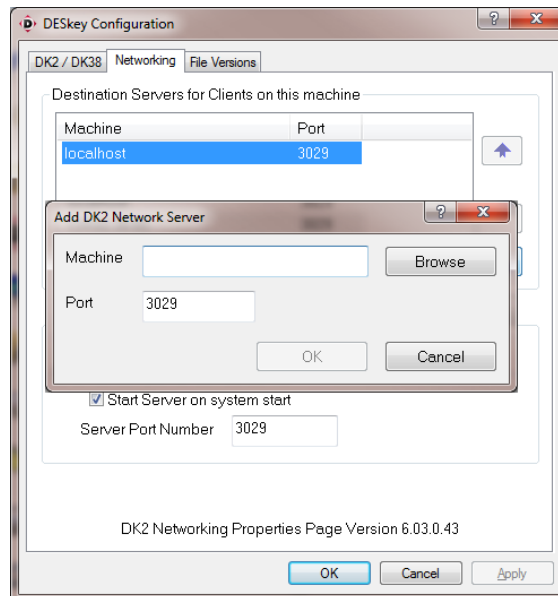
5. Enter the IP address of the MTS4SAV3 floating license server machine and click **OK**. The IP address you entered will appear in the Destination Servers list.

6. In the Destination Servers list, select the license server IP address as shown below (the IP address should be highlighted).

7. The field at the bottom of the Networking tab labeled Server Port Number shows the port to be used for communication with any clients; the default is 3029.

8. Click the **OK** button to finish.

NOTE. Depending on the policy of your IT department, port 3029 may be blocked by the network firewall. In this case, you will need to consult your network administrator for another unrestricted port. (See page 34, Port 3029 blockage.)

Existing floating license system upgrade

Perform the steps in this section if your existing MTS4000 or MTS4SAV3 system already has Option FLT installed and you are adding one or more floating licenses to your system.

Floating license upgrade process

The steps listed below are required to perform the floating license upgrade:

1. You create a Customer Update Request File (CURF) and send that file to Tektronix. The CURF is specific to the dongle on your existing product. (See page 45, *Generate a Customer Update Request File (CURF)*.)

2. Tektronix uses the CURF to create a License Upgrade File (LUF).

3. Tektronix sends you the LUF either on CD-ROM or by email.

NOTE. When you receive the upgrade files from Tektronix, you must copy the files to a single directory on the hard drive of the client server machine which has the software key (dongle) installed that was used to create the CURF.

4. You apply the LUF to the dongle using the DESkey configuration utility.(See page 48, *Install the floating license upgrade*.)

NOTE. When the dongle has been upgraded, the LUF will become obsolete.

5. Prepare any new client machines that will run the MTS4SAV3 software:

   a. Install the MTS4SAV3 software and enter the software option key on any new machines that will run the MTS4SAV3 software. (See page 35, *Install the MTS4SAV3 software and enter the software option key*.)

   NOTE. For best system operation, all machines should run the same version of the MTS4SAV3 software (version 3.3 or above).

   b. Configure the DK2 Network Client software on all new client machines. (See page 41, *Configure the floating license client software*.)

**Generate a Customer Update Request File (CURF)**

Perform the following steps to generate a Customer Update Request File (CURF) to send to Tektronix:

1. From the client machine, open the Control Panel (Start > Settings > Control Panel) and select the **DESkey** icon. This will open the DESkey Configuration dialog box.

2. In the DESkey Configuration dialog box, select the **Networking** tab. The server machine should be listed in the upper panel.
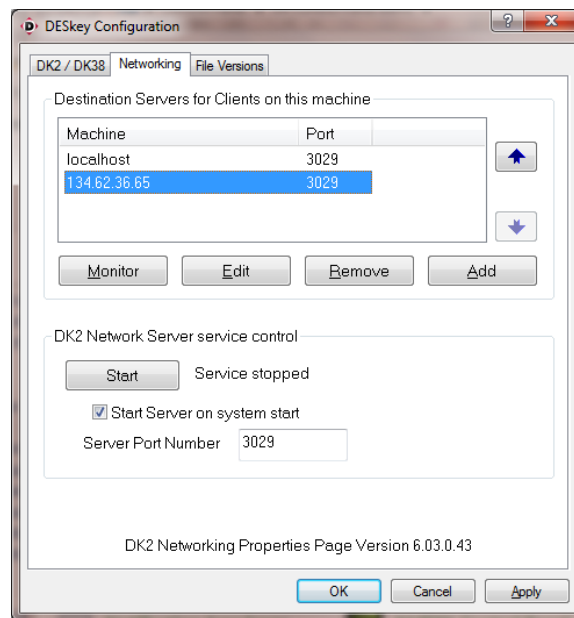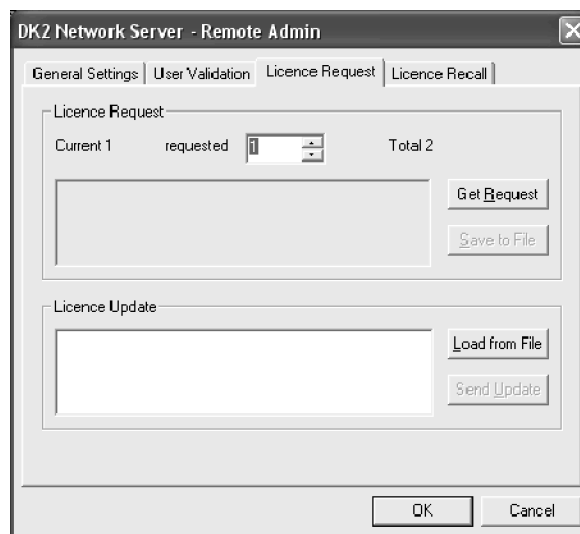

3. Click the **Monitor** button to display the DK2 Network Server Remote Monitor dialog box.

4. Highlight the server machine in the server list (upper panel) and click the **Admin** button.

**5.** Enter the required password. The default password is **deskey**.
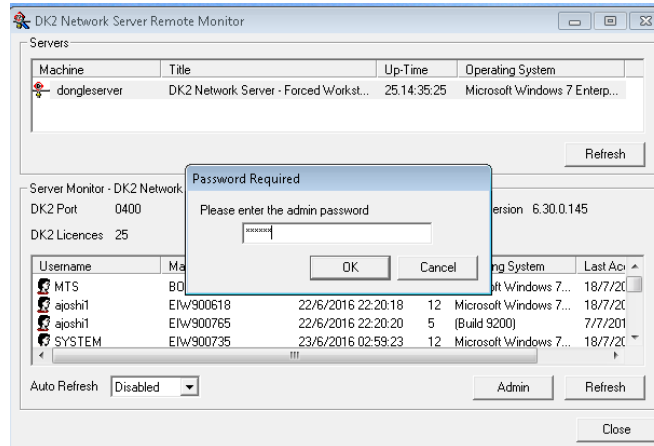
6. If the password is correct, the DK2 Network Server dialog box is displayed. Select the **License Request** tab as shown below.

7. Enter the required number of additional licenses in the requested edit box. The number of requested licenses plus the current number of licenses cannot exceed 250.

8. Click the **Get Request** button to generate the data for the Customer Update Request File (CURF). The generated data is shown in the panel next to the button and the Save to File button is enabled.
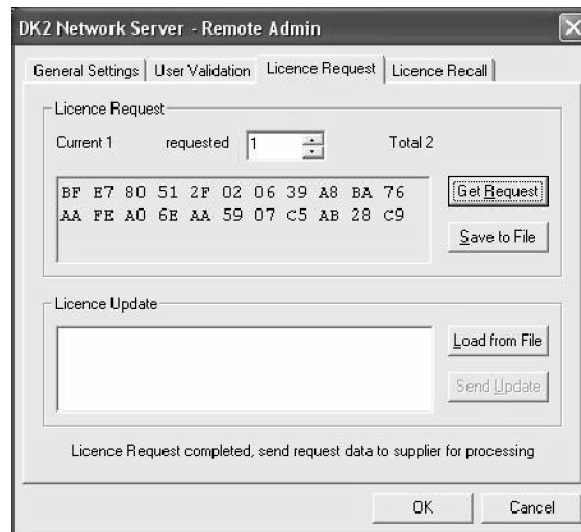
9. Click the **Save to File** button and select a location and filename for the data. Any file name can be used, but the file must have a ".req" extension. The default file name is "update.req".

10. Close the DK2 Network Server, DK2 Network Server Remote Monitor, and DESkey Configuration dialog boxes.

11. Send the generated CURF to your local Tektronix representative.

12. After Tektronix uses the CURF to generate the License Upgrade File (LUF) and sends you that file, you are ready to install the upgrade. (See page 48, *Install the floating license upgrade*.)

Install the floating license upgrade

Perform the following steps to add user licenses to an existing MTS4000 or MTS4SAV3 floating license dongle:

1. Copy the upgrade files from the CD-ROM or from the email, to a single directory on the hard drive of the client server machine.


NOTE. The client server machine must have the software key (dongle) installed that was used to create the CURF.

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2. Ensure that the software key (dongle) is installed on the License Server.

3. From the client server machine, open the Control Panel (Start > Settings > Control Panel).

4. Open DESkey application. In the DESkey Configuration dialog box, select the **Networking** tab. The server machine should be listed in the upper panel.
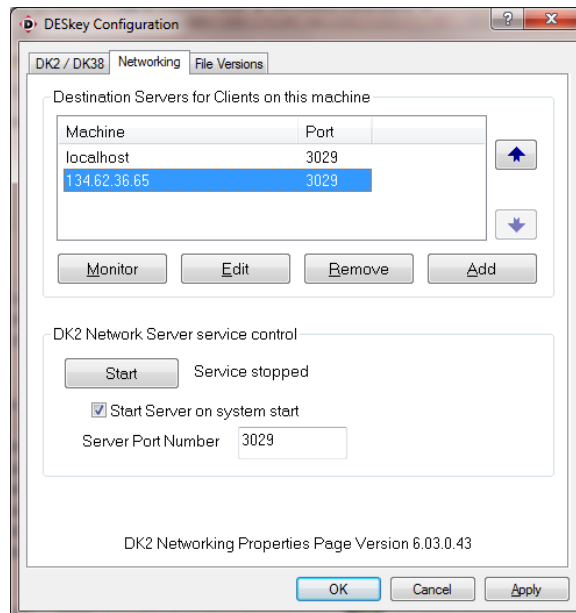

5. Verify that the server service is running. As shown above, the server button will say Stop when the service is running. If the server button says Start, click the button to start the service.

6. Select the **Monitor** button to display the DK2 Network Server Remote Monitor dialog box.

7. Highlight the server machine in the server list (upper panel) and click the **Admin** button. Enter the required password. The default password is "deskey".
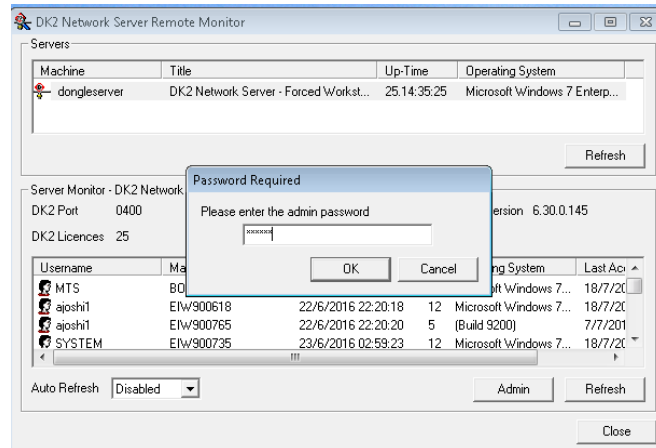

8. If the password is correct, the DK2 Network Server dialog box is displayed. Select the **License Request** tab.
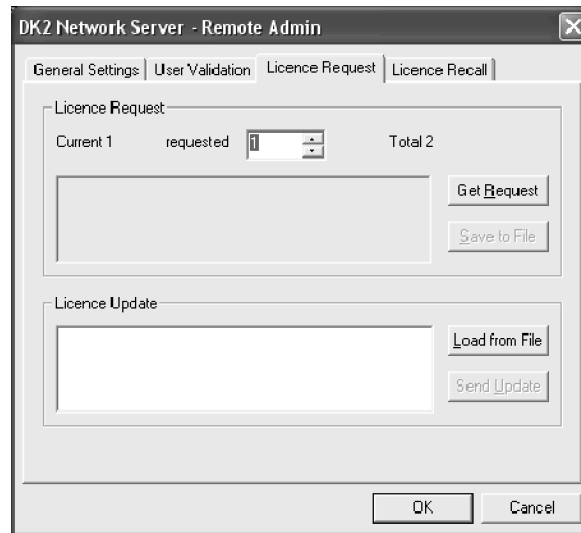

9. Enter the number of additional licenses in the **requested** edit box. For example, enter 3 if you ordered three additional licenses. If you previously had one license, then the total number of licenses after the upgrade is complete will be four.

10. Click the **Load from File** button and locate the License Upgrade File (LUF) on the hard disk. The upload is complete when data is displayed in the License Update window.
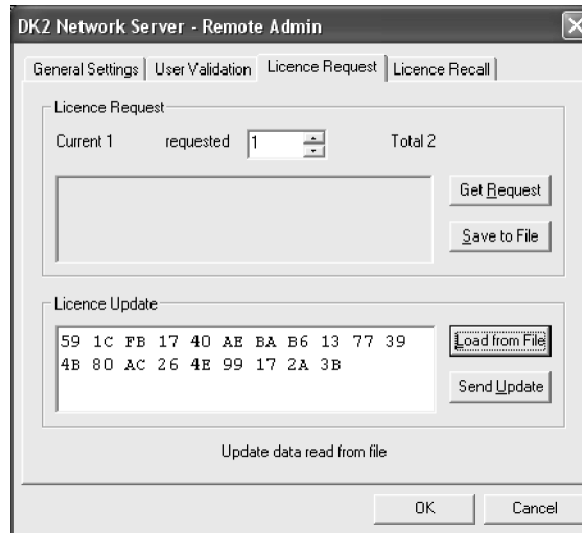
11. Click the **Send Update** button to send the LUF to the server.
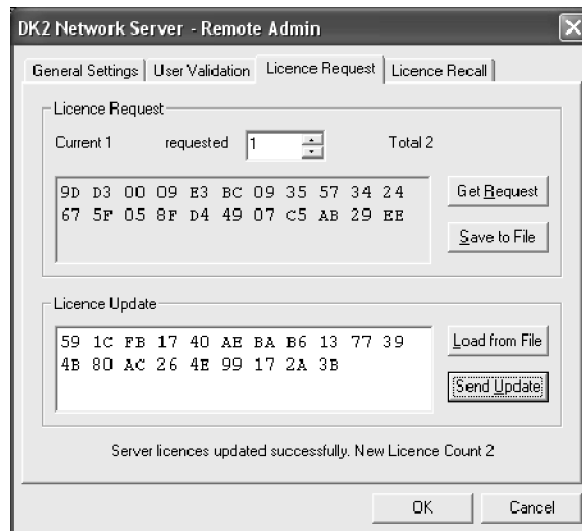
12. Close the DK2 Network Server dialog box.

13. In the DK2 Network Server Remote Monitor dialog box, note that the number of licenses available (sum of the DK2 licenses plus the License Limit) is now updated to show the license additions made in the previous steps.

14. Close all dialog boxes.

Hardware upgrade instructions

Interface card upgrades available for the MTS4000 require the installation of hardware internal to the instrument. These upgrades are:

MTS4KUP 10GS	MTS4KUP QB2	MTS4KUP VS
MTS4KUP IPTV	MTS4KUP DS2 [1]	
MTS4KUP ASI	MTS4KUP S2 [2]	

[1] Option DS2 requires software version 3.1 or above to be installed.

[2] Option S2 is no longer available and has been replaced by Option DS2. For convenience, the instructions for installing the Option S2 card are included in this document.

These instructions are for personnel who are familiar with servicing the product. Contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation assistance.

NOTE. Up to four optional interface cards can be installed into the instrument, but only two of the following options: DS2, S2, VS, QB2, IPTV.

⚠ *CAUTION. To prevent static discharge damage, service the product only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel while installing this kit.*

Option DS2 upgrades   Option DS2 requires that software version 3.1 or above be installed.

⚠ *CAUTION. To prevent upgrade problems, be sure to upgrade the instrument software to version 3.1 or above before you install the Option DS2 interface card. (See page 8, Install the MTS4000 and MTS4SAV3 application upgrades.)*

Recommended tool list   Table 5: Recommended tool list

Description
Anti-static wrist strap
Screwdriver handle with P2 tip
9/16 inch socket and wrench (Option ASI only)

Prepare IPTV, QB2, S2, and VS interface cards

Some interface cards require the application of a rubber bumper to the interface card before installing into the instrument. Refer to the following illustrations for the proper locations to install the bumper.
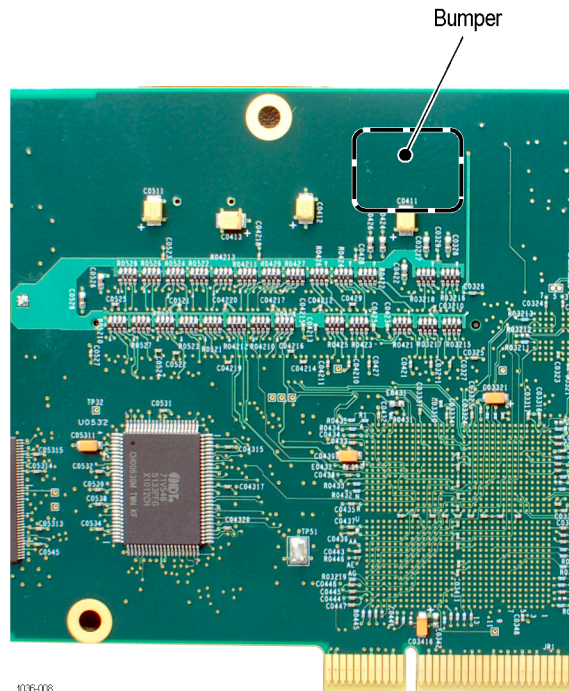

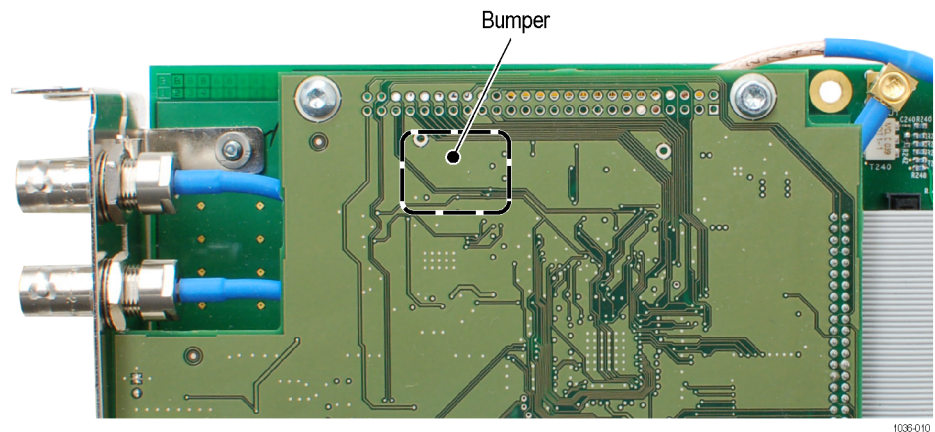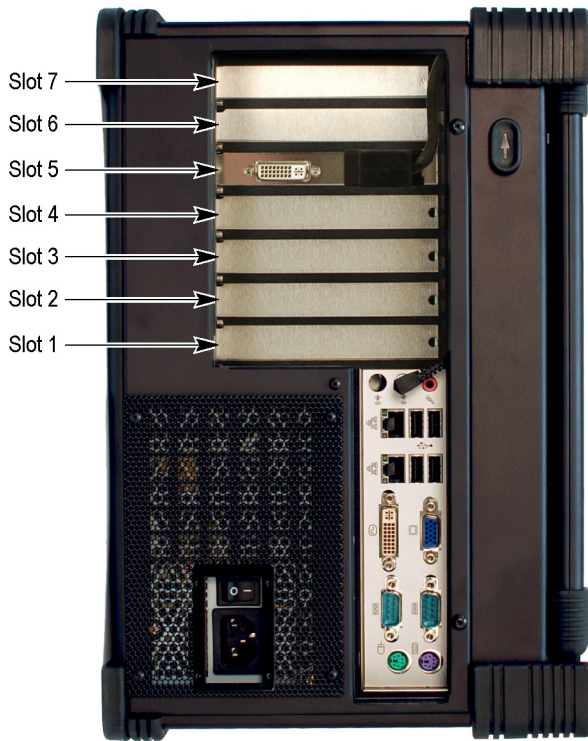**Figure 1: IPTV interface card bumper installation**

Figure 2: QB2, S2, and VS interface cards bumper installation

Install the interface card

Before installing any of the interface cards, refer to the following table and illustration to determine which slots in the instrument you'll be installing your interface card or cards. Due to their size, some interface cards require two slots.

Table 6: Interface card slot locations

Instrument slot identification	Interface card [1]	Slot location	CIP connection on motherboard	CIP connection on interface card
	10GS	1	N/A	N/A
	ASI	4	N/A	N/A
	IPTV	6	COM3	J10
	QB2	2 & 3	COM3	J14
	DS2	1 & 7 [2]	N/A	N/A
	S2	2 & 3	COM3	J14
	VS	2 & 3	COM3	J14
	IPTV	6	COM3	J10
	QB2	2 & 3	COM4	J14
	IPTV	6	COM3	J10
	VS	2 & 3	COM4	J14
	IPTV	6	COM3	J10
	S2	2 & 3	COM4	J14
	QB2	6 & 7	COM3	J14
	S2	2 & 3	COM4	J14
	QB2	6 & 7	COM3	J14
	VS	2 & 3	COM4	J14
	VS	6 & 7	COM3	J14
	S2	2 & 3	COM4	J14

Slot 7
Slot 6
Slot 5
Slot 4
Slot 3
Slot 2
Slot 1

1036-001

[1]   Up to four optional interface cards can be installed into the instrument, but only two of the following options: DS2, S2, VS, QB2, IPTV.

[2]   The Option DS2 card can be installed in slot 4 if the Option ASI card is not installed.

1. Power off the system and disconnect the power cord.

⚠ **WARNING.** *To avoid electric shock, verify the power cord is disconnected from the instrument. Failure to do so can cause injury or death.*

2. Disconnect any cables from the rear panel. Note the location of any cables for reinstallation.

3. Close front of the instrument and place the cabinet on the working surface with the rear panel facing up.

4. Unscrew the eight screws securing the rear panel. (The screws do not come out of the panel.)

Unscrews 8 screws

1036-003

Figure 3: Remove rear panel

5. Lift the rear panel off the instrument. If necessary, disconnect the power connector to the fan.

6. Remove the six screws from the interface card support bracket and lift it from the cabinet.

Remove 6 screws

1036-004
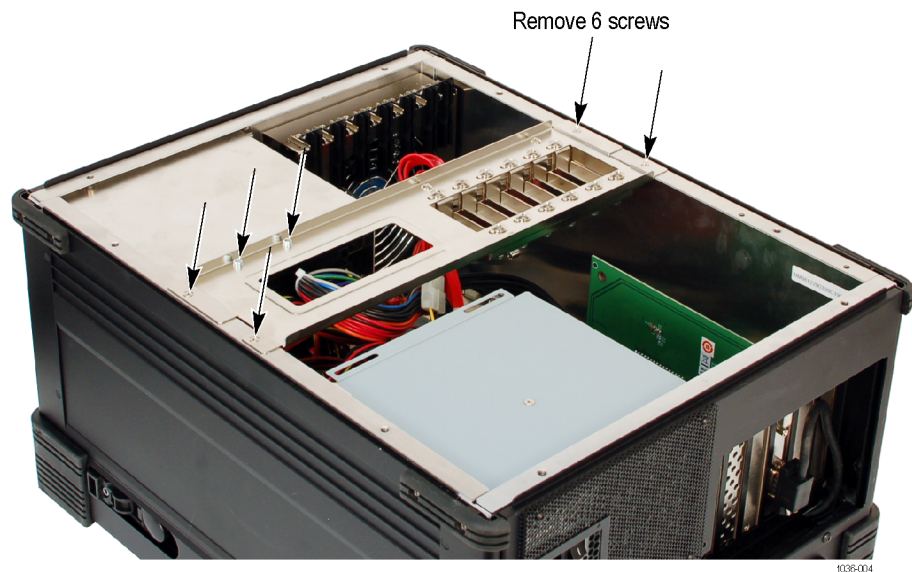
7. Depending on the option card being installed, remove the appropriate blank panel from the rear of the instrument. Use the table to identify the recommended location for each of the available interface card. See the table *Interface card slot locations*.

If installing multiple option cards, remove all appropriate blank panels at this time.

1036-005
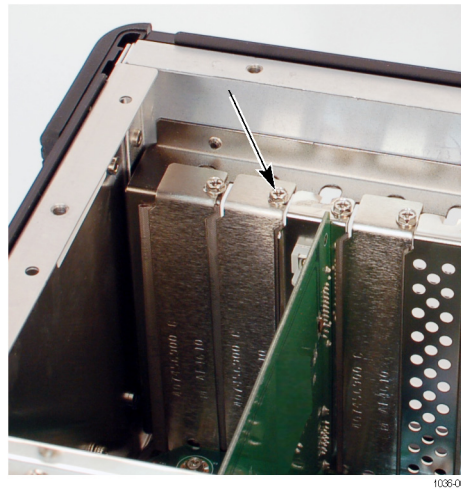
8. Install the interface card into the appropriate slot. Align the interface card with the interface slot on the motherboard and the rear panel opening and push the card into the interface slot.

9. IPTV, QB2, S2, and VS Options only:

    a. As you align the fin bracket with the card guide, position the rear panel of the interface card so that the card mounting bracket is under the edge of the chassis with the BNC connectors fitting through the rear panel slot of the chassis. As shown below, the interface card will be at an angle.


Align the fin bracket in the card guide.

Position the card mounting bracket under the chassis edge with the BNC connectors fitting through the rear panel slot.
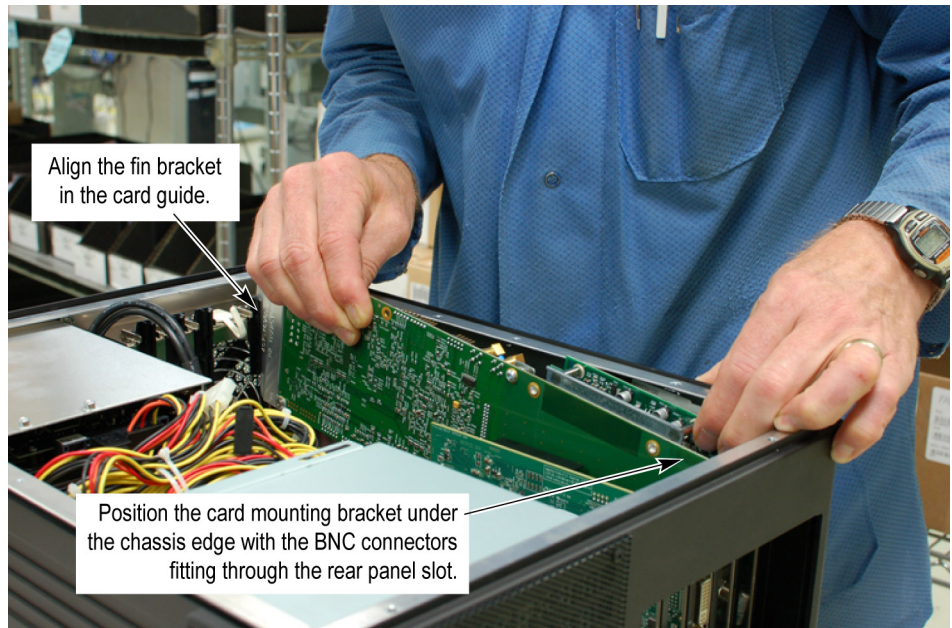
1036-012

⚠ **CAUTION.** *If you are installing the interface card in slots 6 and 7, take care while installing the card to prevent damage to the pins on the motherboard shown below.*

Be careful to not damage these pins.
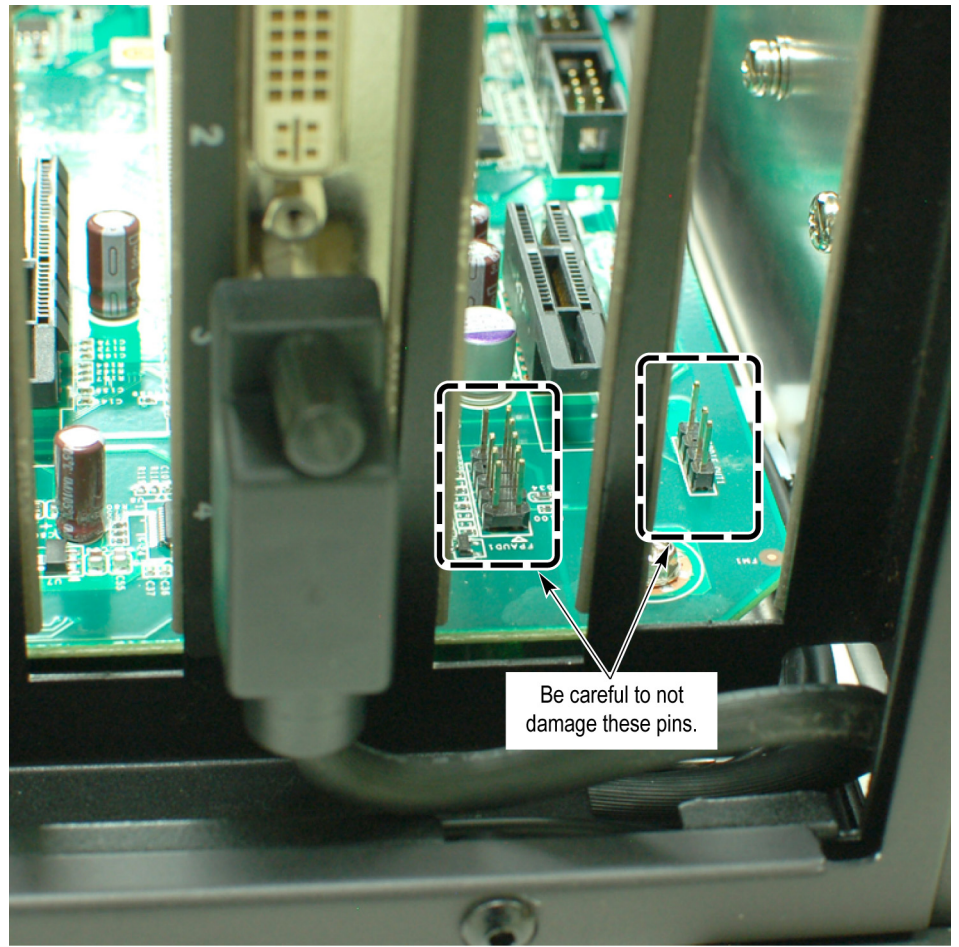
1036-014

    b. Once the interface card is aligned, push down on the raised end of the interface card until the card is level.

    c. Carefully press down on both ends of the card until the card seats into the motherboard connectors. The figure below shows the interface card fully installed.

Fin bracket fully installed.

1036-013
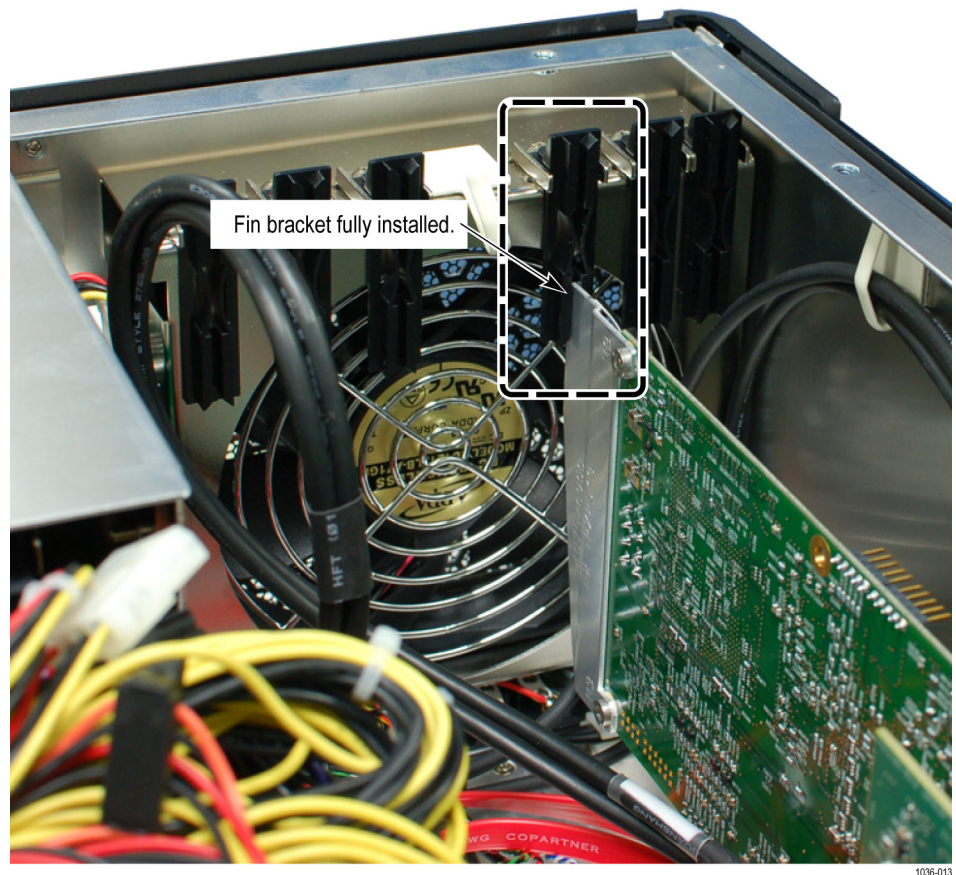
10. Use the screw(s) from the removed blank panel(s) and attach the interface card to the chassis.

NOTE. Some interface cards require the removal of two blank panels.

11. ASI Option only:

    a. Install two BNC washers and a nut to each of the four BNC connectors. Torque the BNC nuts to 14 in/lb. with a 9/16" socket.

12. DS2 Option only:

    a. Install two BNC washers and a nut to each of the two BNC connectors. Torque the BNC nuts to 14 in/lb. with a 9/16" socket.

13. IPTV Option only:

    a. Install the CIP cable from J10 on the IPTV interface card to a COM connector on the motherboard. Refer to the Interface card slot locations table at the beginning of this procedure to identify the proper placement of the interface card and proper COM connector.

NOTE. The CIP cable must be installed so that the green wire on the CIP cable connects to pin 1 on the option card. Pin 1 on the card is identified with a triangle.
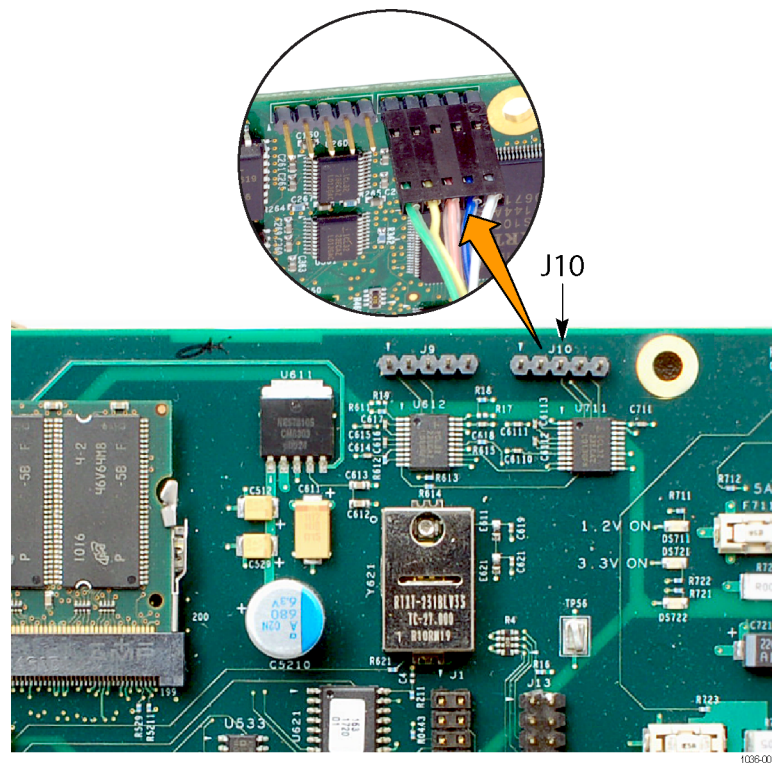

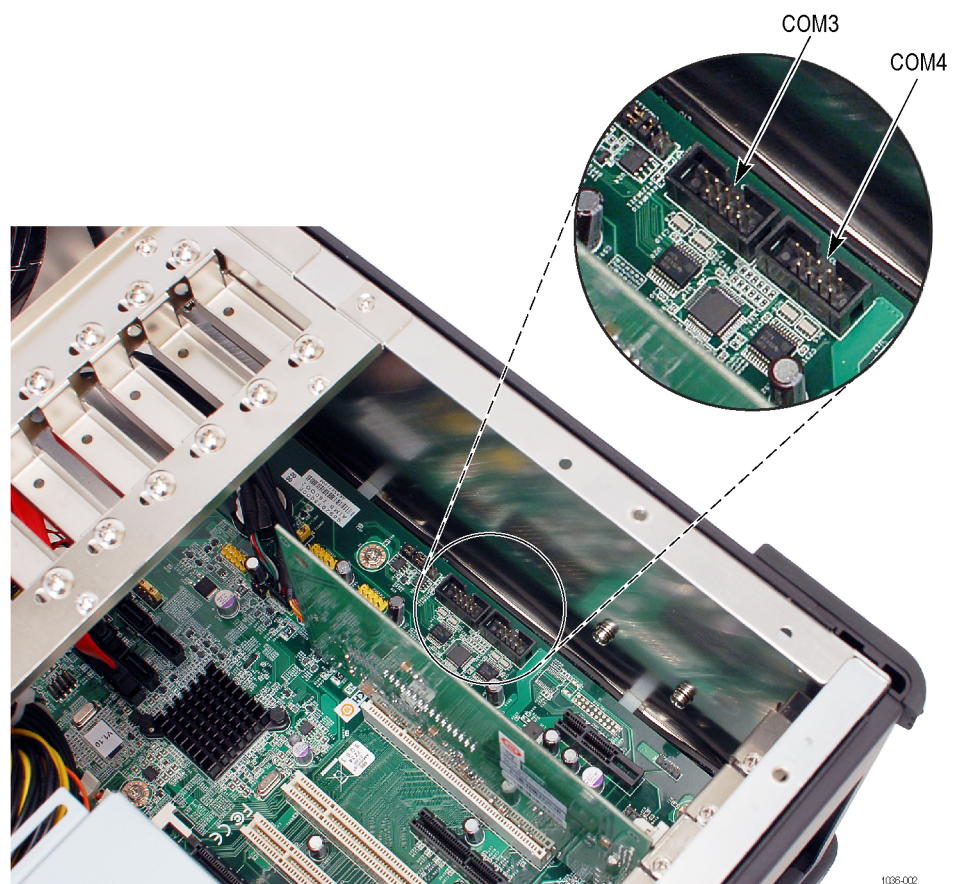**Figure 4: CIP cable installation on option IPTV interface card**

Figure 5: COM connectors on motherboard

14. QB2, S2, and VS Options only:

    a. Install the CIP cable from J14 on the interface card to a COM connector on the motherboard. Refer to the Interface card slot locations table at the beginning of this procedure to identify the proper placement of the interface card and proper COM connector.

NOTE. The CIP cable must be installed so that the green wire on the CIP cable connects to pin 1 on the option card. Pin 1 on the card is identified with a triangle.
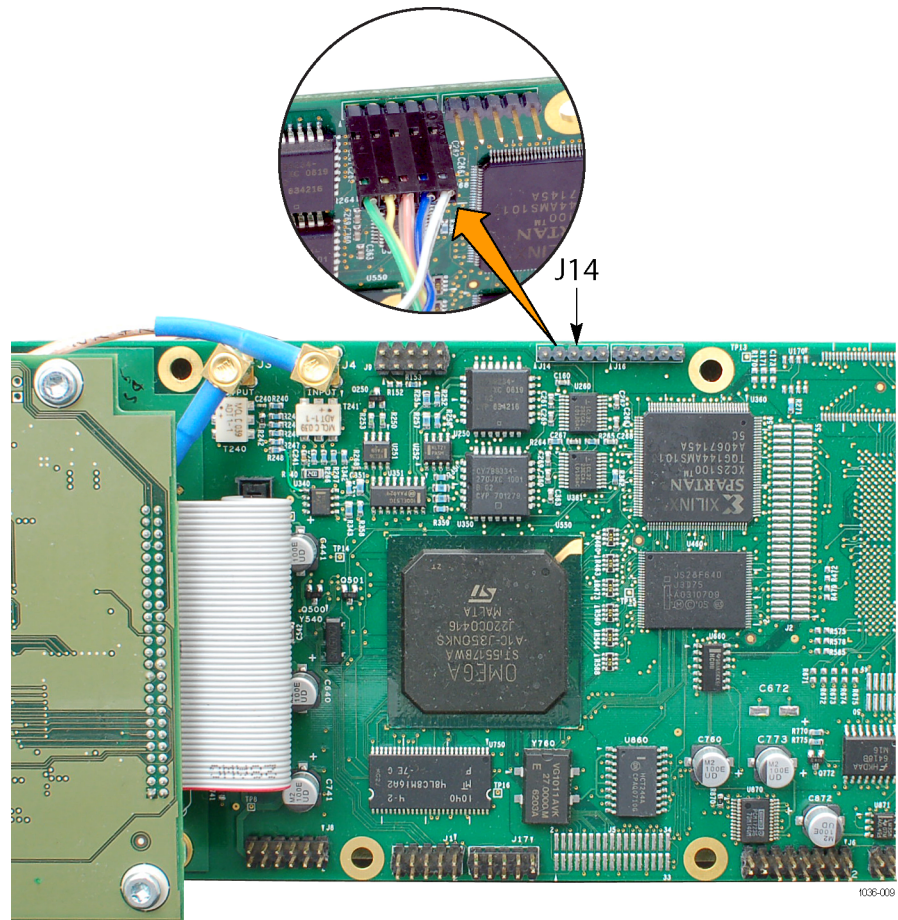

Figure 6: CIP cable installation on option QB2, S2, and VS interface cards

⚠ *CAUTION. Before reinstalling the interface card support bracket in the next step, check that none of the card stabilizers are already in their lowered position.*

15. Reinstall the interface card support bracket.

16. Some option cards are longer then others. If the option card being installed reaches the adjustable card stabilizers on the interface card support bracket, then you need to support the circuit board.

    a. Align the circuit board with the center of the pad on the stabilizer.

    b. Slowly, lower the stabilizer by adjusting the two screws counterclockwise. Adjust the screws a few turns at a time, alternating between the two screws. Continue lowering the stabilizer until the pad makes contact with the interface card.
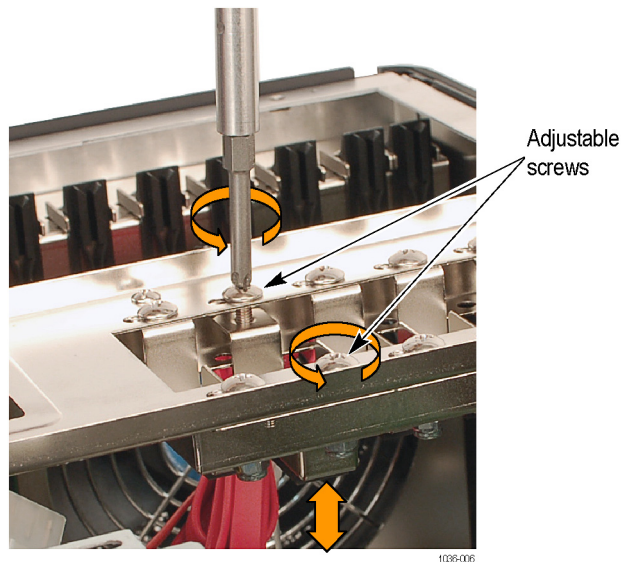
c. After the pad has made contact with the interface card, adjust the screws tight enough so they don't wobble.
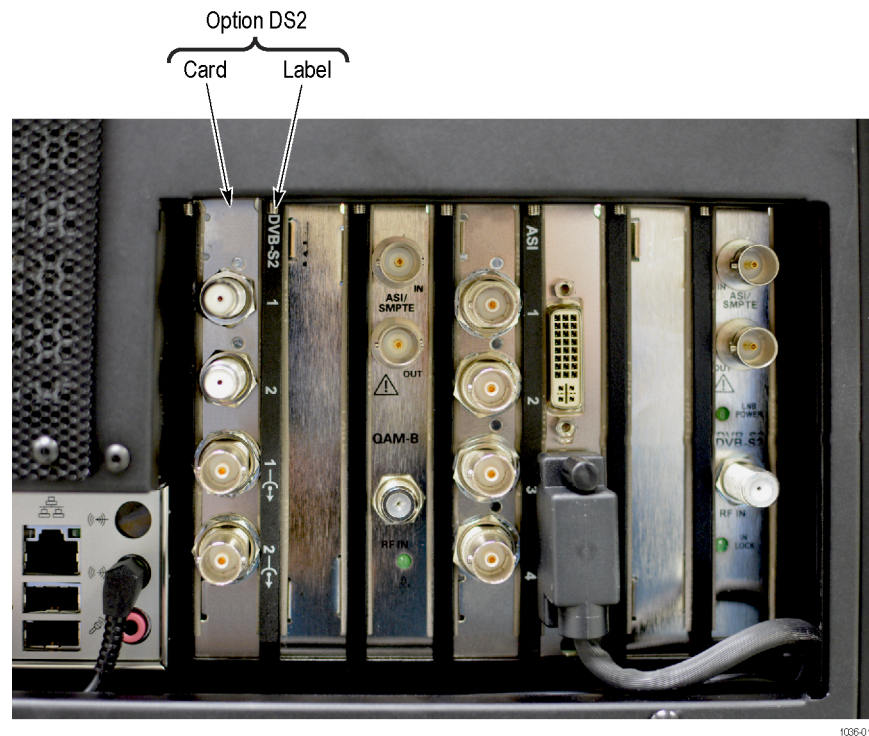

NOTE. There should be two pads stacked together on the stabilizer. If not, use one from an unused stabilizer.

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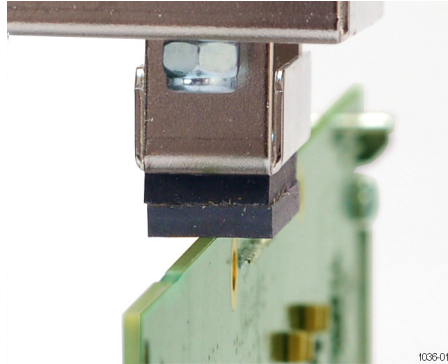
17. Connect the power cable to the rear panel fan (if it was disconnected) and install the rear panel.

Install the rear panel label (Option DS2 only)   For Option DS2 only, install the rear panel label to the right of the interface card as shown below.

Interface card status LEDs

The rear panel on the optional ASI and DVB-S2 (Option DS2) interface cards have LEDs to indicate the status of the input and output signals. The following tables list the possible status conditions.

Table 7: ASI and DVB-S2 outputs

LED pattern	Description
Short orange flashes	No output is generated
Long orange flashes	Null-packet stuffing only (no real data)
Solid orange	Generating live output

Table 8: ASI and DVB-S2 inputs

LED pattern	Description
Short green flashes	No carrier/signal detected
Long green flashes	Carrier detected but no data
Solid green	Valid signal detected
Solid red	Wrong signal connected
Five short red flashes quickly after each other	Code violations

Optical SFP upgrades for Option IPTV

The Optical SFP upgrade kits simply contain the new optical SFP module, to be used with the Option IPTV interface card.

There are no installation requirements other than installing the SFP module into the Option IPTV interface card when required.

The Optical SFP upgrade kits are:

MTS4KUP SX	MTS4KUP LX	MTS4KUP ZX

Figure 7: Sample SFP optical module